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

PRCTI20231407

CG ENGINEERING | civil & structural engineering & planning

City of Puyallup
Building
REVIEWED FOR COMPLIANCE
BSnowden
11/17/2023
7:49:07 AM

CITY OF PUYALLUP · STATE OF WASHINGTON

Calculations required to be provided by the Permittee on site for all Inspections

verizon

STRUCTURAL ANALYSIS

TAC Ferris Wheel

Rooftop Site

110 9th Ave SW
Puyallup, WA 98371

MICHAEL TIMOTHY MAECHLER · STATE OF WASHINGTON · 46548 · STRUCTURAL ENGINEER · PROFESSIONAL ENGINEER
06/19/23

250 4th Ave S Ste 200
Edmonds, WA 98020
Phone: (425) 778-8500
Fax: (425) 778-5536

CG Project No.: 23088.203

TABLE OF CONTENTS

INTRODUCTION

CG Engineering was retained by Lynx Consulting to provide structural analysis of the existing rooftop structure for the site modifications proposed by Verizon.

The structural analysis completed by CG Engineering was inclusive of the structural elements that were affected by the addition of equipment and antennas associated with the proposed Verizon site modifications. Where applicable, this includes the antenna and equipment support structure and affected portions of the existing main structure.

SITE DESCRIPTION

This site is located on the exterior wall of a one-story concrete building. The appurtenances are mounted to flush wall mounts. The equipment cabinets are located on a concrete equipment pad at grade.

Lynx Consulting provided us with original architectural drawings dated 04/29/14. Photos of the site were also provided for the proposed revisions. All geometry, member sizes, and material strengths used in our analysis were based on this information. If anything differs from the information contained in these documents, CG Engineering should be notified to revise our analysis.

APPURTENANCE CONFIGURATION

The structure was analyzed using the appurtenance configuration specified in the following table. All loading was provided to us from Lynx Consulting. This table includes all known existing and future antennas for this site.

Sector	Existing Appurtenance Configuration	Proposed Appurtenance Configuration (Bold=New)	Mount Type
G	(1) Amphenol Antennas HTXCWW4513FX00 (1) Ericsson RRU (#RRUS12 B2) (1) Ericsson RRU (#RRUS12 B4) (1) Ericsson RRU (#RRUS11 B13) (1) Raycap OVP Box (#OVP6)	(1) Amphenol Antennas HTXCWW4513FX00 **(1) Ericsson Antennas** **KRE105281/1** **(1) Ericsson Antennas** **AIR 4435** (1) Ericsson RRU (#RRUS11 B13) (1) Raycap OVP Box (#OVP6) **(1) Ericsson RRU (#4402 B2 DC)** **(1) Ericsson RRU (#4402 B66A DC)**	Flush Wall Mount

The coax cables that serve the antennas weigh less than 5 lb/ft and are therefore exempt from the requirements of Chapter 13 of ASCE 7.

ANALYSIS CRITERIA

The parameters in the following table were used in our analysis of the structure based on its location.

City of Puyallup, WA					
Wind Criteria				**Seismic Criteria**	
Basic Wind Speed w/o Ice (3-s Gust):	110 mph	Risk Category:	II	Sds:	1.016
Exposure:	C	Kzt (ASCE 7-16):	1.0	Sd1:	0.543
Notes: 1. Refer to the attached topographic profile(s) used to determine the topographic factor. 2. Parameters based on the 2018 International Building Code (IBC) and referenced standards.					

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CONCLUSIONS/RECOMMENDATIONS

We have determined that no upgrades to the existing structures are required for the proposed Verizon installation as described above in the appurtenance and equipment configuration tables. Refer to the mount analysis report by CG Engineering under a separate cover for analysis of the proposed antenna mounts.

CONDITIONS OF ANALYSIS

This structural analysis is based on the documentation that was available to us. CG Engineering did not perform an observation of this site to verify the accuracy of the provided structure and appurtenance data, and we should be contacted immediately if there are any discrepancies with the information stated within this report.

Our analysis is based on the assumption that the original structural design and all subsequent structural analyses were properly designed and permitted per the applicable building codes, and that the structure has been properly installed and is maintained to the minimum standards required by code. We assume the structure has no known deterioration or damage that would adversely affect its capacity.

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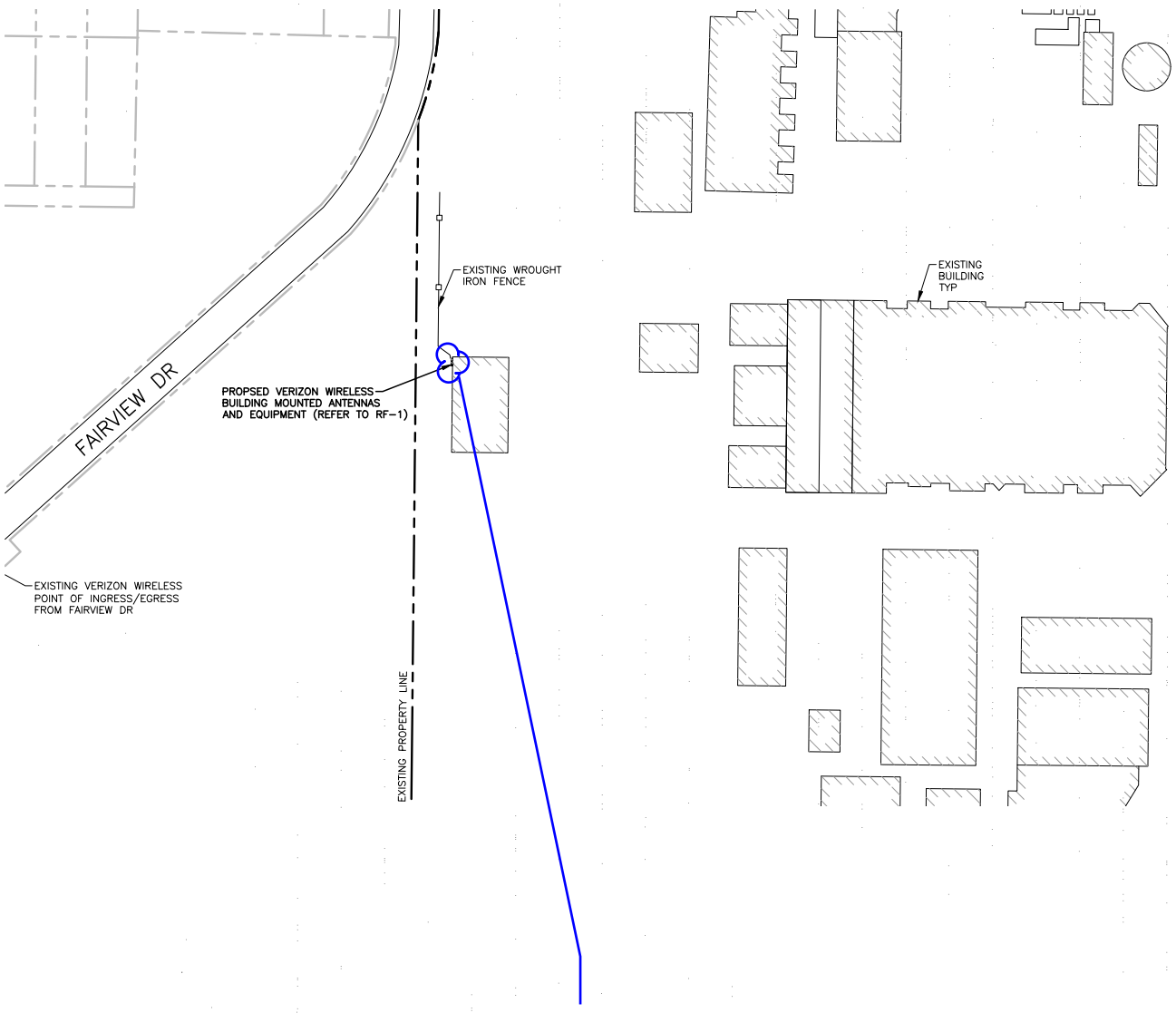

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Description: KEY PLAN		By: SPM	Date: 06.09.23
		Checked	Date
		Scale	Sheet No.
Project: TAC FERRIS WHEEL		Job No. 23088.203	4

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

ℹ The ATC Hazards by Location website will not be updated to support ASCE 7-22. Find out why.

ATC Hazards by Location

Search Information

Address: 110 9th Ave SW, Puyallup, WA 98371, USA

Coordinates: 47.1846168, -122.2947465

Elevation: 43 ft

Timestamp: 2023-06-08T23:07:20.080Z

Hazard Type: Wind

ASCE 7-16

MRI 10-Year	67 mph
MRI 25-Year	73 mph
MRI 50-Year	78 mph
MRI 100-Year	82 mph
Risk Category I	92 mph
Risk Category II	97 mph
Risk Category III	104 mph
Risk Category IV	108 mph

ASCE 7-10

MRI 10-Year	72 mph
MRI 25-Year	79 mph
MRI 50-Year	85 mph
MRI 100-Year	91 mph
Risk Category I	100 mph
Risk Category II	110 mph
Risk Category III-IV	115 mph

110 PER CITY OF PUYALLUP

ASCE 7-05

ASCE 7-05 Wind Speed	85 mph

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

Please note that the ATC Hazards by Location website will not be updated to support ASCE 7-22. Find out why.

Disclaimer

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

Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.

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Table R301.2(1) Climatic and Geographical Design Criteria												
Ground Snow Load	Wind Design		Seismic Design Category [f]	Subject to Damage from			Winter Design Temp [e]	Ice Shield Underlay [h]	Flood Hazards [g]	Air Freeze Index [i]	Mean Annual Temp [j]
	Speed [d] (mph)	Topographical effects [k]		Weathering [a]	Frost Line Depth [b]	Termites [c]					
20 lbs/ft	85	No	D-1	Moderate	12 inches	Slight to Moderate	17°	No	Puyallup Municipal Code 21.07	250	50°

85 MPH FACTORED WIND SPEED;
110 MPH DESIGN WIND SPEED

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Hazards by Location

Search Information

Address:	110 9th Ave SW, Puyallup, WA 98371, USA
Coordinates:	47.1846168, -122.2947465
Elevation:	43 ft
Timestamp:	2023-06-08T23:07:58.541Z
Hazard Type:	Seismic
Reference Document:	ASCE7-16
Risk Category:	II
Site Class:	D-default

Basic Parameters

Name	Value	Description
S_S	1.27	MCE_R ground motion (period=0.2s)
S_1	0.437	MCE_R ground motion (period=1.0s)
S_{MS}	1.524	Site-modified spectral acceleration value
S_{M1}	* null	Site-modified spectral acceleration value
S_{DS}	1.016	Numeric seismic design value at 0.2s SA
S_{D1}	* null	Numeric seismic design value at 1.0s SA

* See Section 11.4.8

Additional Information

Name	Value	Description
SDC	* null	Seismic design category
F_a	1.2	Site amplification factor at 0.2s
F_v	* null	Site amplification factor at 1.0s
CR_S	0.914	Coefficient of risk (0.2s)
CR_1	0.898	Coefficient of risk (1.0s)
PGA	0.5	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.6	Site modified peak ground acceleration
T_L	6	Long-period transition period (s)
SsRT	1.27	Probabilistic risk-targeted ground motion (0.2s)
SsUH	1.39	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.5	Factored deterministic acceleration value (0.2s)
S1RT	0.437	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.487	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.6	Factored deterministic acceleration value (1.0s)
PGAd	0.5	Factored deterministic acceleration value (PGA)

* See Section 11.4.8

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Disclaimer

Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.

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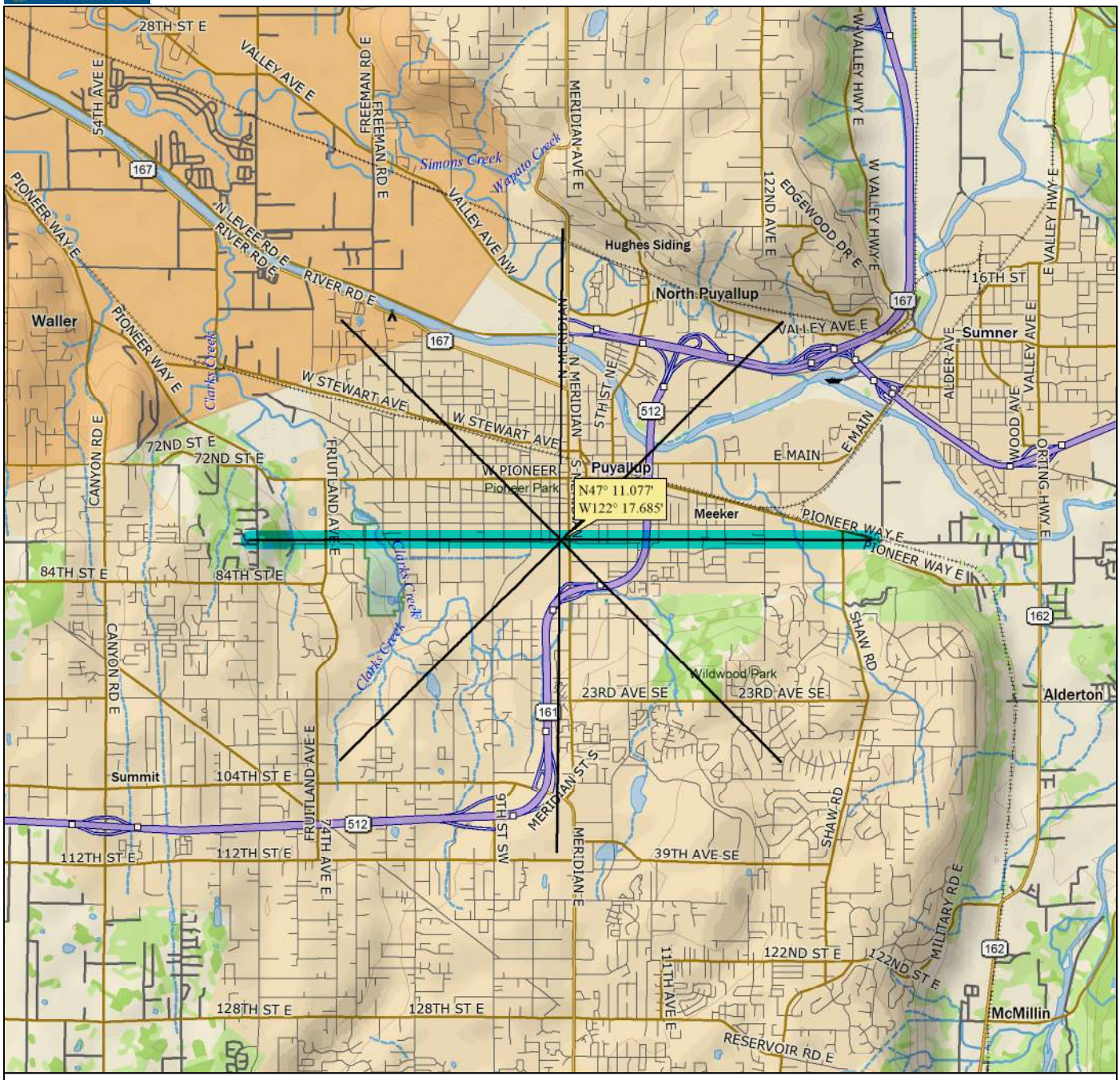
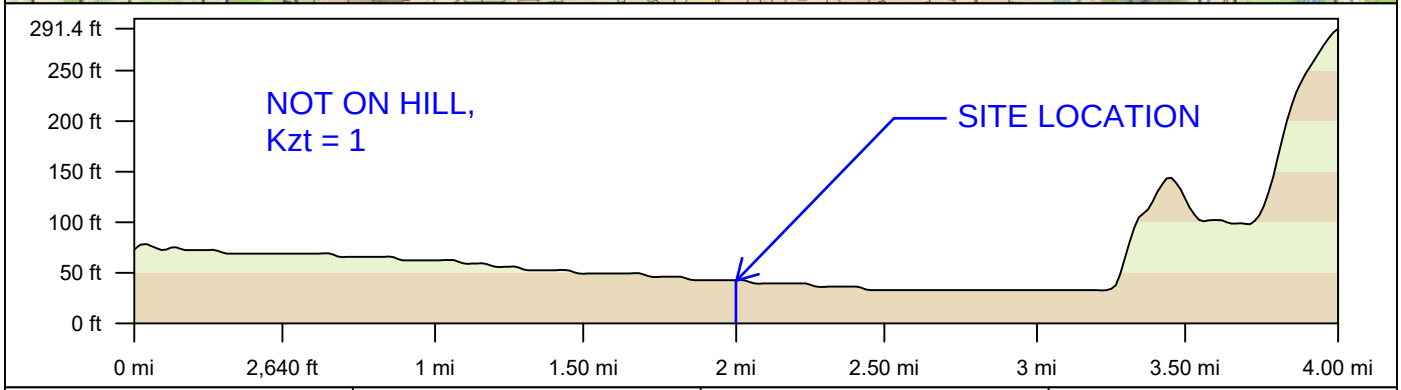
7





Lin Dist: 4.0 mi	Terr Dist: 4.0 mi	Elev Gain: 218.4 ft	Avg Grade: 2
Climb Elev: 319.7 ft	Desc Elev: 101.3 ft	Max. Elev: 291.4 ft	Min. Elev: 32.3 ft
Climb Dist: 1.7 mi	Desc Dist: 1.3 mi		

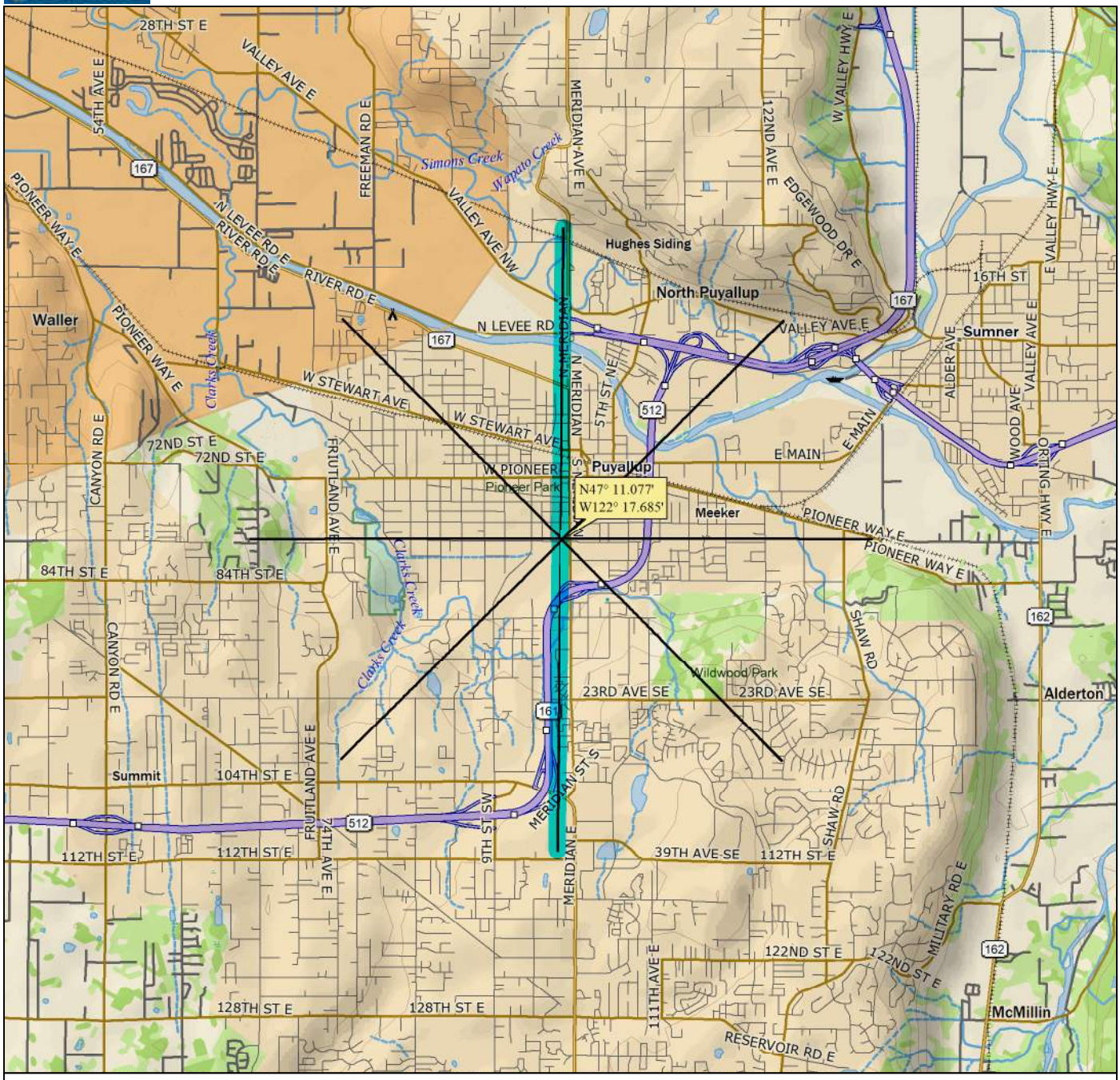
TN

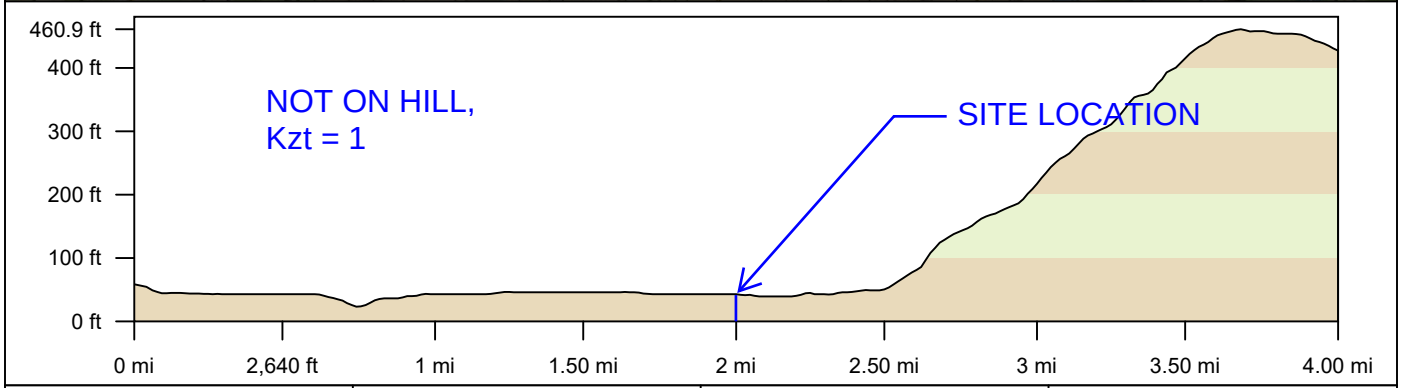
MN (14.5°E)

Scale 1 : 62,500

1" = 5,208.3 ft

Data Zoom 11-6





Lin Dist: 4.0 mi	Terr Dist: 4.0 mi	Elev Gain: 368.4 ft	Avg Grade: 2
Climb Elev: 450.6 ft	Desc Elev: 82.2 ft	Max. Elev: 460.9 ft	Min. Elev: 23.2 ft
Climb Dist: 2.2 mi	Desc Dist: 1.5 mi		

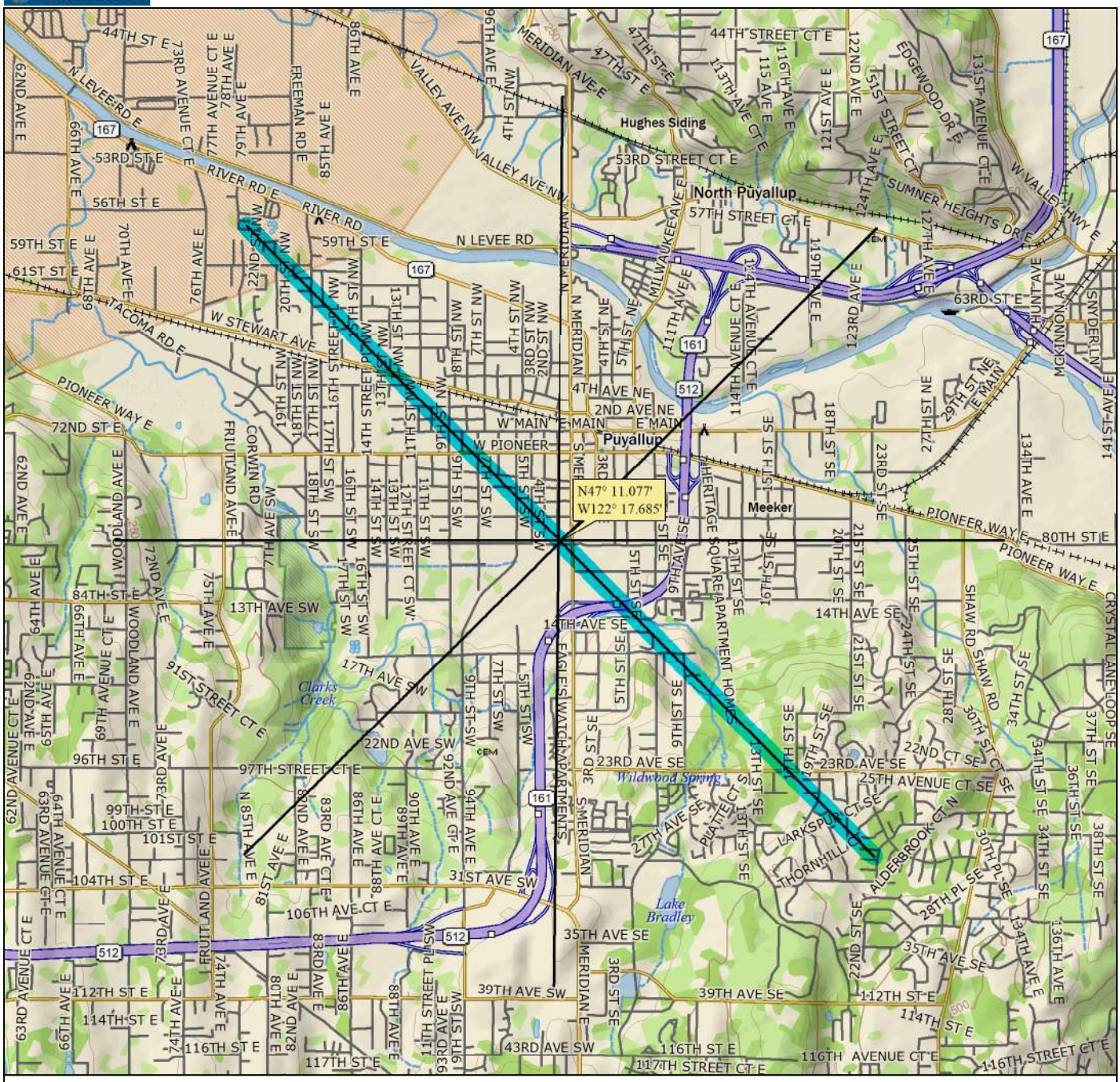
TN

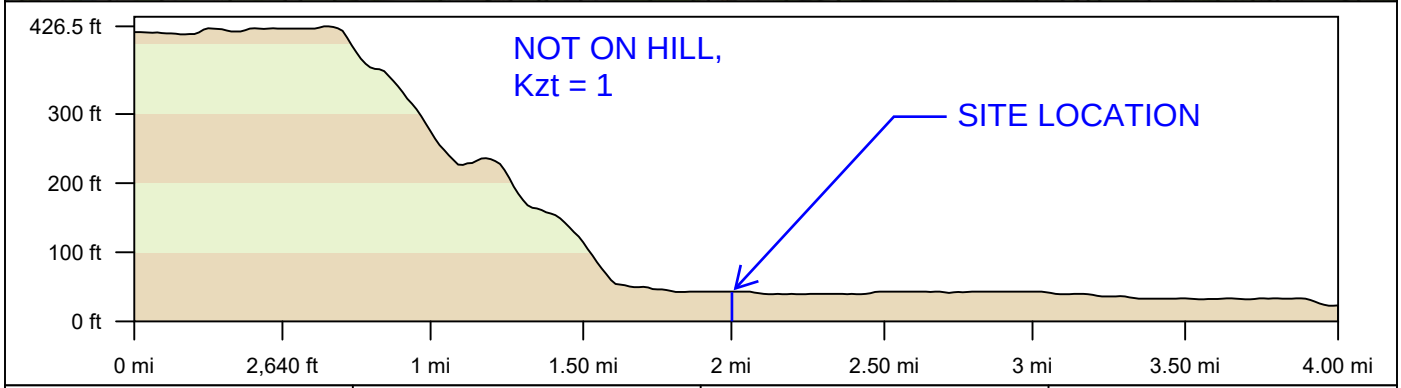
MN (14.5°E)

Scale 1 : 62,500

1" = 5,208.3 ft

Data Zoom 11-6





Lin Dist: 4.0 mi	Terr Dist: 4.0 mi	Elev Gain: -395.2 ft	Avg Grade: 2
Climb Elev: 43.1 ft	Desc Elev: 438.3 ft	Max. Elev: 426.5 ft	Min. Elev: 22.5 ft
Climb Dist: 1.4 mi	Desc Dist: 2.4 mi		

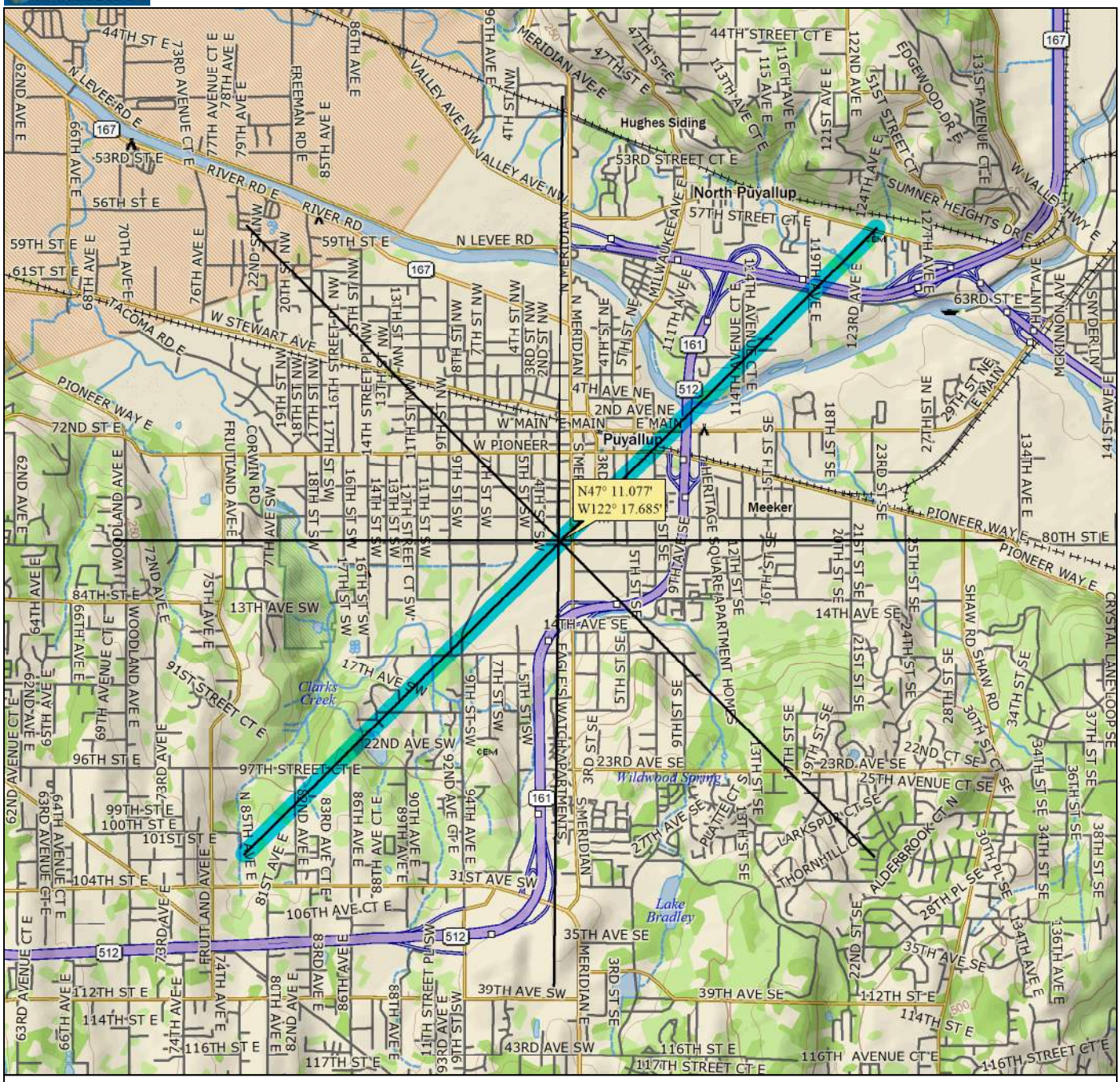
TN

MN (14.5°E)

Scale 1 : 43,730

1" = 3,645.8 ft

Data Zoom 12-2



Lin Dist: 4.0 mi	Terr Dist: 4.0 mi	Elev Gain: 254.9 ft	Avg Grade: 2
Climb Elev: 373.1 ft	Desc Elev: 118.3 ft	Max. Elev: 323.2 ft	Min. Elev: 28.3 ft
Climb Dist: 2.0 mi	Desc Dist: 1.5 mi		

TN

MN (14.5°E)

Scale 1 : 43,750

1" = 3,645.8 ft

Data Zoom 12-2

Seismic Load Calculation for Components and System

(Reference: 2018 IBC Section 1613 & ASCE 7-16 Section 13.3)

Seismic Force:

0.2s Spectral Response Acceleration, Site Class B, S_s	=	1.270	(ASCE 7, Figure 22-1 thru 22-8)
1.0s Spectral Response Acceleration, Site Class B, S_1	=	0.437	(ASCE 7, Figure 22-1 thru 22-8)
Site Class	=	D (assumed / default)	(ASCE 7, Section 11.4.3)
Seismic Design Category	=	D	(ASCE 7, Tables 11.6-1 & 11.6-2)
Site Coefficient per S_s & Site Class, F_a	=	1.20	(ASCE 7, Table 11.4-1)
Site Coefficient per S_1 & Site Class, F_v	=	1.86	(ASCE 7, Table 11.4-2)
$S_{MS} = F_a S_s$	=	1.524	(ASCE 7, Section 11.4.4)
$S_{M1} = F_v S_1$	=	0.814	(ASCE 7, Section 11.4.4)
$S_{DS} = 2/3\ S_{MS}$	=	1.016	(ASCE 7, Section 11.4.5)
$S_{D1} = 2/3\ S_{M1}$	=	0.543	(ASCE 7, Section 11.4.5)

(Per ASCE 7-16, 13.3)

Component Amplification Factor, a_p	=	1.0	(ASCE 7, Table 13.6-1)
Component Response Modification Factor, R_p	=	2.5	(ASCE 7, Table 13.6-1)
Overstrength Factor, Ω_0	=	2.0	(ASCE 7, Table 13.6-1)
Component Importance Factor, I_p	=	1.0	(ASCE 7, Table 1.5-2)
Component Operating Weight, W_p	=	W_p	(lb)
Height in structure at lowest point of attachment of component, z_1	=	23	(ft)
Height in structure at highest point of attachment of component, z_2	=	23	(ft)
Average Roof Height of Structure, h	=	23	(ft)

Seismic design force, $F_p = \dfrac{0.4 a_p S_{DS} W_P}{R_p / I_p} (1+2z/h)$ (Eq. 13.3-1)

Max. seismic design force, $F_{pmax} = 1.6 S_{DS} I_p W_P$ (Eq. 13.3-2)

Min. seismic design force, $F_{pmin} = 0.3 S_{DS} I_p W_P$ (Eq. 13.3-3)

Seismic design force at lowest point, F_{P1} = **0.488** W_p

Seismic design force at highest point, F_{P2} = **0.488** W_p

$F_{p\ (AVG)}$= **0.488**

Min. seismic design force, F_{pmin} = **0.305** W_p

Max. seismic design force, F_{pmax} = **1.626** W_p

Seismic design force, F_p **(ASD)**	=	**0.348** W_p

CG ENGINEERING	Description	By: SPM	Date: 6/9/2023
	Seismic Loads For Components & Systems	Checked	Date
250 4th Ave. South Suite 200 Edmonds, WA 98020	Project: TAC Ferris Wheel	Scale: N.T.S.	Sheet No.
		Job No.: 23088.203	

Wind Load Calculation for Other Structures

(Reference: 2018 IBC Section 1609 & ASCE 7-16 Chapter 29)

Wind Velocity Pressure:

Mean Roof Height of Building, **h** (ft)	=	**23**	(Per Architectural Drawings)
Basic Wind Speed, V_{3s} (mph)	=	**110**	(ASCE Figure 26.5-1)
Exposure Category	=	**C**	(ASCE Section 26.7.3)
Risk Category	=	**II**	(ASCE Table 1.5-1)
Velocity Pressure Exposure Coeff, K_h or Kz	=	**0.92**	(ASCE Section 26.10.1 & Table 26.10-1)
Topographic Factor, K_{zt}	=	**1.00**	(ASCE Section 26.8 & Figure 26.8-1)
Wind Directionality Factor, K_d	=	**0.85**	(ASCE Section 26.6 & Table 26.6-1)
Ground Elevation Above Sea Level, **zg** (ft)	=	**43**	(ASCE Table 26.9-1)
Elevation Factor, K_e	=	**1.00**	(ASCE Section 26.9 & Table 26.9-1)
Velocity Pressure, qh (psf)	=	**0.00256KhKztKdKeV^2**	(ASCE Eq. 26.10-1)
	qh =	**24.29**	psf

Design Wind Load on Other Structures

Horiz Gust Effect/Force Coefficient, (GCr)	=	**1.9**	(ASCE Section 29.4.1)
Vert Gust Effect/Force Coefficient, (GCr)	=	**1.5**	(ASCE Section 29.4.1)
Projected Area Normal to Wind Dir, A_f **or** A_r (ft^2)	=	A_f **or** A_r	(Projected Wind Area)
Design Lateral Wind Load, **F** (lbs)	=	**qz(GCr)Af**	(ASCE Eq. 29.4-2 & 29.4-3)

LRFD	**Horiz Force, Fh** =	**46.2**	psf x A_f
	Vert Force, Fv =	**36.4**	psf x Ar
ASD	**Horiz Force, Fh** =	**27.7**	psf x A_f
	Vert Force, Fv =	**21.9**	psf x Ar

Kh or K_z (ASCE Table 26.10-1)

Height Z (ft)	Exposure B	Exposure C	Exposure D
0	0.57	0.85	1.03
15	0.57	0.85	1.03
20	0.62	0.90	1.08
25	0.66	0.94	1.12
30	0.70	0.98	1.16
40	0.76	1.04	1.22
50	0.81	1.09	1.27
60	0.85	1.13	1.31
70	0.89	1.17	1.34
80	0.93	1.21	1.38
90	0.96	1.24	1.40
100	0.99	1.26	1.43
120	1.04	1.31	1.48
140	1.09	1.36	1.52
160	1.13	1.39	1.55
180	1.17	1.43	1.58
200	1.20	1.46	1.61

ANTENNA/EQUIPMENT COMPARISON (CONTINUED)

		Proposed						
Sector	Quantity	Model	Height (in)	Width (in)	Depth (in)	Weight (LBS)	Tot. Weight (LBS)	Area (ft2)
Alpha	1	HTXCWW4513FX00	24.10	16.00	7.10	11.7	11.70	2.68
	1	KRE105281/1	8.41	7.88	4.13	10.14	10.14	0.46
	1	AIR 4435	14.76	7.87	3.74	14.3	14.33	0.81
	1	RRUS11 B13	19.7	17	7.2	51	51.00	2.33
	1	OVP6	19.18	15.73	10.25	32	32.00	2.10
	1	4402 B2 DC	8.41	7.87	4.13	10.4	10.36	0.46
	1	4402 B66A DC	8.41	7.87	4.13	10.4	10.36	0.46
	1	4408 B48 DC	7.87	7.87	4.13	10.1	10.14	0.43
						Total	150.03	9.71
Beta							0.00	0.00
							0.00	0.00
							0.00	0.00
							0.00	0.00
							0.00	0.00
							0.00	0.00
							0.00	0.00
							0.00	0.00
						Total	0.00	0.00
Gamma							0.00	0.00
							0.00	0.00
							0.00	0.00
							0.00	0.00
							0.00	0.00
							0.00	0.00
							0.00	0.00
							0.00	0.00
						Total	0.00	0.00
					Total All Sectors		150.03	9.71
Equip. Area							0.00	0.00
							0.00	0.00
							0.00	0.00
						Total	0.00	0.00

ENGINEERING

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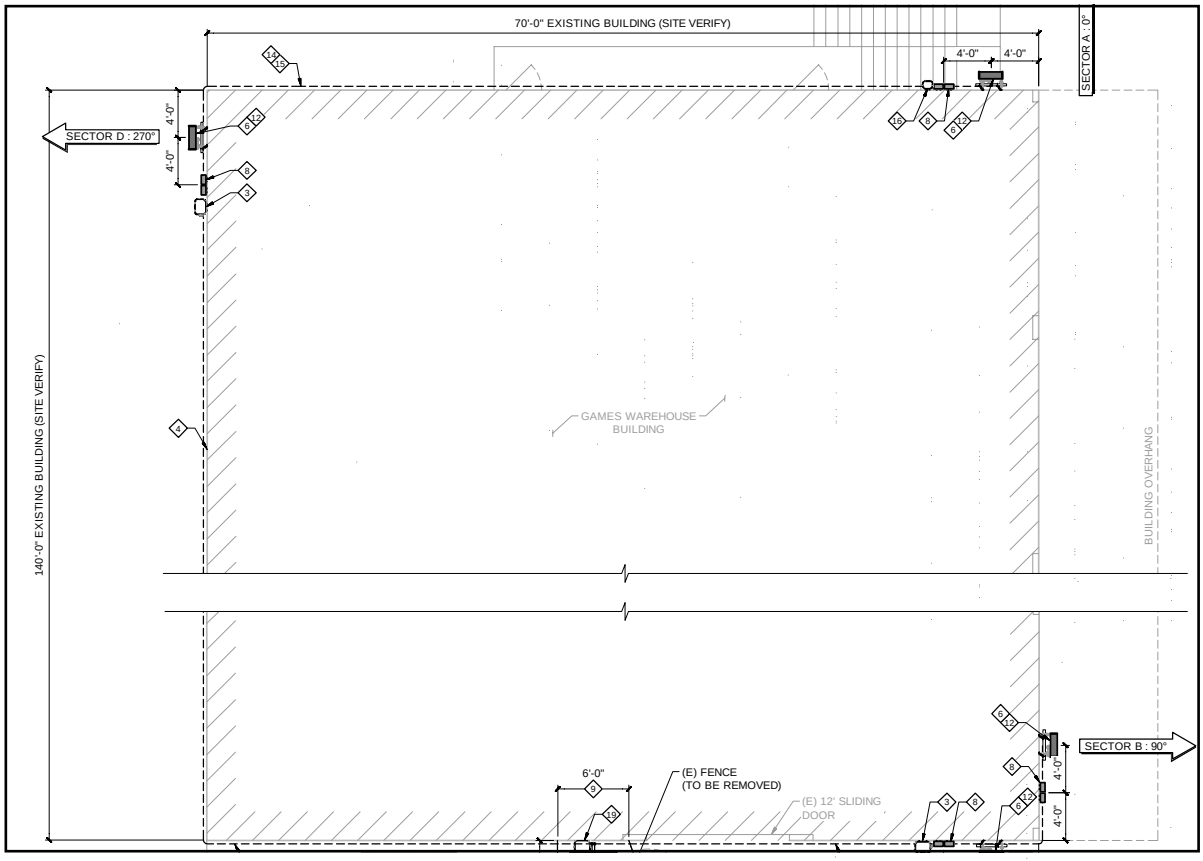
Suite 200
Edmonds, WA 98020

Description		By SPM	Date 6/9/2023
Antenna Comparison		Checked	Date
Project		Scale N.T.S.	Sheet No.
TAC Ferris Wheel		Job No. 23088.203	



EXISTING ROOF LAYOUT

ESTIMATED TOTAL WEIGHT OF ROOF = (140')(70')(12 PSF) = 117 K
TOTAL WEIGHT OF APPURTENANCES < 0.2 KIPS

PROPOSED APPURTENANCES ARE FACE MOUNTED ON THE BUILDING WALL. NO INCREASE IN WIND AREA.

INCREASE IN WEIGHT FROM APPURTENANCES NEGLIGIBLE COMPARED TO OVERALL WEIGHT OF THE EXISTING STRUCTURE. VERTICAL LOADS DETERMINED TO BE LESS THAN 5% INCREASE AND LATERAL LOADS DETERMINED TO BE LESS THAN 10% INCREASE. EXISTING STRUCTURE ADEQUATE PER IEBC.

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Edmonds, WA 98020
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www.cgengineering.com

Description: STRUCTURAL ANALYSIS		By: SPM	Date: 06.12.23
		Checked	Date
		Scale	Sheet No.
Project: TAC FERRIS WHEEL		Job No. 23088.203	15

REFERENCE DOCUMENT

verizon

PROJECT NAME: TAC FERRIS WHEEL-NODE 13

PROJECT LOCATION: 110 9TH AVE SW
PUYALLUP, WA 98371

FUZE PROJECT ID: 16481916

VICINITY MAP

PROJECT INFORMATION

JURISDICTION:	CITY OF PUYALLUP	LATITUDE:	47°10'56.79"N
ZONING CLASS:	7300-AMUSMENTS		47.182444°
PARCEL NUMBER:	0420331121	LONGITUDE:	122°17'55.48"W
TRS:	SEC 33, TWN 20N, RNG 4E		-122.298747°
PARCEL SIZE:	50.77 ACRES	GROUND ELEVATION:	40.83' AMSL
		STRUCTURE HEIGHT:	23'-6" (TOP OF BUILDING)
		HIGHEST APPURTENANCE:	22'-11" (TOP OF ANTENNA)

SCOPE OF WORK

VERIZON WIRELESS PROPOSES TO MODIFY AN EXISTING WIRELESS FACILITY WITH THE FOLLOWING SCOPE OF WORK:

- REMOVE (1) PCS RRU (MRRUS12 B2) AT ANTENNAS
- REMOVE (1) AWS RRU (MRRUS12 B4) AT ANTENNAS
- REMOVE (1) RRU MOUNT
- ADD (1) ANTENNA MOUNT
- ADD (2) RRU MOUNTS
- ADD (1) LS6 ANTENNA (AIR4435)
- ADD (1) CBRS ANTENNA (RRUS4408 B48)
- ADD (1) PCS RRU (RRUS4402 B2) AT ANTENNAS
- ADD (1) AWS RRU (RRUS4402 B66) AT ANTENNAS

LEGAL DESCRIPTION

SECTION 33 TOWNSHIP 20 RANGE 04 QUARTER 11 : NE OF NE & N 1/2 OF SE OF NE LY ELY OF 5TH ST & W OF STATE HWY LESS RDS TOG/W 1/2 5TH ST SW ABUTT VAC BY ORD 2865 EASE OF RECORD PER ETN 527237 ALSO EXC POR CYD TO CY OF PUYALLUP FOR ADD'L R/W PER ETN 4529976 OUT OF & COMB 1-000, 1-017, 1-019, 1-020, 1-031, 1-045, 1-055, 1-101, 1-103 & 1-105 (DCPPJES9-16-80) DC12/12/08JU 10668175DC 6/5/2020BB

LIST OF DRAWINGS

SHEET	DESCRIPTION
T-1	COVER SHEET
N-1	GENERAL NOTES
C-1	PROPOSED SITE PLAN
A-1	EXISTING AND PROPOSED ELEVATIONS
A-2	CONSTRUCTION DETAILS
RF-1	EXISTING AND PROPOSED ANTENNA CONFIGURATIONS
RF-2	PROPOSED IT DIAGRAM

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT CONDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

WASHINGTON STATE AND LOCAL BUILDING CODES WITH THE FOLLOWING REFERENCE CODE:

2018 INTERNATIONAL BUILDING CODE (IBC)
2018 INTERNATIONAL MECHANICAL CODE (IMC)
2018 INTERNATIONAL FIRE CODE (IFC)
2017 NATIONAL ELECTRIC CODE (NFPA 70)
ANSI/TIA-222-H (REVISION H)

APPROVALS

TITLE	SIGNATURE	DATE
REPRESENTATIVE		
RF ENGINEER		
PROPERTY OWNER		

DRIVING DIRECTIONS

(FROM SEATAC INTERNATIONAL AIRPORT, WA)

- HEAD SOUTH ON PACIFIC HWY S/TUKWILA INTERNATIONAL BLVD
- TURN LEFT TO MERGE ONTO WA-518 E TOWARD I-5/I-405/RENTON
- CONTINUE STRAIGHT TO STAY ON WA-518 E
- SLIGHT LEFT ONTO I-405 N
- USE THE RIGHT 2 LANES TO TAKE EXIT 2 TO MERGE ONTO WA-167 S TOWARD AUBURN
- USE ANY LANE TO TURN SLIGHTLY LEFT ONTO N MERIDIAN AVE
- TURN RIGHT ONTO 9TH AVE SW
- TURN LEFT ONTO FAIRVIEW DR
- TURN LEFT INTO PARKING LOT
- TURN RIGHT
- DESTINATION WILL BE ON THE LEFT

CONTACTS

PROPERTY OWNER:
WESTERN WASHINGTON FAIR ASSOCIATION
110 9TH AVE SW
PUYALLUP, WA
98371-6811

APPLICANT:
RENA PEYTON
VERIZON WIRELESS
3120 139TH AVE SE, SUITE 01W102
BELLEVUE, WA 98005
PHONE: (425) 603-2272

PROFESSIONAL OF RECORD:
BERT WHITE
LYNX CONSULTING, INC
17311 135TH AVE NE, SUITE A-100
WOODINVILLE, WA 98072
PHONE: (253) 230-2335
bwhite@lynxconsulting.org

APPLICANT AGENT:
JULEI CAMPOS
LYNX CONSULTING, INC
17311 135TH AVE NE, SUITE A-100
WOODINVILLE, WA 98072
PHONE: (206) 388-7611
jcampos@lynxconsulting.org

PERMITTING CONTACT:
AILEEN ZAVALES
LYNX CONSULTING, INC
17311 135TH AVE NE, SUITE A-100
WOODINVILLE, WA 98072
PHONE: (206) 972-1368
azavales@lynxconsulting.org

CLIENT: verizon

IMPLEMENTATION TEAM/CLIENT: LYNX

REV	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
1	4/10/23	PCD'S ISSUED FOR REVIEW

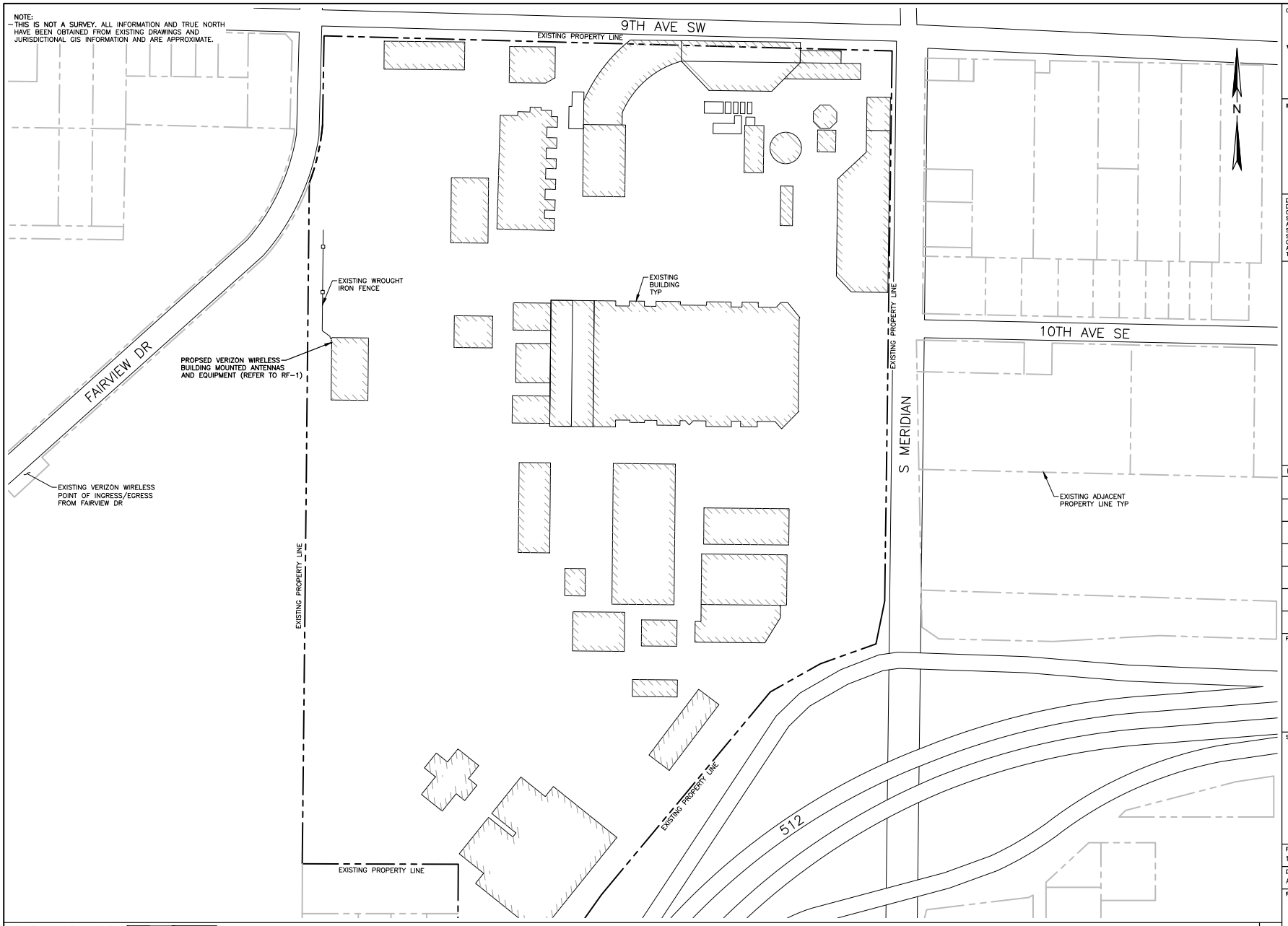
PROJECT:
TAC
FERRIS WHEEL
110 9TH AVE SW
PUYALLUP, WA 98371

SHEET TITLE:
COVER SHEET

FUZE PROJECT ID:	DATE:
16481916	3/30/23
DRAFTER: AJB	PROFESSIONAL OF RECORD: BEW
REVISION NO: 1	SHEET NO: T-1

A1

REFERENCE DOCUMENT



CLIENT:

verizon

IMPLEMENTATION TEAM/CLIENT:

LYNX

REV	DATE	DESCRIPTION
–	–	–
–	–	–
–	–	–
–	–	–
–	–	–
–	–	–
1	4/10/23	PCD'S ISSUED FOR REVIEW

PROJECT:

TAC
FERRIS WHEEL

110 9TH AVE SW
PUYALLUP, WA 98371

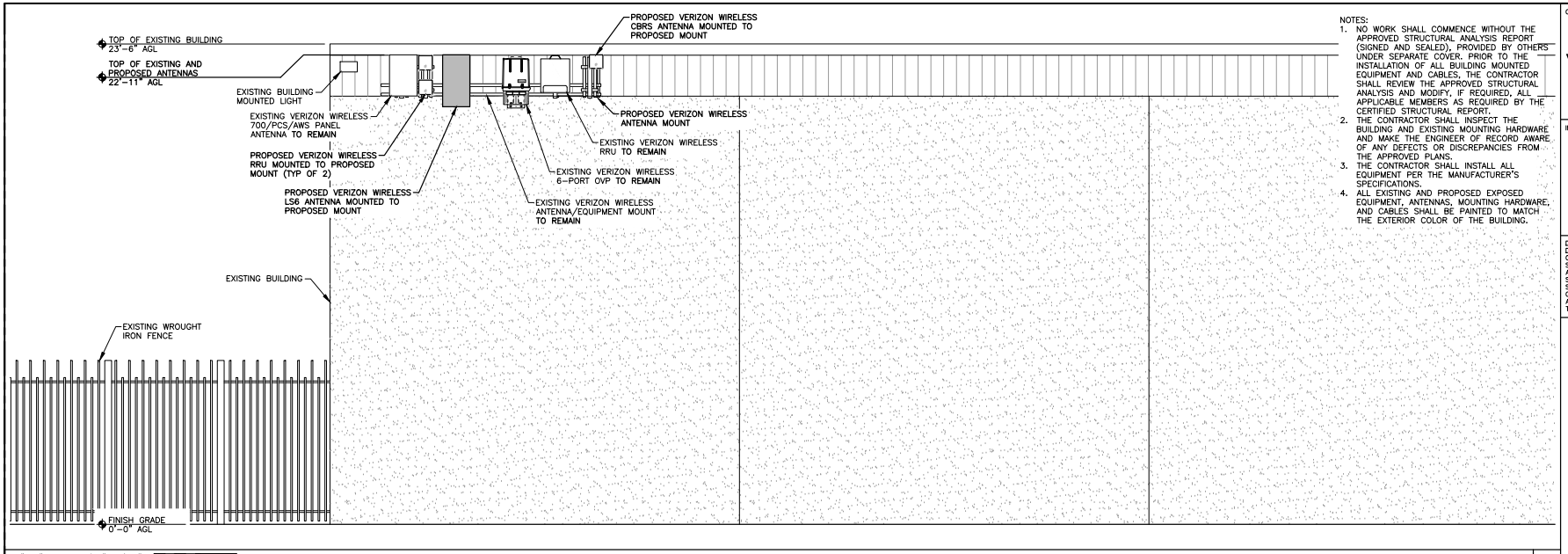
SHEET TITLE:

PROPOSED SITE PLAN

FUZE PROJECT ID:	DATE:
16481916	3/30/23
DRAFTER: AJB	PROFESSIONAL OF RECORD: BEW
REVISION NO: 1	SHEET NO: C-1

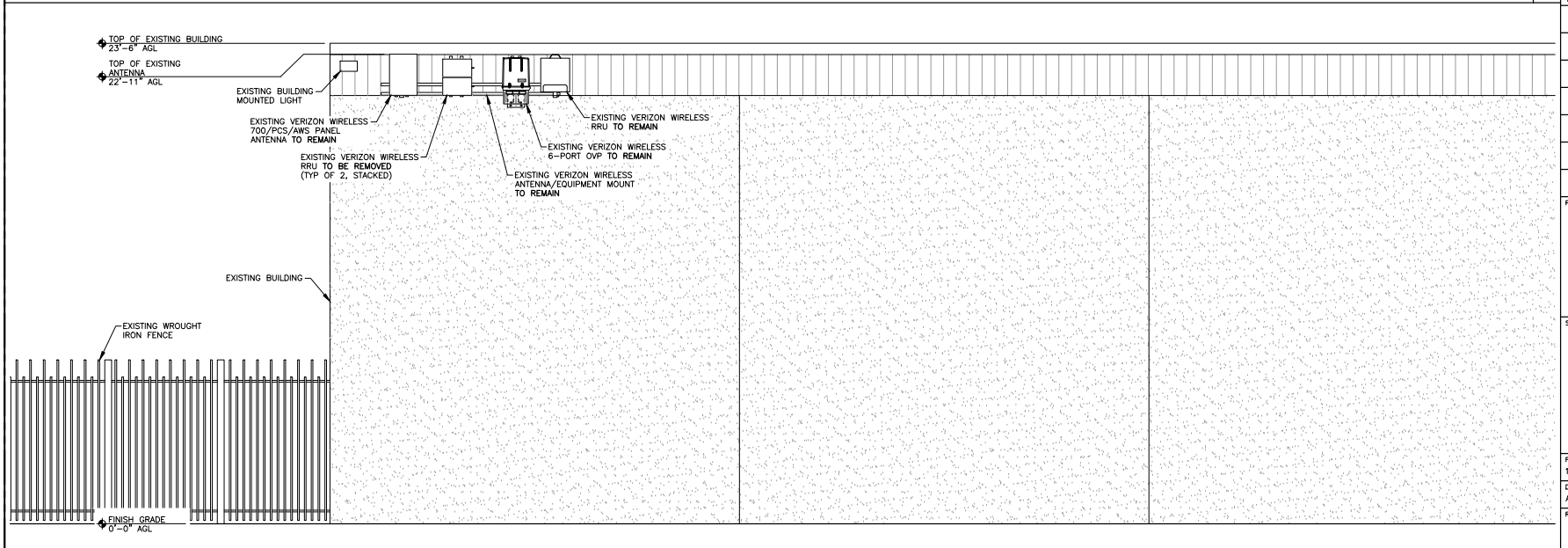
A2

REFERENCE DOCUMENT



22"x34" SCALE: 3/16"= 1'-0"
11"x17" SCALE: 3/32"= 1'-0" 4' 2' 0' 4'

PROPOSED ELEVATION | 2



22"x34" SCALE: 3/16"= 1'-0"
11"x17" SCALE: 3/32"= 1'-0" 4' 2' 0' 4'

EXISTING ELEVATION | 1

NOTES:
1. NO WORK SHALL COMMENCE WITHOUT THE APPROVED STRUCTURAL ANALYSIS REPORT (SIGNED AND SEALED), PROVIDED BY OTHERS UNDER SEPARATE COVER. PRIOR TO THE INSTALLATION OF ALL BUILDING MOUNTED EQUIPMENT AND CABLES, THE CONTRACTOR SHALL REVIEW THE APPROVED STRUCTURAL ANALYSIS AND MODIFY, IF REQUIRED, ALL APPLICABLE MEMBERS AS REQUIRED BY THE CERTIFIED STRUCTURAL REPORT.
2. THE CONTRACTOR SHALL INSPECT THE BUILDING AND EXISTING MOUNTING HARDWARE AND MAKE THE ENGINEER OF RECORD AWARE OF ANY DEFECTS OR DISCREPANCIES FROM THE APPROVED PLANS.
3. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT PER THE MANUFACTURER'S SPECIFICATIONS.
4. ALL EXISTING AND PROPOSED EXPOSED EQUIPMENT, ANTENNAS, MOUNTING HARDWARE, AND CABLES SHALL BE PAINTED TO MATCH THE EXTERIOR COLOR OF THE BUILDING.

CLIENT:
verizon

IMPLEMENTATION TEAM/CLIENT:
LYNX

REV	DATE	DESCRIPTION
–	–	–
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1	4/10/23	PCD'S ISSUED FOR REVIEW

PROJECT:

TAC
FERRIS WHEEL
110 9TH AVE SW
PUYALLUP, WA 98371

SHEET TITLE:

EXISTING AND PROPOSED ELEVATIONS

FUZE PROJECT ID:	DATE:
16481916	3/30/23
DRAFTER: AJB	PROFESSIONAL OF RECORD BEW
REVISION NO: 1	SHEET NO: A-1

A3

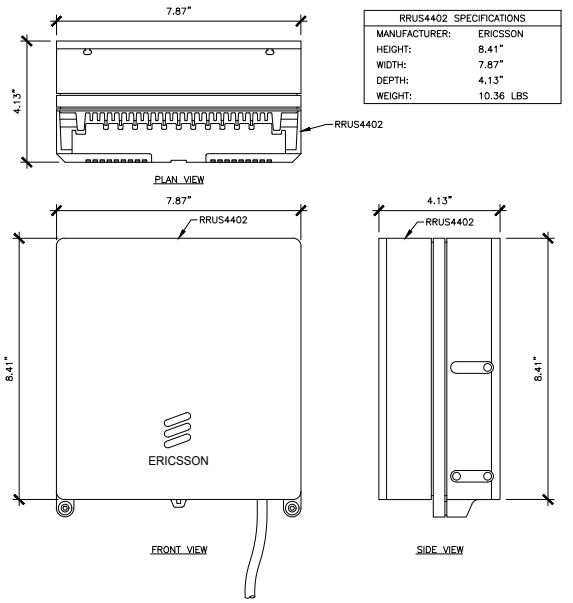
REFERENCE DOCUMENT

22"x34" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

NOT USED | 6

22"x34" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

NOT USED | 5

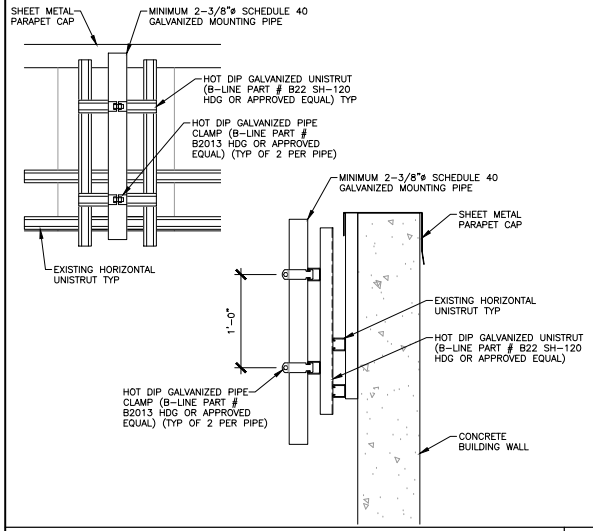


RRUS4402 SPECIFICATIONS	
MANUFACTURER:	ERICSSON
HEIGHT:	8.41"
WIDTH:	7.87"
DEPTH:	4.13"
WEIGHT:	10.36 LBS

22"x34" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

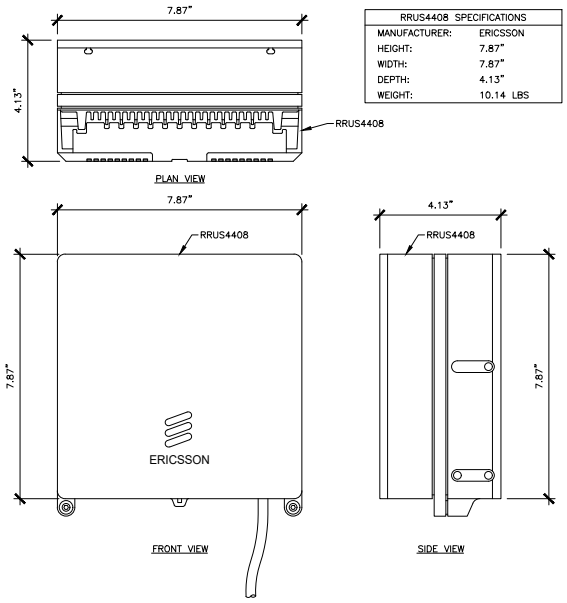
RRUS4402 (PCS/AWS) | 4

NOTES:
1. CONTRACTOR SHALL REPAIR HOLES IN BUILDING USING APPROPRIATE CAULKING AND SEAL WITH MASTIC.
2. CONTRACTOR SHALL MAINTAIN APPROPRIATE CLEARANCE BETWEEN PROPOSED RRU AND ANTENNAS TO PROVIDE ADEQUATE CLEARANCE FOR COAX AND HYBRID CABLE BEND RADIUS.



22"x34" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

MOUNT | 3

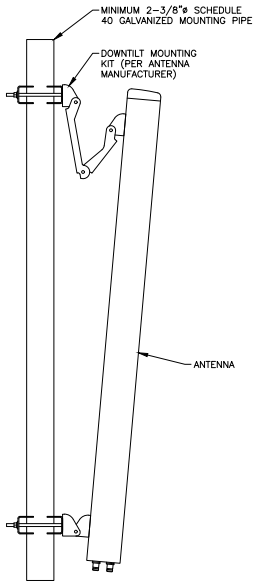


RRUS4408 SPECIFICATIONS	
MANUFACTURER:	ERICSSON
HEIGHT:	7.87"
WIDTH:	7.87"
DEPTH:	4.13"
WEIGHT:	10.14 LBS

22"x34" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

RRUS4408 (CBRS) | 2

NOTES:
1. ANTENNAS SHALL BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS.
2. CONTRACTOR SHALL CONFIRM THAT EXISTING MOUNTING PIPE SIZES CONFORM TO THE PROPOSED ANTENNAS MOUNTING REQUIREMENTS.
3. CONTRACTOR SHALL RE-TORQUE ALL EXISTING MOUNTING HARDWARE AND REPLACE ALL DAMAGED MOUNTS.



22"x34" SCALE: NOT TO SCALE
11"x17" SCALE: NOT TO SCALE

ANTENNA MOUNT | 1

CLIENT:

verizon

IMPLEMENTATION TEAM/CLIENT:

LYNX

REV	DATE	DESCRIPTION
–	–	–
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–	–	–
1	4/10/23	PCD'S ISSUED FOR REVIEW

PROJECT:

TAC
FERRIS WHEEL
110 9TH AVE SW
PUYALLUP, WA 98371

SHEET TITLE:

CONSTRUCTION DETAILS

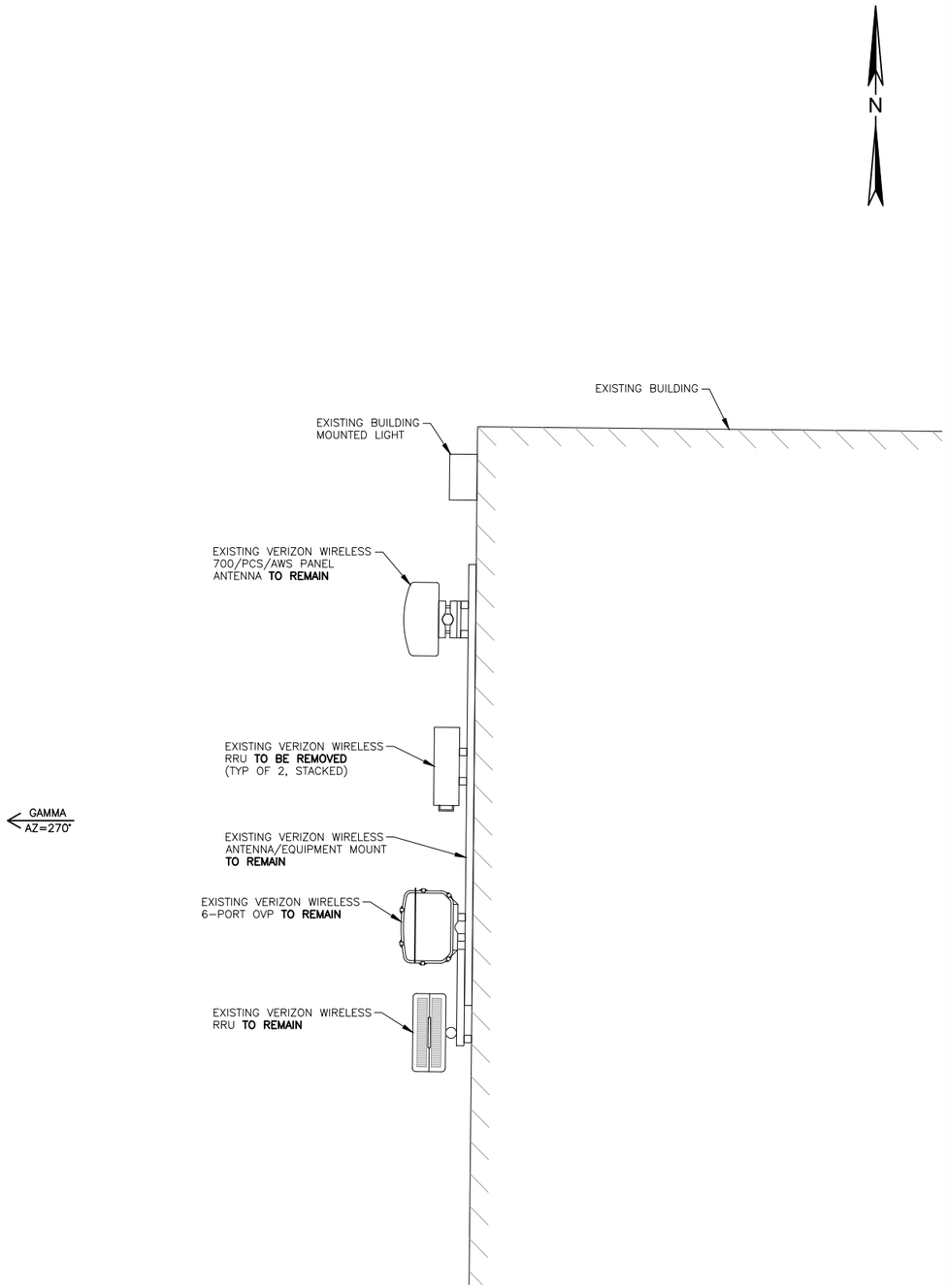
FUZE PROJECT ID:	DATE:
16481916	3/30/23
DRAFTER: AJB	PROFESSIONAL OF RECORD: BEW
REVISION NO: 1	SHEET NO: A-2

A4

REFERENCE DOCUMENT

EXISTING ANTENNA SCHEDULE

GAMMA SECTOR	AZIMUTH	TIP HEIGHT	QTY	VENDOR	MODEL	LENGTH	WIDTH	DEPTH	MECH TILT	ELEC TILT	CABLE QTY	FEEDER TYPE	FEEDER LENGTH	ADDITIONAL EQUIPMENT
700	270°	22'-11"	1	AMPHENOL	HTXCWW4513FX	24.1"	16.2"	7.3"	0°	0°	1	6x12 HYBRID 6-PORT OVP	220'-0"	RRUS11 B13
PCS										0°				MRRUS12 B2
AWS										0°				MRRUS12 B4



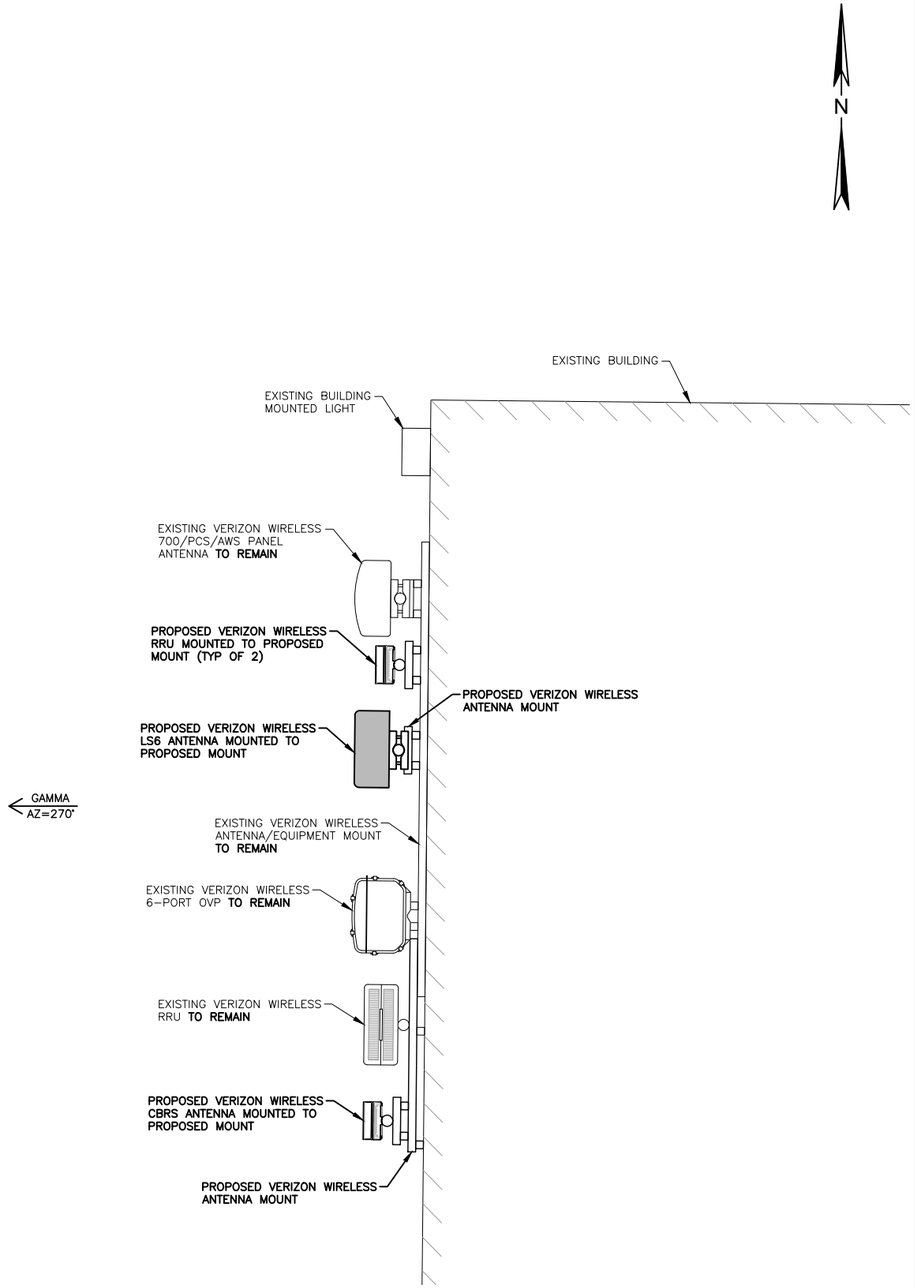
22"x34" SCALE: 3/4"= 1'-0"
11"x17" SCALE: 3/8"= 1'-0"
2' 1' 0' 2'

EXISTING ANTENNA CONFIGURATION | 2

PROPOSED ANTENNA SCHEDULE

RFDS DATE: 12/2/2023

ALPHA SECTOR	AZIMUTH	TIP HEIGHT	QTY	VENDOR	MODEL	LENGTH	WIDTH	DEPTH	MECH TILT	ELEC TILT	CABLE QTY	FEEDER TYPE	FEEDER LENGTH	ADDITIONAL EQUIPMENT
700	270°	22'-11"	1	AMPHENOL	HTXCWW4513FX	24.1"	16.2"	7.3"	0°	0°	1	6x12 HYBRID 6-PORT OVP	220'-0"	RRUS11 B13
PCS										0°				RRUS4402 B66
AWS										0°				RRUS4402 B3
LS6	270°	22'-11"	1	ERICSSON	AIR4435 B77D	14.6"	7.9"	4.1"	0°	3°				NONE
CBRS	270°	22'-11"	1	ERICSSON	AIR4408 B48	8.4"	7.8"	4.1"	0°	8°				NONE



22"x34" SCALE: 3/4"= 1'-0"
11"x17" SCALE: 3/8"= 1'-0"
2' 1' 0' 2'

PROPOSED ANTENNA CONFIGURATION | 1

CLIENT:

verizon

IMPLEMENTATION TEAM/CLIENT:

LYNX

REV	DATE	DESCRIPTION
–	–	–
–	–	–
–	–	–
–	–	–
–	–	–
–	–	–
1	4/10/23	PCD'S ISSUED FOR REVIEW

PROJECT:

TAC

FERRIS WHEEL

110 9TH AVE SW
PUYALLUP, WA 98371

SHEET TITLE:

EXISTING AND PROPOSED ANTENNA CONFIGURATIONS

FUZE PROJECT ID:	DATE:
16481916	3/30/23
DRAFTER: AJB	PROFESSIONAL OF RECORD BEW
REVISION NO: 1	SHEET NO: RF-1 A5

verizon fuze | RFDS

WEST > Pacific > Pacific Northwest > Seattle > FERRIS WHEEL_DUS5

RF Submit by: Poudel, Praful - praful.poudel@verizonwireless.com - 12/2/2022, 12:44:15 PM

EE Submit by: , - -

Project Details

FUZE Project ID:	16481916
Project Name:	5G L-Sub6 - Carrier Add
Project Alt Name:	5G L-Sub6 - Carrier Add
Project Type:	Modification
Modification Type:	RF
Designed Sector Carrier 4G:	6
Designed Sector Carrier 5G:	N/A
Additional Sector Carrier 4G:	N/A
Additional Sector Carrier 5G:	N/A
FP Solution Type & Tech Type:	MODIFICATION;4G_AWS3,4G_CBRS,5G_L-Sub6-Prep
Carrier Aggregation:	false
MPT Id:	
eCIP-0:	false
Suffix:	

Location Information

Site ID:	2567242
E-NodeB ID:	001622,701622,0017622,9009221
PSLC:	312171
Switch Name:	Tacoma
Tower Owner:	
Tower Type:	Building Side-Mounted
Site Type:	SMALL-CELL
Site Sub Type:	SPOKE
Street Address:	110 9th Ave SW
City:	Puyallup
State:	WA
Zip Code:	98371
County:	Pierce
Latitude:	47.182444 / 47° 10' 56.7984" N
Longitude:	-122.298747 / 122° 17' 55.4892" W

RFDS Project Scope: Adding 4435 for C Band

REFERENCE DOCUMENT

Antenna Summary

Added

700	1900	AWS	AWS3	CBRS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity	Item ID
				LTE		ERICSSON	KRE105281/1	21.9	22.2	270(07)	false	false	PHYSICAL	1	
					5G	Ericsson	AIR4435 B77D	21.9	22.8	270(0003)	false	false	PHYSICAL	1	

Removed

700	1900	AWS	AWS3	CBRS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity	Item ID

No data available.

Retained

700	1900	AWS	AWS3	CBRS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity	Item ID
LTE	LTE	LTE	LTE			AMPHENOL	HTXCWW4513FX00	21.9	22.9	270(03)	false	false	PHYSICAL	1	

Added: 2 **Removed:** 0 **Retained:** 1

REFERENCE DOCUMENT

Equipment Summary

Added

Equipment Type	Location	700	1900	AWS	AWS3	CBRS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	Item ID
RRU	Tower		LTE					Ericsson	4402 B2 DC			PHYSICAL	1	KRC161737/1
RRU	Tower			LTE	LTE			Ericsson	4402 B66A DC			PHYSICAL	1	KRC161742/1
RRU	Tower					LTE		Ericsson	4408 B48 DC			PHYSICAL	1	KRC161746/1
RRU	Tower						5G	Ericsson	AIR4435 DC			PHYSICAL	1	

Removed

Equipment Type	Location	700	1900	AWS	AWS3	CBRS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	Item ID
RRU	Tower		LTE					Ericsson	mRRUS12 B2			PHYSICAL	1	
RRU	Tower			LTE				Ericsson	mRRUS12 B4			PHYSICAL	1	

Retained

Equipment Type	Location	700	1900	AWS	AWS3	CBRS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	Item ID
RRU	Tower	LTE						Ericsson	RRUS11 B13			PHYSICAL	1	
OVP Box	Tower							RAYCAP	OVP6			PHYSICAL	1	
OVP Box	Shelter							RAYCAP	OVP6			PHYSICAL	1	

A8

REFERENCE DOCUMENT

verizonwireless

TAC FERRIS WHEEL WAREHOUSE - NODES 10-13

110-9TH AVENUE SW
PUYALLUP, WA 98371

VICINITY MAP
NOT TO SCALE

GENERAL LOCATION MAP
NOT TO SCALE

DRIVING DIRECTIONS

FROM VERIZON WIRELESS OFFICE:

- GET ON I-90 W
- TAKE I-405 S AND WA-167 S TO S MERIDIAN IN PUYALLUP. TAKE THE EXIT TOWARD MERIDIAN STREET S FROM WA-512 W
- MERGE ONTO I-90 W
- TAKE EXIT 10 FOR INTERSTATE 405 S TOWARD RENTON
- MERGE ONTO I-405 S
- TAKE EXIT 2A TO MERGE ONTO WA-167 S TOWARD KENT/AUBURN
- TAKE THE EXIT ONTO WA-512 W TOWARD WA-161 S/PUYALLUP/OLYMPIA
- TAKE THE EXIT TOWARD MERIDIAN STREET S
- TURN RIGHT ONTO S MERIDIAN
- DESTINATION WILL BE ON THE LEFT

APPROVAL / SIGN OFF

APPROVED BY	DATE	SIGNATURE
SITE ACQUISITION		
ZONING		
RF		
CONSTRUCTION MANAGER		
PROJECT MANAGER		

REVIEWERS SHALL CLEARLY PLACE INITIALS ADJACENT TO EACH REDLINE NOTE AS DRAWINGS ARE BEING REVIEWED

PROJECT CONTACT LIST

APPLICANT:
VERIZON WIRELESS
3245 158TH AVENUE SE, MS231
BELLEVUE, WA 98008

PROJECT ARCHITECT:
LDC, INC.
14201 NE 200TH ST, SUITE 100
WOODINVILLE, WA 98072
CONTACT: RICHARD B. HALL, AIA
PHONE: (425) 806-1869
FAX: (425) 482-2893

STRUCTURAL ENGINEER:
LDC, INC.
14201 NE 200TH ST, SUITE 100
WOODINVILLE, WA 98072
CONTACT: JESSICA WREN, SE
PHONE: (425) 806-1869
FAX: (425) 482-2893

PROJECT SURVEYOR:
LDC, INC.
14201 NE 200TH ST, SUITE 100
WOODINVILLE, WA 98072
CONTACT: VANCE BLUE, PLS
PHONE: (425) 806-1869
FAX: (425) 482-2893

PROPERTY OWNER:
WESTERN WASHINGTON FAIR ASSOC.
110 9TH AVENUE SW
PUYALLUP, WA 98371
CONTACT: DEBBIE BAKER
PHONE: (253) 841-5011

PROJECT CONSULTANT:
LDC, INC.
14201 NE 200TH ST, SUITE 100
WOODINVILLE, WA 98072
CONTACT: RICK CARDOZA
PHONE: (253) 218-9017
EMAIL: rcardoza@ldccorp.com

PROJECT INFORMATION

CODE INFORMATION:

ZONING CLASSIFICATION:	7300 - AMUSEMENTS
BUILDING CODE:	IBC 2012
CONSTRUCTION TYPE:	IIB
OCCUPANCY:	S-2
JURISDICTION:	CITY OF PUYALLUP
PROPOSED BUILDING USE:	UNMANNED TELECOM

SITE LOCATION (NAD83):

LATITUDE:	47° 10' 55.77" N	(47.182158° N)
LONGITUDE:	122° 17' 55.18" W	(122.298661° W)
TOP OF STRUCTURE:	64.82' AMSL	23.99' AGL
BASE OF STRUCTURE:	40.83' AMSL	0'-0" AGL

PROJECT LEASE AREA:
N/A

PARCEL NUMBER:
0420331121

NEW IMPERVIOUS AREA:
0 SF

AREA OF PARCEL:
49.86 ACRES

GENERAL INFORMATION:
1. PARKING REQUIREMENTS ARE UNCHANGED.
2. TRAFFIC IS UNAFFECTED.
3. SIGNAGE IS UNAFFECTED.

PROJECT DESCRIPTION:
VERIZON WIRELESS PROPOSES TO CONSTRUCT AN UNMANNED TELECOMMUNICATIONS FACILITY CONSISTING OF (4) ANTENNAS AND (8) mRRUS MOUNTED ON AN EXISTING BUILDING. ALSO, IN ADDITION OF (1) SMALL CELL ENCLOSURE CABINET MOUNTED NEXT TO BUILDING.

DRAWING INDEX

DWG NO.	DESCRIPTION
T-1	TITLE SHEET
G-1	GENERAL NOTES
C-1/1A	CIVIL SURVEY
A-1	SITE PLAN
A-2	ENLARGED SITE PLAN
A-3	ELEVATIONS
A-4	CONSTRUCTION DETAILS
A-4.1	SIGNAGE DETAILS
S-1	STRUCTURAL NOTES (PENDING)
S-2	STRUCTURAL DETAILS (PENDING)
RF-1	ANTENNA CONFIGURATION
E-1	SCHEMATIC GROUNDING PLAN
E-2	GROUNDING DETAILS
E-3	GROUNDING DETAILS
E-4	UTILITY DETAILS

LEGAL DESCRIPTION

SECTION 33 TOWNSHIP 20 RANGE 04 QUARTER 11 NE OF NE & N 1/2 OF SE OF NE LY ELY OF 5TH ST & W OF STATE HWY LESS RDS TOG/W 1/2 5TH ST SW ABUTT VAC BY ORD 2865 EASE OF RECORD PER ETN 527237 OUT OF & COMB 1-000, 1-017, 1-019, 1-020, 1-031, 1-045, 1-055, 1-101, 1-103 & 1-105 (DCPPJES9-16-80) DC12/12/08JU

UTILITY COMPANIES

POWER:
TBD

TELEPHONE:
TBD

SCALE DISCLAIMER

DO NOT SCALE DRAWINGS. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND ADVISE CONSULTANTS OF ANY ERRORS AND OMISSIONS. ALL PREVIOUS ISSUES OF THIS DRAWINGS ARE SUPERSEDED BY THE LATEST REVISION.

PROPRIETARY INFORMATION

Call 2 Business Days Before You Dig
1-800-424-5555
Utilities Underground Location Center
(ID,MT,ND,WA)

verizonwireless

LDC THE CIVIL ENGINEERING GROUP
Architectural Engineering Structural Survey
14201 NE 200th St., #100
Woodinville, WA 98072
Ph. 425.806.1869
Fx. 425.482.2893
www.LDCcorp.com

DATE:	4-29-14
DRAWN BY:	AT
CHECKED BY:	RBH

REVISIONS

REV	DATE	DESCRIPTION	BY
1	4-29-14	PRELIMINARY ZONING	RBH
2	5-5-14	FINAL ZONING	RBH
3	8-8-14	PRELIMINARY CONSTRUCTION	RBH
4	8-18-14	FINAL CONSTRUCTION	RBH
5	9-23-14	REVISED FINAL CONSTRUCTION	RBH
6	10-1-14	REVISED FINAL CONSTRUCTION	RBH
7	10-9-14	REVISED FINAL CONSTRUCTION	RBH
8	11-4-14	REVISED FINAL CONSTRUCTION	RBH

8828 REGISTERED ARCHITECT RICHARD B. HALL STATE OF WASHINGTON

COUNTY STAMP

SITE
TAC FERRIS WHEEL WAREHOUSE - NODES 10-13

110-9TH AVENUE SW
PUYALLUP, WA 98371

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

Drawing: P:\2013_Telecom\13-911C Verizon - TAC Ferris Wheel - Warehouse\Drawings\Construction\13911C-CD-T1-G.dwg Plotted: Nov 04, 2014 - 10:46am

1. GENERAL

1.1. ALL CONSTRUCTION SHALL CONFORM TO THE 2012 INTERNATIONAL BUILDING CODE. REFERENCE TO OTHER STANDARDS OR CODES SHALL MEAN THE LATEST STANDARD OR CODE ADOPTED & PUBLISHED.

1.2. DRAWINGS SHOW TYPICAL & CERTAIN SPECIFIC CONDITIONS ONLY. FOR DETAILS NOT SPECIFICALLY SHOWN, PROVIDE DETAILS SIMILAR TO THOSE SHOWN.

1.3. EXISTING STRUCTURES & UNDERGROUND UTILITIES/STRUCTURES ARE ON DRAWINGS FOR CLARITY ONLY. VERIFY ALL EXISTING CONDITIONS, DIMENSIONS & ELEVATIONS BEFORE STARTING WORK. NOTIFY STRUCTURAL ENGINEER IN WRITING OF ANY INTERFERENCE AND/OR DISCREPANCIES THAT MIGHT EXIST.

1.4. THE DESIGN, ADEQUACY, AND SAFETY OF ERECTION BRACING, SHORING TEMPORARY SUPPORTS, ETC., IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

1.5. COORDINATE STRUCTURAL CONTRACT DOCUMENTS WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING & CIVIL. NOTIFY STRUCTURAL ENGINEER OF ANY CONFLICT AND/OR OMISSION.

1.6. COORDINATE & VERIFY FLOOR, ROOF AND WALL OPENING SIZES & LOCATIONS WITH ARCHITECTURAL, MECHANICAL, PLUMBING & ELECTRICAL DRAWINGS. FOR ADDITIONAL OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS, SEE ARCHITECTURAL & MECHANICAL DRAWINGS.

1.7. FOR DIMENSIONS NOT SHOWN, SEE ARCHITECTURAL DRAWINGS.

1.8. REVIEW OF SUBMITTALS AND/OR SHOP DRAWINGS BY THE STRUCTURAL ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO REVIEW & CHECK SHOP DRAWINGS BEFORE SUBMITTAL TO THE STRUCTURAL ENGINEER. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS & OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, & DIMENSIONS SPECIFIED IN THE CONTRACT DOCUMENTS. CONTRACTOR IS ALSO RESPONSIBLE FOR MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES OF CONSTRUCTION.

1.9. STRUCTURAL DESIGN DRAWINGS SHALL NOT BE REPRODUCED AS SHOP DRAWINGS. CONTRACTOR & HIS SUBCONTRACTORS SHALL PREPARE ORIGINAL SHOP DRAWINGS.

1.10. CONTRACTOR SHALL REVIEW & STAMP ALL SHOP DRAWINGS BEFORE SUBMITTAL FOR REVIEW. PROPOSED FABRICATION CHANGES FROM DESIGN DRAWINGS SHALL BE NOTED IN SHOP DRAWINGS. ANY DISCREPANCIES BETWEEN ARCHITECTURAL & STRUCTURAL DRAWINGS SHALL BE NOTED TO BE VERIFIED ON SHOP DRAWINGS.

1.11. COMPLETE SHOP DRAWINGS FOR CONSTRUCTION OF ALL APPLICABLE SPECIALTY ITEMS INCLUDING CURTAIN WALL GLAZING SYSTEMS, LIGHT GAUGE STEEL FRAMING, ORNAMENTAL GUARDRAILS, SKYLIGHTS, METAL GRATING & STAIRS SHALL BE SEALED & SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF WASHINGTON & SHALL BE AVAILABLE AT THE JOB SITE DURING THE TIMES OF INSPECTION.

1.12. RISK CATEGORY = II

1.13. DESIGN GRAVITY LOADS:

SNOW LOAD:

GROUND SNOW LOAD, P_g _____ 25 PSF

1.14. WIND LOADS:

ULTIMATE WIND SPEED (3 SEC. GUST), V_{ult} _____ 110 MPH

NOMINAL DESIGN WIND SPEED: V_{asd} _____ 85 MPH

EXPOSURE CATEGORY _____ B

INTERNAL PRESSURE COEFFICIENT, GC_{pi} _____ ±0.00

1.15. SEISMIC LOADS:

SEISMIC IMPORTANCE FACTOR, I_e _____ 1.0

MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETERS:

(SHORT SECOND) S_s _____ 1.255

(1-SECOND PERIOD) S_1 _____ 0.483

SITE CLASS _____ D

DESIGN SPECTRAL RESPONSE ACCELERATION COEFFICIENTS:

(SHORT SECOND) S_{DS} _____ 0.837

(1-SECOND PERIOD) S_{D1} _____ 0.488

SEISMIC DESIGN CATEGORY _____ D

COMPONENT RESPONSE MODIFICATION FACTOR, R_p _____ 2.5

COMPONENT AMPLIFICATION FACTOR, a_p _____ 1.0

2. REINFORCED CONCRETE

2.1. ALL CONCRETE WORK SHALL CONFORM TO ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS. DESIGN IS BASED ON ACI 318-11, BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE

2.2. UNLESS NOTED OTHERWISE, ALL CONCRETE SHALL BE NORMAL WEIGHT & SHALL HAVE MINIMUM 28 DAY STRENGTHS AS FOLLOWS:

SLAB-ON-GRADE.....3000 PSI

2.3. THE PROPOSED MATERIALS & MIX DESIGN SHALL BE FULLY DOCUMENTED & REVIEWED BY THE OWNER'S TESTING LABORATORY. RESPONSIBILITY FOR OBTAINING THE REQUIRED DESIGN STRENGTH IS THE CONTRACTOR'S.

2.4. USE OF CALCIUM CHLORIDE, CHLORIDE IONS, OR OTHER SALTS IN CONCRETE IS NOT PERMITTED.

2.5. HORIZONTAL CONSTRUCTION JOINTS ARE PERMITTED ONLY WHERE INDICATED. THE LOCATIONS OF VERTICAL CONSTRUCTION JOINTS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER. CONSTRUCTION JOINTS SHALL BE THOROUGHLY ROUGHENED BY MECHANICAL MEANS & CLEANED.

2.6. UNLESS NOTED OTHERWISE, CHAMFER OR ROUND ALL EXPOSED CORNERS MINIMUM 3/4". SEE ARCHITECTURAL DRAWINGS FOR CHAMFER OR REVEAL REQUIREMENTS FOR ARCHITECTURAL CONCRETE.

2.7. DETAIL CONCRETE REINFORCEMENT & ACCESSORIES IN ACCORDANCE WITH THE LATEST EDITION OF ACI 315 & ACI DETAILING MANUAL (LATEST EDITION). SUBMIT SHOP DRAWINGS FOR REVIEW SHOWING ALL FABRICATION DIMENSIONS & LOCATIONS FOR PLACING REINFORCING STEEL & ACCESSORIES. DO NOT BEGIN FABRICATION UNTIL SHOP DRAWINGS ARE COMPLETED & REVIEWED.

2.8. DETAIL ALL CONCRETE WALLS & BEAMS ON THE SHOP DRAWINGS IN ELEVATION UNLESS SPECIFICALLY APPROVED OTHERWISE.

2.9. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60 UNLESS NOTED OTHERWISE.

2.10. WELDED WIRE FABRIC (MESH) SHALL CONFORM TO ASTM A185.

2.11. TIE ALL REINFORCING STEEL & EMBEDMENTS SECURELY IN PLACE PRIOR TO PLACING CONCRETE. PROVIDE SUFFICIENT SUPPORTS TO MAINTAIN THE POSITION OF REINFORCEMENT WITHIN SPECIFIED TOLERANCES DURING ALL CONSTRUCTION ACTIVITIES.

2.12. PROVIDE CONTINUOUS REINFORCEMENT WHEREVER POSSIBLE; SPLICE ONLY AS SHOWN OR APPROVED; STAGGER SPLICES WHERE POSSIBLE; USE FULL TENSION SPLICE UNLESS NOTED OTHERWISE.

2.13. REINFORCING STEEL SHALL HAVE THE FOLLOWING CONCRETE COVER UNLESS NOTED OTHERWISE:

CONCRETE AGAINST EARTH (NOT FORMED).....3"

FORMED CONCRETE EXPOSED TO EARTH OR WEATHER

#6 THROUGH #18 BARS.....2"

#5 BARS & SMALLER.....1-1/2"

CONCRETE NOT EXPOSED TO EARTH OR WEATHER

SLABS & WALLS.....1"

BEAMS (STIRRUPS) & COLUMNS (TIES).....1-1/2"

2.14. DO NOT WELD OR TACK WELD REINFORCING STEEL UNLESS APPROVED OR DIRECTED BY THE STRUCTURAL ENGINEER.

2.15. STEEL REINFORCEMENT TO BE WELDED SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 & THAT WELDING SHALL BE IN ACCORDANCE WITH AWS D1.4, STRUCTURAL WELDING CODE - REINFORCING STEEL BY AMERICAN WELDING SOCIETY FOR COMPLIANCE WITH ACI 318-11 SECTION 3.8.2.

2.16. SEE CIVIL & ARCHITECTURAL DRAWINGS FOR EXTERIOR SLAB WORK & JOINTING.

2.17. INCLUDE AIR ENTRAINING ADMIXTURE IN ALL CONCRETE THAT WILL BE EXPOSED TO WEATHER EXCEPT IN FOOTINGS.

2.18. INCLUDE WATER REDUCING ADMIXTURE IN ALL CONCRETE MIXES.

2.19. CONCRETE THAT WILL BE EXPOSED TO WEATHER SHALL HAVE WATER CONTENT LIMITED TO A MAXIMUM OF SIX (6) GALLONS PER SACK OF CEMENT.

2.20. THE PROPOSED MATERIALS & MIX DESIGN SHALL BE FULLY DOCUMENTS & REVIEWED BY THE OWNER'S TESTING LABORATORY. RESPONSIBILITY FOR OBTAINING THE REQUIRED DESIGN STRENGTH IS THE CONTRACTOR'S. RESULTS OF COMPRESSIVE STRENGTH TESTS TO BE AVAILABLE ON SITE FOR INSPECTOR'S REVIEW.

2.21. BARS, OTHER THAN GRADE 40, SHALL BE MILL MARKED SO THAT TYPE, GRADE & YIELD STRENGTH ARE VISIBLY IDENTIFIABLE.

2.22. PROVIDE CORNER BARS AS PER TYPICAL DETAIL AT CORNERS & INTERSECTIONS OF ALL GRADE BEAMS & WALLS.

2.23. PROVIDE #3 @ 12" DOWELS FROM ALL ADJACENT CONCRETE GRADE BEAMS & WALLS TO INTERIOR SLABS-ON-GROUND, U.N.O.

2.24. ALL REINFORCING LAP SPLICES, UNLESS OTHERWISE SHOWN, SHALL SATISFY THE FOLLOWING SCHEDULE:

CONCRETE REINFORCEMENT LAP SPLICE LENGTH (in) GRADE 60

BAR SIZE	#3	#4	#5	#6	#7	#8	#9	#10	#11
TOP BAR *	28	37	47	57	81	93	104	117	130
OTHER	21	28	36	43	62	71	80	90	100

ALL BAR DEVELOPMENT LENGTHS, UNLESS OTHERWISE SHOWN, SHALL SATISFY THE FOLLOWING SCHEDULE:

CONCRETE REINFORCEMENT DEVELOPMENT LENGTH (in) GRADE 60

BAR SIZE	#3	#4	#5	#6	#7	#8	#9	#10	#11
TOP BAR *	21	28	36	43	62	71	80	90	100
OTHER	17	22	28	33	48	55	62	70	77

* TOP BAR SHALL BE DEFINED AS ANY HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR, IN ANY SINGLE CONCRETE PLACEMENT. HORIZONTAL WALL BARS ARE CONSIDERED TOP BARS.

3. POST-INSTALLED REBAR & ANCHORS

3.1. SPECIFIC PRODUCT, DIAMETER, AND EMBEDMENT SHALL BE SHOWN IN THE DETAILS. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER' PRINTED INSTALLATION INSTRUCTIONS (MPII). CONTRACTOR SHALL CONTACT MANUFACTURER'S REPRESENTATIVE FOR PRODUCT INSTALLATION TRAINING AND SHALL SUBMIT LETTER TO THE ENGINEER-OF-RECORD (EOR) INDICATING TRAINING HAS TAKEN PLACE. REFER TO THE PROJECT BUILDING CODE AND/OR EVALUATION REPORT FOR SPECIAL INSPECTIONS AND PROOF LOAD REQUIREMENTS. SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE LISTSED BELOW MAY BE SUBMITTED BY THE CONTRACTOR TO THE EOR FOR REVIEW. SUBSTITUTIONS WILL ONLY BE CONSIDERED FOR PRODUCTS HAVING A RESEARCH REPORT RECOGNIZING THE PRODUCT FOR THE APPROPRIATE APPLICATION UNDER THE PROJECT BUILDING CODE. SUBSTITUTION REQUEST SHALL INCLUDE CALCULATIONS THAT DEMONSTRATE THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE EQUIVALENT PERFORMANCE VALUES OF THE DESIGN BASIS PRODUCT.

3.2. FOR ANCHORING INTO CONCRETE:

3.2.a. MECHANICAL ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.2 AND ICC-ES AC193 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS.

3.2.b. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE DRILL BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2 INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.9.2.4.

3.2.c. POWER-ACTUATED FASTENERS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ICC-ES AC70.

4. SPECIAL INSPECTIONS

4.1. STRUCTURAL TESTS AND INSPECTIONS SHALL COMPLY WITH THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE.

4.1.a. THE INSPECTOR SHALL BE HIRED AND PAID FOR BY THE OWNER.

4.1.b. THE INSPECTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE APPROVED STRUCTURAL PLANS AND SHALL SUBMIT PROGRESS REPORTS AND INSPECTION REPORTS TO THE BUILDING OFFICIAL AND TO THE STRUCTURAL ENGINEER OF RECORD.

4.2. SATISFY MINIMUM INSPECTION AND QUALITY CONTROL REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE.

4.3. SEE S101 FOR SCHEDULE OF SPECIAL INSPECTIONS.

PROJECT SPECIAL INSPECTIONS

MATERIAL/ACTIVITY	SERVICE	APPLICABLE TO THIS PROJECT Y/N	EXTENT	AGENT	DATE COMPLETED
1704.2.5 INSPECTION OF FABRICATORS					
1. VERIFY FABRICATION/QUALITY CONTROL PROCEDURES	IN-PLANT REVIEW (3)	Y	PERIODIC		
1705.3 CONCRETE CONSTRUCTION					
1. INSPECTION OF REINFORCING STEEL INSTALLATION (SEE 1705.2.2 FOR WELDING)	SHOP (3) AND FIELD INSPECTION	Y	PERIODIC		
4. INSPECTION OF ANCHORS AND REINFORCING STEEL POST-INSTALLED IN HARDENED CONCRETE: PER RESEARCH REPORTS INCLUDING VERIFICATION OF ANCHOR TYPE, ANCHOR DIMENSIONS, HOLE DIMENSIONS, HOLE CLEANING PROCEDURES, ANCHOR SPACING, EDGE DISTANCE, CONCRETE MINIMUM THICKNESS, ANCHOR EMBEDMENT, AND TIGHTENING TORQUE	FIELD INSPECTION	Y	PERIODIC OR AS REQUIRED BY THE RESEARCH REPORT ISSUED BY AN APPROVED SOURCE		
5. VERIFY USE OF APPROVED DESIGN MIX	SHOP (3) AND FIELD INSPECTION	Y	PERIODIC		
6. FRESH CONCRETE SAMPLING, PERFORM SLUMP AND AIR CONTENT TESTS AND DETERMINE TEMPERATURE OF CONCRETE	SHOP (3) AND FIELD INSPECTION	Y	CONTINUOUS		
7. INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	SHOP (3) AND FIELD INSPECTION	Y	CONTINUOUS		
8. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	SHOP (3) AND FIELD INSPECTION	Y	PERIODIC		
12. INSPECTION OF FORMWORK FOR SHAPE, LINES, LOCATION, AND DIMENSIONS	FIELD INSPECTION	Y	PERIODIC		
13. CONCRETE STRENGTH TESTING AND VERIFICATION OF COMPLIANCE WITH CONSTRUCTION DOCUMENTS	FIELD TESTING AND REVIEW OF LABORATORY REPORTS	Y	PERIODIC		
1705.11.6 MECHANICAL AND ELECTRICAL COMPONENTS SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE					
1. INSPECTION DURING THE ANCHORAGE OF ELECTRICAL EQUIPMENT FOR EMERGENCY OR STANDBY POWER SYSTEMS	FIELD INSPECTION	Y	PERIODIC		
2. INSPECTION DURING THE ANCHORAGE OF OTHER ELECTRICAL EQUIPMENT	FIELD INSPECTION	Y	PERIODIC		
3. INSPECTION DURING INSTALLATION AND ANCHORAGE OF PIPING SYSTEMS DESIGNED TO CARRY HAZARDOUS MATERIALS AND THEIR ASSOCIATED MECHANICAL UNITS	FIELD INSPECTION	Y	PERIODIC		
4. INSPECTION DURING THE INSTALLATION AND ACNHORAGE OF HVAC DUCTWORK THAT WILL CONTAIN HAZARDOUS MATERIALS	FIELD INSPECTION	Y	PERIODIC		
5. INSPECTION DURING THE INSTALLATION AND ANCHORAGE OF VIBRATION ISOLATION SYSTEMS	FIELD INSPECTION	Y	PERIODI		
1705.11.7 STORAGE RACKS SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE					
1. INSPECTION DURING THE ANCHORAGE OF STORAGE RACKS 8 FEET OR GREATER IN HEIGHT	FIELD INSPECTION	·	-		
1705.12.3 SEISMIC CERTIFICATION OF NONSTRUCTURAL COMPONENTS					
1. REVIEW CERTIFICATE OF COMPLIANCE FOR DESIGNATED SEISMIC SYSTEM COMPONENTS	CERTIFICATE OF COMPLIANCE REVIEW	Y	EACH SUBMITTAL		
1705 POST-INSALLED ANCHORS					
1. PREPARE A REPORT INCLUDING THE FOLLOWING DETAILS:					
A. ANCHOR DESCRIPTION, INCLUDING THE ANCHOR PRODUCT NAME, BOLT DIAMETER, AND ANCHOR LENGTH	FIELD INSPECTION	Y	CONTINUOUS		
B. HOLE DESCRIPTION INCLUDING VERIFICATION OF DRILL BIT COMPLIANCE WITH ANSI B212.15-1994. RECORD INSTALLATION DESCRIPTION, INCLUDING VERIFICATION OF MASONRY/CONCRETE COMPRESSIVE STRENGTH AND ANCHOR INSTALLATION AND LOCATION (SPACING AND EDGE DISTANCE) IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS.	FIELD INSPECTION	Y	CONTINUOUS		

verizon wireless

LDC THE CIVIL ENGINEERING GROUP
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www.LDCcorp.com

DATE: 4-29-14
DRAWN BY: AT
CHECKED BY: RBH

REVISIONS

REV	DATE	DESCRIPTION	BY
1	4-29-14	PRELIMINARY ZONING	RBH
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MARK E. VILLAOCH — STATE OF WASHINGTON — 40908 — REGISTERED PROFESSIONAL ENGINEER — 11-4-14

COUNTY STAMP

SITE

TAC FERRIS WHEEL
WAREHOUSE - NODES 10-13

110-9TH AVENUE SW
PUYALLUP, WA 98371

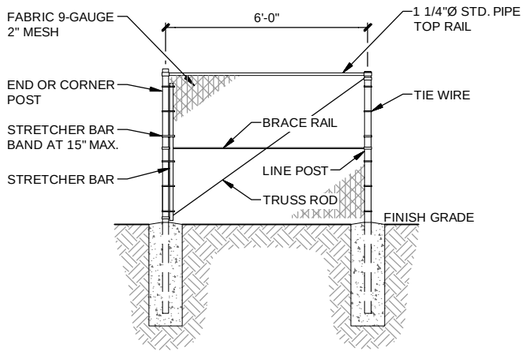
SHEET TITLE

STRUCTURAL
NOTES

SHEET NUMBER

S-1
A10

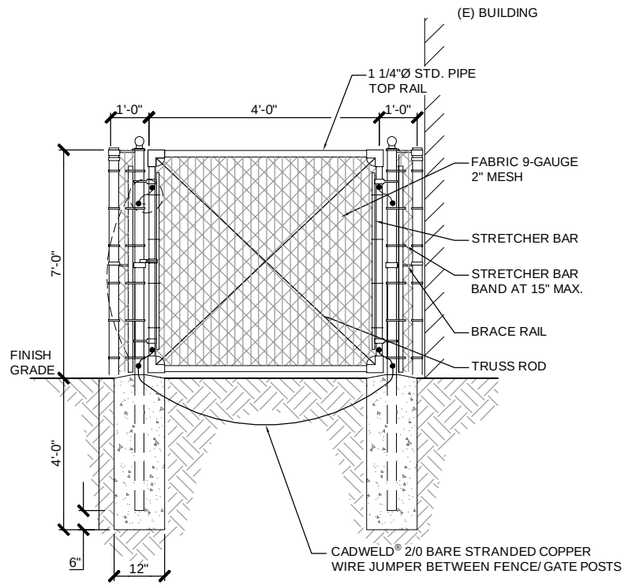
6' HIGH GATE / FENCE		NOTES
LINE POST	2 3/8"	1. ALL MATERIALS TO BE SCHEDULE 40 GALVANIZED PIPE.
CORNER POST	3"	
TOP RAIL	1 1/4"	2. CHAIN LINK FABRIC TO BE 9 GAUGE.



NOTE:
SEE 5/S-2 FOR FOOTING DETAIL

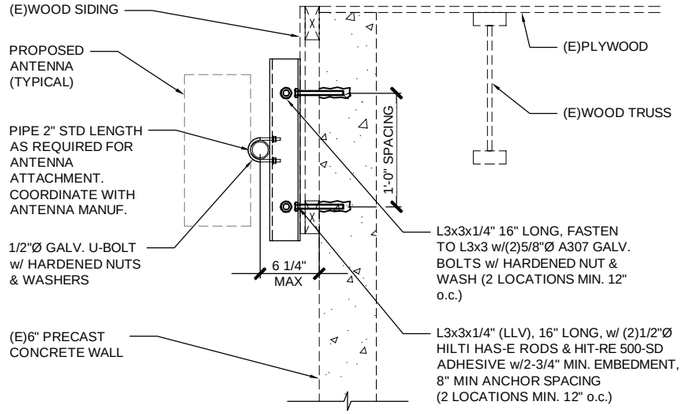
CHAIN LINK FENCE DETAIL
NOT TO SCALE

6



MAN GATE DETAIL
NOT TO SCALE

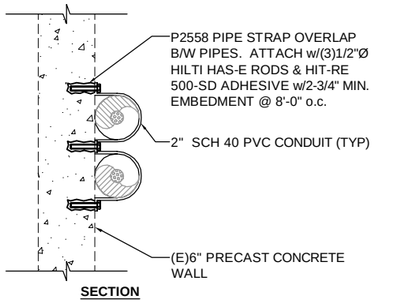
5



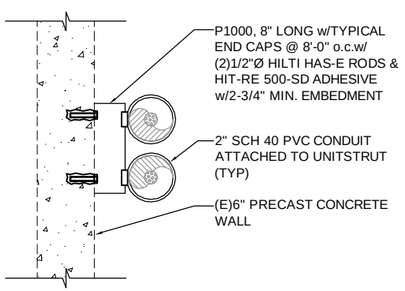
SECTION

ANTENNA ATTACHMENT
22"x34" SCALE: 1 1/2" = 1'-0" 11"x17" SCALE: 3/4" = 1'-0"

4



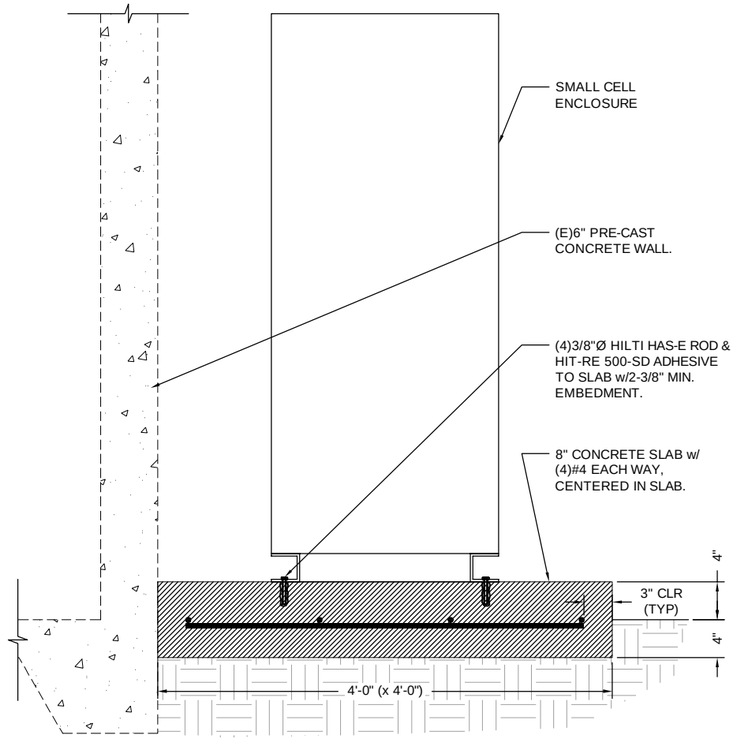
SECTION



PLAN

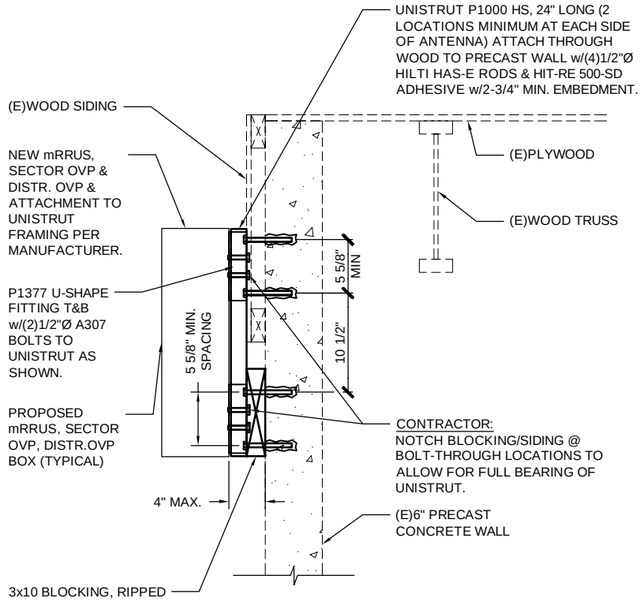
CONDUIT MOUNTING DETAIL
22"x34" SCALE: 3" = 1'-0" 11"x17" SCALE: 1 1/2" = 1'-0"

3



CABINET SLAB & ATTACHMENT DETAIL
22"x34" SCALE: 1 1/2" = 1'-0" 11"x17" SCALE: 3/4" = 1'-0"

2



SECTION

mRRUS, SECTOR & OVP BOX ATTACHMENT
22"x34" SCALE: 1 1/2" = 1'-0" 11"x17" SCALE: 3/4" = 1'-0"

1

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