

PRCTI20250451

February 6, 2025

Jason Skaggs
Smartlink Group
1997 Annapolis Exchange Pkwy, Suite 200
Annapolis, MD 21401
(510) 778-2166

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



TEP OPCO, LLC
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Structures@tepgroup.net

City of Puyallup
Building
REVIEWED
FOR
COMPLIANCE

SKinnear
04/18/2025
9:58:14 AM



Subject:

Appurtenance Mount Analysis

Carrier Designation:

AT&T Mobility Reconfiguration

Site Number:

WA6413

Site Name:

SOUTH HILL MALL

FA Location Code:

10038029

Engineering Firm Designation:

TEP Project Number:

340502.1060261

Site Data:

3310 South Meridian, Puyallup, Pierce County, WA 98373

Latitude 47° 09' 35.06", Longitude -122° 17' 47.76"

80.0± Foot - Monopole Tower

76.0 Foot Mount Height - Pipe

64.0 Foot Mount Height - Pipe

56.0 Foot Mount Height - Pipe

Dear Jason Skaggs,

TEP is pleased to submit this "Appurtenance Mount Analysis" to determine the structural integrity of the antenna mount on the above-mentioned tower.

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

LC1: Proposed + Reserved Loading

Note: See Table 2 for the, proposed, and reserved loading

Sufficient Capacity

Mount Capacity

55.4%

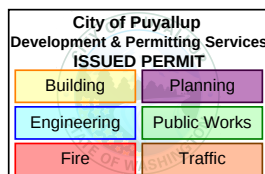
The analysis has been performed in accordance with the ANSI/TIA-222-H Structural Standard for Antenna Supporting Structures, Antennas, and Small Wind Turbine Support Structures. The 2021 Washington State Building Code, and the AT&T Mount Technical Guidance – Revision 23.

All equipment proposed in this report shall be installed in accordance with the appurtenances listed in Table 2 and the proposed modifications for the determined available structural capacity to be effective.

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

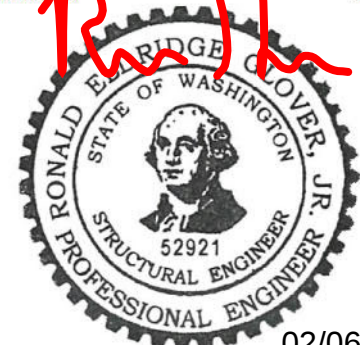
Respectfully submitted by:

Ronald E. Glover, P.E., S.E.



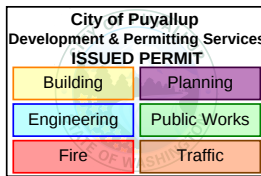
TEP OPCO, LLC

3446



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02/06/2025



ANALYSIS CRITERIA

Table 1 - Mount Analysis Parameters

Ultimate Wind Speed (MPH)	Ice Thickness (in)	Ice Wind Speed (MPH)	Exposure Category	Risk Category	Topo Category	Kzt	Seismic Design Category	Maintenance Loads
97.0	1.0	30.0	C	II	1	1.0	D	Lm = N/A Lv = N/A

Table 2 - Proposed, and Reserved Antenna Loading Configuration

Existing/ Proposed/ Reserved	Mount Level (ft)	Ant CL (ft)	Qty	Antenna Model	Mount Type	Owner/ Tenant
Proposed	79.0	79.0	3	Ericsson AIR6419 B77G	(3) Pipe Mounts	AT&T
Proposed	74.5	74.5	3	Ericsson AIR6419 B77D		
To Be Removed	79.0	79.0	3	Nokia AEQK	-	AT&T
			3	Nokia AEQU		
Existing	70.0	70.0	1	Raycap DC9-48-60-24-8C-EV	Direct	AT&T
Existing	64.0	64.0	3	Kathrein 800372991	(3) Pipe Mounts	AT&T
To Be Removed	76.0	64.0	6	Kaelus TMA2117F00V1-1	-	AT&T
Existing	56.0	56.0	3	Kathrein 800372991	(3) Pipe Mounts	AT&T
To Be Removed	56.0	56.0	6	Kathrein 78211273V02	-	AT&T
Proposed	51.8	51.8	6	Commscope TMAT192123B68-21	-	AT&T
Proposed	50.0	50.0	6	Commscope TMAT192123B68-21		

ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity

Notes	Component	% Capacity	Pass / Fail
-	Mount Pipes	2.7	Pass
-	Threaded Rod	55.4	Pass

Structure Rating (max from all components) =	55.4%
--	-------

Table 5 - Documents Provided

Document	Remarks	Source
Tower Mapping Report	SGS, dated December 18, 2024 FA Location# 10038029	Smartlink
Preliminary Construction Drawings	Trylon, dated January 15, 2025 FA Location# 10038029	Smartlink

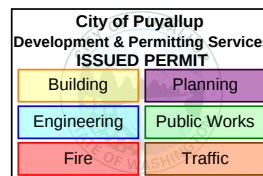
RECOMMENDATIONS

- 1) If the load differs from that described in Table 2 of this report or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
- 2) The mount has sufficient capacity to carry the existing, proposed, and reserved loading. No modifications are required at this time.
- 3) TEP was not provided a mount mapping and had to base geometry assumptions off photos. If any of these assumptions are not accurate this analysis is not valid. TEP recommends completing a mount mapping to confirm the mount geometry.

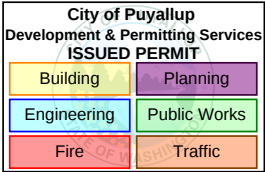
ANALYSIS ASSUMPTIONS

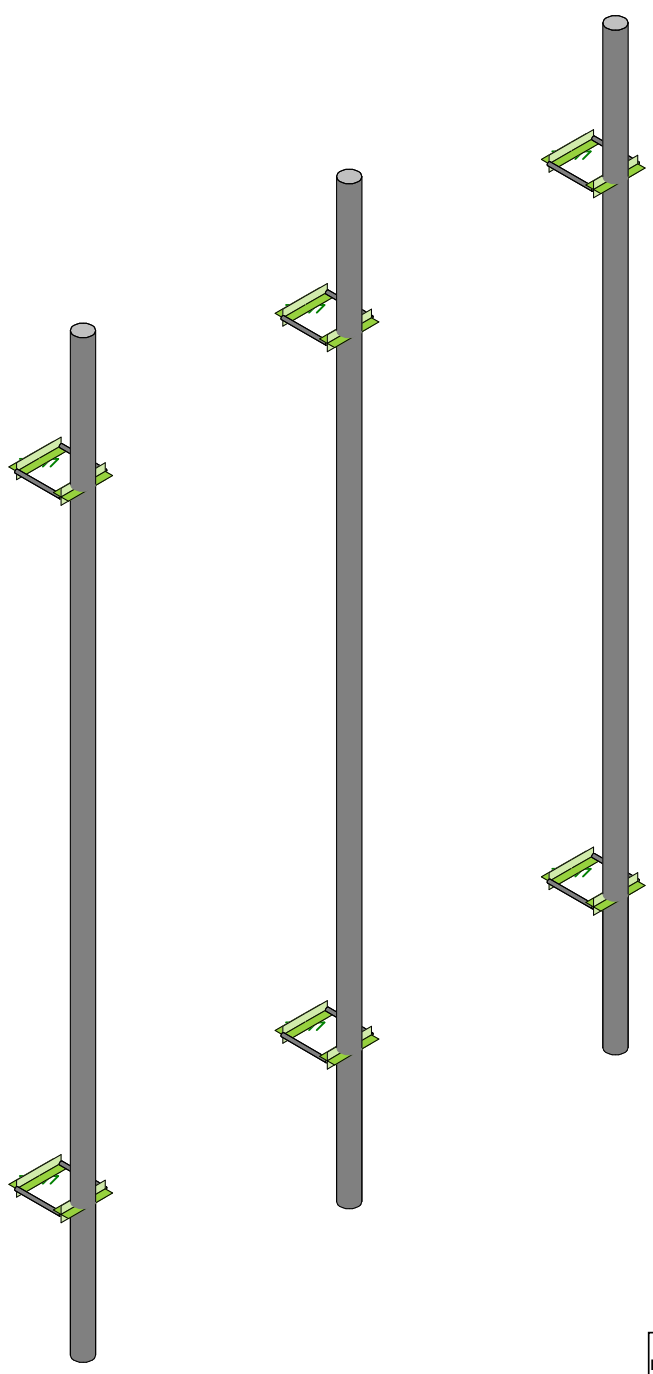
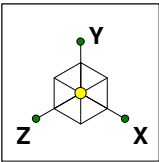
- 1) The mount was built in accordance with the manufacturer's specifications.
- 2) The mount has been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Table 2. All mount components have been assumed to be in sufficient condition to carry their full design capacity for this analysis. Refer to the issued mapping for any structural and/or maintenance issues found during our site visit.
- 4) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.
- 5) TEP did not analyze the collar mount connection to the pole and assumes it to have sufficient structural capacity to transfer the applied forces from the mount to the tower.
- 6) All material grades used for this analysis, unless verified by mount manufacturer design, were assumed per AISC Table 2-4, 15th Edition. See RISA 3-D output for confirmation on grades used in this analysis.

This analysis may be affected if any assumptions are not valid or have been made in error. TEP should be notified to determine the effect on the structural integrity of the mount.



APPENDIX A
RISA-3D OUTPUT





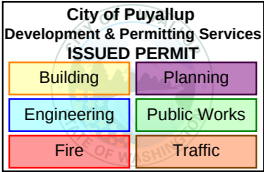
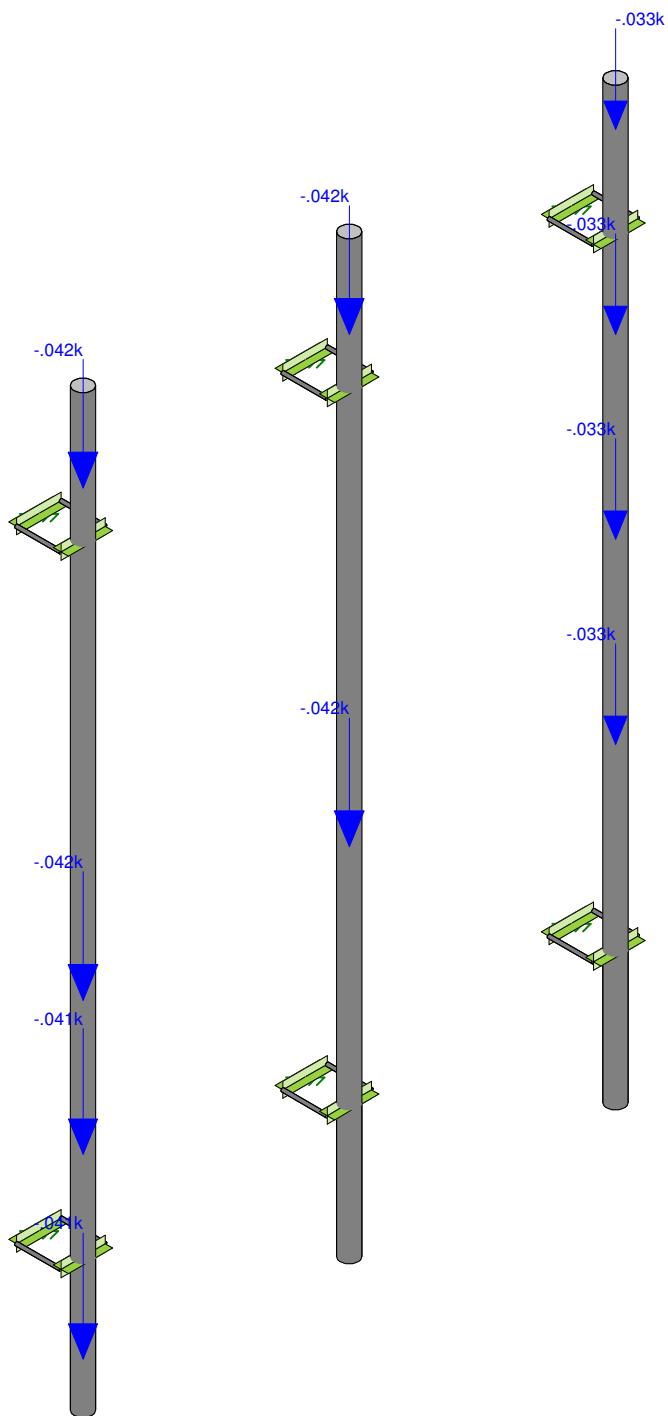
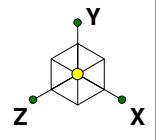
City of Puyallup
Development & Permitting Services

ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

Envelope Only Solution

TEP	SOUTH HILL MALL (10038029)	SK - 1
DRP		Feb 6, 2025 at 10:03 AM
TEP No. 340502.1060261		Mount.r3d



Loads: BLC 1, Dead
Envelope Only Solution

TEP

DRP

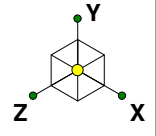
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SOUTH HILL MALL (10038029)

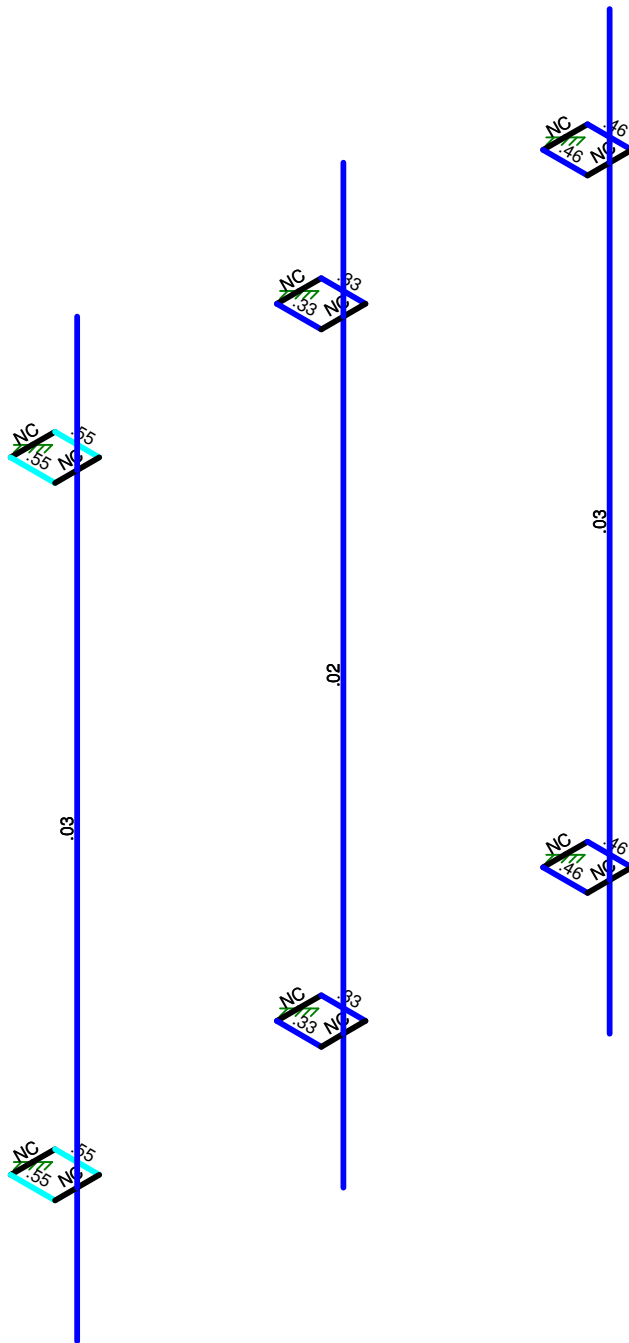
SK - 2

Feb 6, 2025 at 10:04 AM

Mount.r3d



Code Check (Env)	
	No Calc
	> 1.0
	.90-1.0
	.75-.90
	.50-.75
	0-.50

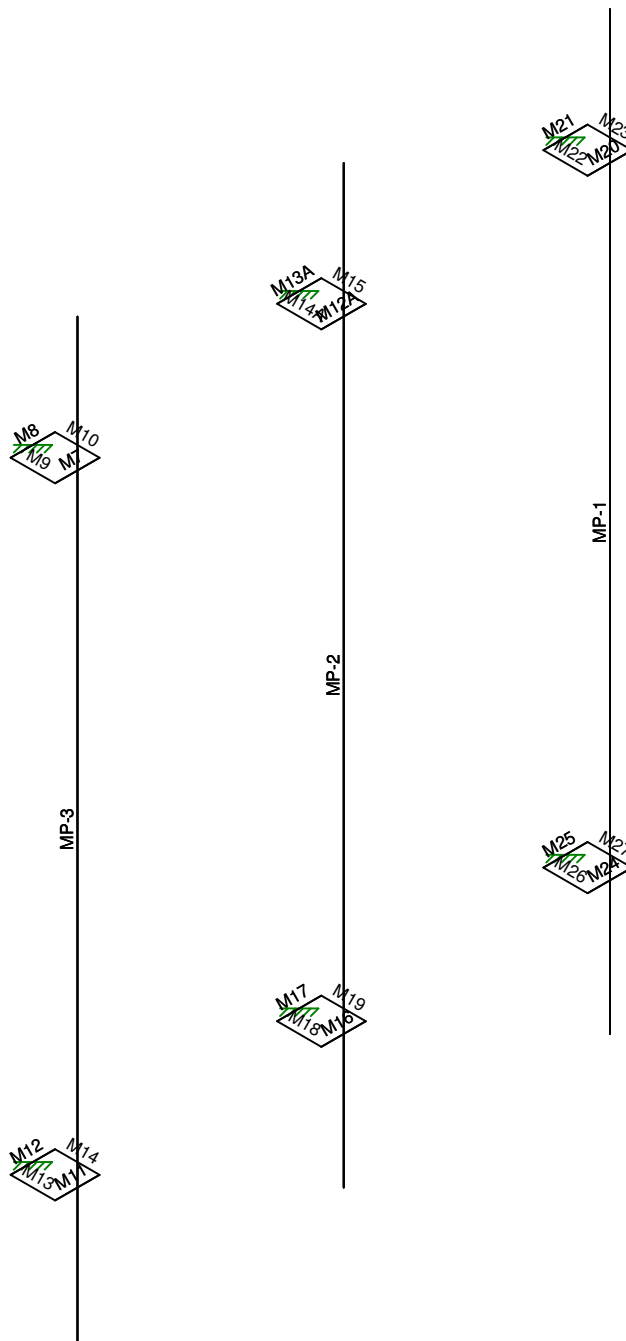
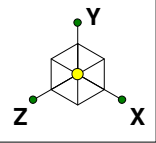


Member Code Checks Displayed (Enveloped)
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TEP	SOUTH HILL MALL (10038029)	SK - 3
DRP		Feb 6, 2025 at 10:04 AM
TEP No. 340502.1060261		Mount.r3d



City of Puyallup
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Fire	Traffic

Envelope Only Solution

TEP

DRP

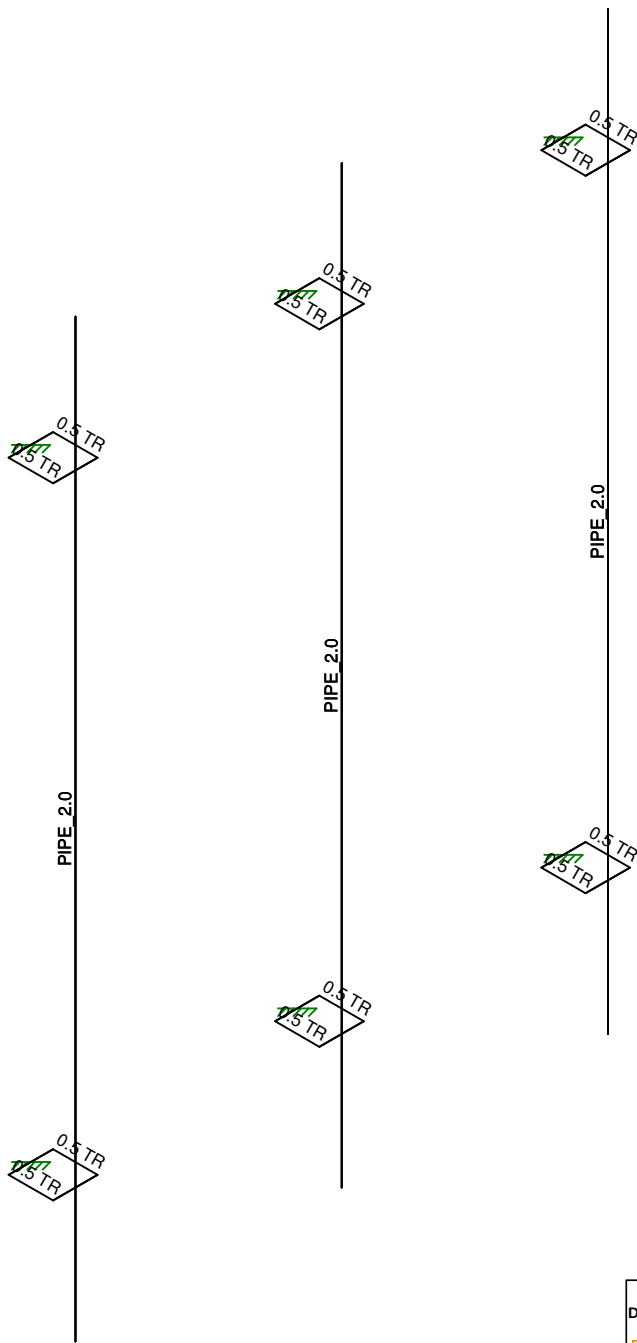
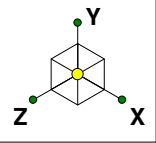
TEP No. 340502.1060261

SOUTH HILL MALL (10038029)

SK - 4

Feb 6, 2025 at 10:04 AM

Mount.r3d



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

Envelope Only Solution

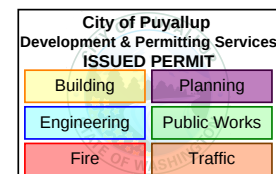
TEP	SOUTH HILL MALL (10038029)	SK - 5
DRP		Feb 6, 2025 at 10:04 AM
TEP No. 340502.1060261		Mount.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

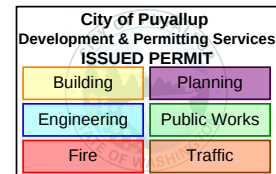
Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	No
RISACONNECTION CODE	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parame Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8



(Global) Model Settings, Continued

Seismic Code	ASCE 7-16
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1



Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
2	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3
3	SAE J429 Gr.5	29000	11154	.3	.65	.49	92	1.5	120	1.2
4	A36	29000	11154	.3	.65	.49	36	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design ...	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mount Pipes	PIPE 2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	Support Arms	L3X3X4	None	None	A53 Gr.B	Typical	1.44	1.23	1.23	.031
3	0.5 Threaded Rod	0.5 TR	None	None	A36	Typical	.142	.002	.002	.003
4	MP2.0	PIPE_2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	CF1A	8CU1.25X...	Beam	None	A653 SS Gr33	Typical	.581	.057	4.41	.00063

Material Takeoff

	Material	Size	Pieces	Length[ft]	Weight[K]
1	General				
2	RIGID		12	6	0
3	Total General		12	6	0
4					
5	Hot Rolled Steel				
6	A36	0.5 TR	12	6	.003
7	A53 Gr.B	PIPE 2.0	3	30	.104
8	Total HR Steel		15	36	.107

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N13	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N19	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N19A	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N25	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N31	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N37	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...)	Section/Shape	Type	Design List	Material	Design Rules
1	MP-1	N3	N4			Mount Pipes	None	None	A53 Gr.B	Typical
2	MP-2	N6	N7			Mount Pipes	None	None	A53 Gr.B	Typical
3	MP-3	N10	N11			Mount Pipes	None	None	A53 Gr.B	Typical
4	M7	N17	N18			RIGID	None	None	RIGID	Typical
5	M8	N14	N15			RIGID	None	None	RIGID	Typical
6	M9	N17	N14			0.5 Threaded Rod	None	None	A36	Typical
7	M10	N18	N15			0.5 Threaded Rod	None	None	A36	Typical
8	M11	N23	N24			RIGID	None	None	RIGID	Typical
9	M12	N20	N21			RIGID	None	None	RIGID	Typical
10	M13	N23	N20			0.5 Threaded Rod	None	None	A36	Typical
11	M14	N24	N21			0.5 Threaded Rod	None	None	A36	Typical
12	M12A	N23A	N24A			RIGID	None	None	RIGID	Typical
13	M13A	N20A	N21A			RIGID	None	None	RIGID	Typical
14	M14A	N23A	N20A			0.5 Threaded Rod	None	None	A36	Typical
15	M15	N24A	N21A			0.5 Threaded Rod	None	None	A36	Typical
16	M16	N29	N30			RIGID	None	None	RIGID	Typical
17	M17	N26	N27			RIGID	None	None	RIGID	Typical
18	M18	N29	N26			0.5 Threaded Rod	None	None	A36	Typical
19	M19	N30	N27			0.5 Threaded Rod	None	None	A36	Typical
20	M20	N35	N36			RIGID	None	None	RIGID	Typical
21	M21	N32	N33			RIGID	None	None	RIGID	Typical
22	M22	N35	N32			0.5 Threaded Rod	None	None	A36	Typical
23	M23	N36	N33			0.5 Threaded Rod	None	None	A36	Typical
24	M24	N41	N42			RIGID	None	None	RIGID	Typical
25	M25	N38	N39			RIGID	None	None	RIGID	Typical
26	M26	N41	N38			0.5 Threaded Rod	None	None	A36	Typical
27	M27	N42	N39			0.5 Threaded Rod	None	None	A36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical Defl R...	Analysi...	Inactive	Seismi...
1	MP-1						Yes	** NA **		None
2	MP-2						Yes	** NA **		None
3	MP-3						Yes	** NA **		None
4	M7						Yes	** NA **		None
5	M8						Yes	** NA **		None
6	M9						Yes	** NA **		None
7	M10						Yes	** NA **		None
8	M11						Yes	** NA **		None
9	M12						Yes	** NA **		None
10	M13						Yes	** NA **		None
11	M14						Yes	** NA **		None
12	M12A						Yes	** NA **		None
13	M13A						Yes	** NA **		None
14	M14A						Yes	** NA **		None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl R...	Analysi...	Inactive	Seismi...
15	M15						Yes	** NA **			None
16	M16						Yes	** NA **			None
17	M17						Yes	** NA **			None
18	M18						Yes	** NA **			None
19	M19						Yes	** NA **			None
20	M20						Yes	** NA **			None
21	M21						Yes	** NA **			None
22	M22						Yes	** NA **			None
23	M23						Yes	** NA **			None
24	M24						Yes	** NA **			None
25	M25						Yes	** NA **			None
26	M26						Yes	** NA **			None
27	M27						Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp to...	Lcomp bot[ft]	L-torque[ft]	Kyy	Kzz	Cb	Function
1	MP-1	Mount Pip...	10	Segment	Segment				2.1	2.1		Lateral
2	MP-2	Mount Pip...	10	Segment	Segment				2.1	2.1		Lateral
3	MP-3	Mount Pip...	10	Segment	Segment				2.1	2.1		Lateral
4	M9	0.5 Threa...	.5						1	1		Lateral
5	M10	0.5 Threa...	.5						1	1		Lateral
6	M13	0.5 Threa...	.5						1	1		Lateral
7	M14	0.5 Threa...	.5						1	1		Lateral
8	M14A	0.5 Threa...	.5						1	1		Lateral
9	M15	0.5 Threa...	.5						1	1		Lateral
10	M18	0.5 Threa...	.5						1	1		Lateral
11	M19	0.5 Threa...	.5						1	1		Lateral
12	M22	0.5 Threa...	.5						1	1		Lateral
13	M23	0.5 Threa...	.5						1	1		Lateral
14	M26	0.5 Threa...	.5						1	1		Lateral
15	M27	0.5 Threa...	.5						1	1		Lateral

Cold Formed Steel Design Parameters

Label	Shape	Length...	Lbyy[ft]	Lbzz[ft]	Lcomp to...	Lcomp b...	Kyy	Kzz	Cm-yy	Cm-zz	Cb	R	y sway	z sway
No Data to Print ...														

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut..	Area(M...	Surface...
1	Dead	None		-1			10			
2	0 Wind - No Ice	None					10	15		
3	30 Wind - No Ice	None					20	30		
4	45 Wind - No Ice	None					20	30		
5	60 Wind - No Ice	None					20	30		
6	90 Wind - No Ice	None					10	15		
7	120 Wind - No Ice	None					20	30		
8	135 Wind - No Ice	None					20	30		
9	150 Wind - No Ice	None					20	30		
10	180 Wind - No Ice	None					10	15		
11	210 Wind - No Ice	None					20	30		
12	225 Wind - No Ice	None					20	30		
13	240 Wind - No Ice	None					20	30		
14	270 Wind - No Ice	None					10	15		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut.	Area(M...	Surface...
15	300 Wind - No Ice	None					20	30		
16	315 Wind - No Ice	None					20	30		
17	330 Wind - No Ice	None					20	30		
18	Ice Weight	None					10	15		
19	0 Wind - Ice	None					10	15		
20	30 Wind - Ice	None					20	30		
21	45 Wind - Ice	None					20	30		
22	60 Wind - Ice	None					20	30		
23	90 Wind - Ice	None					10	15		
24	120 Wind - Ice	None					20	30		
25	135 Wind - Ice	None					20	30		
26	150 Wind - Ice	None					20	30		
27	180 Wind - Ice	None					10	15		
28	210 Wind - Ice	None					20	30		
29	225 Wind - Ice	None					20	30		
30	240 Wind - Ice	None					20	30		
31	270 Wind - Ice	None					10	15		
32	300 Wind - Ice	None					20	30		
33	315 Wind - Ice	None					20	30		
34	330 Wind - Ice	None					20	30		
35	Lm	None								
36	Lv	None								
37	Seismic Load X	ELX	-1				10			
38	Seismic Load Z	ELZ			-1		10			

Load Combinations

	Description	Solve	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4D	Yes	Y		1	1.4														
2	0.9D+1.0 0-Wind		Y		1	.9	2	1												
3	0.9D+1.0 30-Wind		Y		1	.9	3	1												
4	0.9D+1.0 45-Wind		Y		1	.9	4	1												
5	0.9D+1.0 60-Wind		Y		1	.9	5	1												
6	0.9D+1.0 90-Wind		Y		1	.9	6	1												
7	0.9D+1.0 120-Wi...		Y		1	.9	7	1												
8	0.9D+1.0 135-Wi...		Y		1	.9	8	1												
9	0.9D+1.0 150-Wi...		Y		1	.9	9	1												
10	0.9D+1.0 180-Wi...		Y		1	.9	10	1												
11	0.9D+1.0 210-Wi...		Y		1	.9	11	1												
12	0.9D+1.0 225-Wi...		Y		1	.9	12	1												
13	0.9D+1.0 240-Wi...		Y		1	.9	13	1												
14	0.9D+1.0 270-Wi...		Y		1	.9	14	1												
15	0.9D+1.0 300-Wi...		Y		1	.9	15	1												
16	0.9D+1.0 315-Wi...		Y		1	.9	16	1												
17	0.9D+1.0 330-Wi...		Y		1	.9	17	1												
18	1.2D+1.0 0-Wind		Y		1	1.2	2	1												
19	1.2D+1.0 30-Wind		Y		1	1.2	3	1												
20	1.2D+1.0 45-Wind		Y		1	1.2	4	1												
21	1.2D+1.0 60-Wind		Y		1	1.2	5	1												
22	1.2D+1.0 90-Wind		Y		1	1.2	6	1												
23	1.2D+1.0 120-Wi...		Y		1	1.2	7	1												
24	1.2D+1.0 135-Wi...		Y		1	1.2	8	1												
25	1.2D+1.0 150-Wi...		Y		1	1.2	9	1												
26	1.2D+1.0 180-Wi...		Y		1	1.2	10	1												
27	1.2D+1.0 210-Wi...		Y		1	1.2	11	1												
28	1.2D+1.0 225-Wi...		Y		1	1.2	12	1												

Load Combinations (Continued)

[illegible]

Load Combinations (Continued)

	Description	Solve	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...
86	(0.9-0.2Sds)*DL+...		Y		1	.698	E...	.253	E...	.438											
87	(0.9-0.2Sds)*DL+...		Y		1	.698	0		E...	.505											
88	(0.9-0.2Sds)*DL+...		Y		1	.698	E...	-.2...	E...	.438											
89	(0.9-0.2Sds)*DL+...		Y		1	.698	E...	-.3...	E...	.357											
90	(0.9-0.2Sds)*DL+...		Y		1	.698	E...	-.4...	E...	.253											
91	(0.9-0.2Sds)*DL+...		Y		1	.698	E...	-.5...	0												
92	(0.9-0.2Sds)*DL+...		Y		1	.698	E...	-.4...	E...	-.2...											
93	(0.9-0.2Sds)*DL+...		Y		1	.698	E...	-.3...	E...	-.3...											
94	(0.9-0.2Sds)*DL+...		Y		1	.698	E...	-.2...	E...	-.4...											
95	(0.9-0.2Sds)*DL+...		Y		1	.698	0		E...	-.5...											
96	(0.9-0.2Sds)*DL+...		Y		1	.698	E...	.253	E...	-.4...											
97	(0.9-0.2Sds)*DL+...		Y		1	.698	E...	.357	E...	-.3...											
98	(0.9-0.2Sds)*DL+...		Y		1	.698	E...	.438	E...	-.2...											

Joint Loads and Enforced Displacements

Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
No Data to Print ...			

Member Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
No Data to Print ...						

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N13	max	-.009	50	.142	1	0	50	0	50	0	50	.036	1
2		min	-.01	1	.122	50	0	1	0	1	0	1	.031	50
3	N19	max	.01	1	.142	1	0	50	0	50	0	50	.036	1
4		min	.009	50	.122	50	0	1	0	1	0	1	.031	50
5	N19A	max	-.005	50	.084	1	0	50	0	50	0	50	.021	1
6		min	-.006	1	.072	50	0	1	0	1	0	1	.018	50
7	N25	max	.006	1	.084	1	0	50	0	50	0	50	.021	1
8		min	.005	50	.072	50	0	1	0	1	0	1	.018	50
9	N31	max	-.007	50	.118	1	0	50	0	50	0	50	.03	1
10		min	-.008	1	.101	50	0	1	0	1	0	1	.026	50
11	N37	max	.008	1	.117	1	0	50	0	50	0	50	.03	1
12		min	.007	50	.101	50	0	1	0	1	0	1	.025	50
13	Totals:	max	0	50	.689	1	0	50						
14		min	0	1	.59	50	0	1						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

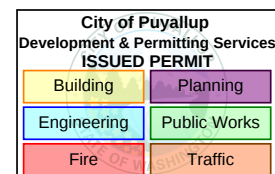
Member	Shape	Code Check	Loc[ft]	LC	Shear Check Lo.....	phi*...	phi*Pnt [k]	phi*Mn y-...	phi*...	Eqn
1	M14	.554	.5	1	.034	.5	1 3.886	4.596	.033	.033 ...H1-...
2	M13	.554	.5	1	.034	.5	1 3.886	4.596	.033	.033 ...H1-...
3	M9	.552	.5	1	.034	.5	1 3.886	4.596	.033	.033 ...H1-...
4	M10	.552	.5	1	.034	.5	1 3.886	4.596	.033	.033 ...H1-...
5	M22	.458	.5	1	.028	.5	1 3.886	4.596	.033	.033 ...H1-...
6	M23	.458	.5	1	.028	.5	1 3.886	4.596	.033	.033 ...H1-...
7	M26	.456	.5	1	.028	.5	1 3.886	4.596	.033	.033 ...H1-...
8	M27	.456	.5	1	.028	.5	1 3.886	4.596	.033	.033 ...H1-...
9	M14A	.328	.5	1	.020	.5	1 3.886	4.596	.033	.033 ...H1-...
10	M15	.328	.5	1	.020	.5	1 3.886	4.596	.033	.033 ...H1-...

Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

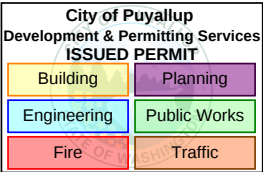
Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Lo	phi*	phi*Pnt [k]	phi*Mn y	phi*	Eqn
11	M18	0.5 TR	.327	.5	1	.020	.5	1 3.886	4.596	.033	.033 ... H1...
12	M19	0.5 TR	.327	.5	1	.020	.5	1 3.886	4.596	.033	.033 ... H1...
13	MP-1	PIPE 2.0	.027	8.438	1	.001	1....	1 4.552	32.13	1.872	1.872 ... H1...
14	MP-3	PIPE 2.0	.027	8.438	1	.001	1....	1 4.552	32.13	1.872	1.872 ... H1...
15	MP-2	PIPE 2.0	.019	8.438	1	.001	1....	1 4.552	32.13	1.872	1.872 ... H1...

Envelope None Cold Formed Steel Code Checks

Memb...	Shape	Code Check	Loc[ft]	Shear	Loc[ft]	Pn[k]	Tn[k]	Mnyy	Mnzz	Cb	Cm	Cm	Eqn
No Data to Print ...													



APPENDIX B
ADDITIONAL CALCULATIONS





SOUTH HILL MALL (10038029)

TEP No. 340502.1060261

Analysis By: DRP 2/6/2025

Checked By: AEW 2/6/2025

Code Revisions:	TIA-222-H	IBC 2021
Tower Type:	Monopole	

Wind Inputs:

Ult. Wind Velocity:	97	mph
Live Load Velocity:	30	mph
Ice Wind Velocity:	30	mph
Base Ice Thickness:	1.00	inches
Mount Centerline:	79.0	ft
Antenna Centerline:	79.0	ft
Exposure Category:	C	
Topo Category:	1	
Risk Category:	II	
Ground Elevation:	437	ft

Wind Calculations:

K_{zt} :	1.000	Section 2.6.6
K_d :	0.950	
$K_{z-Mount}$:	1.204	Section 2.6.5.2
$K_{z-Antenna}$:	1.204	Section 2.6.5.2
K_{iz} :	1.091	Section 2.6.10
Ice Thickness:	0.928	inches - Section 2.6.10
$K_{es-wind}$:	0.95	Annex S (Table S-1)
K_{es-ice} :	0.85	Annex S (Table S-1)

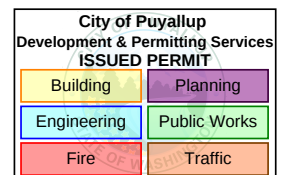
Without Ice - (psf)	With Ice - (psf)
$(q_z G_h)_{Mount}$: 25.77	$(q_z G_h)_{Mount}$: 2.59
$(q_z G_h)_{Antenna}$: 25.77	$(q_z G_h)_{Antenna}$: 2.59

Seismic Code Revisions:	TIA-222-H
Seismic Risk Category:	II

Seismic Input

S_{DS} :	1.011	Design Short Period Spectral Accel.
I_p :	1.0	Importance Factor
R_p :	2.0	Response Modification Factor
ρ :	1.0	
A_s :	1.0	Applification Factor - TIA-222-H Section 2.7.8.1
S_1 :	0.436	Spectral Acceleration at a Period of 1 Second

Seismic Design Force		TIA-H Sec 2.7.7.1.1
Cs:	0.506 kips/kip	TIA-H Sec 2.7.7.1.1
Cs-min:	0.044 kips/kip	





SOUTH HILL MALL (10038029)

TEP No. 340502.1060261

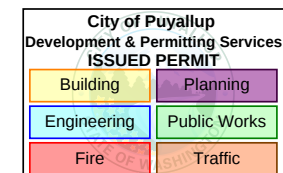
Analysis By: DRP 2/6/2025

Checked By: AEW 2/6/2025

Antenna loads and $C_p A_a$ values calculated in accordance with TIA-222-H, unless otherwise noted

Azimuth is the absolute angle measured clockwise from RISA-3D global X-axis

MFR	Model	Height (in)	Width (in)	Depth (in)	Wt. (lbs)	Azimuth*	Qty	Shape	Member Label	Distance from start node of the member			$C_p A_a$ - Front (ft ²)	$C_p A_a$ - Side (ft ²)	F_a - Front (lbs)	F_a - Side (lbs)
										Location #1 (ft,%)	Location #2 (ft,%)	Location #3 (ft,%)				
ERICSSON	AIR 6419 B77D	28.20	16.10	7.30	66.20	0.00	1	Flat	MP-1	0.50	2.50		0.00	0.00	0.00	0.00
ERICSSON	AIR 6419 B77G	27.95	15.75	6.68	66.20	0.00	1	Flat	MP-1	4.50	6.50		0.00	0.00	0.00	0.00
KATHREIN	800372991	77.90	14.90	6.50	84.80	0.00	1	Flat	MP-2	1.00	6.00		0.00	0.00	0.00	0.00
KATHREIN	800372991	77.90	14.90	6.50	84.80	0.00	1	Flat	MP-3	1.00	6.00		0.00	0.00	0.00	0.00
COMMSCOPE	TMAT192123868-21	11.14	9.37	3.82	20.72	0.00	2	Flat	MP-3	7.50			0.00	0.00	0.00	0.00
COMMSCOPE	TMAT192123868-21	11.14	9.37	3.82	20.72	0.00	2	Flat	MP-3	9.50			0.00	0.00	0.00	0.00



**SOUTH HILL MALL (10038029)**

TEP No. 340502.1060261

Analysis By: DRP 2/6/2025

Checked By: AEW 2/6/2025

Member Forces are Calculated in Accordance with TIA-222-H

Member Name	Wind Proj. (in)	Length (in)	Shape	θ (°)	Perimeter (in)
MP-1	2.375	120.00	Round		7.46
MP-2	2.375	120.00	Round		7.46
MP-3	2.375	120.00	Round		7.46
M9	0.425	6.00	Round	0.00	1.34
M10	0.425	6.00	Round	0.00	1.34
M13	0.425	6.00	Round	0.00	1.34
M14	0.425	6.00	Round	0.00	1.34
M14A	0.425	6.00	Round	0.00	1.34
M15	0.425	6.00	Round	0.00	1.34
M18	0.425	6.00	Round	0.00	1.34
M19	0.425	6.00	Round	0.00	1.34
M22	0.425	6.00	Round	0.00	1.34
M23	0.425	6.00	Round	0.00	1.34
M26	0.425	6.00	Round	0.00	1.34
M27	0.425	6.00	Round	0.00	1.34

