

Owner: Mark F. Milam & Taffilyn M. Milam

Applicant/Agent: Peter Schau, agent for PI Tower Development, LLC & Verizon Wireless

Town: Waterford

Zoning district(s): A-3

TO THE RACINE COUNTY ECONOMIC DEVELOPMENT & LAND USE PLANNING COMMITTEE:

The undersigned requests a conditional use / site plan review permit to (specify use, project, structure, size, etc.)

The construction and operation of a new 155' tall (160' w/lightning rod) mobile service support structure and mobile service facilities including Verizon Wireless panel antennas & equipment located at the 150' centerline, coax and cable connections to a new 8' x 10' BTS equipment cabinet cluster and a freestanding emergency backup power generator located at grade upon new concrete pads. Support structure and facilities to be located within applicants 75' x 75' fenced ground lease area.

AT (site address): 28709 County Line Drive, Waterford, WI 53185

Subdivision: NW 1/4, NW 1/4 Lot(s): N/A Block: N/A

Parcel # 016-04-19-01-013-010 (access) & 016-04-19-01-013-000 (facilities) Section(s) 1 T 4 N R 19 E

If served by municipal sewer, check here: N/A Sanitary permit #: N/A

Attached are:

- zoning permit application
- 12 SETS: drawn-to-scale site plan that is based on a survey (10 of the 12 should be sized or folded to 8.5" x 11")
- letter of agent status
- hearing/review fee (Fees are non-refundable, & re-publication/amendment fees will be charged where applicable.)
- 3 SETS: landscaping/lighting plan
- 12 SETS: report/cover letter & operations plan
- abutting property owners' names & mailing addresses
- other

print name: Peter Schau, as agent for applicant(s) e-mail address: pschau@ton80realtyservices.com

address: Ton 80 Realty Services, Inc. telephone #: (773) 919-5112

8463 Old County K

Harshaw, WI 54529

signed: 

STAFF USE ONLY:

BASED ON CURRENT MAPPING, check applicable statement(s) below & underline or circle the word "all" or "partially".

- N/A The property is all / partially located in the _____ shoreland area.
- N/A The project is all / partially located in the _____ shoreland area.
- N/A The property is all / partially located in the _____ floodplain.
- N/A The project is all / partially located in the _____ floodplain.
- N/A The property is all / partially located in the wetland.
- N/A The project is all / partially located in the wetland.

The applicant is subject to the following Racine County Ordinance provisions (specify article/section):

Art X Mobile Tower Siting; Art. VI Div. 25 A-3, General Farming District

Shoreland contract: yes _____ no

Public hearing date: 12-21-20

Site plan review meeting date: NA

Submittal received by: JMS

Date petition filed: 10-21-20

cash or check # 1087

amount received: \$ 475⁰⁰

APPLICATION FOR ZONING PERMIT
RACINE COUNTY, WISCONSIN (Rev. 11/20)

PERMIT NO. _____
 DATE PERMIT ISSUED _____

OWNER Taffilyn & Mark Milam
 Mailing _____
 Address 28709 County Line Dr
Waterford WI 53185
 City State Zip
 Phone (H) _____ (W) _____

APPLICANT Peter Schau, Agent for PT Tower
 Mailing Development, LLC # Verizon Wireless
 Address 8463 Old County K
Harshaw WI 54529
 City State Zip
 Phone (H) _____ (W) 773-919-5112

Parcel Id. # 016041901013000 Site Address 28709 County Line Dr.

Municipality Waterford Section(s) 1 Town 4 North, Range 19 East

Lot _____ Block _____ Subdivision Name _____ CSM # _____

Proposed Construction/Use Construction of new 195' tall (160' with lightning rod) mobile service support structure within a 100' x 100' leased site

New <input checked="" type="checkbox"/>	Principal Bldg. _____	Size (____ x ____) (____ x ____) (____ x ____)
Addition _____	Accessory <input checked="" type="checkbox"/>	Area (sq ft) (____) (____) (____)
Alteration _____	Deck _____	# of Units/Stories <u>1</u> / <u>1</u> Building Ht.-Avg. (ft.) _____
Conversion _____	Sign _____	Peak Ht. (ft.) <u>155'</u> (<u>160'</u> w/ lightning rod) 100-Yr. Floodplain Elev. <u>N/A</u>
Temporary _____	Other _____	Eave Ht. (ft.) _____ Flood Protection Elev. <u>N/A</u>

Contractor <u>TBD</u>	Est. Value w/Labor \$ _____	ZONING DISTRICT <u>A-3</u>
Existing Nonconforming? <u>N/A</u> <input checked="" type="checkbox"/> * Yes _____ No _____	Yard Setbacks	Proposed _____ OK? _____
*Structure's Fair Mkt Value \$ _____	Cumulative % _____	Street-1 st <u>735'±</u> _____ <u>4</u>
*>50% of Fair Market Value? <u>N/A</u> <input checked="" type="checkbox"/> Yes _____ No _____	Street-2 nd _____ _____ _____	
Structure in Shoreland? (per map) Yes _____ No <input checked="" type="checkbox"/>	Side-1 st <u>56'±</u> _____ <u>4</u>	
Structure in Floodplain? (per map) Yes _____ No <input checked="" type="checkbox"/>	Side-2 nd <u>395'±</u> _____ <u>4</u>	
Structure in Wetland? (per map) Yes _____ No <input checked="" type="checkbox"/>	Rear <u>1488'±</u> _____ <u>4</u>	
Substandard Lot? Yes _____ No <input checked="" type="checkbox"/>	Shore _____ _____ _____	
Abutting Lot-Same Owner/Closely Related? Yes _____ No <input checked="" type="checkbox"/>	Total Acc. Structures _____ _____	
BOA Variance Needed? Yes _____ No <input checked="" type="checkbox"/>	Date of Approval _____ _____	
Conditional Use/Site Plan Needed? Yes <input checked="" type="checkbox"/> No _____	Date of Approval _____ _____	
Shoreland Contract Needed? Yes _____ No <input checked="" type="checkbox"/>	Date of Approval _____ _____	

Additional Zoning Permit Stipulations Listed on Back of this Form? Yes _____ No (If "Yes," see back)

The applicant hereby acknowledges receipt of notice contained herein and certifies that submitted information/ attachments are true and correct to the best of the knowledge and belief of the signer, and that all construction/ use will be done in accordance with the Zoning Ordinance, applicable stipulations, and Wisconsin laws.

BOA/Conditional Use/Site Plan Pd: \$ 475⁰⁰ [Signature] 10/21/20
 Cash/Check/CC Date # 108¹⁷ Signature of Owner (Applicant) Date
 Shoreland Contract Fee Pd: \$ _____ Peter Schau, As Agent for Applicants
 Cash/Check/CC Date # _____ Print Name(s)
 Zoning Permit Fee Pd: \$ 3000⁰⁰ _____
 Cash/Check/CC Date # _____ Notes (revisions, extensions, etc.)
 Other: _____ Pd: \$ _____ _____

if shoreland erosion review fee is included above Zoning Administrator _____ (Staff Initials)

Make checks payable to "Racine County Development Services" - Note: ALL FEES ARE NONREFUNDABLE (OVER

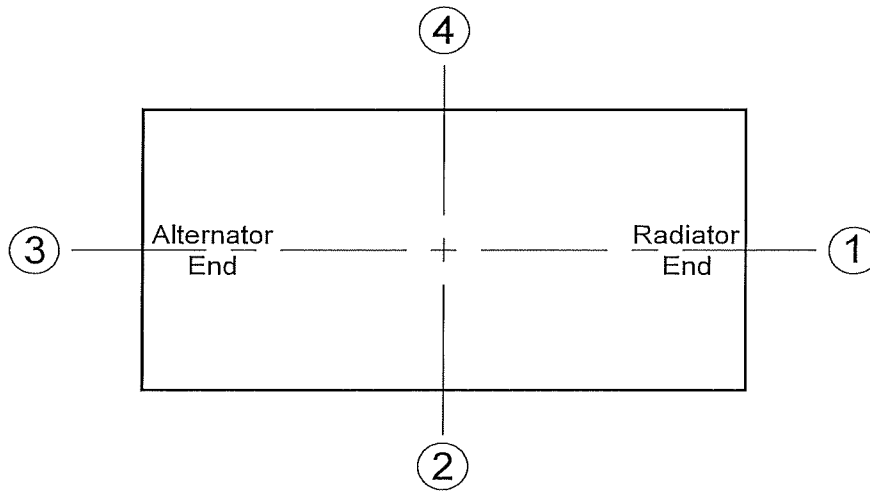
PIN 0160419-01-013000

**SD030 2.4L John Deere
L2A Sound Attenuated Enclosure**

Sound Pressure Levels in dB(A)

GENERATOR SET WITH EXHAUST SYSTEM

Position	Overall Level	Frequency Spectrum Levels								
		Center Frequency (Hz)								
		31.5	63	125	250	500	1000	2000	4000	8000
1	65.6	25.0	62.8	56.7	54.8	56.3	52.0	50.0	50.4	43.7
2	64.7	28.1	61.2	60.2	52.1	53.9	48.4	47.4	40.9	36.5
3	67.3	24.2	65.6	61.2	50.9	51.8	48.8	45.2	41.4	34.9
4	62.0	23.1	53.7	62.0	50.9	51.8	49.7	46.1	40.5	38.1
Average	64.9	25.1	60.8	60.0	52.2	53.4	49.7	47.2	43.3	38.3



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Notes:

1. Generator operating at full rated load.
2. Generator configuration includes standard exhaust system mounted within Series 2000 enclosure.
3. All measurement positions are 7 m (23 ft) from center of generator set and at 1 m (3.3 ft) height.
4. Test conducted on an asphalt surface in free field conditions.
5. Reference sound pressure is 2×10^{-5} Pa.

Noise Level Chart (source: www.noisehelp.com)

A noise level chart showing examples of sounds with dB levels ranging from 0 to 180 decibels.

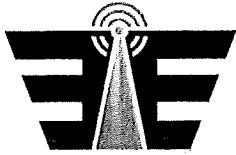
dBA	Example	Home & Yard Appliances Workshop & Construction	
0	healthy hearing threshold		
10	a pin dropping		
20	rustling leaves		
30	whisper		
40	babbling brook	computer	
50	light traffic	refrigerator	
60	conversational speech	air conditioner	
70	shower	dishwasher	
75	toilet flushing	vacuum cleaner	
80	alarm clock	garbage disposal	
85	passing diesel truck	snow blower	
90	squeeze toy	lawn mower	arc welder
95	inside subway car	food processor	belt sander
100	motorcycle (riding)		handheld drill
105	sporting event		table saw
110	rock band		jackhammer
115	emergency vehicle siren		riveter
120	thunderclap		oxygen torch
125	balloon popping		
130	peak stadium crowd noise		
135	air raid siren		
	jet engine at takeoff		
	firecracker		
	fighter jet launch		
	cap gun		
	shotgun		
	.357 magnum revolver		
	safety airbag		
	howitzer cannon		
	rocket launch		
194	sound waves become shock waves		

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Most noise levels are given in dBA, which are decibels adjusted to reflect the ear's response to different frequencies of sound. Sudden, brief impulse sounds, like many of those shown at 120 dB or greater, are often given in dB (no adjustment).



**EHRESMANN
ENGINEERING INC.**

4400 West 31st St – Yankton, SD 57078

Phone: (605) 665-7532 Fax: (605) 665-9780

<http://www.ehresmannengineering.com>

E-Mail: e.heine@ehresmannengineering.com

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NOV 02 2020

RACINE COUNTY

October 29, 2020

Pat Quevillon
Challenger Consulting, Inc.
4300 Bunker Dr
Quincy, IL 62305

Subject: 155' Ehresmann Engineering, Inc. Monopole
Site: WI-Waterford-Tichigan
Location: Waterford, WI (Racine County)
EI JO: 107180R1

As requested, we have designed and can furnish a 155' Ehresmann Engineering, Inc. monopole to be located in Waterford, WI (Racine County). The site will be called WI-Waterford-Tichigan.

Address: 28709 County Line Dr
Waterford, WI 53185

Coordinates: 42-50-30.76 N
88-12-19.57 W

The monopole will be designed as follows:

- In accordance with the Telecommunications Industry Association TIA-222-G Standard
- 90 mph wind with no ice (Vasd)
- Vult = 116 mph wind
- 40 mph wind with 3/4" ice (Vasd)
- 60 mph wind with no ice (service)
- Structure Class II
- Exposure Category C
- Topographic Category 1

Design loading will be included as outlined on stamped drawing #107180E01 (Rev 1).

This tower design standard takes into account several safety factors including load factors and steel strength capacities. Therefore, it is highly unlikely that the pole will fail structurally in a wind event where the design wind speed is exceeded within the range of built-in safety factors.

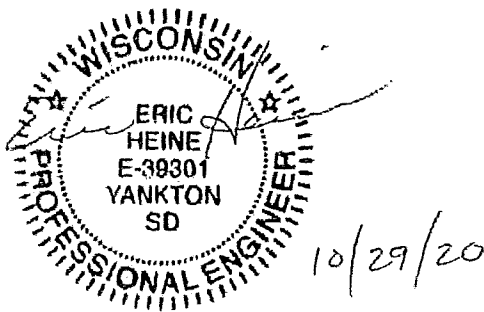
Should the wind speed increase beyond the capacity of the built-in safety factors to the point of failure of one or more structural elements, the most likely location of failure would be within one of the pole shaft sections. For the WI-Waterford-Tichigan pole this would most likely be in the pole section from 102' to 155' which is the highest stressed area of the pole. This would result in a buckling mode, where the steel shaft bends beyond its elastic limit (the point where the shaft does not return to its normal shape when the wind load is removed).

During this local buckling, a relatively small portion of the pole shaft distorts and merely kinks the steel causing the pole to buckle at the location of the highest combined stress ratio in the pole and "folds over" onto the portion below. Therefore, the expected fall radius for this monopole design is within 62' from the base of the pole.

Please note, all opinions outlined in this letter are valid only if an Ehresmann Engineering, Inc. monopole is furnished and installed.

If you have any questions, please feel free to contact us.

Regards,



Eric Heine, P.E.

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Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	53.00	18	0.2500	5.00	22.0000	35.0363	A572-65	4.1
2	40.00	18	0.3750	6.00	33.3065	43.1452	A572-65	6.2
3	40.00	18	0.4375	7.00	40.9194	50.7581	A572-65	8.7
4	40.00	18	0.4375	48.1613	58.0000		A572-65	10.0

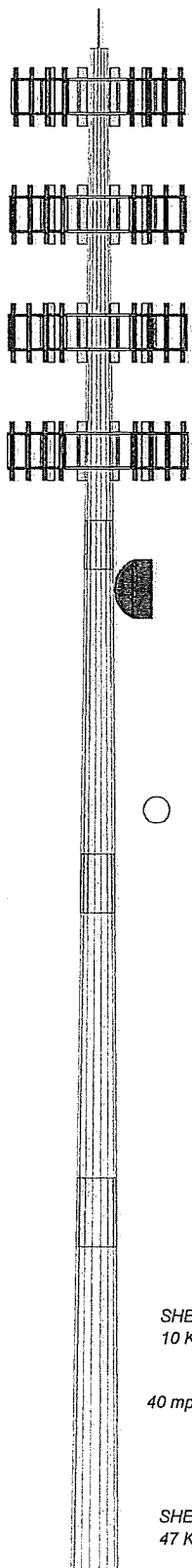
155.0 ft

102.0 ft

67.0 ft

33.0 ft

0.0 ft



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 5/8x5'	155	20,000 SQ IN x Ka (Ka = 0.8)	126
40,000 SQ IN x Ka (Ka = 0.8)	150	20,000 SQ IN x Ka (Ka = 0.8)	114
40,000 SQ IN x Ka (Ka = 0.8)	138	Andrew HP6 (2 GHz)	100

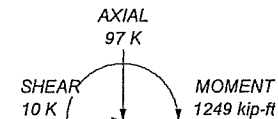
MATERIAL STRENGTH

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

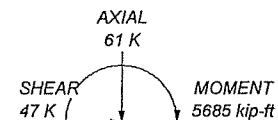
TOWER DESIGN NOTES

1. Tower is located in Racine County, Wisconsin.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 90 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 40 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. Weld together tower sections have slip joint connections.
9. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
10. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
11. Welds are fabricated with ER80S-XXX electrodes.
12. TOWER RATING: 95.8%

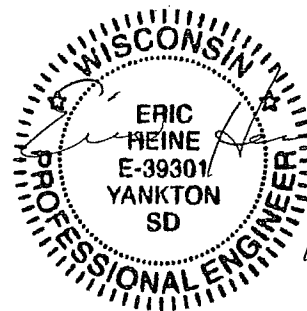
ALL REACTIONS ARE FACTORED



TORQUE 0 kip-ft
40 mph WIND - 0.7500 in ICE



TORQUE 3 kip-ft
REACTIONS - 90 mph WIND



10/29/20

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RACINE COUNTY

Ehresmann Engineering, Inc. 4400 W. 31st Street Yankton, SD Phone: (605) 665-7532 FAX: (605) 665-9780	Job: WI-WATERFORD-TICHIGAN, WI 107181
	Project: 155 FT EHRESMANN MONOPOLE (Rev 1)
	Client: LENDEASE Drawn by: CD App'd:
	Code: TIA-222-G Date: 10/29/20 Scale: NTS
	Path:



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

Aeronautical Study No.
 2020-AGL-18101-OE
 Prior Study No.
 2020-AGL-17577-OE

Issued Date: 09/01/2020

Jennifer Brown
 PI Tower Development, LLC LendLease Americas-JB
 2320 Cascade Pointe Blvd
 Suite 300
 Charlotte, NC 28208

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RACINE COUNTY

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

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

Structure: Monopole PIWI414 Tichigan
 Location: Waterford, WI
 Latitude: 42-50-30.76N NAD 83
 Longitude: 88-12-19.57W
 Heights: 793 feet site elevation (SE)
 180 feet above ground level (AGL)
 973 feet above mean sea level (AMSL)

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

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 L Change 2.

This determination expires on 03/01/2022 unless:

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

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO

SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

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

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

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

If we can be of further assistance, please contact our office at (816) 329-2525, or natalie.schmalbeck@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2020-AGL-18101-OE.

Signature Control No: 449101160-449813755
Natalie Schmalbeck
Technician

(DNE)

Attachment(s)
Frequency Data
Map(s)

cc: FCC

Frequency Data for ASN 2020-AGL-18101-OE

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

