BOARD OF ADJUSTMENT

DR. LAUREN A. HITCHENS
NATHAN KINGREE
SHAWN LOVENGUTH
CHUCK McCLURE
JOHN WILLIAMSON

Sussex County
DELAWARE
sussexcountyde.gov
(302) 855-7878

AGENDA

June 15, 2026

6:00 PM

Call to Order

Pledge of Allegiance

Approval of Agenda

Approval of the Minutes for April 27, 2026

Approval of the Findings of Fact for April 27, 2026

Public Hearings

Case No. 13200 – S J Growers, LLC
Case No. 13200 – S J Growers, LLC seeks a special use exception to place a telecommunications tower and a variance from the maximum height requirement for a proposed structure (Section 115-194.2 and 115-210 of the Sussex County Zoning Code). The property is located to the east side of Millsboro Highway (SCR 30) and to the north side of Bald Branch Road. 911 Address: 22311 Bald Branch Road, Millsboro. Zoning District: AR-1. Tax Parcel: 333-7.00-23.00.

Case No. 13201 – Pamela & Mitchell Rentz
Case No. 13201 – Pamela & Mitchell Rentz seeks variances from the rear yard setback requirement for proposed structures (Section 115-25 and 115-183 of the Sussex County Zoning Code). The property is located to the south side of First Street. 911 Address: 37468 First Street, Rehoboth Beach. Zoning District: AR-1. Tax Map: 334-19.16-24.03.

Case No. 13202 – Sea Air Village (Lot J43)
Case No. 13202 – Sea Air Village (Lot J43) seeks variances from the separation requirements for proposed structures (Section 115-25 and 115-172 of the Sussex County Zoning Code). The property is located to the southeast side of Delaware Avenue. 911 Address: 20017 Delaware Avenue, Rehoboth Beach. Zoning District: AR-1. Tax Map: 334-13.00-310.00-54465.

Case No. 13203 – Sea Air Village (Lot L49)
Case No. 13203 – Sea Air Village (Lot L49) seeks variances from the separation requirements for proposed structures (Section 115-25 and 115-172 of the Sussex County Zoning Code). The property is located to the southeast side of Golden Avenue.

911 Address: 19989 Golden Avenue, Rehoboth Beach. Zoning District: AR-1. Tax Map: 334-13.00-310.00-54518.

Case No. 13205 – Softball World, LLC

Case No. 13205 – Softball World, LLC seeks a special use exception for an outdoor display or promotional activity (Sections 115-23, 115-83.6 and 115-210 of the Sussex County Zoning Code). The property is located to the southeast side of Lewes Georgetown Highway (Route 9), approximately 0.43 miles west of Park Avenue. 911 Address: 22518 Lewes Georgetown Highway, Georgetown. Zoning District: CR-1/AR-1. Tax Map: 135-15.00-82.00.

Case No. 13206 – Gary Lee

Case No. 13206 – Gary Lee seeks variances from the side yard and rear yard setback requirements for a proposed structure (Section 115-25 and 115-183 of the Sussex County Zoning Code). The property is located to the east side of Duane Drive. 911 Address: 31811 Duane Drive, Frankford. Zoning District: AR-1. Tax Map: 134-10.00-272.00.

Additional Business

-MEETING DETAILS-

In accordance with 29 Del. C. §10004(e)(2), this Agenda was posted on June 8, 2026 at 4:30 p.m. and at least seven (7) days in advance of the meeting.

The Agenda was prepared by the Director of Planning and Zoning and is subject to change to include the additional or deletion of items, including Executive Sessions, which arise at the time of the meeting.

Agenda items may be considered out of sequence.

The meeting will be streamed live at **https://sussexcountyde.gov/council-chamber-broadcast**

The Board of Adjustment meeting materials, including the "packet" are electronically accessible on the County's website at: https://sussexcountyde.gov/.

Any person who intends to present a digital presentation or document, including PowerPoint files, for electronic display during County meetings shall submit said file(s) in advance, no later than one (1) business day before the respective public meeting. Files may be sent electronically to pandz@sussexcountyde.gov or delivered by hand to County Administration, located in the Sussex County Administrative Offices, 2 The Circle, in Georgetown. No external storage devices shall be permitted to connect to County equipment.

If any member of the public would like to submit comments electronically, these may be sent to pandz@sussexcountyde.gov. All comments are encouraged to be submitted by 4:30 P.M. on Thursday, June 11, 2026.

Case # 131200
Hearing Date 06-15-2026

202605231

Board of Adjustment Application
Sussex County, Delaware

Sussex County Planning & Zoning Department
2 The Circle (P.O. Box 417) Georgetown, DE 19947
302-855-7878 ph. 302-854-5079 fax

Type of Application: (please check all applicable)

Variance ☐
Special Use Exception ☐
Administrative Variance ☐
Appeal ☐

Existing Condition ☐
Proposed ☐
Code Reference (office use only)
_____
_____

Site Address of Variance/Special Use Exception:

22311 Bald Branch Rd, Millsboro, DE 19966 (Parcel # 333-7.00-23.00)

Variance/Special Use Exception/Appeal Requested:

Special Use Exception for a proposed 195' monopole telecommunications tower, with a 4' lightning rod (199' total), within a 60'x60' fenced-in compound.

Tax Map #: 33-7.00-23.00
333-7.00-23.00

Property Zoning: AR-1

Applicant Information

Applicant Name: Network Towers C/O Sam Averna
Applicant Address: 120 Eastshore Drive, Suite 300
City Glen Allen State VA Zip: 23059
Applicant Phone #: (571) 340-5493 Applicant e-mail: saverna@nttowers.com

Owner Information

Owner Name: S J Growers, LLC.
Owner Address: 20521 Carey's Camp Road
City Millsboro State DE Zip: 19966 Purchase Date: _____
Owner Phone #: 302-245-4384 Owner e-mail: _____

Agent/Attorney Information

Agent/Attorney Name: Sam Averna, Land Use Manager for Network Towers
Agent/Attorney Address: 120 Eastshore Drive, Suite 300
City Glen Allen State VA Zip: 23059
Agent/Attorney Phone #: (571) 340-5493 Agent/Attorney e-mail: saverna@nttowers.com

Signature of Owner/Agent/Attorney

Samuel Averna

Date: 4/23/26

EQUAL HOUSING OPPORTUNITY

Criteria for a Variance: (Please provide a written statement regarding each criteria).

*You shall demonstrate to the Board of Adjustment that the property meets **all** of the following criteria for a Variance to be granted.*

In granting any variance the Board may attach such reasonable conditions and safeguards as it may deem necessary to implement the purposes of the Zoning Ordinance or Code. The Board is empowered in no case, however, to grant a variance in the use of land or structures thereon.

1. Uniqueness of property:

That there are unique physical circumstances or conditions, including irregularity, narrowness, or shallowness of lot size or shape, or exceptional topographical or other physical conditions peculiar to the particular property and that the exceptional practical difficulty is due to such conditions and not to circumstances or conditions generally created by the provisions of the Zoning Ordinance or Code in the neighborhood or district in which the property is located.

See submitted cover letter and narrative.

2. Cannot otherwise be developed:

That because of such physical circumstances or conditions, there is no possibility that the property can be developed in strict conformity with the provisions of the Zoning Ordinance or Code and that the authorization of a variance is therefore necessary to enable the reasonable use of the property.

See submitted cover letter and narrative.

3. Not created by the applicant:

That such exceptional practical difficulty has not been created by the appellant.

See submitted cover letter and narrative.

4. Will not alter the essential character of the neighborhood:

That the variance, if authorized, will not alter the essential character of the neighborhood or district in which the property is located and nor substantially or permanently impair the appropriate use of development of adjacent property, nor be detrimental to the public welfare.

See submitted cover letter and narrative.

5. Minimum variance:

That the variance, if authorized, will represent the minimum variance that will afford relief and will represent the least modification possible of the regulation in issue.

See submitted cover letter and narrative.

Criteria for a Special Use Exception: (Please provide a written statement regarding each criteria)

*You shall demonstrate to the Board of Adjustment that the property meets **all** of the following criteria for a Special Use Exception to be granted.*

1. Such exception will not substantially affect adversely the uses of adjacent and neighboring property.

The presence of a tower at the proposed location has no bearing on neighboring property or adjacent uses. Conversely, it will bring much needed coverage and capacity to the community in and travelers through the area.

2. Any other requirements which apply to a specific type of special use exception as required by the Sussex County Code. (Ex. Time limitations – 5 year maximum)

See submitted application cover letter and narrative along with supporting documents.

Basis for Appeal: (Please provide a written statement regarding reason for appeal)

Check List for Applications

The following shall be submitted with the application

- ☐ • **Completed Application**
- ☐ • **Provide a survey of the property** (Variance)
  - Survey shall show the location of building(s), building setbacks, stairs, deck, etc.
  - Survey shall show distances from property lines to buildings, stairs, deck, etc.
  - Survey shall be signed and sealed by a Licensed Surveyor.
- ☐ • **Provide a Site Plan or survey of the property** (Special Use Exception)
- ☐ • **Provide relevant Application Fee (please refer to fees effective July 1, 2022)**
- ☐ • **Provide written response to criteria for Variance or Special Use Exception** (may be on a separate document if not enough room on the form)
- ☐ • **Copy of Receipt (staff)**
- ☐ • **Optional - Additional information for the Board to consider** (ex. photos, letters from neighbors, etc.)
- ☐ • **Please be aware that Public Notice will be sent to property owners within 200 feet of the subject site and County staff will come out to the subject site, take photos and place a sign on the site stating the date and time of the Public Hearing for the application.**

Please be advised that the decision of the Board of Adjustment is only final when the written decision is filed with the Board's secretary. To determine whether the written decision has been filed, you may call the Planning & Zoning Department at 302-855-7878. The written decision is generally completed within thirty (30) to sixty (60) days following the Board's vote on the application or appeal. Please include the case number when calling about the decision.

Please be advised that any action taken in reliance of the Board's decision prior to the filing of the written decision and the expiration of any applicable appeal period is taken at the Property Owner's Risk.

The undersigned acknowledges that that he or she has read the application completely and that if the appellant / applicant is unable to convince the Board that the standards for granting relief have been met, the appeal / application will be denied.

Signature of Owner/Agent/Attorney

Samuel Averna Date: 4/23/26

For office use only:

Date Submitted: _____ Fee: Check #: _____

Staff accepting application: _____ Application & Case #: _____

Location of property: _____

_____

Subdivision: _____ Lot#: _____ Block#: _____

Date of Hearing: _____ Decision of Board: _____

Sam Averna
Land Use Manager
Network Towers
120 Eastshore Drive, Suite 300
Glen Allen, VA 23059

April 23, 2026

Jamie Whitehouse
Sussex County Planning and Zoning Department
2 The Circle
P.O. Box 417
Georgetown, DE 19947

RE: Special Use Exception Permit and Variance Application for New Wireless Telecommunications Facility
Parcel Address: 22311 Bald Branch Road, Millsboro, DE 19966
Parcel #: 333-7.00-23.00

Dear Mr. Whitehouse:

The application filed on behalf of the applicant, Network Towers, with respect to its proposed telecommunications facility (monopole tower) on the above referenced property:

- Special Use Exception Permit & Variance Application;
- Applicant narrative and associated filing materials;

If you have any questions or require any additional information, please contact me at (571) 340-5493.

Sincerely,

Sam Averna

Land Use Manager
Network Towers

NETWORK TOWERS
SITE NAME: Millsboro
SPECIAL USE EXCEPTION – APPLICANT NARRATIVE

Request

Network Towers (the "Applicant") proposes to construct and operate a 199-foot monopole wireless telecommunications tower on a 61.64-acre parcel located at 22311 Bald Branch Road, Millsboro, DE 19966 ("Property"). The Property is owned by S J Growers, LLC. T-Mobile ("TMO") has a need for improved coverage in this area and will be the anchor tenant on the tower. However, the tower will be built for up to three (3) additional carriers.

Design and Compatibility

The proposed tower will have an overall structure height of 199 feet (195-foot monopole tower with a 4 foot lightning rod), which will accommodate TMO and at least three (3) other collocators. The overall lease area will be 100' x 100' and the fenced in compound will be 60' x 60'. The tower and associated ground equipment will be compatible with the surrounding area for the following reasons:

- The tower is strategically sited adjacent to the mature wooded area on the property to reduce visibility from adjacent properties;
- The tower will be located as far back from Millsboro Hwy as possible (240'+) to reduce visibility and meet jurisdictional setback requirements;
- The ground equipment will be enclosed by a security fence and surrounded by existing mature trees;
- The facility will be unmanned and will only be visited approximately once a month by technicians;
- The facility will not emit any odor, fumes or glare;
- The noises emitted from the ground equipment are not louder than normal residential HVAC equipment.

Height Variance

As part of this Special Use Exception application, the Applicant respectfully requests a 49-foot variance from the 150-foot maximum allowable tower height. The proposed height of 199 feet is essential to achieving the radio-frequency coverage objectives required by TMO. This additional height is necessary to ensure reliable service, meet system performance standards, and resolve existing coverage deficiencies that cannot be remedied with a shorter structure.

Furthermore, the requested height is critical for accommodating the future wireless needs of at least two additional carriers, as required by Ordinance. Designing the tower with adequate vertical space now will allow

additional providers to co-locate on the structure at optimal elevations, promoting shared infrastructure and minimizing the need for duplicative towers in the area.

Granting this variance will also reduce the overall number of telecommunications structures required within the community. A shorter tower would not provide the needed propagation coverage for TMO or future carriers, thereby necessitating the construction of multiple lower-height facilities to achieve equivalent service. By allowing a single 199-foot monopole, the County can avoid unnecessary visual impacts, construction activity, and land disturbance associated with additional towers.

For these reasons, the applicant respectfully maintains that the requested variance represents the most practical and appropriate solution to meeting current and future wireless service needs while minimizing long-term infrastructure impacts within the community.

Purpose of Tower

In today's society, reliable wireless service is a necessity for residents, students, businesses and emergency personnel. The proposed tower will provide the infrastructure needed for TMO, as well as multiple other wireless carriers, to expand and improve their networks in this area of Sussex County. This reliable wireless service will enhance and protect the local economy and complement economic development by (1) providing citizens the opportunity to work and shop from home (2) allowing students the ability to utilize the latest online educational opportunities while at home (3) helping nearby businesses to be more effective and efficient in their everyday operations and (4) providing dependable wireless service to citizens travelling and emergency services operating on roadways in the area. This tower will specifically provide the latest wireless technologies to the following:

- Those traveling on Millsboro Hwy, Lowes Crossing Road, and surrounding roads;
- Those working and farming in this area of Sussex County;
- Those visiting nearby businesses;
- Those attending, working, and visiting Gumboro Community Center, Splash Bay Shore Day School, West Woods Methodist Episcopal Church, and surrounding businesses;
- Those living in the Greater Westwoods and Gumboro region.

ORDINANCE REQUIREMENTS

The subject property is zoned AR-1, Agricultural Residential District. In accordance with the Zoning Ordinance, commercial communications towers and antennas are permitted in the AR-1 District with an approved Special Use Exception. Commercial Communication Towers and Antennas are governed within the Sussex County Zoning Ordinance, by Article XXV, Section 115-194.2. The applicable requirements in these sections are as follows:

§115-194.2 Commercial Communications Towers and Antennas

A. Any new freestanding commercial communications tower or antenna or monopole in any residential district requires a minimum lot size of one acre and shall require a special use exception. In nonresidential districts, no minimum lot size shall be required nor shall a special use exception be required, except that if any new freestanding commercial communications tower or antenna or monopole is to be erected within 500 feet of any residentially zoned lot, improved or which can be improved with a residential dwelling unit, a special use exception shall be required.

Duly noted. The subject parcel (333-7.00-23.00) exceeds the minimum lot size requirement and is 61.64-acres.

B. Collocation of telecommunications equipment on existing freestanding towers, antennas, monopoles, buildings, water towers/tanks and other similar structures shall be permitted without special use exception, subject to site plan review by the Planning and Zoning Commission.

Not applicable. There is no existing infrastructure within the area that can accommodate colocation or meet TMO's coverage objectives. The closest structure is a 170' self support tower at the Gumboro Volunteer Fire Department at 37030 Millsboro Hwy. TMO did look at the possibility of collocating on this tower; however, the tower cannot structurally handle any additional equipment. A structural analysis was performed in December, 2021 that showed that the tower was failing at 129% with equipment modifications from the carrier that is currently on the tower. Adding a whole new carrier is simply not possible. Therefore, a new monopole is required and is being proposed to achieve the necessary service coverage.

C. All applicants for special use exceptions shall submit a site plan and appropriate documentation demonstrating compliance with the applicable conditions listed in this section.

Please see the submitted Zoning Drawings (ZD's) along with all other applicable application documents for this Special Use Exception application.

D. The applicant shall submit to the Board of Adjustment documentation showing that existing structures within a two-mile radius of the proposed location are not available for collocation. Any application for a new commercial communications tower or antenna or monopole shall include documentation substantiating the need for such tower at the proposed location.

Please see the 2-mile collocation map showing that the only existing structure within a 2-mile radius is the 170' self-support tower at the Gumboro Fire Department. As previously noted, this tower is not structurally capable of handling a new colocator.

E. All new towers or antennas or monopoles shall be designed to accommodate at least two additional PCS/cellular platforms.

TMO will be the anchor tenant on the tower, but the tower is designed to accommodate three (3) additional collocators. Please see sheet Z-3 of the submitted Zoning Drawings (ZD's).

F. All new freestanding towers or antennas or monopoles shall be set back from adjoining property lines by a minimum of 1/3 the height of the tower, antenna or monopole.

The tower will far exceed the required setbacks for monopole towers. Please see the required and proposed setbacks below:

Setback	*Required*	*Proposed*
Front	*66.3'*	*241.9'*
Right Side	*66.3'*	*845.9'*
Left Side	*66.3'*	*415.4'*
Rear	*66.3'*	*277.7'*
Off-Site Residential Structure	*N/A*	*1,517.3'*

G. Pad sites, ground equipment structures and guy wires shall be surrounded by a minimum six-foot tall fence.

The proposed 60'x60' compound will be enclosed in a 6' tall chain-link fence, with 1' of barbed wire (7' total).

H. All towers, antennas, or monopoles shall have warning lights. Such lights shall be placed every 50 feet of elevation. The tower, antenna or monopole shall meet all applicable requirements of the Federal Communications Commission and the Federal Aviation Administration.

Although the proposed site does not require lighting per FAA requirements, the applicant will adhere to the lighting requirement of this code section by installing warning lights every 50' of vertical elevation on the tower. Please see submitted Zoning Drawings (ZD's).

I. Any tower, antenna or monopole that is not operated for a continuous period of six months shall be considered abandoned, and the owner of such tower or antenna or monopole shall remove the same within 90 days of a receipt of notice from the county notifying the owner of such abandonment. If such tower is not removed within 90 days, the county may remove the tower or antenna or monopole at the owner's expense.

Duly noted.

J. No signs shall be permitted on any commercial antenna or towers or monopole. Any blinking or rotating lights thereon shall be screened so as not to throw their light below the horizontal plane upon which they are located, except as required by the Federal Aviation Administration.

The only signage being proposed is required by the FCC and no lights will be installed aside from those required by this ordinance.

Variance Criteria

1. Uniqueness of Property:
   That there are unique physical circumstances or conditions, including irregularity, narrowness, or shallowness of lot size or shape, or exceptional topographical or other physical conditions peculiar to the particular property and that the exceptional practical difficulty is due to such conditions and not to circumstances or conditions generally created by the provisions of the Zoning Ordinance or Code in the neighborhood or district in which the property is located.

The requested Variance is for an additional 49' of height; however, the uniqueness/physical characteristics of the property do necessitate the need for a taller tower. Specifically, this tower will be a handoff site to the closest existing tower to the south, which is also 199'. Having both towers at the same height and ground elevation is important for effective operation and call handoff. Furthermore, the existing mature trees on the property and in the general area range between 60-80' in height. Having the tower at 199' will allow not only TMO to propagate over the trees, but it will also allow the second and third colocation positions at 180' and 170' to propagate effectively. Permitting the tower at 199' will allow a one-tower solution for all three carriers to operate effectively in this area.

2. Cannot otherwise be developed:
   That because of such physical circumstances or conditions, there is no possibility that the property can be developed in strict conformity with the provisions of the Zoning Ordinance or Code and that the authorization of a variance is therefore necessary to enable the reasonable use of the property.

Due to the strict physical circumstances noted above, there is no possibility that the property can be developed in strict conformity with the provisions of the Zoning Ordinance. There is nowhere else on this property, or any other property in the area, that could achieve TMO's needed coverage objective with a 150' tower. The Zoning Ordinance requires an applicant to build a tower for a minimum of 3 carriers; therefore, the bottom two carriers would not be able to achieve their future objectives either. Simply stated, in an area that is this rural and the surrounding towers are 3+ miles apart, taller towers and needed to cover larger areas.

3. Not created by the applicant:
   That such exceptional practical difficulty has not been created by the appellant.

The exceptional practical difficulty and resulting hardship were not created by the applicant. This area lacks cell coverage and it lacks the existing infrastructure to provide colocation opportunities. In order to achieve

TMO's coverage objective and to comply with the Zoning Ordinance's requirement to construct a tower with colocation potential for at least two additional carriers, a 49' height variance is required.

4. Will not alter the essential character of the neighborhood:
   That the variance, if authorized, will not alter the essential character of the neighborhood or district in which the property is located and nor substantially or permanently impair the appropriate use of development of adjacent property, nor be detrimental to the public welfare.

The proposed 199-foot telecommunications tower will not alter the essential character of the neighborhood or district. The surrounding area is predominantly large rural or semi-rural parcels, and the tower site is positioned deep within the property, far removed from public roadways and residential structures. Its placement, setbacks, and screening ensure that the facility will not interfere with existing land uses or the future development potential of nearby parcels.

The tower is designed for minimal visual and physical impact, with a monopole profile, neutral finish, and a compact fenced compound. No noise, traffic, lighting, or emissions will be generated that could affect nearby properties or public use. The facility operates passively and will be unmanned, visited only periodically for maintenance.

Additionally, the improved wireless coverage provided by the proposed height will enhance public safety, emergency communications, and general connectivity within the region. For these reasons, the requested height variance will not impair adjacent properties nor be detrimental to the public welfare, will maintain the established character of the surrounding district, and benefit the public by providing the much needed coverage to this area.

5. Minimum Variance:
   That the variance, if authorized, will represent the minimum variance that will afford relief and will represent the least modification possible of the regulation in issue.

The requested 49-foot variance represents the minimum relief necessary for the applicant to achieve T-Mobile's coverage objectives as well as to accommodate future carrier needs. A tower constructed at a shorter height would be unable to deliver the required propagation or reliability and would ultimately necessitate the installation of additional infrastructure within the surrounding area. Approving the requested height therefore reduces the long-term proliferation of towers while ensuring strong, dependable wireless coverage for the community.


NETWORK
TOWERS
AN NB+C COMPANY


NETWORK
TOWERS
AN NB+C COMPANY

SITE INFORMATION

SITE NAME:	MILLSBORO
SITE IDENTIFIER:	DE–T25.04
SITE ADDRESS:	22311 BALD BRANCH ROAD MILLSBORO, DE 19966
COUNTY:	SUSSEX COUNTY
JURISDICTION:	SUSSEX COUNTY
PARCEL #:	333–7.00–23.00
ZONING:	AR–1 AGRICULTURAL–RESIDENTIAL
OCCUPANCY:	UNMANNED
CONSTRUCTION TYPE:	RAW LAND
PROPERTY OWNER:	S J GROWERS LLC
PROPERTY OWNER ADDRESS:	20521 CAREY'S CAMP ROAD MILLSBORO, DE 19966
PROPERTY OWNER PHONE #:	302–245–4384
SITE COORDINATES:	1A
LATITUDE:	38.495785° (GPS)
LONGITUDE:	–75.361079° (GPS)
ELEVATION:	40' (GPS)
SITE ACCESS COORDINATES:	
LATITUDE:	38.495682° (GPS)
LONGITUDE:	–75.361998° (GPS)
1A DATE:	02/20/26

PROJECT SUMMARY

APPLICANT:	NETWORK TOWERS
APPLICANT ADDRESS:	120 EASTSHORE DR, SUITE 300 GLEN ALLEN, VA 23059
APPLICANT PHONE #:	(804) 548–4079
APPLICANT PROJECT MANAGER:	BRANDI HALE
PROJECT MANAGER CONTACT:	(919) 717–1941
TENANT:	T–MOBILE
TENANT PROJECT #:	TBD
TENANT MDG LOCATION #:	1SU4500A
TENANT CONSTRUCTION ENGINEER CONTACT:	TBD TBD
TENANT REAL ESTATE SPECIALIST CONTACT:	TBD TBD

EMERGENCY SERVICES

FIRE DEPARTMENT:
GUMBORO VOLUNTEER FIRE CO
37030 MILLSBORO HWY
MILLSBORO, DE 19966
(302) 238–7411

POLICE DEPARTMENT:
MILLSBORO POLICE DEPARTMENT
120 RAILROAD ST
MILLSBORO, DE 19966
(302) 934–8174

CONSULTING TEAM

ENGINEERING FIRM:
THE CROSSROADS GROUP, LLC
769 STATE ST
HAMBURG, PA 19526
PHONE: (484) 660–3055 FAX: (484) 660–3742

SURVEYING FIRM:
ASH ASSOCIATES
765 TENNIS AVE
AMBLER, PA 19002
(215) 367–5261 TELECOMENGINEERING@THECROSSROADSGROUPLLC.COM

UTILITY INFORMATION

POWER COMPANY:
TBD
TBD
TBD
CONTACT: TBD
POWER COMPANY CONTACT #: TBD
WORK ORDER #: TBD

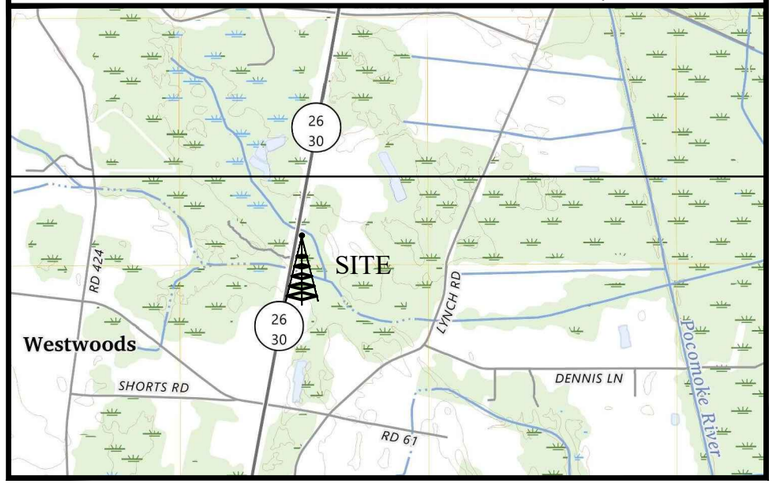
APPROVALS

LANDLORD SIGNATURE DATE

NETWORK TOWERS

SITE NAME
MILLSBORO
SITE I.D.
DE–T25.04
E911 ADDRESS
TBD
TBD
PROJECT TYPE
195' MONOPOLE

USGS QUAD MAP 1"=2,000'



FROM CITY OR NEAREST MAJOR INTERSECTION: (FROM MILLSBORO)
* TURN RIGHT ONTO DE–24W/LAUREL RD
* IN 4.8 MI CONTINUE ONTO MILLSBORO HWY
* IN 3.0 MI DESTINATION IS ON THE LEFT

1 (800) 441–8555
www.delmarva811.com
CONTRACTOR TO CALL DELAWARE ONE–CALL SYSTEMS AT LEAST (3) WORKING DAYS PRIOR TO CONSTRUCTION

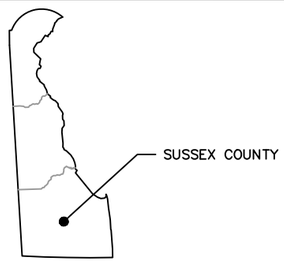
Sheet List Table

Sheet Number	Sheet Title
T–1	TITLE SHEET
T–2	TCG – LEGEND
Z–1	OVERALL ZONING PLAN
Z–2	ENLARGED ZONING PLAN
Z–3	TOWER ELEVATION PLAN
Z–4	FENCE DETAILS (1)
Z–5	FENCE DETAILS (2)

EXHIBIT NOTES

1. THIS PLAN IS BASED ON SUSSEX COUNTY DELAWARE ZONING ORDINANCE. THE PROPOSAL INCLUDES A 195' COMMERCIAL COMMUNICATIONS TOWER AND ASSOCIATED EQUIPMENT BUILDINGS.
2. BOUNDARY LINES AND ADJOINER INFORMATION SHOWN HEREIN WAS PREPARED USING AVAILABLE DEEDS, TAX MAPS AND PLANS OF RECORD. NO BOUNDARY SURVEY WAS PERFORMED AND SHOULD NOT BE CONSTRUED AS AN ACCURATE BOUNDARY SURVEY.
3. EXISTING TOPOGRAPHY INFORMATION SHOWN HEREIN WAS TAKEN FROM AN ACTUAL GROUND SURVEY PERFORMED BY ASH ASSOCIATES, INC. IN FEBRUARY 2026. GROUND SURVEY HAS BEEN SUPPLEMENTED WITH INFORMATION FROM PUBLICLY AVAILABLE AERIAL IMAGERY.
4. THERE ARE WETLANDS LOCATED IN THE PROPOSED LEASE AREA AS PER A WETLANDS DELINEATION REPORT PREPARED BY H&B SITE SERVICES, LLC ON JANURAY 23, 2026
5. PROPOSED LEASE AREA IS LOCATED IN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN. PER FEMA F.I.R.M. PANEL NUMBER: 10005C0625J, EFFECTIVE DATE: 1/6/2005.
6. LOCATION OF ALL UNDERGROUND UTILITIES ARE APPROXIMATE. ALL LOCATIONS AND SIZES ARE BASED ON UTILITY MARK–OUTS, ABOVE GROUND STRUCTURES THAT ARE VISIBLE & ACCESSIBLE IN THE FIELD, AND THE MAPS LISTED IN THE REFERENCES AVAILABLE AT THE TIME OF THE SURVEYS. ALL UNDERGROUND UTILITIES SHOULD BE VERIFIED AS TO THEIR LOCATION, SIZE AND TYPE BY THE PROPER UTILITY COMPANIES BEFORE ANY EXCAVATION BEGINS.

STATE COUNTY MAP



NETWORK TOWERS
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(804) 548–4079

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SCALE:	N.T.S.
DRAWN BY:	EBS
PLAN ORIG. DATE:	03/11/26

REVISIONS

NO.	DATE	DESCRIPTION
0	04–21–26	ISSUED FOR CONSTRUCTION
A	03–11–26	PRELIMINARY

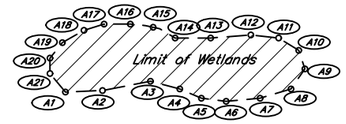
JOSHUA D. HOAGLAND LICENSE No. 21024 DELAWARE PROFESSIONAL ENGINEER

PROJECT No.: 6462
SITE NAME: MILLSBORO
SITE NUMBER: DE–T25.04
SITE ADDRESS: 22311 BALD BRANCH ROAD MILLSBORO, DE 19966 SUSSEX COUNTY
FILE NAME: TITLE–LEGEND – ZDS.DWG
SHEET TITLE: TITLE SHEET

DRAWING NO.	REVISION:
T–1	0

EXISTING LEGEND

- TRACT BOUNDARY
- EXISTING PARCEL LINE TO BE ABOLISHED
- EXISTING RIGHT–OF–WAY
- EXISTING EASEMENT
- ADJOINING PROPERTY LINE
- EXISTING ZONING/TOWNSHIP BOUNDARY
- EXISTING WATER LINE/SERVICE
- EXISTING STORM SEWER LINE/INLET
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE (UNDERGROUND)
- EXISTING ELECTRIC LINE (OVERHEAD)
- EXISTING SANITARY SEWER LINE/MANHOLE
- EXISTING SANITARY LATERAL
- EXISTING CURB
- EXISTING EDGE OF ROAD (PAVED)
- EXISTING SHOULDER (ROAD)
- EXISTING EDGE OF ROAD (UNPAVED)
- EXISTING DRIVEWAY
- EXISTING ROAD CENTERLINE
- EXISTING FENCE
- EXISTING CONTOUR
- EXISTING INDEX CONTOUR
- SOILS DELINEATION LINE
- STREAM CHANNEL
- FEMA DELINEATED FLOODPLAIN
- EXISTING GUIDERAIL
- EXISTING WOODLINE
- EXISTING BRUSHLINE
- EXISTING BUILDINGS
- EXISTING WETLANDS



- EXIST–DECIDUOUS
- EXIST–EVERGREEN
- EXIST–HEADWALL
- LIGHT POST
- SIGN
- STREET SIGN
- UTILITY–POLE
- WELL
- IP
- BOUND

PROPOSED LEGEND

- PROPOSED BUILDING
- PROPOSED BUILDING – SETBACK LINE
- PROPOSED LOT – PARCEL LINE
- PROPOSED EASEMENT – LINE
- PROPOSED RIGHT–OF–WAY
- PROPOSED ROAD CENTERLINE
- PROPOSED ROAD EDGE (PAVED/NO CURB)
- PROPOSED STORM SEWER – PIPING
- PROPOSED FENCE LINE
- PROPOSED CURBLINE
- CLEAR SIGHT TRIANGLE
- PROPOSED PHASE LINE
- PROPOSED CONCRETE
- PROPOSED RIP–RAP
- PROPOSED CONCRETE MONUMENT
- PROPOSED LIGHT POST
- PROPOSED TRAFFIC SIGN
- PROPOSED UTILITY POLE
- PROPOSED HEADWALL/ENDWALL
- PROPOSED INLET
- PROPOSED STORM MANHOLE
- A10 — PROPOSED STORM SEWER LABEL
- 94 — PROPOSED CONTOUR
- 100 — PROPOSED CONTOUR INDEX
- +185.4 — PROPOSED SPOT ELEVATION
- PROPOSED ALTERED TREE LINE
- PROPOSED HIGH WATER ELEVATION
- PROPOSED SPILLWAY
- PROPOSED SPILLWAY – HATCH
- +185.4 — PROPOSED BERM – TEXT
- PROPOSED BERM – SHADE
- PROPOSED BERM – OUTLINE

1 ABBREVIATIONS & SYMBOLS

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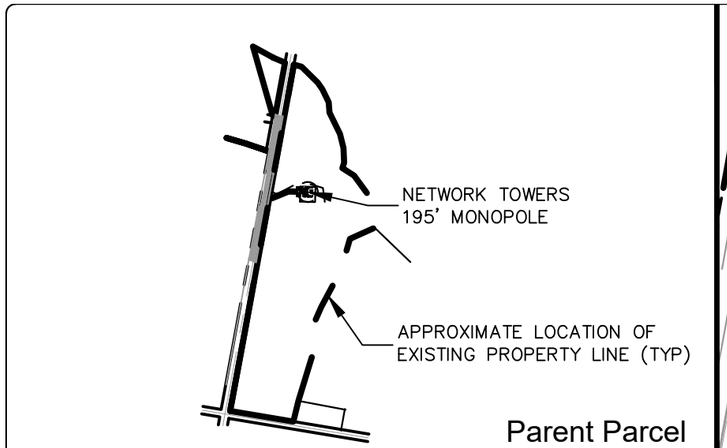
JOSHUA D. HOAGLAND
LICENSED
No. 21024
DELAWARE
PROFESSIONAL ENGINEER

PROJECT No.: 6462
SITE NAME: MILLSBORO
SITE NUMBER: DE–T25.04
SITE ADDRESS: 22311 BALD BRANCH ROAD MILLSBORO, DE 19966 SUSSEX COUNTY
FILE NAME: TITLE–LEGEND – ZDS.DWG
SHEET TITLE: TCG – LEGEND
DRAWING NO.: T–2
REVISION: 0



ZONING DATA

OBTAINED FROM THE SUSSEX COUNTY ZONING ORDINANCE, CHAPTER 205, AS REVISED APRIL 25, 2023.

ZONING DISTRICT:	AR-1 – AGRICULTURAL RESIDENTIAL
PROPOSED USE:	COMMERCIAL COMMUNICATIONS TOWER – SPECIAL EXCEPTION

MINIMUM REQUIREMENTS	PERMITTED	ACTUAL
MINIMUM LOT AREA:	1 ACRE*	61.64 ACRES (BY DEED)
MINIMUM TOWER SETBACK:	⅓ TOWER HEIGHT (66.33')*	241.99'
MINIMUM FRONT YARD:	40'	241.99'
MINIMUM SIDE YARD:	15'	845.97'
MINIMUM REAR YARD:	20'	277.77'
MINIMUM LOT WIDTH:	100'	2324.17'
MAXIMUM BUILDING HEIGHT:	42'	N/A**

*PER SUSSEX COUNTY ZONING ORDINANCE 115-194.2 COMMERCIAL COMMUNICATIONS TOWERS AND ANTENNAS

** DOES NOT APPLY TO COMMERCIAL COMMUNICATIONS TOWERS AND ANTENNAS

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No. 21024
DELAWARE
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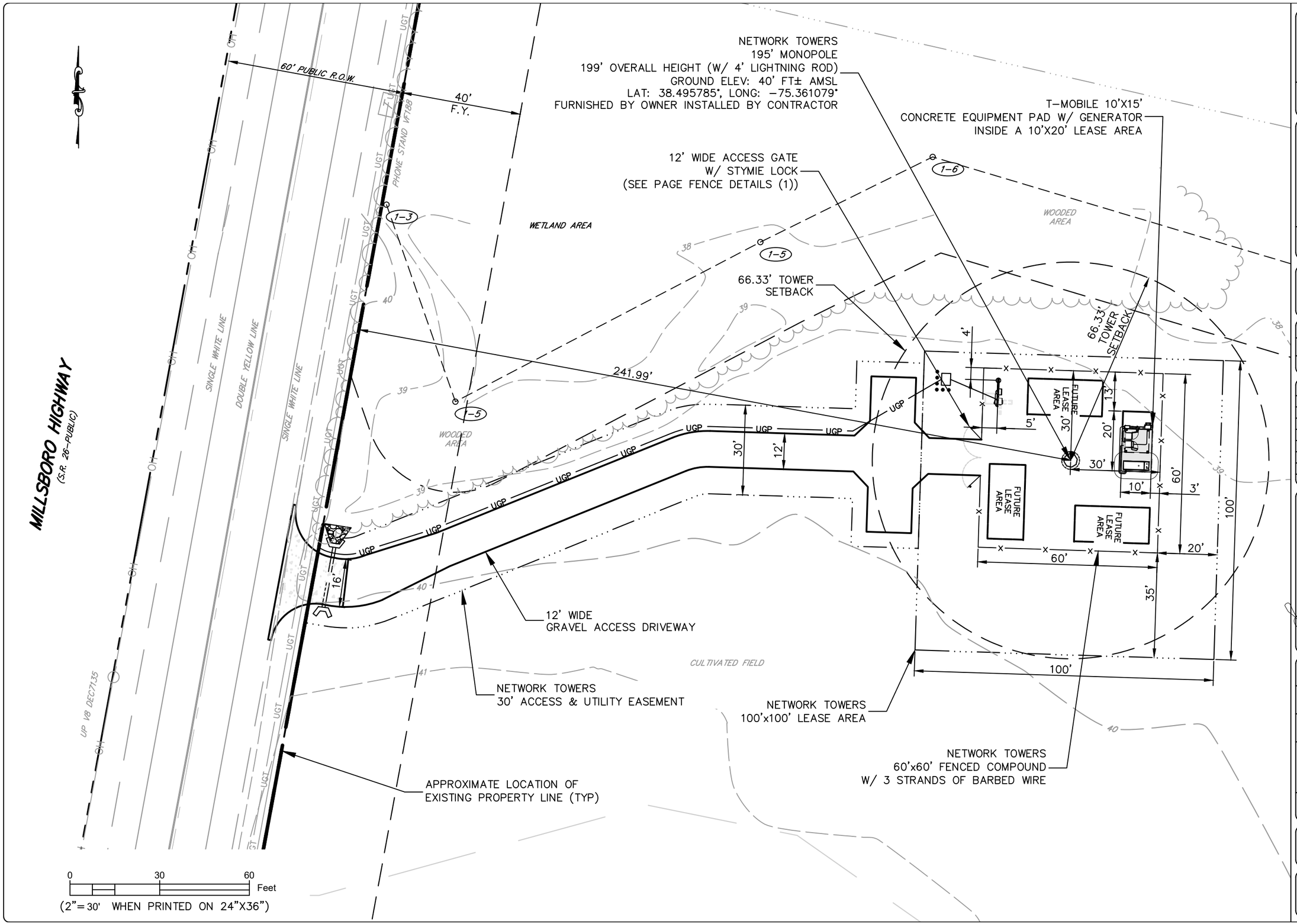
PROJECT No.	6462
SITE NAME:	MILLSBORO
SITE NUMBER:	DE-T25.04
SITE ADDRESS:	22311 BALD BRANCH ROAD MILLSBORO, DE 19966 SUSSEX COUNTY
FILE NAME:	ZONING-PLAN.DWG
SHEET TITLE:	OVERALL ZONING PLAN
DRAWING NO.	Z-1
REVISION:	0



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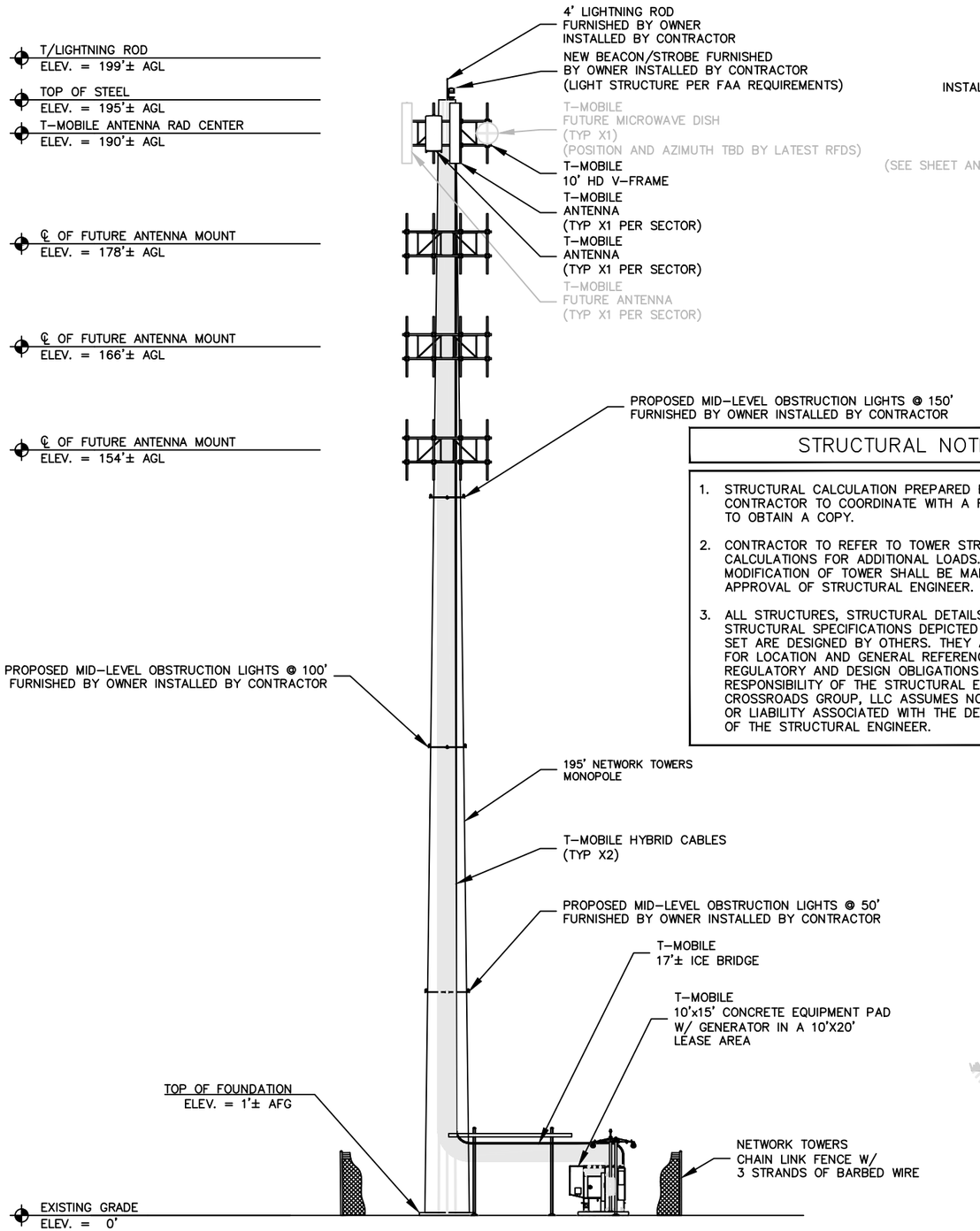
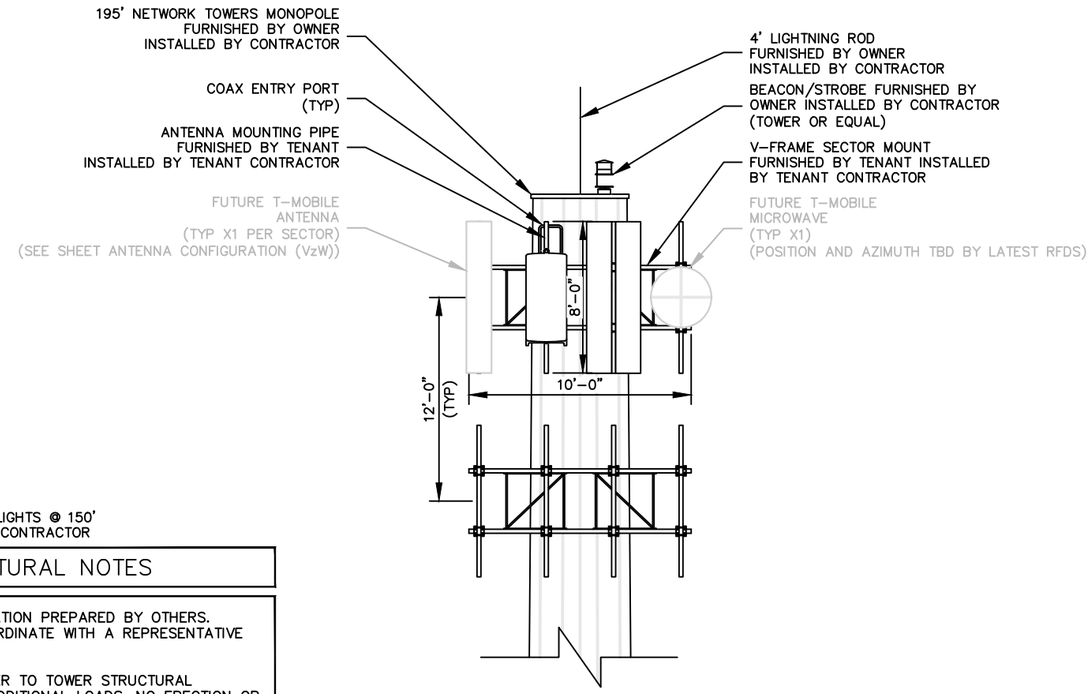
SITE NUMBER:	DE-T25.04
SITE ADDRESS:	22311 BALD BRANCH ROAD MILLSBORO, DE 19966 SUSSEX COUNTY
FILE NAME:	ZONING-PLAN.DWG
SHEET TITLE:	ENLARGED ZONING PLAN
DRAWING NO.	Z-2
REVISION:	0



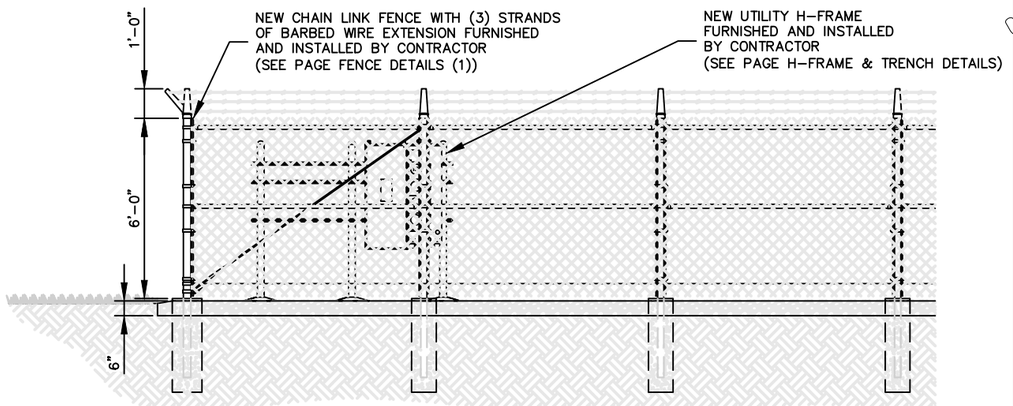
1 Z-3 TOWER ELEVATION VIEW
SCALE = N.T.S.

STRUCTURAL NOTES

1. STRUCTURAL CALCULATION PREPARED BY OTHERS. CONTRACTOR TO COORDINATE WITH A REPRESENTATIVE TO OBTAIN A COPY.
2. CONTRACTOR TO REFER TO TOWER STRUCTURAL CALCULATIONS FOR ADDITIONAL LOADS. NO ERECTION OR MODIFICATION OF TOWER SHALL BE MADE WITHOUT APPROVAL OF STRUCTURAL ENGINEER.
3. ALL STRUCTURES, STRUCTURAL DETAILS, AND STRUCTURAL SPECIFICATIONS DEPICTED ON THIS PLAN SET ARE DESIGNED BY OTHERS. THEY ARE PROVIDED FOR LOCATION AND GENERAL REFERENCE ONLY. ALL REGULATORY AND DESIGN OBLIGATIONS ARE THE RESPONSIBILITY OF THE STRUCTURAL ENGINEER. THE CROSSROADS GROUP, LLC ASSUMES NO RESPONSIBILITY OR LIABILITY ASSOCIATED WITH THE DESIGN OBLIGATIONS OF THE STRUCTURAL ENGINEER.



2 Z-3 ELEVATION VIEW @ TOP OF TOWER
SCALE = N.T.S.



3 Z-3 ELEVATION VIEW @ UTILITY FRAME
SCALE = N.T.S.

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LICENSEE
No. 21024
DELAWARE
PROFESSIONAL ENGINEER

PROJECT No.	6462
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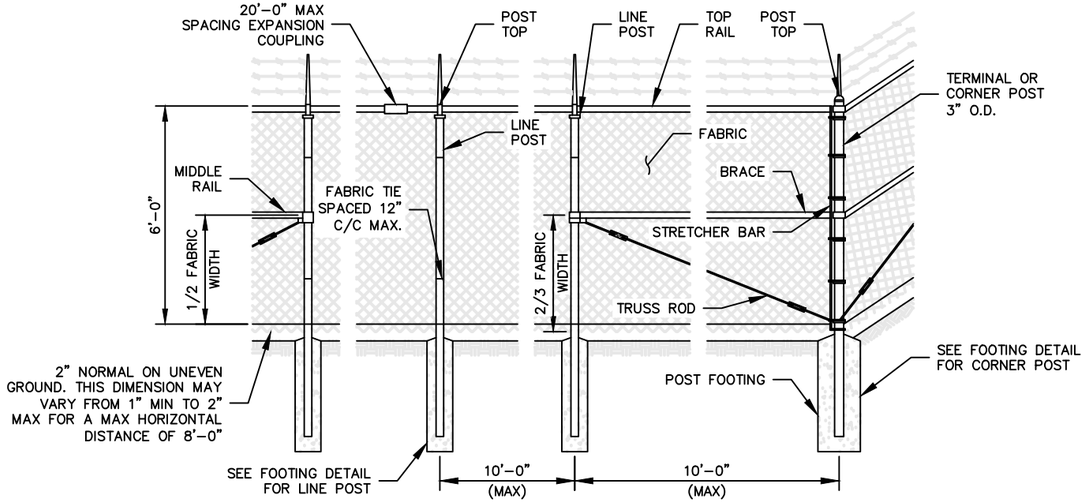
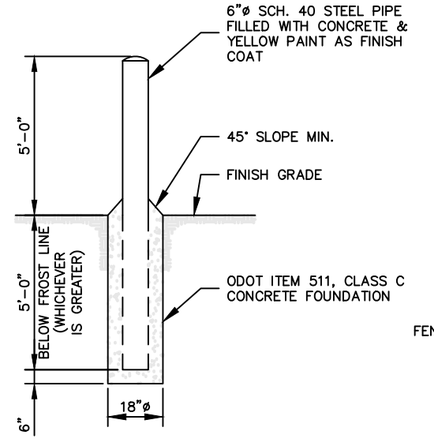
SITE NUMBER:	DE–T25.04
SITE ADDRESS:	22311 BALD BRANCH ROAD MILLSBORO, DE 19966 SUSSEX COUNTY
FILE NAME:	ZONING–PLAN.DWG
SHEET TITLE:	TOWER ELEVATION PLAN
DRAWING NO.	Z–3
REVISION:	0



1 Z-4 TYPICAL FENCING DETAIL
SCALE = N.T.S.



2 Z-4 BOLLARD DETAIL
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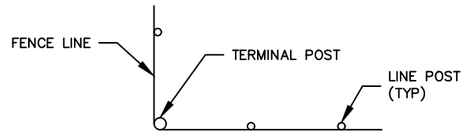
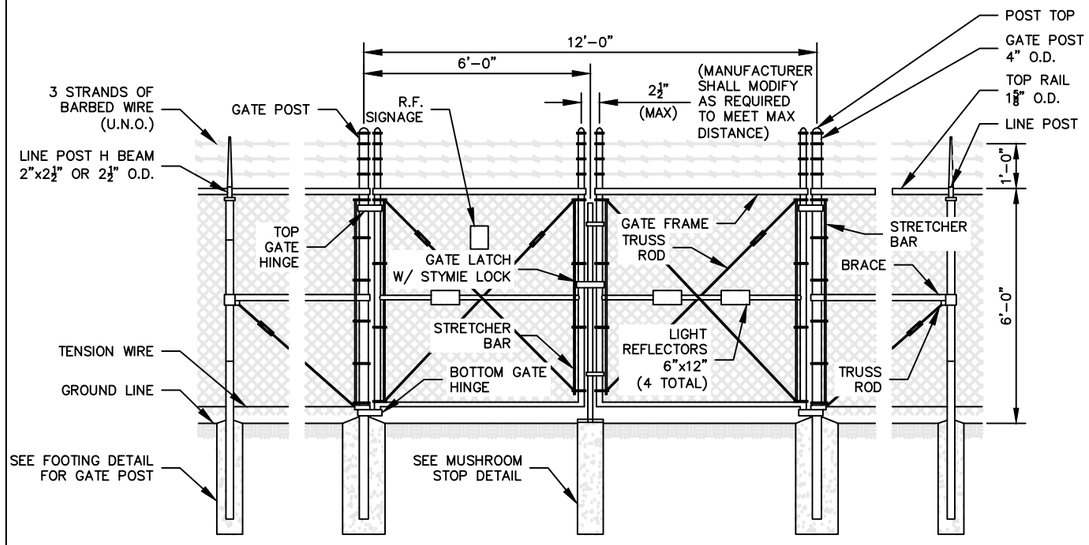


3 Z-4 INSTALLATION AT CORNERS DETAIL
SCALE = N.T.S.



4 Z-4 DOUBLE-SWING GATE DETAIL
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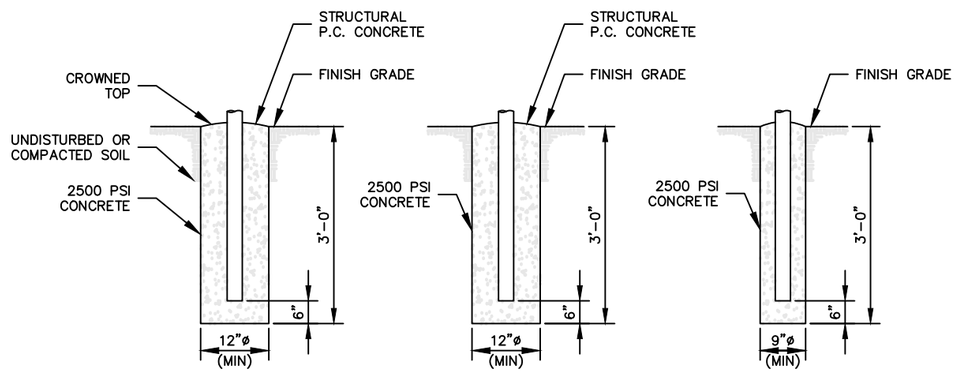

5 Z-4 POST FOOTINGS DETAIL
SCALE = N.T.S.

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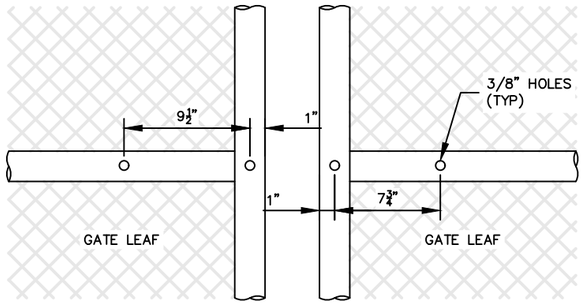
SITE NUMBER:	DE-T25.04
SITE ADDRESS:	22311 BALD BRANCH ROAD MILLSBORO, DE 19966 SUSSEX COUNTY
FILE NAME:	ZONING-PLAN.DWG
SHEET TITLE:	FENCE DETAILS (1)
DRAWING NO.	Z-4
REVISION:	0



1 Z-5 GATE FACE – ACCOMODATING STYMIELOCK DETAIL
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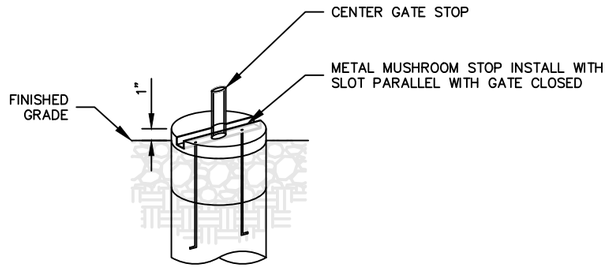

2 Z-5 MUSHROOM STOP DETAIL
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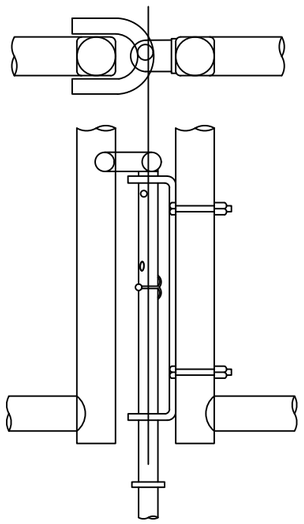

3 Z-5 DROP ROD ASSEMBLY DETAIL
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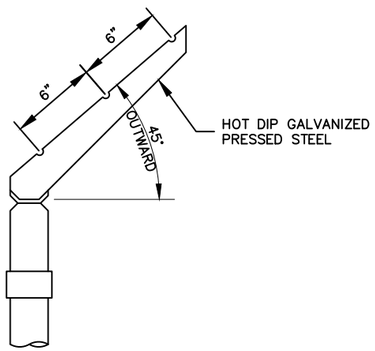
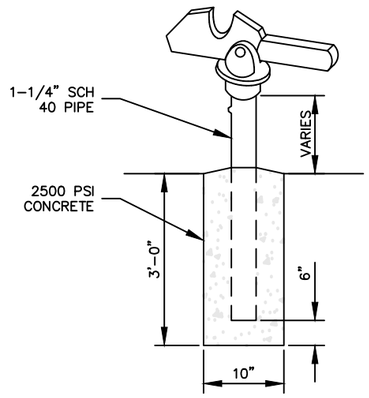
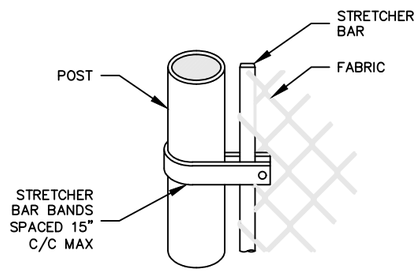


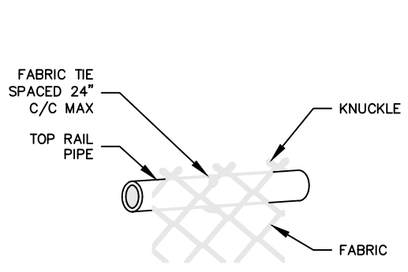
4 Z-5 BARBED WIRE ARM OF LINE POST DETAIL
SCALE = N.T.S.



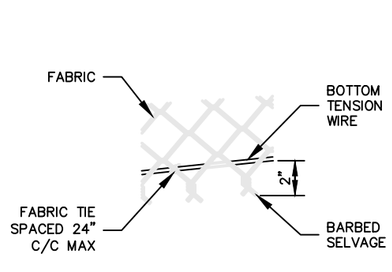
5 Z-5 GATE KEEPER DETAIL
SCALE = N.T.S.



METHOD OF FASTENING STRETCHER BAR TO POST



METHOD OF TYING FABRIC TO PIPE



METHOD OF TYING FABRIC TO TENSION WIRE

6 Z-5 FABRIC/BAR CONNECTIONS DETAIL
SCALE = N.T.S.

NOTES

1. ZINC COATING – THE WEIGHT OF THE COATING SHALL NOT BE LESS THAN 1.2 OUNCES PER SQUARE FOOT OF ACTUAL COVERED SURFACE. ALL FERROUS METALS USED AS PART OF THE FENCE INSTALLATION SHALL BE HOT DIP GALVANIZED OR STAINLESS STEEL. ALL SCREWS, BOLTS, LOCK WASHERS, NUTS, ETC. SHALL BE HOT DIP GALVANIZED OR MADE OF STAINLESS STEEL.
2. FABRIC – STANDARD INDUSTRIAL GRADE #9 GAUGE WITH 2" MESH ZINC COATED CHAIN LINK WITH A BREAKING STRENGTH OF NOT LESS THAN 1290 POUNDS SHALL BE USED. THE FABRIC SHALL BE ZINC COATED BY THE HOT DIP PROCESS AFTER FABRICATION.
3. METAL POSTS – METAL POSTS (LINE, CORNER, TERMINAL, GATE POSTS, MIDDLE RAILS, BRACES, AND TOP RAIL) SHALL BE HOT DIP GALVANIZED SCHEDULE 40 TUBULAR STEEL WITH AN OUTSIDE DIAMETER AS INDICATED ON THIS DRAWING. A POST TOP FITTING OF GALVANIZED STEEL WILL BE INSTALLED TO EXCLUDE MOISTURE.
4. POST CAPS – ALL POST CAPS TO USE THE BARBED WIRE OUTRIGGER BRACKET AND SHALL BE ATTACHED TO THE POST WITH TAMPER RESISTANT SCREWS, BRADS, OR BOLTS.
5. TOP RAIL – A MINIMUM OR ONE COUPLING IN EACH STRAIGHT RUN OF TOP RAIL SHALL HAVE A HEAVY SPRING INSERTED WITHIN THE COUPLING TO TAKE UP EXPANSION AND CONTRACTION OF THE TOP RAIL. THE TOP RAIL SHALL BE FASTENED TO TERMINAL POSTS WITH PRESSED STEEL CONNECTIONS.
6. MIDDLE RAIL – THE MIDDLE RAIL SHALL BE OF THE SAME MATERIAL AS THE TOP RAIL AND INSTALLED WITH HOT DIP GALVANIZED FITTINGS ATTACHED TO THE POSTS.
7. BRACE RAIL – BRACE RAIL MATERIAL SHALL BE OF THE SAME MATERIAL AS THE TOP RAIL AND LOCATED 2/3 OF THE DISTANCE UP FROM THE BOTTOM OF THE FABRIC BRACE RAILS. IT SHALL BE SECURELY FASTENED TO POSTS BY SUITABLE PRESSED STEEL CONNECTIONS.
8. TRUSS RODS – SHALL BE 3/8" ROUND GALVANIZED STEEL RODS WITH GALVANIZED TURNBUCKLES. THE ZINC COATINGS SHALL BE NOT LESS THAN 1.2 OUNCES PER SQUARE FOOT OF SURFACE.
9. TENSION WIRE – THE TENSION WIRE SHALL BE #7 GAUGE HOT DIP GALVANIZED SPRING TENSION WIRE WITH A BREAKING STRENGTH OF NOT LESS THAN 1900 POUNDS. THIS WIRE SHALL BE KEPT TAUT WITH GALVANIZED TURNBUCKLES AND ATTACHED TO POSTS WITH GALVANIZED HARDWARE OR CABLE CLAMPS.
10. FABRIC TIES – THE FABRIC TIES SHALL BE ALUMINUM WIRE, NOT LESS THAN #9 GAUGE.
11. STRETCHER BARS – THE STRETCHER BARS SHALL BE FLAT GALVANIZED STEEL BARS NOT LESS THAN 5/16"x3/4" AND NOT LESS THAN 2" SHORTER THAN THE FABRIC. STRETCHER BAR BANDS SHALL BE FLAT GALVANIZED STEEL BARS NOT LESS THAN 5/16"x1–1/2" WITH 5/16" DIAMETER GALVANIZED CARRIAGE BOLT.
12. BARBED WIRE – BARBED WIRE OF GALVANIZED STEEL (OR ALUMINUM) CONSISTING OF 12–1/2 GAUGE WIRE WITH 4–POINT BARBS OF 14 GAUGE WIRE SPACED 5" APART.
13. GATE FRAMES – GATE FRAMES SHALL BE CONSTRUCTED OF 2–1/2" OUTSIDE DIAMETER HEAVY DUTY GALVANIZED STEEL PIPE. THE GATES SHALL BE ASSEMBLED USING CORNER FITTINGS OF HEAVY PRESSED STEEL OR MALLEABLE CASTINGS OR MAY BE WELDED IF THE ENTIRE GATE FRAME IS HOT DIP GALVANIZED AFTER WELDING. ALL GATES SHALL BE EQUIPPED WITH HEAVY DUTY GALVANIZED STEEL TYPE HINGES WITH LARGE BEARING SURFACES OF ADEQUATE STRENGTH TO SUPPORT THE GATE. GATES WILL PROVIDE A FULL RANGE OF MOTION AND BE EASILY OPENED AND CLOSED BY ONE PERSON. GATE LATCH SHALL BE CARGO PROTECTORS, INC. MODEL FL–100. LATCH SHALL BE EQUIPPED TO RECEIVE A PADLOCK.
14. PROVIDE R.F. WARNING SIGNAGE ON ALL GATES.

GENERAL NOTES:

1. INSTALL FENCING PER ASTM F–567.
2. INSTALL SWING GATES PER ASTM F–900.
3. LOCAL ORDINANCE OF BARBED WIRE PERMIT REQUIREMENT SHALL BE COMPLIED WITH IF REQUIRED.
4. POST & GATE PIPE SIZES ARE INDUSTRY STANDARDS. ALL PIPE TO BE GALVANIZED (HOT DIP, ASTM A120 GRADE "A" STEEL). ALL GATE FRAMES SHALL BE WELDED. ALL WELDING SHALL BE COATED WITH (3) COATS OF COLD GALV (OR EQUAL).
5. ALL OPEN POSTS SHALL HAVE END–CAPS.
6. USE GALVANIZED HDG–RING WIRE TO MOUNT ALL SIGNS.
7. ALL SIGNS MUST BE MOUNTED ON THE OUTSIDE.
8. MUSHROOM ANCHOR & PLUNGER REQUIRED FOR GATE.
9. LINE POST AND CORNER POST CONNECTIONS TO BE MECHANICAL.
10. CAUTION – RFE SIGN (BLACK, YELLOW, WHITE) TO BE MOUNTED NEAR TOWER LEG W/ CLIMBING CABLE. DO NOT RESTRICT CLIMBING ACCESS.
11. VERIZON WIRELESS SITE ID, RFE SIGNS, NOC INFORMATION SIGN, AND ALL OTHER SIGNAGE NOT REFERENCED IN THESE DRAWINGS WILL BE FURNISHED AND INSTALLED BY VERIZON WIRELESS PERSONNEL PER VERIZON WIRELESS RFC SIGNAGE & DEMARCATION POLICY.

NETWORK TOWERS
120 EASTSHORE DR, SUITE 300
GLEN ALLEN, VA 23059
(804) 548–4079

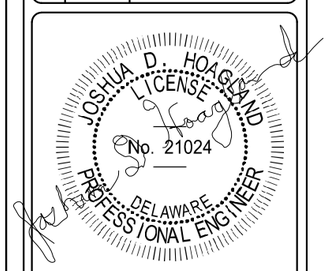
THE CROSSROADS GROUP, LLC
www.thecrossroadsgroupllc.com
769 State St
Hamburg, PA 19526
Ph: 484-660-3055
454 W Valley Ave
Elysburg, PA 17824
Ph: 570-672-2317

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO THE CLIENT IS STRICTLY PROHIBITED.

SCALE:	N.T.S.
DRAWN BY:	EBS
PLAN ORIG. DATE:	03/11/26

REVISIONS

NO.	DATE	DESCRIPTION
0	04–21–26	ISSUED FOR CONSTRUCTION
A	03–11–26	PRELIMINARY



PROJECT No.	6462
SITE NAME:	MILLSBORO
SITE NUMBER:	DE–T25.04
SITE ADDRESS:	22311 BALD BRANCH ROAD MILLSBORO, DE 19966 SUSSEX COUNTY
FILE NAME:	ZONING–PLAN.DWG
SHEET TITLE:	FENCE DETAILS (2)
DRAWING NO.	Z–5
REVISION:	0

****
* ANALYSIS REPORT *
****

****
* Federal Airways & Airspace *
* Summary Report: New Construction *
* Monopole *
****

SITE ID: Millsboro Hwy TRANSACTION ID: 35755014

LOCATION : Frankford, DE RURAL TOWER ID: 18996

LATITUDE: 38° 29' 44.820" LONGITUDE: 75° 21' 39.880"

SITE ELEVATION AMSL . . . . . 40 ft.
STRUCTURE HEIGHT. . . . . 199 ft.
OVERALL HEIGHT AMSL . . . . . 239 ft.

NOTICE CRITERIA

FAR 77.9(a): NNR (DNE 200 ft. AGL)
FAR 77.9(b): NNR (DNE Notice Slope)
FAR 77.9(c): NNR (Not a Traverse Way)
FAR 77.9: NNR FAR 77.9 IFR Straight-In Notice Criteria
FAR 77.9: NNR FAR 77.9 IFR Offset Notice Criteria
FAR 77.9: NNR (DNE EMI Notice Screening Criteria)
FAR 77.9(d): NNR (Off Airport Construction)

NR = Notice Required
NNR = Notice Not Required
PNR = Possible Notice Required(depends upon actual IFR procedure)
Review Air Navigation Facilities at bottom of this report.

Notice to the FAA is not required
The maximum height to avoid notice is 240 ft. AMSL.

OBSTRUCTION STANDARDS
Civil airport imaginary surfaces
FAR 77.17(a)(1): DNE 499 ft. AGL
FAR 77.17(a)(2): DNE - Airport Surface
FAR 77.19(a): DNE - Horizontal Surface
FAR 77.19(b): DNE - Conical Surface
FAR 77.19(c): DNE - Primary Surface
FAR 77.19(d): DNE - Approach Surface
FAR 77.19(e): DNE - Transitional Surface

Department of Defense (DOD) airport imaginary surfaces
FAR 77.21(a)(1): DNE - Inner Horizontal Surface
FAR 77.21(a)(2): DNE - Conical Surface
FAR 77.21(a)(3): DNE - Outer Horizontal Surface
FAR 77.21(b)(1): DNE - Primary Surface
FAR 77.21(b)(2): DNE - Clear Zone Surface
FAR 77.21(b)(3): DNE - Approach Surface
FAR 77.21(b)(4): DNE - Transitional Surface

Heliport imaginary surfaces
FAR 77.23(b): DNE - Approach Surface

VFR TRAFFIC PATTERN AIRSPACE FOR: N06 : LAUREL
Type: A RD: 67453.71 RE: 30.1

FAR 77.17(a)(1): DNE 499 ft. AGL
FAR 77.17(a)(2): N/A
VFR Horizontal Surface: DNE
VFR Conical Surface: DNE
VFR Primary Surface: DNE
VFR Approach Surface: DNE
VFR Transitional Surface: DNE

VFR TRAFFIC PATTERN AIRSPACE FOR: GED : DELAWARE COASTAL
Type: A RD: 67500.03 RE: 49

FAR 77.17(a)(1): DNE 499 ft. AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM
VFR Horizontal Surface: DNE
VFR Conical Surface: DNE
VFR Primary Surface: DNE

VFR Approach Surface: DNE
VFR Transitional Surface: DNE

MINIMUM OBSTACLE CLEARANCE ALTITUDE (MOCA)

FAR 77.17(a)(4) MOCA Altitude Enroute Criteria
The Maximum Height Permitted is 900 ft. AMSL

TERPS DEPARTURE PROCEDURE (FAA Order 8260.3, Volume 4)

FAR 77.17(a)(3) Departure Surface Criteria (40:1)
DNE Departure Surface

PRIVATE LANDING FACILITIES

FAC IDNT	TYPE	NAME	BEARING To FACIL	RANGE IN NM	DELTA ARP ELEVATION	FAA IFR
6MD8	AIR	DELMARVAIR	211.58	3.77	+184	

No Impact to VFR Transitional Surface. Below surface height of 277 ft above ARP.

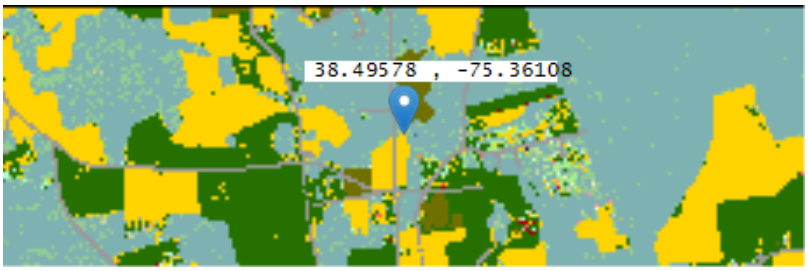
AIR NAVIGATION ELECTRONIC FACILITIES

FAC IDNT	TYPE	ST AT	FREQ	VECTOR	DIST (ft)	DELTA ELEVA	ST	LOCATION	GRD ANGLE	APCH BEAR
SBY	VORTAC	R	111.2	217.91	69638	+191	MD	SALISBURY	.16	
SBY	LOCALIZER	I	108.7	220.06	70497	+195	MD	RWY 32 SALISBURY-	.16	319
SBY	ATCT	I	A/G	218.42	71209	+121	MD	SALISBURY-OCEAN C	.10	
OXB	LOCALIZER	I	109.1	134.7	93618	+226	MD	RWY 32 OCEAN CITY	.14	325
ATR	VOR/DME	R	112.6	20.46	122102	+234	DE	WATERLOO	.11	
DOX	RADAR WXL	Y		349.4	122197	+75	DE	ELLENDALE	.04	
SWL	VORTAC	R	112.4	190.42	162644	+205	MD	SNOW HILL	.07	
ZDC	CO	Y	A/G	190.42	162713	+206	MD	SNOW HILL	.07	
WAL	ATCT	I	A/G	188.56	204039	+119	VA	WALLOPS FLIGHT FA	.03	
CEJ	LOCALIZER	U	108.9	35.1	225129	+220	NJ	RWY 19 CAPE MAY C	.06	190
LIR	LOCALIZER	I	111.9	352.55	227109	+215	DE	RWY 19 DOVER AFB	.05	195
DOV	RADAR ASR	I		353.09	229348	+138	DE	DOVER AFB	.03	
FGH	LOCALIZER	I	109.3	300.15	230684	+172	MD	RWY 04 EASTON/ NEW	.04	41
DOV	ATCT	I	A/G	352.25	231303	+106	DE	DOVER AFB	.03	
ESN	ATCT	I	A/G	299.38	231823	+132	MD	EASTON ATCT	.03	
DOV	TACAN	I	110.0	352.59	233825	+222	DE	DOVER	.05	
DOV	LOCALIZER	I	109.9	353.1	239246	+220	DE	RWY 01 DOVER AFB	.05	15

SECTION 2110 FAA EXTENSION, SAFETY AND SECURITY ACT - RURAL AREA ANALYSIS

Warning! The object is within a rural area and on agricultural land.(View agricultural land-use image).Please use the Rural Tower Analysis (RTA) certification tool to confirm the object is compliant with the Section 2110 FAA EXTENSION,SAFETY AND SECURITY ACT, is eligible for an exemption, or if additional actions are required.

Agriculture Area



Map Legend

Corn: Agricultural use type land at this location

CFR Title 47, §1.30000-§1.30004

NOT REQUIRED: Structure is not within critical wavelength(s) of a FCC licensed AM radio station. Movement Method Proof and notification to the AM station is not required. Please review AM Station Report for details.

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03-27-2026
11:00:38

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                    ************************************
                    *         OBSTRUCTION CRITERIA         *
                    ************************************

                  SITE ID: Millsboro Hwy       TRANSACTION ID:
                                               35755014

                  LATITUDE: 38° 29' 44.820"    LONGITUDE: 75° 21' 39.880"

                  SITE ELEVATION AMSL . . . . . .  40 ft.
                  STRUCTURE HEIGHT. . . . . . . .  199 ft.
                  OVERALL HEIGHT AMSL . . . . . .  239 ft.

77.17(a)(1) A height more than 499 ft. Above Ground Level (AGL).

              ************* DOES NOT EXCEED *************

              THE MAXIMUM ALLOWABLE HEIGHT IS:.......539 ft. AMSL

              THE GROUND ELEVATION AT THE SITE IS:...40 ft. AMSL

              THE OVERALL CASE ELEVATION IS:.........239 ft. AMSL

              THE CASE IS BELOW THE ALLOWABLE BY:....300 ft. AMSL


                 ******************************************
                        BEGIN AIRPORT ANALYSIS FOR N06
                 ******************************************

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

              ************* DOES NOT EXCEED **************

              BECAUSE: Proposed height does not exceed 200 feet AGL.

              THE REFERENCE AIRPORT IDENT IS:........N06

              THE AIRPORT ELEVATION IS:..............30.1 ft. AMSL

              THE DISTANCE FROM THE CASE TO ARP IS:..11.3364 NAUTICAL MILES

              THE BEARING AIRPORT TO CASE IS:........104.286 DEGREES

              THE HEIGHT OF THE STRUCTURE IS:........199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above
              airport elevation within a radius of >> N06 <<.

              ************* DOES NOT EXCEED **************

              NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft.
              from the horizontal surface at 20/1 ratio).

              ************* DOES NOT EXCEED **************

              NOT WITHIN SPECIFIED CONICAL SURFACE AREA

                           ************************
                           * BEGIN RUNWAY ANALYSIS *
                           ************************

                               RUNWAY 15/33
                            EXISTING RUNWAY 15/33
77.19(c) A height exceeding runway primary surface.

              ************* DOES NOT EXCEED **************

              NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 15/33

              THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.......36654.41 ft.

              THE RUNWAY THRESHOLD ELEVATION IS...................30.1 ft.

              THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...56516.78 ft.

              THE CRITICAL WIDTH OF HALF THE APPROACH IS..........5776.678 ft.

              ************* DOES NOT EXCEED **************
```

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 6516.78 ft.

RUNWAY CENTERLINE OFFSET IS.....36654.41 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....56516.78 ft.

THE SLOPE OF RUNWAY 15 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR GED
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....GED

THE AIRPORT ELEVATION IS:.....53.3 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..11.5080 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....180.382 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> GED <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 04/22
EXISTING RUNWAY 04/22

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 04/22

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....38168.54 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....48.9 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...56274.58 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....8691.188 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 6274.58 ft.

RUNWAY CENTERLINE OFFSET IS.....38168.54 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....56274.58 ft.

THE SLOPE OF RUNWAY 04 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 10/28
EXISTING RUNWAY 10/28

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 10/28

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....38168.54 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....49 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...616.247 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....186.625 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

OUTSIDE APPROACH ANGULAR CRITERIA FOR THIS RUNWAY.

RUNWAY CENTERLINE OFFSET IS.....38168.54 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....616.247 ft.

THE SLOPE OF RUNWAY 10 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 04/22
PROPOSED RUNWAY 04/22

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 04/22

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....38168.59 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....49 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...55475.13 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....8571.27 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 5475.13 ft.

RUNWAY CENTERLINE OFFSET IS.....38168.59 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....55475.13 ft.

THE SLOPE OF RUNWAY 04 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 10/28
PROPOSED RUNWAY 10/28

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 10/28

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....38168.59 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....49 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...619.729 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....296.48 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

OUTSIDE APPROACH ANGULAR CRITERIA FOR THIS RUNWAY.

RUNWAY CENTERLINE OFFSET IS.....38168.59 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....619.729 ft.

THE SLOPE OF RUNWAY 10 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This

airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR SBY
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....SBY

THE AIRPORT ELEVATION IS:.....52.5 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..11.6542 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....36.848 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> SBY <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 05/23
EXISTING RUNWAY 05/23

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 05/23

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....574.1862 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....50 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...68744.68 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....10561.7 ft.

********** DOES NOT EXCEED **********

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 18744.68 ft.

RUNWAY CENTERLINE OFFSET IS.....574.1862 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....68744.68 ft.

THE SLOPE OF RUNWAY 05 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 14/32
EXISTING RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 14/32

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....574.1862 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....51.5 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...3437.931 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....1015.69 ft.

********** DOES NOT EXCEED **********

OUTSIDE APPROACH ANGULAR CRITERIA FOR THIS RUNWAY.

RUNWAY CENTERLINE OFFSET IS.....574.1862 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....3437.931 ft.

THE SLOPE OF RUNWAY 14 IS: 50 TO 1.

The FAA has defined this runway as a non-utility runway. It has a precision approach. The obstacle surface extends 50,000 feet with a 50:1 Slope for the first 10,000 feet and a 40:1 Slope for 40,000 feet. The obstacle approach surface is centered symmetrically along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Precision instrument procedures will have the greatest impact between the final approach fix (FAF) and the runway end. The FAF is located approximately 5 NM from the runway end. This type of approach usually has a non-precision and a circling approach also. A circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 05/23
PROPOSED RUNWAY 05/23

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 05/23

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....571.7458 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....50 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...68743.38 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....10561.51 ft.

********** DOES NOT EXCEED **********

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 18743.38 ft.

RUNWAY CENTERLINE OFFSET IS.....571.7458 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....68743.38 ft.

THE SLOPE OF RUNWAY 05 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 14/32
PROPOSED RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 14/32

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....571.7458 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....46 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...3437.992 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....765.699 ft.

********** DOES NOT EXCEED **********

OUTSIDE APPROACH ANGULAR CRITERIA FOR THIS RUNWAY.

RUNWAY CENTERLINE OFFSET IS.....571.7458 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....3437.992 ft.

THE SLOPE OF RUNWAY 14 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR 1N5
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....1N5

THE AIRPORT ELEVATION IS:.....46.0 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..13.0456 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....67.503 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> 1N5 <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 08/26
EXISTING RUNWAY 08/26

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 08/26

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....5866.245 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....44 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...78182.97 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....7943.297 ft.

********** DOES NOT EXCEED **********

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 28182.97 ft.

RUNWAY CENTERLINE OFFSET IS.....5866.245 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....78182.97 ft.

THE SLOPE OF RUNWAY 08 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 17/35

EXISTING RUNWAY 17/35

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 17/35

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....78808.27 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....46 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...2454.886 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....370.489 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE NOT WITHIN APPROACH SURFACE AREA, OUT BY.....73437.781 ft.

RUNWAY CENTERLINE OFFSET IS.....78808.27 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....2454.886 ft.

THE SLOPE OF RUNWAY 17 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR OXB
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....OXB

THE AIRPORT ELEVATION IS:.....15.9 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..15.7609 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....314.854 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> OXB <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *

****

RUNWAY 02/20
EXISTING RUNWAY 02/20

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 02/20

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....77901.2 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....10.9 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...52595.66 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....4194.675 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 2595.66 ft.

RUNWAY CENTERLINE OFFSET IS.....77901.2 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....52595.66 ft.

THE SLOPE OF RUNWAY 02 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 14/32
EXISTING RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 14/32

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....2553.699 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....11.2 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...94020.7 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....14353.11 ft.

********** DOES NOT EXCEED **********

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 44020.7 ft.

RUNWAY CENTERLINE OFFSET IS.....2553.699 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....94020.7 ft.

THE SLOPE OF RUNWAY 14 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a non-precision approach. The obstacle surface extends 5000 feet

(20:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 14/32
PROPOSED RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 14/32

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....2571.262 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....12 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...92634.99 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....14145.25 ft.

********** DOES NOT EXCEED **********

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 42634.99 ft.

RUNWAY CENTERLINE OFFSET IS.....2571.262 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....92634.99 ft.

THE SLOPE OF RUNWAY 14 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 20/02
PROPOSED RUNWAY 20/02

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 20/02

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....77809.58 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....11 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...51979.04 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....8046.857 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 1979.04 ft.

RUNWAY CENTERLINE OFFSET IS.....77809.58 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....51979.04 ft.

THE SLOPE OF RUNWAY 20 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR D74
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....D74

THE AIRPORT ELEVATION IS:.....65.0 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..24.2744 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....150.919 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> D74 <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 16/34
EXISTING RUNWAY 16/34

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 16/34

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....13278.58 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....66 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...144968.6 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....14621.86 ft.

********** DOES NOT EXCEED **********

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 94968.6 ft.

RUNWAY CENTERLINE OFFSET IS.....13278.58 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....144968.6 ft.

THE SLOPE OF RUNWAY 16 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR CGE
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....CGE

THE AIRPORT ELEVATION IS:.....19.6 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..31.6220 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....94.955 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> CGE <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 16/34
EXISTING RUNWAY 16/34

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 16/34

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.......145678.5 ft.

THE RUNWAY THRESHOLD ELEVATION IS...................15.7 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...123944.3 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS..........18841.64 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 73944.3 ft.

RUNWAY CENTERLINE OFFSET IS.........................145678.5 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS............123944.3 ft.

THE SLOPE OF RUNWAY 16 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 16/34
PROPOSED RUNWAY 16/34

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 16/34

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.......145679.1 ft.

THE RUNWAY THRESHOLD ELEVATION IS...................13.9 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...122940.2 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS..........18691.02 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 72940.2 ft.

RUNWAY CENTERLINE OFFSET IS.........................145679.1 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS............122940.2 ft.

THE SLOPE OF RUNWAY 16 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR WAL
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....WAL

THE AIRPORT ELEVATION IS:.....40.2 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..33.6641 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....8.474 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.21(a)(1) A height exceeding military inner horizontal surface 150' above airport elevation within a 7,500 feet of >> WAL <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.21(a)(2) A height exceeding military conical surface (a slope outward 7,000' from the inner horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

77.21(a)(3) A height exceeding military outer horizontal surface 500' airport elevation between 14,500' and 44,500' of >> WAL <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 04/22
EXISTING RUNWAY 04/22

77.21(b)(1) A height exceeding military primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.21(b)(2) A height exceeding military clear zone surface

********** DOES NOT EXCEED **********

NOT WITHIN MILITARY RUNWAY CLEAR ZONE SURFACE

77.21(b)(3) A height exceeding military approach surface of RUNWAY 04/22

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....83675.76 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....31.3 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...183199.8 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....27729.97 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF

ANY APPROACH TYPE, OUT BY 133199.8 ft.

RUNWAY CENTERLINE OFFSET IS.....83675.76 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....183199.8 ft.

THE SLOPE OF RUNWAY 04 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.21(b)(4) A height exceeding military transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 10/28
EXISTING RUNWAY 10/28

77.21(b)(1) A height exceeding military primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.21(b)(2) A height exceeding military clear zone surface

********** DOES NOT EXCEED **********

NOT WITHIN MILITARY RUNWAY CLEAR ZONE SURFACE

77.21(b)(3) A height exceeding military approach surface of RUNWAY 10/28

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....201565.6 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....35.2 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...26262.63 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....4189.395 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE NOT WITHIN APPROACH SURFACE AREA, OUT BY.....192376.204 ft.

RUNWAY CENTERLINE OFFSET IS.....201565.6 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....26262.63 ft.

THE SLOPE OF RUNWAY 10 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.21(b)(4) A height exceeding military transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 17/35
EXISTING RUNWAY 17/35

77.21(b)(1) A height exceeding military primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.21(b)(2) A height exceeding military clear zone surface

********** DOES NOT EXCEED **********

NOT WITHIN MILITARY RUNWAY CLEAR ZONE SURFACE

77.21(b)(3) A height exceeding military approach surface of RUNWAY 17/35

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....104021.7 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....30.7 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...172986.1 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....26197.92 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 122986.1 ft.

RUNWAY CENTERLINE OFFSET IS.....104021.7 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....172986.1 ft.

THE SLOPE OF RUNWAY 17 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.21(b)(4) A height exceeding military transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR W41
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....W41

THE AIRPORT ELEVATION IS:.....4.1 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..36.1188 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....37.415 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> W41 <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 06/24
EXISTING RUNWAY 06/24

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 06/24

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....20859.39 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....3 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...217451.1 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....21870.11 ft.

********** DOES NOT EXCEED **********

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 167451.1 ft.

RUNWAY CENTERLINE OFFSET IS.....20859.39 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....217451.1 ft.

THE SLOPE OF RUNWAY 06 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 14/32
EXISTING RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 14/32

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....218567 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....3.8 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...13832.36 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....1287.427 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE NOT WITHIN APPROACH SURFACE AREA, OUT BY.....212279.573 ft.

RUNWAY CENTERLINE OFFSET IS.....218567 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....13832.36 ft.

THE SLOPE OF RUNWAY 14 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 14/32
PROPOSED RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 14/32

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....218470.5 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....4 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...13476.33 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....2271.449 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE NOT WITHIN APPROACH SURFACE AREA, OUT BY.....211199.051 ft.

RUNWAY CENTERLINE OFFSET IS.....218470.5 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....13476.33 ft.

THE SLOPE OF RUNWAY 14 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 24/06
PROPOSED RUNWAY 24/06

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 24/06

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....21555.98 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....4 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...219609.4 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....33191.41 ft.

********** DOES NOT EXCEED **********

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 169609.4 ft.

RUNWAY CENTERLINE OFFSET IS.....21555.98 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....219609.4 ft.

THE SLOPE OF RUNWAY 24 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR RJD
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....RJD

THE AIRPORT ELEVATION IS:.....64.0 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..37.0243 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....140.307 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> RJD <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 12/30
EXISTING RUNWAY 12/30

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 12/30

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....116090.9 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....63.6 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...190978.9 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....28896.84 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 140978.9 ft.

RUNWAY CENTERLINE OFFSET IS.....116090.9 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....190978.9 ft.

THE SLOPE OF RUNWAY 12 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 12/30
PROPOSED RUNWAY 12/30

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 12/30

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....115180.8 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....63.6 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...191475 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....28971.25 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 141475 ft.

RUNWAY CENTERLINE OFFSET IS.....115180.8 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....191475 ft.

THE SLOPE OF RUNWAY 12 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR WWD
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....WWD

THE AIRPORT ELEVATION IS:.....21.7 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..37.3482 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....214.515 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> WWD <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 01/19
EXISTING RUNWAY 01/19

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 01/19

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....131585.6 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....22.6 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...183972.3 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....9698.613 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 133972.3 ft.

RUNWAY CENTERLINE OFFSET IS.....131585.6 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....183972.3 ft.

THE SLOPE OF RUNWAY 01 IS: 20 TO 1.

The FAA has defined this runway as a non-utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist use Terps® Professional

software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 10/28
EXISTING RUNWAY 10/28

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 10/28

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....185041.7 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....16.9 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...126383.4 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....19207.51 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 76383.4 ft.

RUNWAY CENTERLINE OFFSET IS.....185041.7 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....126383.4 ft.

THE SLOPE OF RUNWAY 10 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 14/32
EXISTING RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 14/32

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....225300.4 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....20.5 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...28004.61 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....3050.461 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE NOT WITHIN APPROACH SURFACE AREA, OUT BY.....217249.939 ft.

RUNWAY CENTERLINE OFFSET IS.....225300.4 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....28004.61 ft.

THE SLOPE OF RUNWAY 14 IS: 20 TO 1.

The FAA has defined this runway as a non-utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 01/19
PROPOSED RUNWAY 01/19

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 01/19

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....129105.2 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....23 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...185713.2 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....28106.99 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 135713.2 ft.

RUNWAY CENTERLINE OFFSET IS.....129105.2 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....185713.2 ft.

THE SLOPE OF RUNWAY 01 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR ESN
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....ESN

THE AIRPORT ELEVATION IS:.....72.2 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..38.0604 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....119.276 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> ESN <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 04/22
EXISTING RUNWAY 04/22

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 04/22

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....230670.6 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....72.2 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...2099.67 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....762.459 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE NOT WITHIN APPROACH SURFACE AREA, OUT BY.....224908.141 ft.

RUNWAY CENTERLINE OFFSET IS.....230670.6 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....2099.67 ft.

THE SLOPE OF RUNWAY 04 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 15/33
EXISTING RUNWAY 15/33

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 15/33

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....74801.95 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....51 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...217991.2 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....32948.68 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 167991.2 ft.

RUNWAY CENTERLINE OFFSET IS.....74801.95 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....217991.2 ft.

THE SLOPE OF RUNWAY 15 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 22/04
PROPOSED RUNWAY 22/04

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 22/04

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....230672.2 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....67 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...2797.789 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....669.668 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE NOT WITHIN APPROACH SURFACE AREA, OUT BY.....225002.532 ft.

RUNWAY CENTERLINE OFFSET IS.....230672.2 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....2797.789 ft.

THE SLOPE OF RUNWAY 22 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure.

Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR DOV
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....DOV

THE AIRPORT ELEVATION IS:.....28.9 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..38.2999 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....172.643 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.21(a)(1) A height exceeding military inner horizontal surface 150' above airport elevation within a 7,500 feet of >> DOV <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.21(a)(2) A height exceeding military conical surface (a slope outward 7,000' from the inner horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

77.21(a)(3) A height exceeding military outer horizontal surface 500' airport elevation between 14,500' and 44,500' of >> DOV <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 01/19
EXISTING RUNWAY 01/19

77.21(b)(1) A height exceeding military primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.21(b)(2) A height exceeding military clear zone surface

********** DOES NOT EXCEED **********

NOT WITHIN MILITARY RUNWAY CLEAR ZONE SURFACE

77.21(b)(3) A height exceeding military approach surface of RUNWAY 01/19

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....42422.38 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....25 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...228030.5 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....32345.7 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 178030.5 ft.

RUNWAY CENTERLINE OFFSET IS.....42422.38 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....228030.5 ft.

THE SLOPE OF RUNWAY 01 IS: 50 TO 1.

This is a military airport runway. All runways on military airports have a 50:1 approach obstacle surface that extends 50,000 feet. It has a maximum height of 500 feet above the established airport elevation.

77.21(b)(4) A height exceeding military transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 14/32
EXISTING RUNWAY 14/32

77.21(b)(1) A height exceeding military primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.21(b)(2) A height exceeding military clear zone surface

********** DOES NOT EXCEED **********

NOT WITHIN MILITARY RUNWAY CLEAR ZONE SURFACE

77.21(b)(3) A height exceeding military approach surface of RUNWAY 14/32

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....169109.9 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....25 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...228030.5 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....22373.7 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 178030.5 ft.

RUNWAY CENTERLINE OFFSET IS.....169109.9 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....228030.5 ft.

THE SLOPE OF RUNWAY 14 IS: 50 TO 1.

This is a military airport runway. All runways on military airports have a 50:1 approach obstacle surface that extends 50,000 feet. It has a maximum height of 500 feet above the established airport elevation.

77.21(b)(4) A height exceeding military transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR 15N
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....15N

THE AIRPORT ELEVATION IS:.....53.0 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..38.6944 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....164.361 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> 15N <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 12/30
EXISTING RUNWAY 12/30

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 12/30

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....181623.1 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....53 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...147674 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....14892.41 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED GREATER THAN 50,000 ft. FROM THE START OF ANY APPROACH TYPE, OUT BY 97674 ft.

RUNWAY CENTERLINE OFFSET IS.....181623.1 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....147674 ft.

THE SLOPE OF RUNWAY 12 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 18/36
EXISTING RUNWAY 18/36

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 18/36

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....28380.04 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....54 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...232318.2 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....23356.82 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 182318.2 ft.

RUNWAY CENTERLINE OFFSET IS.....28380.04 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....232318.2 ft.

THE SLOPE OF RUNWAY 18 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

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****
* VFR - TRAFFIC PATTERN AIRSPACE ANALYSIS *
****

SITE ID: Millsboro Hwy TRANSACTION ID: 35755014

LATITUDE: 38° 29' 44.820" LONGITUDE: 75° 21' 39.880"

SITE ELEVATION AMSL . . . . . 40 ft.
STRUCTURE HEIGHT. . . . . 199 ft.
OVERALL HEIGHT AMSL . . . . . 239 ft.

Traffic Pattern Airspace, a structure that exceed any of the following maximum allowable heights is considered to constitute a hazard to air navigation :

1. The height of the transition surface (other than abeam the runway), the approach slope, the horizontal surface, and the conical surface(as applied to visual approach runways).

2. Beyond the lateral limits of the conical surface and in the climb/descent area - 350' above airport elevation or the height of part 77.17(a)(2), whichever is greater not to exceed 499' above ground level (AGL). The climb / descent area begins abeam the runway threshold being used and is the area where the pilot is either descending to land on the runway or climbing to pattern altitude after departure.

3. Beyond the lateral limits of the conical surface and NOT in the climb/descent area of any runway. - Above Airport Elevation not to exceed 499' AGL.

**********Landing Facility Identifier**********

N06

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): Does Not Apply.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing
Runway 15/33 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.

**********Landing Facility Identifier**********

GED

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing
Runway 04/22 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.
Proposed
Runway 10/28 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.
Proposed
Runway 04/22 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.
Runway 10/28 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.

**********Landing Facility Identifier**********

SBY

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing	
Runway 05/23	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Existing	
Runway 14/32	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Proposed	
Runway 05/23	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Proposed	
Runway 14/32	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.

**********Landing Facility Identifier**********

1N5

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): Does Not Apply.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing	
Runway 08/26	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Existing	
Runway 17/35	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.

**********Landing Facility Identifier**********

OXB

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing	
Runway 02/20	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Existing	
Runway 14/32	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Proposed	
Runway 14/32	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Proposed	

```
        Runway 20/02       DNE Runway VFR Approach Surface.
                           DNE Runway VFR Transitional Surface.
                           DNE Runway VFR Primary Surface.

       ************************Landing Facility Identifier************************

                                          D74
FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

        Existing
        Runway 16/34       DNE Runway VFR Approach Surface.
                           DNE Runway VFR Transitional Surface.
                           DNE Runway VFR Primary Surface.

       ************************Landing Facility Identifier************************

                                          CGE
FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

        Proposed
        Runway 16/34       DNE Runway VFR Approach Surface.
                           DNE Runway VFR Transitional Surface.
                           DNE Runway VFR Primary Surface.
        Runway 16/34       DNE Runway VFR Approach Surface.
                           DNE Runway VFR Transitional Surface.
                           DNE Runway VFR Primary Surface.

       ************************Landing Facility Identifier************************

                                          WAL
FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

        Existing
        Runway 04/22       DNE Runway VFR Approach Surface.
                           DNE Runway VFR Transitional Surface.
                           DNE Runway VFR Primary Surface.
        Existing
        Runway 10/28       DNE Runway VFR Approach Surface.
                           DNE Runway VFR Transitional Surface.
                           DNE Runway VFR Primary Surface.
        Existing
        Runway 17/35       DNE Runway VFR Approach Surface.
                           DNE Runway VFR Transitional Surface.
                           DNE Runway VFR Primary Surface.

       ************************Landing Facility Identifier************************

                                          W41
FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.
```

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing	
Runway 06/24	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Existing	
Runway 14/32	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Proposed	
Runway 14/32	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Proposed	
Runway 24/06	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.

**********Landing Facility Identifier**********

RJD

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Proposed	
Runway 12/30	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Runway 12/30	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.

**********Landing Facility Identifier**********

WWD

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing	
Runway 01/19	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Existing	
Runway 10/28	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Existing	
Runway 14/32	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Proposed	
Runway 01/19	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.

**********Landing Facility Identifier**********

DOV

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing	
Runway 01/19	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Existing	
Runway 14/32	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.

**********Landing Facility Identifier**********

ESN

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing	
Runway 04/22	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Existing	
Runway 15/33	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Proposed	
Runway 22/04	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.

**********Landing Facility Identifier**********

15N

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): Does Not Apply.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing	
Runway 12/30	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Existing	
Runway 18/36	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.

* ********** *
* The above analysis was conducted using default parameters - Category C *
* aircraft and a maximum of 4 like category aircraft in the VFR -Traffic *
* Pattern at one time. *
* *
* To view a graphical image of VFR - Traffic Pattern Airspace for these *
* airports use Terps® Professional Software. Open the airport and Airspace® *
* study. From the Map Menu select 'VFR - Traffic Pattern Airspace'. The *
* proposed structure, airport, and the traffic pattern will now be shown *
* together. Use this information to locate an alternate site if necessary. *

* **

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****
* AIRWAY ANALYSIS *
* FAR 77.17(a)(4) (EN ROUTE CRITERIA) *
* MINIMUM OBSTACLE CLEARANCE ALTITUDE (MOCA) *
* MINIMUM ENROUTE ALTITUDE (MEA) *
****

SITE ID: Millsboro Hwy TRANSACTION ID: 35755014

LATITUDE: 38° 29' 44.820" LONGITUDE: 75° 21' 39.880"

SITE ELEVATION AMSL . . . . . 40 ft.
STRUCTURE HEIGHT. . . . . 199 ft.
OVERALL HEIGHT AMSL . . . . . 239 ft.

AIRWAY	SEQUENCE	LATITUDE	LONGITUDE	MEA	LENGTH (NM)
Q133	20	38-16-10.9N	075-24-32.98W	18000	30.47
Q133	30	38-46-16.0N	075-18-09.0W	18000	

Minimum Obstacle Clearance Altitude (MOCA) is: 18000 AMSL.

Proposed structure is between the above points along Airway Q133.The Abeam distance from the course centerline is 0.00 NM.The proposed structure is within the width of the primary area of this airway.The width of the primary area of this airway is 8 NM.The minimum en route altitude(MEA) for this airway segment Is 17000 feet AMSL.Any Height above 17000 feet AMSL will not be approved.Your proposed structure must remain below this value.

AIRWAY	SEQUENCE	LATITUDE	LONGITUDE	MEA	LENGTH (NM)
Q481	20	38-16-10.9N	075-24-32.98W	18000	30.47
Q481	30	38-46-16.0N	075-18-09.0W	18000	

Minimum Obstacle Clearance Altitude (MOCA) is: 18000 AMSL.

Proposed structure is between the above points along Airway Q481.The Abeam distance from the course centerline is 0.00 NM.The proposed structure is within the width of the primary area of this airway.The width of the primary area of this airway is 8 NM.The minimum en route altitude(MEA) for this airway segment Is 17000 feet AMSL.Any Height above 17000 feet AMSL will not be approved.Your proposed structure must remain below this value.

AIRWAY	SEQUENCE	LATITUDE	LONGITUDE	MEA	LENGTH (NM)
T303	130	38-20-20.33N	075-32-01.85W	1900	32.04
T303	140	38-48-35.317N	075-12-40.761W	1800	

Minimum Obstacle Clearance Altitude (MOCA) is: 1900 AMSL.

Proposed structure is between the above points along Airway T303.The Abeam distance from the course centerline is 2.70 NM.The proposed structure is within the width of the primary area of this airway.The width of the primary area of this airway is 8 NM.The minimum en route altitude(MEA) for this airway segment Is 900 feet AMSL.Any Height above 900 feet AMSL will not be approved.Your proposed structure must remain below this value.

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****
* IFR RUNWAY DEPARTURE SURFACE ANALYSIS *
****

SITE ID: Millsboro Hwy TRANSACTION ID: 35755014

LATITUDE: 38° 29' 44.820" LONGITUDE: 75° 21' 39.880"

SITE ELEVATION AMSL . . . . . 40 ft.
STRUCTURE HEIGHT. . . . . 199 ft.
OVERALL HEIGHT AMSL . . . . . 239 ft.

An airport with at least one instrument approach procedure (IAP) will require all airport runways to be analyzed using 40: 1 criteria for Departure. FAA application of the 40: 1 screening criteria extendes 22.09 nautical miles and 180° semi - circle area around the Runway centerline extended. Penetration of the 40: 1 surface will result initially in a determination of presumed hazard (NPH). An extended study is normally required to remove the NPH.

A specified climb gradient (CG) greater than the standard (200 ft / nm) is sometimes necessary to allow acceptable obstacle clearance. Should the proposed location exceed the maximum height you may need to determine if there is a published climb gradient and conduct additional calculations to determine if the climb gradient will provide proper clearance for the proposed structure. Should you require additional assistance please contact Federal Airways & Airspace or another aeronautical consult to perform these calculations.

Ident	Dep Rwy	Elev	Distance	40:1	Max Hgt	CG	Rwy Status
N06	15	30.1	67454	DNE	Below	DNE	Existing Rwy
GED	22	48.9	68161	DNE	Below	DNE	Existing Rwy
GED	10/28		DNE		Between	DNE	
GED	22	49	67500	DNE	Below	DNE	Proposed Rwy
GED	10/28		DNE		Between	DNE	
SBY	05	50	68948	DNE	Below	DNE	Existing Rwy
SBY	14/32		DNE		Between	DNE	
SBY	05	50	68947	DNE	Below	DNE	Proposed Rwy
SBY	14/32		DNE		Between	DNE	
1N5	08	44	78618	DNE	Below	DNE	Existing Rwy
1N5	17	46	78846	DNE	Below	DNE	Existing Rwy
OXB	02	10.9	94218	DNE	Below	DNE	Existing Rwy
OXB	32	11.2	94249	DNE	Below	DNE	Existing Rwy
OXB	32	12	92864	DNE	Below	DNE	Proposed Rwy
OXB	02	11	93796	DNE	Below	DNE	Proposed Rwy
D74	16	66	145739	DNE	Beyond	DNE	Existing Rwy
CGE	16	15.7	190717	DNE	Beyond	DNE	Existing Rwy
CGE	16	13.9	190073	DNE	Beyond	DNE	Proposed Rwy
WAL	04	31.3	201510	DNE	Beyond	DNE	Existing Rwy
WAL	10	35.2	203268	DNE	Beyond	DNE	Existing Rwy
WAL	35	30.7	202128	DNE	Beyond	DNE	Existing Rwy
W41	06	3	218544	DNE	Beyond	DNE	Existing Rwy
W41	32	3.8	219088	DNE	Beyond	DNE	Existing Rwy
W41	32	4	218968	DNE	Beyond	DNE	Proposed Rwy
W41	06	4	220755	DNE	Beyond	DNE	Proposed Rwy
RJD	12	63.6	224209	DNE	Beyond	DNE	Existing Rwy
RJD	12	63.6	224160	DNE	Beyond	DNE	Proposed Rwy
WWD	19	22.6	225816	DNE	Beyond	DNE	Existing Rwy
WWD	28	16.9	224698	DNE	Beyond	DNE	Existing Rwy
WWD	14	20.5	226918	DNE	Beyond	DNE	Existing Rwy
WWD	19	23	225816	DNE	Beyond	DNE	Proposed Rwy
ESN	04	72.2	230700	DNE	Beyond	DNE	Existing Rwy
ESN	15	51	230112	DNE	Beyond	DNE	Existing Rwy
ESN	04	67	230715	DNE	Beyond	DNE	Proposed Rwy
DOV	19	25	228227	DNE	Beyond	DNE	Existing Rwy
DOV	14	25	228206	DNE	Beyond	DNE	Existing Rwy

Ident	Dep Rwy	Elev	Distance	40:1	Max Hgt	CG	Rwy Status
15N	12	53	234484	DNE	Beyond	DNE	Existing Rwy
15N	18	54	234175	DNE	Beyond	DNE	Existing Rwy

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****
* NAVAIDS IN PROXIMITY OF CASE *
****

SITE ID: Millsboro Hwy TRANSACTION ID: 35755014

LATITUDE: 38° 29' 44.820" LONGITUDE: 75° 21' 39.880"

SITE ELEVATION AMSL . . . . . 40 ft.
STRUCTURE HEIGHT. . . . . 199 ft.
OVERALL HEIGHT AMSL . . . . . 239 ft.

FAC IDNT	TYPE	ST AT	FREQ	VECTOR	DIST (ft)	DELTA ELEVA	ST	LOCATION	GRD ANGLE	APCH BEAR
N06	UN	I	122.80	284.28	68845	+209	DE	LAUREL	.17	
SBY	VORTAC	R	111.2	217.91	69638	+191	MD	SALISBURY	.16	
GED	UN	I	123.00	.42	69863	+186	DE	DELAWARE COASTAL	.15	
SBY	GLIDE SLOPE	I	330.5	214.86	70001	+191	MD	RWY 32 SBY	.16	319
SBY	LOCALIZER	I	108.7	220.06	70497	+195	MD	RWY 32 SALISBURY-	.16	319
SBY	UN	I	122.95	216.83	70849	+186	MD	SALISBURY-OCEAN C	.15	
SBY	ATCT	I	A/G	218.42	71209	+121	MD	SALISBURY-OCEAN C	.10	
1N5	UN	I	122.80	247.49	79263	+193	MD	BENNETT	.14	
11MD	UN	I	122.70	253.33	79682	+197	MD	TIM'S	.14	
OXB	LOCALIZER	I	109.1	134.7	93618	+226	MD	RWY 32 OCEAN CITY	.14	325
OXB	UN	I	123.05	134.88	95776	+227	MD	OCEAN CITY MUNI	.14	
ATR	VOR/DME	R	112.6	20.46	122102	+234	DE	WATERLOO	.11	
DOX	RADAR WXL	Y		349.4	122197	+75	DE	ELLENDALE	.04	
SWL	VORTAC	R	112.4	190.42	162644	+205	MD	SNOW HILL	.07	
ZDC	CO	Y	A/G	190.42	162713	+206	MD	SNOW HILL	.07	
CGE	UN	I	122.70	274.94	192166	+219	MD	CAMBRIDGE-DORCHES	.07	
MD57	UN	I	122.80	202.39	192603	+229	MD	BEVERLY	.07	
0N6	UN	I	123.00	345.38	194677	+189	DE	ALBANNA AVIATION	.06	
VG19	UN	I	122.80	199.75	195525	+226	VA	SAWYER	.07	
WAL	ATCT	I	A/G	188.56	204039	+119	VA	WALLOPS FLIGHT FA	.03	
2DE3	UN	I	122.80	333.71	206242	+184	DE	HRUPSA	.05	
W41	UN	I	122.80	217.42	219414	+235	MD	CRISFIELD-SOMERSE	.06	
RJD	UN	I	122.80	320.32	224979	+175	MD	GOODEN AP	.04	
CEJ	LOCALIZER	U	108.9	35.1	225129	+220	NJ	RWY 19 CAPE MAY C	.06	190
WWD	UN	I	122.70	34.52	226958	+217	NJ	CAPE MAY CNTY	.05	
LIR	LOCALIZER	I	111.9	352.55	227109	+215	DE	RWY 19 DOVER AFB	.05	195
DOV	GLIDE SLOPE	I	333.6	352.77	229179	+218	DE	RWY 01 DOV	.05	15
DOV	RADAR ASR	I		353.09	229348	+138	DE	DOVER AFB	.03	
FGH	GLIDE SLOPE	I	331.8	298.82	230570	+202	MD	RWY 04 ESN	.05	41
FGH	LOCALIZER	I	109.3	300.15	230684	+172	MD	RWY 04 EASTON/NEW	.04	41
DOV	ATCT	I	A/G	352.25	231303	+106	DE	DOVER AFB	.03	
ESN	ATCT	I	A/G	299.38	231823	+132	MD	EASTON ATCT	.03	
DOV	TACAN	I	110.0	352.59	233825	+222	DE	DOVER	.05	
15N	UN	I	122.80	344.37	235148	+186	DE	JENKINS	.05	

FAC IDNT	TYPE	ST AT	FREQ	VECTOR	DIST (ft)	DELTA ELEVA	ST	LOCATION	GRD ANGLE	APCH BEAR
LIR	GLIDE SLOPE	I	331.1	353.1	236569	+225	DE	RWY 19 DOV	.05	195
DOV	LOCALIZER	I	109.9	353.1	239246	+220	DE	RWY 01 DOVER AFB	.05	15
2NJ2	UN	I	122.70	41.4	240590	+229	NJ	SPORTLAND PIER	.05	

THE NEAREST AIR NAVIGATION FACILITY TO CASE COORDINATES IS: N06 (UN)

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**********************************************************************
*                          AM RADIO STATIONS                         *
*      Disturbance of AM Broadcast Station Antenna Pattern           *
*                  CFR Title 47, Part 1, Subpart BB                  *
**********************************************************************
```

SITE ID: Millsboro Hwy TRANSACTION ID: 35755014

LATITUDE: 38° 29' 44.820" LONGITUDE: 75° 21' 39.880"

SITE ELEVATION AMSL . . . . . 40 ft.
STRUCTURE HEIGHT. . . . . 199 ft.
OVERALL HEIGHT AMSL . . . . . 239 ft.

CALL SIGN	FREQ KHz	POWER Watts	ANT MOD	P T	DIST Meters	BEARING Degrees	NAD83 LATITUDE	NAD83 LONGITUDE	CITY	ST
No data available in table										

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****
* COMMUNICATION FACILITIES IN PROXIMITY OF CASE *
****

SITE ID: Millsboro Hwy TRANSACTION ID: 35755014

LATITUDE: 38° 29' 44.820" LONGITUDE: 75° 21' 39.880"

SITE ELEVATION AMSL . . . . . 40 ft.
STRUCTURE HEIGHT. . . . . 199 ft.
OVERALL HEIGHT AMSL . . . . . 239 ft.

IDENT	FACILITY	LOCATION NAME	ST	BEARING (deg) Case to FAC	DISTANCE (ft)
N06	UN	LAUREL	DE	284.22	68779
GED	UN	DELAWARE COASTAL	DE	.45	69823
GED	ASOS	GEORGETOWN	DE	359.73	70631
SBY	UN	SALISBURY-OCEAN CITY	MD	216.8	70893
SBY	ATCT	SALISBURY-OCEAN CITY	MD	218.36	71240
SBY	ASOS	SALISBURY	MD	217.61	71277
1N5	UN	BENNETT	MD	247.41	79231
11MD	UN	TIM'S	MD	253.33	79682
OXB	UN	OCEAN CITY MUNI	MD	134.9	95836
OXB	ASOS	OCEAN CITY	MD	135.04	96306
ATR	BUEC	WATERLOO	DE	20.42	122037
DOX	NEXRAD	ELLENDALE	DE	349.4	122197
ZDC	CO	SNOW HILL	MD	190.42	162713
CGE	UN	CAMBRIDGE-DORCHESTER	MD	274.93	192131
CGE	AWOS-3	CAMBRIDGE	MD	274.68	192227
MD57	UN	BEVERLY	MD	202.37	192619
0N6	UN	ALBANNA AVIATION	DE	345.39	194632
VG19	UN	SAWYER	VA	199.73	195544
WAL	ASOS	WALLOPS ISLAND	VA	188.16	203872
WAL	ATCT	WALLOPS FLIGHT FACILI	VA	188.54	204070
2DE3	UN	HRUPSA	DE	333.71	206242
W41	UN	CRISFIELD-SOMERSET CN	MD	217.4	219413
RJD	UN	GOODEN AP	MD	320.32	224913
WWD	UN	CAPE MAY CNTY	NJ	34.53	226977
WWD	AWOS-3	WILDWOOD	NJ	34.45	227732
DOV	ASR	DOVER AFB	DE	353.09	229326
ESN	AWOS-3	EASTON	MD	299.28	231259
DOV	ATCT	DOVER AFB	DE	352.26	231287
ESN	ATCT	EASTON ATCT	MD	299.38	231760
15N	UN	JENKINS	DE	344.38	235090
2NJ2	UN	SPORTLAND PIER	NJ	41.4	240590

THE NEAREST COMMUNICATION FACILITY TO CASE COORDINATES IS: N06

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****
* NOS OBSTRUCTIONS NEAR CASE *
****

SITE ID: Millsboro Hwy TRANSACTION ID: 35755014

LATITUDE: 38° 29' 44.820" LONGITUDE: 75° 21' 39.880"

SITE ELEVATION AMSL . . . . . 40 ft.
STRUCTURE HEIGHT. . . . . 199 ft.
OVERALL HEIGHT AMSL . . . . . 239 ft.

Obstacle Search Range = 40000

V	TYPE OBSTACLE	CITY	ST	LATITUDE	LONGITUDE	RANGE	DEG	QUAN	AMSL	AGL	L	AH	AV	MK	FAA NUMBER	JULIN DATE	A
U	TANK	GEORGETOWN	DE	38-29-36.00	075-22-19.00		254	1	175	00125	U	4	D	U	0067_NY00270OE	2014124	C
O	TOWER	MILLSBORO	DE	38-32-07.84	075-21-27.50		4	1	199	00155	N	1	A	N	2013AEA00142OE	2014024	A
O	TOWER	DAGSBORO	DE	38-31-28.80	075-17-52.65		60	1	559	00520	R	4	D	P	2015AEA01539OE	2017025	C
O	TOWER	MILLSBORO	DE	38-34-30.14	075-20-18.12		13	1	440	00404	D	4	D	N	2025AEA04830OE	2025305	C
U	TOWER	FORD	DE	38-34-41.00	075-24-51.00		333	1	160	00145	U			U		1976053	A
O	TOWER	MILLSBORO	DE	38-34-45.00	075-17-03.00		36	1	344	00320	R	5	D	M	1987AEA00626OE	2014152	C
U	TOWER	MILLSBORO	DE	38-36-08.30	075-21-39.10		0	1	199	00155	R	4	D	N	2017AEA03968OE	2019242	A

DEFINITIONS
The data for each obstacle record is in the following format:

Field	Data Element	Description
1	"O" or "U"	Verification Status "O": verified "U": unverified
2	Obstacle Type	1. Arch 15. Plant 2. Balloon 16. Pole' 3. Bridge 17. Rig 4. Bldg 18. Refinery 5. Bldg-Twr 19. Sign 6. Catenary 20. Spire 7. Cool TWR 21. Stack 8. Crane 22. Stacks 9. Crane T 23. Tank 10. Ctrl Twr 24. T-L Twr 11. Dam 25. Tower 12. Dome 26. Towers 13. Elevator 27. Tramway 14. Monument 28. Windmill
3	City Name	City
4	State Identifier	State
5	Latitude	Latitude (NAD 1883)
6	Longitude	Longitude (NAD 1983)
7	Range	Distance from Aeronautical Study to NOS Obstruction (feet)
8	DEG	Bearing from Aeronautical Study to NOS Obstruction (feet)
9	Freq	Charted AM station Frequency
10	AMSL	Above Mean Sea Level Height (Feet)
11	AGL	Above Ground Level Height (Feet)
12	Strobe Indicator	(L)ighting, type of "S": High Intensity White Strobe Lighting "M": Medium Intensity White Strobe Lighting "R": Red Lighting "H": Dual, Red with HIGH Intensit White Strobe "D": Dual, Red with MEDIUM Intensity White Strobe "F": Flood Lights "N": No Lights "L": Other, Lighting not listed above
13, 14	Accuracy H V	A Horizontal / A Vertical Accuracy

HORIZONTAL		VERTICAL	
Code	Tolerance	Code	Tolerance
1	+-20'	A	+-3'

		A Horizontal HORIZONTAL		A Vertical Accuracy VERTICAL	
		Code	Tolerance	Code	Tolerance
		2	+-50'	B	+-10'
		3	+-100'	C	+-20'
		4	+-250'	D	+-50'
		5	+-500'	E	+-125'
		6	+-1000'	F	+-250'
		7	+-1/2 NM'	G	+-500'
		8	+-1M'	H	+-1000'
		9	Unknown	I	Unknown
15	Mark Indicator	Type of Marking "P": Orange or Orange and White Paint "W": White Paint Only "M": Marked "F": Flag Marker "S": Spherical Marker "N": None "U": Unknown			
16	FAA Study Number or NOS Source Code	NOS Source Code (when FAA study number is not available)			
		99CF0000	7610 Form		
		99AM0000	FCC AM List		
		99FM0000	FCC FM List		
		99FC0000	Flight Check		
		99SP0000	Stereoplot		
		99IP0000	IAP Procedures		
		99VR0000	Visual Reported		
		99LR0000	Letter Reported		
		99TR0000	Telephone Reported		
		99MS0000	MSAW Reported		
		99OC####	OC Charts		
		99HC0000	Horizontal Ctrl Data		
		99LM0000	Landmark for Charts		
17	Action: A, C, D, Julian Date	Add, Change, Dismantle, Date of Action *			

* A revision has modified the Julian date field by NOS.The numeric, 5-digit field (YYDDD) has changed to a 7-digit field (YYYYDDD) field.

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****
PRIVATE LANDING FACILITIES IN PROXIMITY OF CASE
****

SITE ID: Millsboro Hwy TRANSACTION ID: 35755014

LATITUDE: 38° 29' 44.820" LONGITUDE: 75° 21' 39.880"

SITE ELEVATION AMSL . . . . . 40 ft.
STRUCTURE HEIGHT. . . . . 199 ft.
OVERALL HEIGHT AMSL . . . . . 239 ft.

FACIL IDENT	TYP	NAME	BEARING To FACIL	RANGE IN NM	DELTA ARP ELEVATION	FAR P77	FAA PROTECTED IFR PROCEDURE
6MD8	AIR	DELMARVAIR	211.58	3.77	+184	NO	
DE21	AIR	WEST PVT	82.02	9.3	+218	NO	
4MD1	AIR	BUNTING'S FLD	141.31	9.82	+234	NO	
4MD3	AIR	CAREY FLD	109.55	10.08	+216	NO	
DE22	HEL	BEEBE	78.49	10.57	+220	NO	
2MD4	AIR	ENNIS AERODROME	236.66	11.07	+195	NO	
31MD	HEL	AGH	142.76	11.72	+227	NO	
11MD	AIR	TIM'S	253.32	13.11	+197	NO	
MD49	HEL	PENINSULA RGNL MEDICAL CENTER	234.2	13.71	+198	NO	
MD35	AIR	SPRING HILL	254.92	14.16	+197	NO	
7MD6	HEL	OCFD NORTHSIDE PARK	105.36	14.74	+235	YES	IFR Procedure
DE23	AIR	OCKEL FARMS	.2	15.25	+192	NO	
DE14	AIR	HUEY	331.24	16.97	+194	NO	
DE15	AIR	RELIANCE	293.8	17.4	+199	NO	
DE25	AIR	EAGLE CREST-HUDSON	19.58	17.82	+211	NO	
5MD4	AIR	OAK GROVE FARM	299.74	19.5	+195	NO	
DE17	AIR	SUGAR HILL	328.34	19.87	+194	NO	
MD80	AIR	BARREN CREEK FLD	263.12	20.69	+218	NO	
39DE	HEL	BAYHEALTH MEDICAL CENTER	356.57	23.49	+37	NO	
2DE2	AIR	WILLAVIEW	335.33	23.7	+176	NO	
3MD5	AIR	HIDDEN HILLS	288.53	23.82	+219	NO	
5MD5	AIR	ARCADIA FARMS	222.36	24.35	+221	NO	
2DE8	AIR	MURPHY'S LANDING	1.7	25.05	+229	NO	
7MD1	AIR	MAGENNIS FARM	298.5	26.19	+199	NO	
9MD9	AIR	G W FARM	324.27	26.33	+189	NO	
MD00	AIR	FAIR'S	198.56	28.44	+217	NO	
DE32	AIR	BELFAIR	337.41	31.13	+175	NO	
7MD7	AIR	BOOMERS FLD	199.38	31.5	+217	NO	
MD57	AIR	BEVERLY	202.39	31.71	+229	NO	
28DE	AIR	ALBANNA AVIATION	345.39	32.03	+189	NO	
VG19	AIR	SAWYER	199.74	32.19	+226	NO	
76DE	HEL	JT21	346.6	32.39	+199	NO	
6MD1	AIR	DILEO FLD	308.71	32.76	+189	NO	
DE00	AIR	DOYLE'S	342.2	33.06	+188	NO	
29MD	HEL	UMM SHORE MEDICAL CENTER AT CA	276.89	33.12	+222	NO	
88MD	AIR	BEAVEN FLD	303.78	33.4	+198	NO	
MD33	HEL	DORCHESTER GENERAL HOSPITAL	278.09	33.55	+227	NO	
2DE3	AIR	HRUPSA	333.71	33.94	+184	NO	
DE09	AIR	JOHNSONS	350.15	34.82	+196	NO	
8MD4	AIR	SPIERING	326.18	35.03	+184	NO	
MD28	AIR	EWING	302.54	35.11	+189	NO	

FACIL IDENT	TYP	NAME	BEARING To FACIL	RANGE IN NM	DELTA ARP ELEVATION	FAR P77	FAA PROTECTED IFR PROCEDURE
VA41	AIR	HIGH HOPES	199.2	35.65	+230	NO	
MD29	HEL	MEML HOSPITAL	296.27	37.46	+157	NO	
DE24	HEL	ELLIOTT	349.64	37.51	+214	NO	
MD52	HEL	MCCREADY MEML HOSPITAL	217.77	37.86	+236	NO	
14NJ	HEL	WUERKERS NEW ACRES FARM	35.65	37.92	+217	NO	
7MD0	AIR	OUR DOMAIN	333.08	38.42	+174	NO	
MD96	HEL	SHORE REGIONAL MEDICAL CENTER	300.89	38.61	+175	NO	
3MD8	AIR	POKETY	280.62	38.76	+229	NO	

THE NEAREST PRIVATE USE LANDING FACILITY IS: DELMARVAIR
DELMARVAIR is an Airport type landing facility.

landing facilities with IFR procedures are protected under FAR 77.17 (a) (3).

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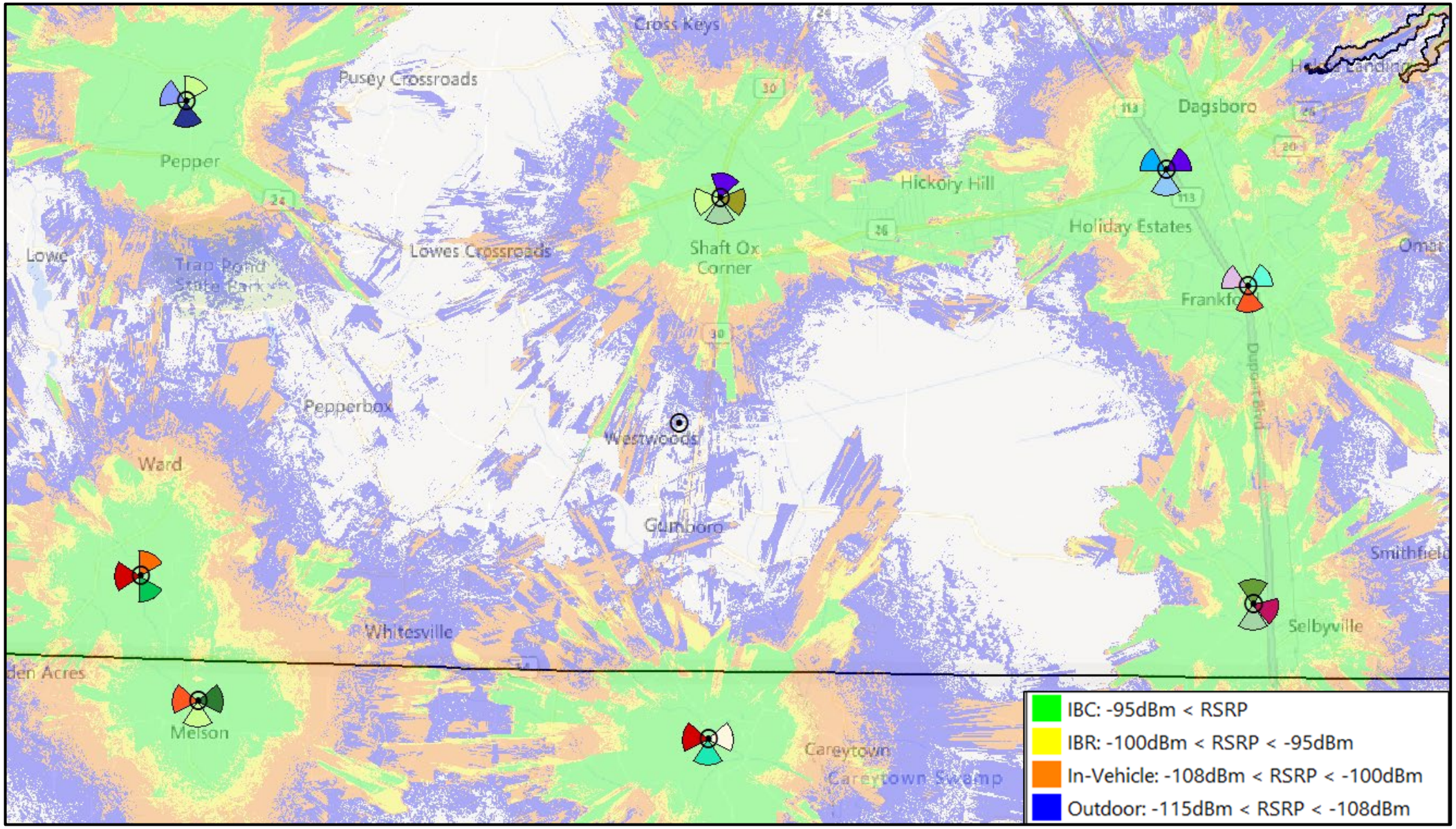
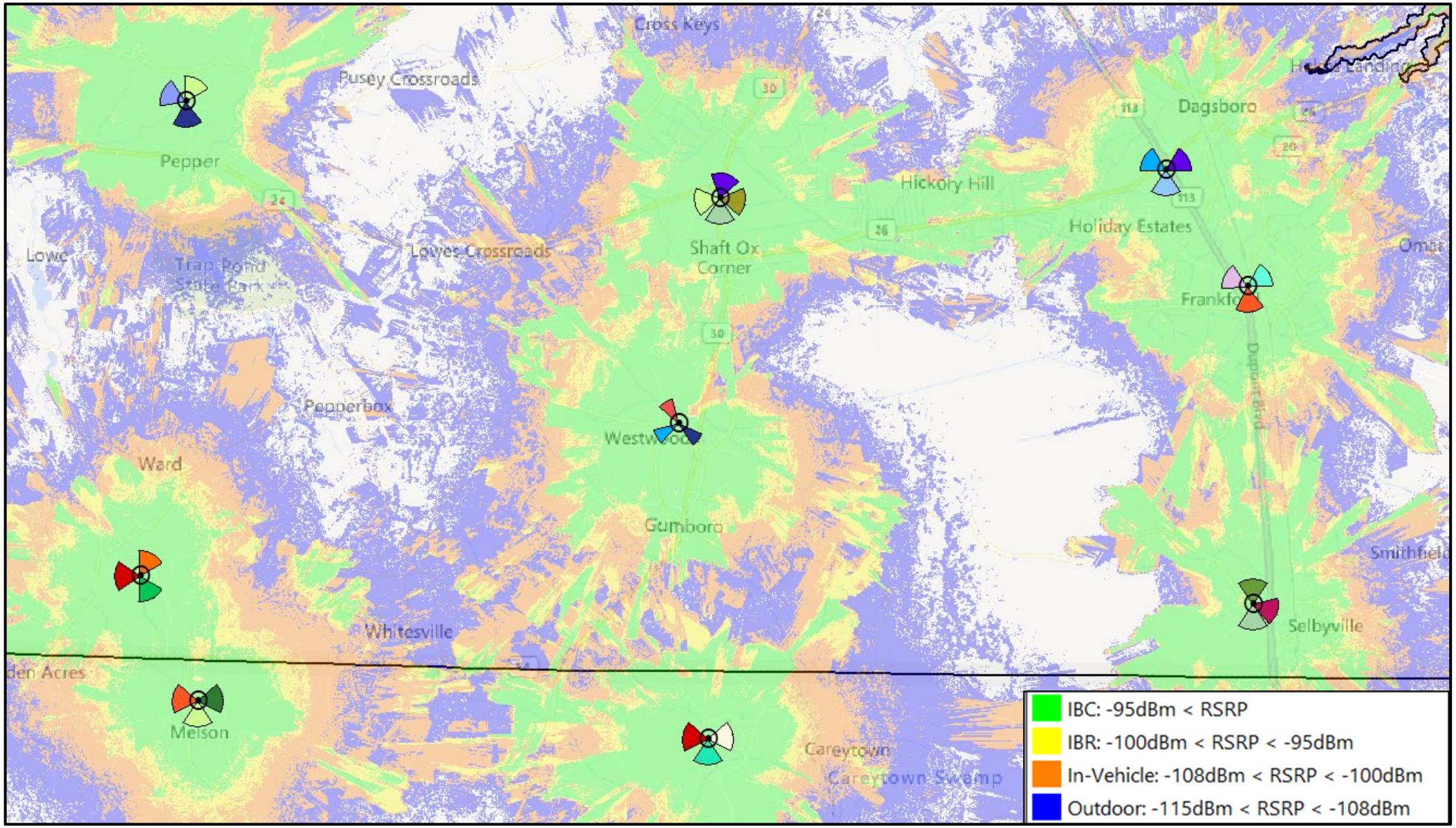
Region: Northeast
Market: PHILADELPHIA PA
Site ID: 1SU4500B
Submission Date: 3/27/2026

Existing LTE (L2100) Coverage



Proposed LTE (L2100) with 1SU4500B



PO Box 165
Fairview Village, PA 19409
Phone: 610.304.2024
www.dBmEng.com

DBM ENGINEERING, P.C.

April 7, 2026
Sam Averna
NETWORK TOWERS
120 Eastshore Drive, Suite 300
Glen Allen, VA 23059

Subject: **Two-Mile Inventory**
"Millsboro" DE-T25.04
22311 Bald Branch Road
Millsboro, DE 19966
Latitude: N 38.495785° (NAD 83)
Longitude: W 75.361079° (NAD 83)

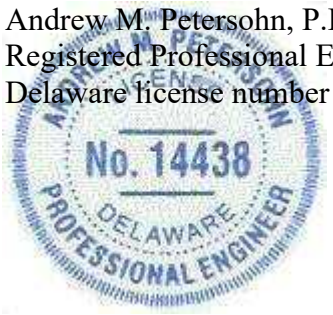
Mr. Averna:

I have received and executed your request that I compile an inventory of existing tall structures located within two miles of the proposed tower at the above-referenced location. As a registered Professional Engineer, I am bound by a code of ethics to hold paramount the safety, health, and welfare of the public. All statements and calculations offered herein are made in an objective and truthful manner pursuant to that code.

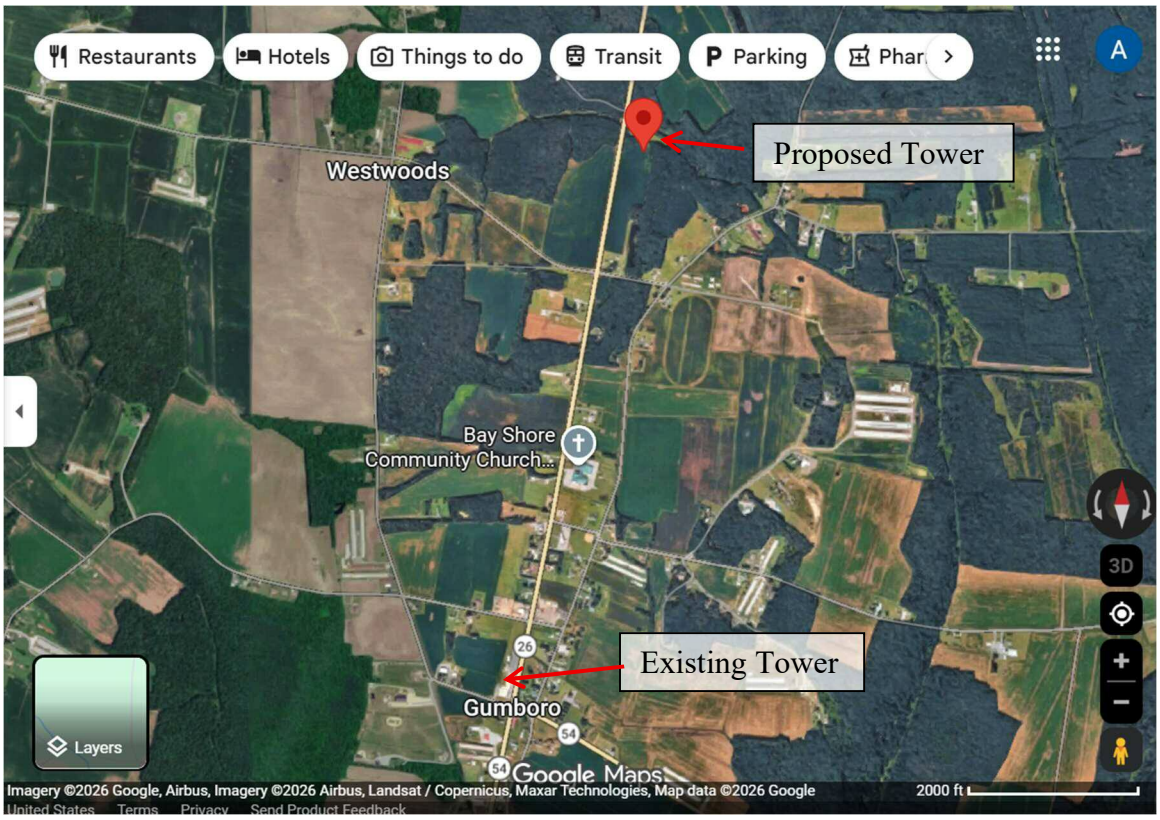
Summary of Findings
The following map illustration accurately accounts for all known existing tall structures within two (2) miles of the proposed tower at the above referenced location. As illustrated, there exists only one known tall structure within two (2) miles of the proposed tower; a lattice tower approximately one and two-tenths (1.2) miles south of the proposed facility. Unfortunately, use of this facility will not satissfy T-Mobile's network improvement objectives for the area so it cannot be used as a satisfactory antenna support structure.

Sincerely,

Andrew M. Petersohn, P.E.
Registered Professional Engineer
Delaware license number 14438



Existing Tall Structures



It is T-Mobile policy and overwhelming preference to utilize existing, tall structures as antenna-support platforms when their location, available attachment height, and structural capacity are congruent with T-Mobile's network requirements. This is because the co-location process is almost always less expensive, faster to market, and less involved from a permitting perspective than the construction of a new tower structure. In this specific case, there is just one (1) existing tall structure within two (2) miles of the proposed tower; a 220' lattice tower roughly one and two-tenths (1.2) miles south of the proposed facility. This site is too far south to satisfy the primary network objective: To provide uninterrupted coverage along and around the Rt. 26 corridor between Rt. 24 and the Maryland Border. Use of the site over a mile south would shift the new coverage too far in the direction of Maryland leaving a gap in connectivity for T-Mobile's mid-band frequencies to the north.

PO Box 165
Fairview Village, PA 19409
Phone: 610.304.2024
www.dBmEng.com

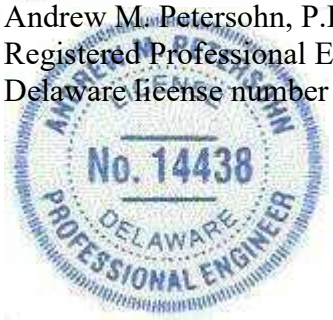
DECLARATION OF ENGINEER

Andrew M. Petersohn, P.E., hereby states that he is a graduate telecommunications consulting engineer possessing Master and Bachelor Degrees in Electrical Engineering from Lehigh University (2005 and 1999, respectively). His corporation, dBm Engineering, P.C., has been retained by representatives of Network Towers to perform a two (2) mile inventory for a proposed telecommunications facility.

Mr. Petersohn also asserts that the calculations and/or measurements described in this report were made personally and in a truthful and objective manner. Mr. Petersohn is a Registered Professional Engineer licensed in Pennsylvania, Delaware, Maryland, Virginia, New York, Florida and New Jersey. He has over two decades of engineering experience in the field of wireless communications. Mr. Petersohn is an active member of the National Society of Professional Engineers (NSPE) and the Pennsylvania Society of Professional Engineers (PSPE). Mr. Petersohn further states that all facts and statements contained in the foregoing document are true and accurate to the best of his knowledge. He believes, under penalty of perjury, the foregoing to be correct.



Andrew M. Petersohn, P.E.
Registered Professional Engineer
Delaware license number 14438



Executed this the 7th day of April, 2026.

PO Box 165
Fairview Village, PA 19409
Phone: 610.304.2024
www.dBmEng.com

Structural Analysis Report

Trylon Project # 196812

December 2, 2021

Project Information	
Client	Smartlink
Carrier Name	AT&T
Carrier Site ID	DEL05348
Carrier Site Name	Gumboro
PACE Number	MRPHL044843, MRPHL044836, MRPHL044982, MRPHL044980, MRPHL044978, MRPHL044979, MRPHL044837
PTN Number	2254A0ZM6V, 2254A0ZM02, 2254A0ZM4F, 2254A0ZMA6, 2254A0ZLYL, 2254A0ZMB9, 2254A0ZM20
FA Number	10063526
Site Address	36996 Millsboro Highway, Millsboro, DE 19966
Site Coordinates	38.47916, -75.3667
Structure Type	Self-Support
Structure Height	170.0 ft

STRUCTURE RATING =	**129.1%**	**FAIL**

Analysis Performed by:

Arienna Wilson-Muller, E.I.

Reviewed and Approved by:

Cliff Abernathy, P.E.



12/02/2021

Structural Analysis Report

Subject: Analysis of the Existing 170.0 ft Self-Support

Dear **Smartlink**,

We have been provided with RF information, documentation, photos, and sketches of the structure for the above referenced sites. AT&T is proposing to change the equipment configuration on the Existing 170.0 self-support tower.

A revised antenna, coax and miscellaneous equipment schematic have been provided to us. We have been asked to evaluate this information to determine whether the supporting structure is adequate to safely support the proposed loading change.

TNX Tower (Version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases.

1. Source Data

Document Type	Source	Reference	Date
RFDS	AT&T	RFDS ID: 4543352	November 30, 2021
Structural Modification	TAE Engineering	Project No: 08510-24	August 31, 2009
Structural Modification	Maser Consulting	Project No: 12950143A	March 6, 2013
Post Modification Inspection	Papay Engineering	WO 2834	March 31, 2014
Structural Analysis	Maser Consulting	Project No: 16916024A	August 25, 2016
Mount Analysis	Trylon	Project No: 190726	October 15, 2021
Construction Drawings	Trylon	Site ID: DEL05348	November 11, 2021

2. Analysis Criteria

Adopted Codes and Site Parameters	
Building Code / Local Code	2012 IBC
Code Standard	TIA-222-G
Design Wind Speed (mph)	120 (V_{ult}) / 93 (V_{nom})
Design Wind Speed with Ice (mph)	30
Design Ice Thickness (in)	0.75
Risk Category	II
Exposure Category	C
Topographic Factor, K_{zt}	1
Seismic Response Acceleration, S_s (g)	0.044
Seismic Response Acceleration, S_1 (g)	0.092

3. Loading Configurations

Proposed Carrier Loading Configuration

Mount CL (ft)	Equip CL (ft)	Qty	Manufacturer	Model	Mount	Feedlines	Carrier
150.0	150.0	6	Commscope	NNHH-65C-R4	(3) 12.5' Sector Frame	(1) Fiber (2) DC	AT&T
		3	Nokia	AIRSCALE TRI RRH 4T4R B12/14/29 370W AHLBBA			
		3	Nokia	AIRSCALE RRH 4T4R B30 100W AHNA			
		3	Nokia	AIRSCALE RRH 4T4R B5 160W AHCA			
		3	Nokia	AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIB			
		1	Raycap	DC6-48-60-18-8F			
		1	Raycap	DC9-48-60-24-8C-EV			

Other Considered Loading Configuration

Mount CL (ft)	Equip CL (ft)	Qty	Manufacturer	Model	Mount	Feedlines	Carrier
168.0	168.0	1	Unknown	20' Dipole	Direct	(1) 1-1/4 (1) 7/8 (1) 5/8	Firestation
166.7	166.7	1	Decibel	DB420D-B	(1) 6' Sidearm		

4. Standard Conditions for Providing Structural Consulting Services on Existing Structures

1) Structural analysis has been performed assuming the tower and foundations were built and maintained in accordance with the manufacturer's specification and in "like new" condition. No allowance was made for excessive corrosion, damaged or missing structural members, loose bolts, misaligned parts, or any reduction in strength due to the age or fatigue of any member.
2) The structural analysis provided is an assessment of the primary load carrying capacity of the tower. We provide a limited scope of service. In some cases, we cannot verify the capacity of every weld, plate, connection detail, etc. In some cases, structural fabrication details are unknown at the time of our analysis, and the detailed field measurement of some of the required details may not be possible. In instances where we cannot perform connection capacity calculations, it is assumed that the existing manufactured connections develop the full capacity of the primary members being connected.
3) The structural analysis has been performed using information currently provided by the client and potentially field verified. We have been provided with a mounting arrangement for all telecommunications equipment, including antennas RRH's, TMA's, RRU's, diplexers, surge protection devices, etc. Our analysis has been based upon a particular mounting arrangement. We are not responsible for deviations in the mounting arrangement that may occur over time. If deviations in equipment type or mounting arrangements are proposed, then we should be contacted to revise the recommendations of this structural report.
4) Structural analysis does not comment on any antenna mounts and mount hardware installed on the tower. It is the carrier's responsibility to ensure adequacy of the antenna mounts outside of this structural analysis.

5. Analysis Results

Component	Critical Member	% Capacity	Pass/Fail
Leg(s)	T4	74.1	Pass
Diagonal(s)	T5	84.5	Pass
Horizontal(s)	T1	33.4	Pass
Secondary Horizontal(s)	T6	8.4	Pass
Top Girt(s)	T1	4.0	Pass
Bottom Girt(s)	T1	12.0	Pass
Bolt Check(s)	--	81.2	Pass
Anchor Rod(s)	**--**	**106.6**	**Fail**

Pole Reactions	Wind Analysis	Ice Analysis
Leg Compression (kip)	196.0	--
Leg Uplift (kip)	155.0	--
Leg Shear (kip)	21.0	--
Global Axial (kip)	3175.0	170.0
Global Shear (kip)	35.0	5.0
Global Moment (kip-ft)	49.0	535.0
Foundation Rating =		**129.1%**

Structure Rating (max from all components) =	**129.1%**

1825 W. Walnut Hill Lane, Suite 120
Irving, Texas 75038

6. Conclusions and Recommendations

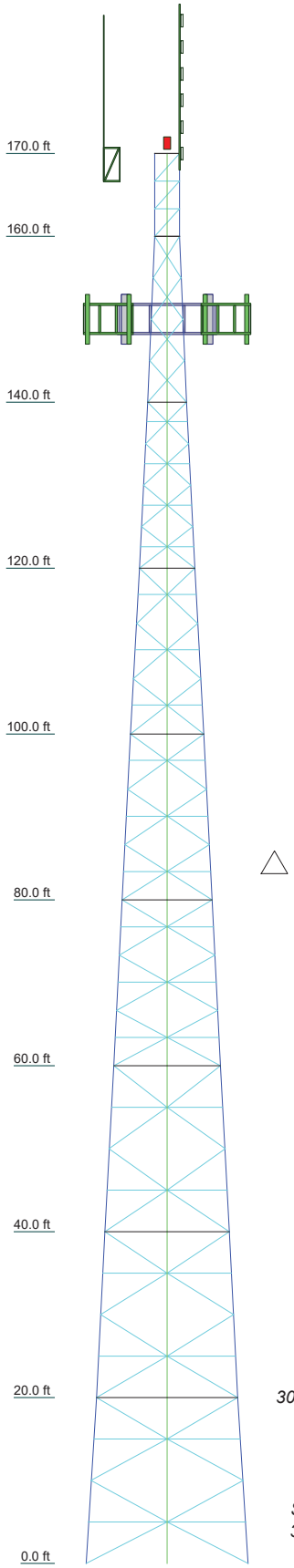
Based on the information provided, our calculations conclude that the Existing 170.0 ft self-support does not have sufficient capacity to carry the proposed loading configuration. Trylon recommends the modifications listed below to bring the tower into compliance:

- Reinforce anchor rods.
- Reinforce foundation.

APPENDIX

ADDITIONAL CALCULATIONS

Section	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	V5x5x0.6487 with Plate	V4x4x0.779 with Plate	V4x4x0.711 with Plate	V4x4x3/8 with Plate	A	V4x4x1/4 with Plate	V3x3x1/4 with Plate	V3x3x3/16 with Plate	V3x3x1/4
Leg Grade	A572-50								
Diagonals	L3 1/2x3 1/2x5/16		L3x3x5/16	L2 1/2x2 1/2x5/16	L2x2x3/16	L2x2x1/4	L 1-3/4x1-3/4x3/16		B
Diagonal Grade	A36								
Top Girts	N.A.								C
Bottom Girts	N.A.								B
Horizontals	L 2-1/2x2-1/2x3/16		L2x2x3/16			N.A.			B
Sec. Horizontals	N.A.					L2x2x1/4		N.A.	
Face Width (ft) 19.5833	17.02	14.96	12.89	10.83	8.77	6.71	4.65	2.92	2.91667
# Panels @ (ft)		12 @ 5			9 @ 6.66667		8 @ 5		3 @ 3.33333
Weight (K) 23.6	4.4	4.3	3.4	3.4	2.3	2.2	1.8	1.4	0.3



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) Flashing Beacon	170.5	AHNA	150
20' Dipole	168	AHNA	150
DB420-D	166.67	AHNA	150
Rohn 6' Side-Arm(1)	166.67	AHCA	150
Rohn 6'x12' Boom Gate (3)	150	AHCA	150
(2) NNHH-65C-R4 w/ Mount Pipe	150	AHCA	150
(2) NNHH-65C-R4 w/ Mount Pipe	150	AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIB	150
(2) NNHH-65C-R4 w/ Mount Pipe	150		
AIRSCALE TRI RRH 4T4R B12/14/29 320W AHLBBA	150	AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIB	150
AIRSCALE TRI RRH 4T4R B12/14/29 320W AHLBBA	150	AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIB	150
AIRSCALE TRI RRH 4T4R B12/14/29 320W AHLBBA	150	DC6-48-60-18-8F	150
		DC9-48-60-24-8C-EV	150

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	V4x4x3/8 with Plate 2.25x2.25	C	L1 3/4x1 1/4x3/16
B	L1 3/4x1 3/4x1/8		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Sussex County, Delaware.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 93 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 30 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. TOWER RATING: 84.5%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 196 K
SHEAR: 21 K

UPLIFT: -155 K
SHEAR: 18 K

AXIAL 170 K
SHEAR 5 K *MOMENT 535 kip-ft*

TORQUE 2 kip-ft
30 mph WIND - 0.7500 in ICE

AXIAL 49 K
SHEAR 35 K *MOMENT 3175 kip-ft*

TORQUE 7 kip-ft
REACTIONS - 93 mph WIND

Trylon
1825 W. Walnut Hill Lane, Suite 302
Irving, TX 75038
Phone: (214) 930-1730
FAX:
Trylon

Job: *Gumboro*			
Project: *196812*			
Client: Smartlink	Drawn by: Arienna Wilson-Muller, E.I.	App'd:	
Code: TIA-222-G	Date: 12/02/21	Scale: NTS	
Path:		Dwg No. E-1	

tnxTower	Job: Gumboro	Page: 1 of 31
Trylon 1825 W. Walnut Hill Lane, Suite 302 Irving, TX 75038 Phone: (214) 930-1730 FAX:	Project: 196812	Date: 18:16:26 12/02/21
	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 170.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 2.92 ft at the top and 19.58 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Sussex County, Delaware.
Basic wind speed of 93 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 30 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

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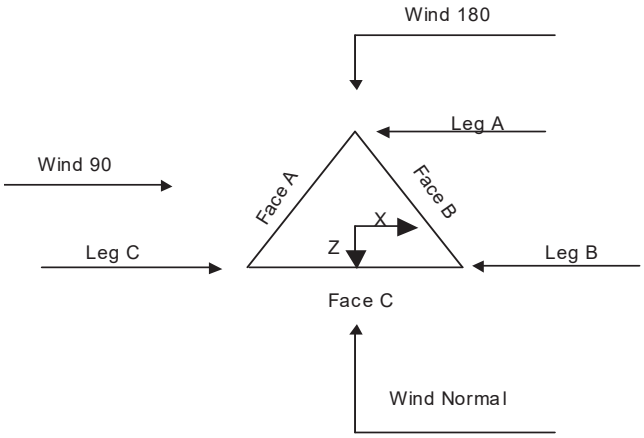
	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	170.00-160.00			2.92	1	10.00
T2	160.00-140.00			2.92	1	20.00
T3	140.00-120.00			4.65	1	20.00
T4	120.00-100.00			6.71	1	20.00
T5	100.00-80.00			8.77	1	20.00
T6	80.00-60.00			10.83	1	20.00
T7	60.00-40.00			12.89	1	20.00
T8	40.00-20.00			14.96	1	20.00
T9	20.00-0.00			17.02	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	170.00-160.00	3.33	Diag Up	No	Yes	0.0000	0.0000
T2	160.00-140.00	5.00	X Brace	No	No	0.0000	0.0000
T3	140.00-120.00	5.00	X Brace	No	Yes	0.0000	0.0000
T4	120.00-100.00	6.67	X Brace	No	Yes	0.0000	0.0000
T5	100.00-80.00	6.67	X Brace	No	Yes	0.0000	0.0000
T6	80.00-60.00	6.67	X Brace	No	Yes	0.0000	0.0000

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	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T7	60.00-40.00	5.00	Double K	No	Yes	0.0000	0.0000
T8	40.00-20.00	5.00	Double K	No	Yes	0.0000	0.0000
T9	20.00-0.00	5.00	Double K	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 170.00-160.00	60 Angle	V3x3x1/4	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x1/8	A36 (36 ksi)
T2 160.00-140.00	Arbitrary Shape	V3x3x3/16 with Plate	A572-50 (50 ksi)	Single Angle	L 1-3/4x1-3/4x3/16	A36 (36 ksi)
T3 140.00-120.00	Arbitrary Shape	V3x3x1/4 with Plate	A572-50 (50 ksi)	Single Angle	L 1-3/4x1-3/4x3/16	A36 (36 ksi)
T4 120.00-100.00	Arbitrary Shape	V4x4x1/4 with Plate	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T5 100.00-80.00	Arbitrary Shape	V4x4x3/8 with Plate 2.25x2.25	A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T6 80.00-60.00	Arbitrary Shape	V4x4x3/8 with Plate	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x5/16	A36 (36 ksi)
T7 60.00-40.00	Arbitrary Shape	V4x4x0.711 with Plate	A572-50 (50 ksi)	Single Angle	L3x3x5/16	A36 (36 ksi)
T8 40.00-20.00	Arbitrary Shape	V4x4x0.779 with Plate	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)
T9 20.00-0.00	Arbitrary Shape	V5x5x0.6487 with Plate	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 170.00-160.00	Single Angle	L1 3/4x1 1/4x3/16	A36 (36 ksi)	Single Angle	L1 3/4x1 3/4x1/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 170.00-160.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 3/4x1 3/4x1/8	A36 (36 ksi)
T7 60.00-40.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T8 40.00-20.00	None	Flat Bar		A36	Single Angle	L2x2x3/16	A36

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	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T9 20.00-0.00	None	Flat Bar		(36 ksi) A36 (36 ksi)	Single Angle	L 2-1/2x2-1/2x3/16	(36 ksi) A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T3 140.00-120.00	Single Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T4 120.00-100.00	Single Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T5 100.00-80.00	Single Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T6 80.00-60.00	Single Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 170.00-160.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T2 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T3 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T4 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T5 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T6 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T7 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T8 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T9 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

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	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	No	1	1	1	1	1	1	1	1
170.00-160.00				1	1	1	1	1	1	1
T2	Yes	No	1	1	1	1	1	1	1	1
160.00-140.00				1	1	1	1	1	1	1
T3	Yes	No	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1
T4	Yes	No	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1
T5	Yes	No	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T6	Yes	No	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T7	Yes	No	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T8	Yes	No	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T9 20.00-0.00	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
170.00-160.00														
T2	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
160.00-140.00														
T3	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
140.00-120.00														
T4	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
120.00-100.00														
T5	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
100.00-80.00														
T6 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

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	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 170.00-160.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 160.00-140.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 140.00-120.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 120.00-100.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 100.00-80.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 80.00-60.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 60.00-40.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 40.00-20.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 20.00-0.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 170.00-160.00	Sleeve DS	0.6250 A325N	8	0.5000 A325N	1	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T2 160.00-140.00	Sleeve DS	0.6250 A325N	8	0.5000 A325N	1	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 140.00-120.00	Sleeve DS	0.6250 A325N	8	0.5000 A325N	1	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1
T4 120.00-100.00	Sleeve DS	0.6250 A325N	8	0.6250 A325N	1	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1
T5 100.00-80.00	Sleeve DS	0.7500 A325X	12	0.6250 A325N	1	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1
T6 80.00-60.00	Sleeve DS	0.7500 A325X	12	0.6250 A325N	1	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1
T7 60.00-40.00	Sleeve DS	0.7500 A325X	12	0.6250 A325N	1	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T8 40.00-20.00	Sleeve DS	0.7500 A325X	16	0.6250 A325N	1	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T9 20.00-0.00	Flange	1.2500 A325N	0	0.6250 A325N	2	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Climbing	C	No	No	Af (CaAa)	170.00 -	0.0000	0.4	1	1	3.0000	3.8400		8.40

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	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Ladder (Flat) ***					3.00								
LDF6-50A (1-1/4 FOAM)	B	No	No	Ar (CaAa)	167.00 - 3.50	0.0000	-0.5	1	1	0.5000	1.5500		0.66
LDF5-50A (7/8 FOAM)	A	No	No	Ar (CaAa)	168.00 - 3.50	0.0000	0.5	1	1	5.0000 0.5000	1.0900		0.33
5/8" Black Cable ***	A	No	No	Ar (CaAa)	170.00 - 3.50	0.0000	0.5	1	1	0.5000	0.8700		0.15
RFFT-12SM-001-75M(3/8")	C	No	No	Ar (CaAa)	150.00 - 3.50	0.0000	0.4	1	1	0.4000	0.4000		0.09
PWRT-606-S(7/8")	C	No	No	Ar (CaAa)	150.00 - 3.50	0.0000	0.4	1	1	0.9200	0.9200		0.00
FB-L98B-235 (3/8") ***	C	No	No	Ar (CaAa)	150.00 - 3.50	0.0000	0.4	1	1	0.3937	0.3937		0.06

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight plf
***								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	170.00-160.00	A	0.000	0.000	1.742	0.000	0.00
		B	0.000	0.000	1.085	0.000	0.00
		C	0.000	0.000	6.400	0.000	0.08
T2	160.00-140.00	A	0.000	0.000	3.920	0.000	0.01
		B	0.000	0.000	3.100	0.000	0.01
		C	0.000	0.000	14.514	0.000	0.17
T3	140.00-120.00	A	0.000	0.000	3.920	0.000	0.01
		B	0.000	0.000	3.100	0.000	0.01
		C	0.000	0.000	16.227	0.000	0.17
T4	120.00-100.00	A	0.000	0.000	3.920	0.000	0.01
		B	0.000	0.000	3.100	0.000	0.01
		C	0.000	0.000	16.227	0.000	0.17
T5	100.00-80.00	A	0.000	0.000	3.920	0.000	0.01
		B	0.000	0.000	3.100	0.000	0.01
		C	0.000	0.000	16.227	0.000	0.17
T6	80.00-60.00	A	0.000	0.000	3.920	0.000	0.01
		B	0.000	0.000	3.100	0.000	0.01
		C	0.000	0.000	16.227	0.000	0.17
T7	60.00-40.00	A	0.000	0.000	3.920	0.000	0.01
		B	0.000	0.000	3.100	0.000	0.01

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Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	16.227	0.000	0.17
T8	40.00-20.00	A	0.000	0.000	3.920	0.000	0.01
		B	0.000	0.000	3.100	0.000	0.01
		C	0.000	0.000	16.227	0.000	0.17
T9	20.00-0.00	A	0.000	0.000	3.234	0.000	0.01
		B	0.000	0.000	2.558	0.000	0.01
		C	0.000	0.000	13.708	0.000	0.15

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	170.00-160.00	A	1.762	0.000	0.000	8.085	0.000	0.11
		B		0.000	0.000	3.552	0.000	0.05
		C		0.000	0.000	9.924	0.000	0.23
T2	160.00-140.00	A	1.745	0.000	0.000	17.882	0.000	0.24
		B		0.000	0.000	10.081	0.000	0.15
		C		0.000	0.000	31.966	0.000	0.62
T3	140.00-120.00	A	1.720	0.000	0.000	17.683	0.000	0.24
		B		0.000	0.000	9.982	0.000	0.15
		C		0.000	0.000	43.754	0.000	0.75
T4	120.00-100.00	A	1.692	0.000	0.000	17.455	0.000	0.23
		B		0.000	0.000	9.868	0.000	0.15
		C		0.000	0.000	43.298	0.000	0.74
T5	100.00-80.00	A	1.658	0.000	0.000	17.186	0.000	0.22
		B		0.000	0.000	9.733	0.000	0.14
		C		0.000	0.000	42.760	0.000	0.72
T6	80.00-60.00	A	1.617	0.000	0.000	16.857	0.000	0.21
		B		0.000	0.000	9.569	0.000	0.14
		C		0.000	0.000	42.102	0.000	0.70
T7	60.00-40.00	A	1.564	0.000	0.000	16.429	0.000	0.20
		B		0.000	0.000	9.355	0.000	0.13
		C		0.000	0.000	41.246	0.000	0.67
T8	40.00-20.00	A	1.486	0.000	0.000	15.806	0.000	0.19
		B		0.000	0.000	9.043	0.000	0.12
		C		0.000	0.000	40.000	0.000	0.64
T9	20.00-0.00	A	1.331	0.000	0.000	12.020	0.000	0.13
		B		0.000	0.000	6.950	0.000	0.09
		C		0.000	0.000	31.412	0.000	0.48

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	170.00-160.00	-1.5949	-0.0073	-1.2413	-1.2967
T2	160.00-140.00	-2.0984	-0.1872	-2.9682	-1.5804
T3	140.00-120.00	-2.7741	-0.0224	-4.7497	-0.9919
T4	120.00-100.00	-3.2294	-0.0747	-6.1467	-1.3370
T5	100.00-80.00	-3.7335	-0.1190	-7.0365	-1.5583
T6	80.00-60.00	-3.8379	-0.1447	-7.4611	-1.6719
T7	60.00-40.00	-4.4717	-0.1866	-8.6435	-1.9512
T8	40.00-20.00	-4.3813	-0.1964	-8.6920	-1.9609

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Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T9	20.00-0.00	-3.7557	-0.0986	-7.3715	-1.5247

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	Climbing Ladder (Flat)	160.00 - 170.00	0.6000	0.3898
T1	3	LDF6-50A (1-1/4 FOAM)	160.00 - 167.00	0.6000	0.3898
T1	4	LDF5-50A (7/8 FOAM)	160.00 - 168.00	0.6000	0.3898
T1	5	5/8" Black Cable	160.00 - 170.00	0.6000	0.3898
T2	1	Climbing Ladder (Flat)	140.00 - 160.00	0.6000	0.5218
T2	3	LDF6-50A (1-1/4 FOAM)	140.00 - 160.00	0.6000	0.5218
T2	4	LDF5-50A (7/8 FOAM)	140.00 - 160.00	0.6000	0.5218
T2	5	5/8" Black Cable	140.00 - 160.00	0.6000	0.5218
T2	7	RFFT-12SM-001-75M(3/8")	140.00 - 150.00	0.6000	0.5218
T2	8	PWRT-606-S(7/8")	140.00 - 150.00	0.6000	0.5218
T2	9	FB-L98B-235 (3/8")	140.00 - 150.00	0.6000	0.5218
T3	1	Climbing Ladder (Flat)	120.00 - 140.00	0.6000	0.5516
T3	3	LDF6-50A (1-1/4 FOAM)	120.00 - 140.00	0.6000	0.5516
T3	4	LDF5-50A (7/8 FOAM)	120.00 - 140.00	0.6000	0.5516
T3	5	5/8" Black Cable	120.00 - 140.00	0.6000	0.5516
T3	7	RFFT-12SM-001-75M(3/8")	120.00 - 140.00	0.6000	0.5516
T3	8	PWRT-606-S(7/8")	120.00 - 140.00	0.6000	0.5516
T3	9	FB-L98B-235 (3/8")	120.00 - 140.00	0.6000	0.5516
T4	1	Climbing Ladder (Flat)	100.00 - 120.00	0.6000	0.6000
T4	3	LDF6-50A (1-1/4 FOAM)	100.00 - 120.00	0.6000	0.6000
T4	4	LDF5-50A (7/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T4	5	5/8" Black Cable	100.00 - 120.00	0.6000	0.6000
T4	7	RFFT-12SM-001-75M(3/8")	100.00 - 120.00	0.6000	0.6000
T4	8	PWRT-606-S(7/8")	100.00 - 120.00	0.6000	0.6000
T4	9	FB-L98B-235 (3/8")	100.00 -	0.6000	0.6000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			120.00		
T5	1	Climbing Ladder (Flat)	80.00 - 100.00	0.6000	0.6000
T5	3	LDF6-50A (1-1/4 FOAM)	80.00 - 100.00	0.6000	0.6000
T5	4	LDF5-50A (7/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T5	5	5/8" Black Cable	80.00 - 100.00	0.6000	0.6000
T5	7	RFFT-12SM-001-75M(3/8")	80.00 - 100.00	0.6000	0.6000
T5	8	PWRT-606-S(7/8")	80.00 - 100.00	0.6000	0.6000
T5	9	FB-L98B-235 (3/8")	80.00 - 100.00	0.6000	0.6000
T6	1	Climbing Ladder (Flat)	60.00 - 80.00	0.6000	0.6000
T6	3	LDF6-50A (1-1/4 FOAM)	60.00 - 80.00	0.6000	0.6000
T6	4	LDF5-50A (7/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T6	5	5/8" Black Cable	60.00 - 80.00	0.6000	0.6000
T6	7	RFFT-12SM-001-75M(3/8")	60.00 - 80.00	0.6000	0.6000
T6	8	PWRT-606-S(7/8")	60.00 - 80.00	0.6000	0.6000
T6	9	FB-L98B-235 (3/8")	60.00 - 80.00	0.6000	0.6000
T7	1	Climbing Ladder (Flat)	40.00 - 60.00	0.6000	0.6000
T7	3	LDF6-50A (1-1/4 FOAM)	40.00 - 60.00	0.6000	0.6000
T7	4	LDF5-50A (7/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T7	5	5/8" Black Cable	40.00 - 60.00	0.6000	0.6000
T7	7	RFFT-12SM-001-75M(3/8")	40.00 - 60.00	0.6000	0.6000
T7	8	PWRT-606-S(7/8")	40.00 - 60.00	0.6000	0.6000
T7	9	FB-L98B-235 (3/8")	40.00 - 60.00	0.6000	0.6000
T8	1	Climbing Ladder (Flat)	20.00 - 40.00	0.6000	0.6000
T8	3	LDF6-50A (1-1/4 FOAM)	20.00 - 40.00	0.6000	0.6000
T8	4	LDF5-50A (7/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T8	5	5/8" Black Cable	20.00 - 40.00	0.6000	0.6000
T8	7	RFFT-12SM-001-75M(3/8")	20.00 - 40.00	0.6000	0.6000
T8	8	PWRT-606-S(7/8")	20.00 - 40.00	0.6000	0.6000
T8	9	FB-L98B-235 (3/8")	20.00 - 40.00	0.6000	0.6000
T9	1	Climbing Ladder (Flat)	3.00 - 20.00	0.6000	0.6000
T9	3	LDF6-50A (1-1/4 FOAM)	3.50 - 20.00	0.6000	0.6000
T9	4	LDF5-50A (7/8 FOAM)	3.50 - 20.00	0.6000	0.6000
T9	5	5/8" Black Cable	3.50 - 20.00	0.6000	0.6000
T9	7	RFFT-12SM-001-75M(3/8")	3.50 - 20.00	0.6000	0.6000
T9	8	PWRT-606-S(7/8")	3.50 - 20.00	0.6000	0.6000
T9	9	FB-L98B-235 (3/8")	3.50 - 20.00	0.6000	0.6000

Feed Tower

Description	Placement	Guy Grade	Guy Size		C_AA_A	Weight
	ft				ft^2/ft	plf
Feed Tower	0.00 - 250.00	EHS	7/16	No Ice	1.08	69.90
				1/2" Ice	2.86	217.00
				1" Ice	4.64	364.10

Discrete Tower Loads

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) Flashing Beacon	A	From Leg	0.00 0.00 0.00	0.000	170.50	No Ice 1/2" Ice 1" Ice	2.70 3.10 3.50	2.70 3.10 3.50	0.05 0.07 0.09
20' Dipole	B	From Leg	0.00 0.00 10.00	0.000	168.00	No Ice 1/2" Ice 1" Ice	3.33 5.99 8.65	3.33 5.99 8.65	0.03 0.04 0.05
DB420-D	C	From Leg	6.00 0.00 10.00	0.000	166.67	No Ice 1/2" Ice 1" Ice	3.33 5.99 8.66	3.33 5.99 8.66	0.03 0.04 0.05
Rohn 6' Side-Arm(1)	C	From Leg	3.00 0.00 0.00	0.000	166.67	No Ice 1/2" Ice 1" Ice	10.60 15.40 20.20	10.60 15.40 20.20	0.14 0.21 0.28
***									
Rohn 6'x12' Boom Gate (3)	C	None		0.000	150.00	No Ice 1/2" Ice 1" Ice	49.80 59.30 68.80	49.80 59.30 68.80	1.68 2.10 2.52
(2) NNHH-65C-R4 w/ Mount Pipe	A	From Leg	3.00 4.50 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	9.68 10.27 10.87	5.17 5.71 6.26	0.13 0.24 0.37
(2) NNHH-65C-R4 w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	9.68 10.27 10.87	5.17 5.71 6.26	0.13 0.24 0.37
(2) NNHH-65C-R4 w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	9.68 10.27 10.87	5.17 5.71 6.26	0.13 0.24 0.37
AIRSCALE TRI RRH 4T4R B12/14/29 320W AHLBBA	A	From Leg	3.00 3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	2.82 3.03 3.26	0.92 1.04 1.18	0.10 0.12 0.15
AIRSCALE TRI RRH 4T4R B12/14/29 320W AHLBBA	B	From Leg	3.00 3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	2.82 3.03 3.26	0.92 1.04 1.18	0.10 0.12 0.15
AIRSCALE TRI RRH 4T4R B12/14/29 320W AHLBBA	C	From Leg	3.00 3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	2.82 3.03 3.26	0.92 1.04 1.18	0.10 0.12 0.15
AHNA	A	From Leg	3.00 3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	1.79 1.96 2.13	1.15 1.29 1.44	0.04 0.06 0.08
AHNA	B	From Leg	3.00 3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	1.79 1.96 2.13	1.15 1.29 1.44	0.04 0.06 0.08
AHNA	C	From Leg	3.00 3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	1.79 1.96 2.13	1.15 1.29 1.44	0.04 0.06 0.08
AHCA	A	From Leg	3.00 -3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	1.29 1.43 1.58	0.72 0.83 0.96	0.04 0.05 0.06
AHCA	B	From Leg	3.00 -3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	1.29 1.43 1.58	0.72 0.83 0.96	0.04 0.05 0.06
AHCA	C	From Leg	3.00 -3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	1.29 1.43 1.58	0.72 0.83 0.96	0.04 0.05 0.06
AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIB	A	From Leg	3.00 -3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	2.90 3.13 3.37	1.53 1.72 1.92	0.09 0.11 0.13
AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIB	B	From Leg	3.00 -3.00	0.000	150.00	No Ice 1/2" Ice	2.90 3.13	1.53 1.72	0.09 0.11

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	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	3.37	1.92	0.13
AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIB	C	From Leg	3.00	0.000	150.00	No Ice	2.90	1.53	0.09
			-3.00			1/2" Ice	3.13	1.72	0.11
			0.00			1" Ice	3.37	1.92	0.13
DC6-48-60-18-8F	A	From Leg	1.50	0.000	150.00	No Ice	0.79	0.79	0.02
			0.00			1/2" Ice	1.27	1.27	0.04
			0.00			1" Ice	1.45	1.45	0.05
DC9-48-60-24-8C-EV	B	From Leg	1.50	0.000	150.00	No Ice	1.99	1.99	0.03
			0.00			1/2" Ice	3.04	3.04	0.07
			0.00			1" Ice	3.29	3.29	0.11
***									

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	13.51					
Bracing Weight	10.09					
Total Member Self-Weight	23.60			3.62	5.32	
Guy Weight	0.06					
Total Weight	40.79			3.62	5.32	
Wind 0 deg - No Ice		0.00	-22.03	-1967.65	5.32	-4.40
Wind 30 deg - No Ice		9.97	-17.27	-1566.49	-901.19	-3.51
Wind 60 deg - No Ice		16.67	-9.62	-876.50	-1519.11	-1.68
Wind 90 deg - No Ice		19.94	0.00	3.62	-1807.70	0.60
Wind 120 deg - No Ice		19.08	11.01	989.26	-1701.86	2.72
Wind 150 deg - No Ice		9.97	17.27	1573.74	-901.19	4.11
Wind 180 deg - No Ice		0.00	19.24	1763.88	5.32	4.40
Wind 210 deg - No Ice		-9.97	17.27	1573.74	911.82	3.51
Wind 240 deg - No Ice		-19.08	11.01	989.26	1712.49	1.68
Wind 270 deg - No Ice		-19.94	0.00	3.62	1818.33	-0.60
Wind 300 deg - No Ice		-16.67	-9.62	-876.50	1529.74	-2.72
Wind 330 deg - No Ice		-9.97	-17.27	-1566.49	911.82	-4.11
Member Ice	28.02					
Total Weight Ice	162.00			1.31	18.80	
Wind 0 deg - Ice		0.00	-5.42	-506.05	18.80	-1.65
Wind 30 deg - Ice		2.60	-4.50	-423.61	-226.52	-1.45
Wind 60 deg - Ice		4.44	-2.56	-241.23	-401.30	-0.87
Wind 90 deg - Ice		5.20	0.00	1.31	-471.85	-0.05
Wind 120 deg - Ice		4.70	2.71	255.00	-420.58	0.78
Wind 150 deg - Ice		2.60	4.50	426.24	-226.52	1.40
Wind 180 deg - Ice		0.00	5.13	486.40	18.80	1.65
Wind 210 deg - Ice		-2.60	4.50	426.24	264.13	1.45
Wind 240 deg - Ice		-4.70	2.71	255.00	458.19	0.87
Wind 270 deg - Ice		-5.20	0.00	1.31	509.46	0.05
Wind 300 deg - Ice		-4.44	-2.56	-241.23	438.91	-0.78
Wind 330 deg - Ice		-2.60	-4.50	-423.61	264.13	-1.40
Total Weight	40.79			3.62	5.32	
Wind 0 deg - Service		0.00	-9.17	-820.27	-0.53	-1.83

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	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 30 deg - Service		4.15	-7.19	-653.28	-377.88	-1.46
Wind 60 deg - Service		6.94	-4.01	-366.07	-635.10	-0.70
Wind 90 deg - Service		8.30	0.00	0.30	-755.22	0.25
Wind 120 deg - Service		7.94	4.58	410.58	-711.16	1.13
Wind 150 deg - Service		4.15	7.19	653.88	-377.88	1.71
Wind 180 deg - Service		0.00	8.01	733.03	-0.53	1.83
Wind 210 deg - Service		-4.15	7.19	653.88	376.81	1.46
Wind 240 deg - Service		-7.94	4.58	410.58	710.09	0.70
Wind 270 deg - Service		-8.30	0.00	0.30	754.15	-0.25
Wind 300 deg - Service		-6.94	-4.01	-366.07	634.03	-1.13
Wind 330 deg - Service		-4.15	-7.19	-653.28	376.81	-1.71

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
3	0.9 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
4	1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
5	0.9 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
6	1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
7	0.9 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
8	1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
9	0.9 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
10	1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
11	0.9 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
12	1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
13	0.9 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
14	1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
15	0.9 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
16	1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
17	0.9 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
18	1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
19	0.9 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
20	1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
21	0.9 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
22	1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
23	0.9 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
24	1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
25	0.9 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
26	1.2 Dead+1.0 Ice+1.0 Temp+Guy
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
39	Dead+Wind 0 deg - Service+Guy
40	Dead+Wind 30 deg - Service+Guy

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Comb. No.	Description
41	Dead+Wind 60 deg - Service+Guy
42	Dead+Wind 90 deg - Service+Guy
43	Dead+Wind 120 deg - Service+Guy
44	Dead+Wind 150 deg - Service+Guy
45	Dead+Wind 180 deg - Service+Guy
46	Dead+Wind 210 deg - Service+Guy
47	Dead+Wind 240 deg - Service+Guy
48	Dead+Wind 270 deg - Service+Guy
49	Dead+Wind 300 deg - Service+Guy
50	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	170 - 160	Leg	Max Tension	23	3.20	0.01	0.01
			Max. Compression	16	-3.14	-0.05	-0.04
			Max. Mx	25	0.83	-0.09	0.02
			Max. My	10	-3.12	-0.07	-0.05
			Max. Vy	24	-0.73	-0.07	-0.00
			Max. Vx	18	0.23	0.01	-0.02
		Diagonal	Max Tension	15	2.11	0.00	0.00
			Max. Compression	2	-2.18	0.00	0.00
			Max. Mx	34	0.21	-0.02	0.00
			Max. My	31	-0.07	0.00	0.00
			Max. Vy	34	0.02	0.00	0.00
			Max. Vx	31	-0.00	0.00	0.00
		Horizontal	Max Tension	2	1.29	0.00	0.00
			Max. Compression	10	-1.33	0.00	0.00
			Max. Mx	29	-0.01	-0.01	0.00
			Max. My	32	-0.07	0.00	0.00
			Max. Vy	29	0.02	0.00	0.00
			Max. Vx	32	0.00	0.00	0.00
		Top Girt	Max Tension	10	0.06	0.00	0.00
			Max. Compression	16	-0.44	0.00	0.00
			Max. Mx	29	-0.18	-0.01	0.00
			Max. My	32	-0.17	0.00	0.00
			Max. Vy	29	0.02	0.00	0.00
			Max. Vx	32	-0.00	0.00	0.00
		Bottom Girt	Max Tension	23	0.46	0.00	0.00
			Max. Compression	10	-0.91	0.00	0.00
			Max. Mx	26	-0.25	-0.01	0.00
			Max. My	32	-0.29	0.00	0.00
			Max. Vy	26	0.02	0.00	0.00
			Max. Vx	32	-0.00	0.00	0.00
		Feed Tower	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-6.03	0.87	-0.48
			Max. Mx	20	-0.84	8.05	-0.73
			Max. My	3	-0.63	0.29	8.13
			Max. Vy	20	-1.00	8.05	-0.73
			Max. Vx	3	-1.01	0.29	8.13
		Feed Tower Guy	Bottom Tension	18	0.74		
			Top Tension	18	0.74		
			Top Cable Vert	18	0.01		
			Top Cable Norm	18	0.74		
			Top Cable Tan	18	0.00		
			Bot Cable Vert	18	-0.01		
T2	160 - 140	Leg	Max Tension	15	17.34	-0.13	0.00

tnxTower

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Client	**Designed by**
Smartlink	Arienna Wilson-Muller, E.I.

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	10	-22.19	0.18	-0.00
			Max. Mx	10	-22.19	0.18	-0.00
			Max. My	16	-0.46	0.08	-0.23
			Max. Vy	22	-1.33	0.01	0.03
			Max. Vx	16	1.52	0.08	-0.23
		Diagonal	Max Tension	20	3.20	0.00	0.00
			Max. Compression	20	-3.12	0.00	0.00
			Max. Mx	31	0.26	0.02	-0.00
			Max. My	12	-1.42	0.00	-0.01
			Max. Vy	30	0.02	0.01	-0.00
			Max. Vx	12	0.00	0.00	0.00
		Feed Tower	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-17.98	-0.45	-0.27
			Max. Mx	20	-2.51	27.57	0.30
			Max. My	3	-1.88	0.04	28.19
			Max. Vy	8	1.39	-27.44	0.39
			Max. Vx	14	1.43	0.16	-27.97
		Feed Tower Guy	Bottom Tension	24	0.56		
			Top Tension	24	0.56		
			Top Cable Vert	24	-0.00		
			Top Cable Norm	24	0.56		
			Top Cable Tan	24	0.00		
			Bot Cable Vert	24	0.00		
T3	140 - 120	Leg	Max Tension	15	41.08	0.00	-0.00
			Max. Compression	18	-49.43	-0.02	0.00
			Max. Mx	10	-49.27	-0.29	-0.00
			Max. My	12	-2.85	0.13	-0.36
			Max. Vy	10	-0.26	0.28	0.00
			Max. Vx	12	0.20	0.13	-0.36
		Diagonal	Max Tension	8	2.96	0.01	-0.00
			Max. Compression	8	-3.31	0.00	0.00
			Max. Mx	31	-0.13	0.02	-0.00
			Max. My	20	-2.80	0.01	0.00
			Max. Vy	30	0.02	0.02	-0.00
			Max. Vx	28	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	6	0.30	0.01	-0.00
			Max. Compression	19	-0.29	0.00	0.00
			Max. Mx	31	-0.01	0.02	0.01
			Max. My	36	-0.01	0.02	0.01
			Max. Vy	31	0.03	0.02	0.01
			Max. Vx	34	-0.00	0.00	0.00
		Feed Tower	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-29.78	-0.18	-0.13
			Max. Mx	20	-4.19	42.96	0.96
			Max. My	2	-4.19	0.03	44.11
			Max. Vy	8	1.15	-42.90	0.96
			Max. Vx	2	-1.17	0.03	44.11
		Feed Tower Guy	Bottom Tension	8	1.16		
			Top Tension	8	1.16		
			Top Cable Vert	8	-0.01		
			Top Cable Norm	8	1.16		
			Top Cable Tan	8	0.00		
			Bot Cable Vert	8	0.01		
T4	120 - 100	Leg	Max Tension	15	62.25	0.18	-0.00
			Max. Compression	18	-73.63	-0.25	-0.00
			Max. Mx	18	-66.00	0.43	-0.00
			Max. My	12	-2.49	0.13	-0.36
			Max. Vy	10	-0.26	0.43	0.00
			Max. Vx	12	-0.18	0.13	-0.36
		Diagonal	Max Tension	8	3.85	0.02	-0.00

tnxTower

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Smartlink	Arienna Wilson-Muller, E.I.

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	8	-4.10	0.00	0.00
			Max. Mx	33	0.23	0.04	-0.00
			Max. My	27	-0.83	0.04	0.00
			Max. Vy	33	0.04	0.04	-0.00
			Max. Vx	33	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	12	0.30	0.01	-0.00
			Max. Compression	19	-0.33	-0.00	0.00
			Max. Mx	37	-0.01	0.03	0.01
			Max. My	36	-0.03	0.03	0.01
			Max. Vy	37	-0.04	0.03	0.01
			Max. Vx	34	-0.00	0.00	0.00
		Feed Tower	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.42	0.14	-0.08
			Max. Mx	20	-5.87	45.66	-0.78
			Max. My	2	-5.86	0.08	48.27
			Max. Vy	20	-0.50	45.66	-0.78
			Max. Vx	2	-0.57	0.08	48.27
		Feed Tower Guy	Bottom Tension	8	1.60		
			Top Tension	8	1.60		
			Top Cable Vert	8	-0.01		
			Top Cable Norm	8	1.60		
			Top Cable Tan	8	0.00		
			Bot Cable Vert	8	0.01		
T5	100 - 80	Leg	Max Tension	15	82.45	0.13	-0.01
			Max. Compression	18	-98.83	-0.09	-0.00
			Max. Mx	18	-90.71	0.34	0.00
			Max. My	12	-5.11	0.01	-0.49
			Max. Vy	10	-0.21	0.33	0.00
			Max. Vx	12	0.21	0.01	-0.49
		Diagonal	Max Tension	5	3.86	0.01	0.00
			Max. Compression	4	-3.96	0.00	0.00
			Max. Mx	37	0.25	0.05	0.00
			Max. My	33	-0.83	0.05	-0.01
			Max. Vy	37	0.04	0.05	0.00
			Max. Vx	33	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	6	0.30	0.01	0.00
			Max. Compression	19	-0.32	0.00	0.00
			Max. Mx	31	0.04	0.05	0.01
			Max. My	36	-0.04	0.05	0.01
			Max. Vy	27	-0.04	0.05	0.01
			Max. Vx	34	-0.00	0.00	0.00
		Feed Tower	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.86	0.24	-0.05
			Max. Mx	20	-7.54	46.15	0.22
			Max. My	2	-7.54	0.08	48.53
			Max. Vy	20	-0.37	46.15	0.22
			Max. Vx	14	0.41	0.05	-45.59
		Feed Tower Guy	Bottom Tension	24	0.96		
			Top Tension	24	0.96		
			Top Cable Vert	24	-0.00		
			Top Cable Norm	24	0.96		
			Top Cable Tan	24	0.00		
			Bot Cable Vert	24	0.01		
T6	80 - 60	Leg	Max Tension	15	102.46	0.15	-0.01
			Max. Compression	18	-123.71	-0.17	-0.00
			Max. Mx	18	-115.80	0.51	0.00
			Max. My	12	-5.02	0.01	-0.49
			Max. Vy	18	0.27	0.51	0.00
			Max. Vx	12	-0.21	0.01	-0.49

tnxTower

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Smartlink	Arienna Wilson-Muller, E.I.

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Diagonal	Max Tension	5	4.64	0.04	-0.00
			Max. Compression	2	-4.94	0.00	0.00
			Max. Mx	37	0.44	0.09	0.01
			Max. My	33	-0.85	0.09	-0.01
			Max. Vy	37	0.07	0.09	0.01
			Max. Vx	33	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	12	0.33	0.02	-0.00
			Max. Compression	19	-0.35	0.01	0.00
			Max. Mx	29	-0.01	0.06	0.01
			Max. My	36	-0.02	0.06	0.01
			Max. Vy	29	-0.05	0.06	0.01
			Max. Vx	34	-0.00	0.00	0.00
		Feed Tower	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.05	0.26	-0.04
			Max. Mx	20	-7.55	46.15	0.22
			Max. My	2	-7.55	0.08	48.53
			Max. Vy	8	-0.62	-45.99	0.21
			Max. Vx	14	-0.63	0.05	-45.59
		Feed Tower Guy	Bottom Tension	21	1.16		
			Top Tension	21	1.16		
			Top Cable Vert	21	-0.00		
			Top Cable Norm	21	1.16		
			Top Cable Tan	21	0.00		
			Bot Cable Vert	21	0.01		
T7	60 - 40	Leg	Max Tension	15	120.13	0.20	-0.01
			Max. Compression	18	-146.79	-0.19	-0.01
			Max. Mx	18	-134.59	0.53	-0.00
			Max. My	12	-7.47	-0.10	-0.59
			Max. Vy	10	0.23	0.53	0.00
			Max. Vx	12	0.19	-0.10	-0.59
		Diagonal	Max Tension	4	5.43	0.00	0.00
			Max. Compression	2	-5.76	0.00	0.00
			Max. Mx	36	0.98	-0.16	0.00
			Max. My	27	0.23	0.00	-0.01
			Max. Vy	36	0.07	0.00	0.00
			Max. Vx	27	0.00	0.00	0.00
		Horizontal	Max Tension	14	0.24	0.00	0.00
			Max. Compression	13	-0.29	0.01	0.01
			Max. Mx	37	0.08	0.07	0.04
			Max. My	35	-0.03	0.07	0.05
			Max. Vy	37	0.05	0.07	0.04
			Max. Vx	35	-0.01	0.00	0.00
		Feed Tower	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.94	0.26	-0.03
			Max. Mx	20	-9.23	40.33	0.12
			Max. My	2	-9.23	0.09	42.82
			Max. Vy	20	0.58	40.33	0.12
			Max. Vx	14	-0.60	0.08	-39.56
		Feed Tower Guy	Bottom Tension	25	0.74		
			Top Tension	25	0.74		
			Top Cable Vert	25	-0.00		
			Top Cable Norm	25	0.74		
			Top Cable Tan	25	0.00		
			Bot Cable Vert	25	0.00		
T8	40 - 20	Leg	Max Tension	15	138.28	0.27	-0.01
			Max. Compression	18	-171.30	-0.15	-0.00
			Max. Mx	18	-159.13	0.74	0.00
			Max. My	12	-8.94	-0.18	-0.67
			Max. Vy	10	0.31	0.74	0.00
			Max. Vx	12	0.21	-0.18	-0.67

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Diagonal	Max Tension	4	5.84	0.00	0.00
			Max. Compression	2	-6.24	0.00	0.00
			Max. Mx	36	1.42	-0.22	0.00
			Max. My	27	0.70	0.00	-0.01
			Max. Vy	36	0.09	0.00	0.00
			Max. Vx	35	-0.00	0.00	0.00
		Horizontal	Max Tension	12	0.29	0.02	0.02
			Max. Compression	13	-0.33	0.02	0.02
			Max. Mx	37	0.10	0.09	0.04
			Max. My	35	-0.07	0.08	0.11
			Max. Vy	37	0.06	0.09	0.04
			Max. Vx	35	-0.02	0.00	0.00
		Feed Tower	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-85.36	0.24	-0.02
			Max. Mx	20	-12.59	35.42	-0.24
			Max. My	2	-12.58	0.07	38.39
			Max. Vy	8	0.30	-35.27	-0.23
			Max. Vx	2	-0.31	0.07	38.39
		Feed Tower Guy	Bottom Tension	37	0.63		
			Top Tension	37	0.63		
			Top Cable Vert	37	0.00		
			Top Cable Norm	37	0.63		
			Top Cable Tan	37	0.00		
			Bot Cable Vert	37	0.00		
T9	20 - 0	Leg	Max Tension	15	152.55	0.31	-0.01
			Max. Compression	18	-191.95	-0.00	0.00
			Max. Mx	18	-181.77	0.68	0.00
			Max. My	12	-10.56	-0.12	-0.97
			Max. Vy	10	0.29	0.67	0.00
			Max. Vx	12	-0.26	-0.12	-0.97
		Diagonal	Max Tension	4	5.05	0.00	0.00
			Max. Compression	2	-5.23	0.00	0.00
			Max. Mx	27	2.10	-0.26	0.00
			Max. My	31	1.52	0.00	0.01
			Max. Vy	27	-0.09	0.00	0.00
			Max. Vx	31	0.00	0.00	0.00
		Horizontal	Max Tension	12	0.27	0.03	0.05
			Max. Compression	13	-0.35	0.03	0.03
			Max. Mx	35	-0.10	0.13	0.24
			Max. My	37	0.01	0.13	0.26
			Max. Vy	37	-0.07	0.11	0.05
			Max. Vx	37	0.03	0.00	0.00
		Feed Tower	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-94.88	0.13	-0.01
			Max. Mx	20	-14.27	48.40	-0.14
			Max. My	3	-10.70	0.03	52.65
			Max. Vy	9	0.89	-48.33	-0.13
			Max. Vx	3	-0.95	0.03	52.65
		Feed Tower Guy	Bottom Tension	37	0.74		
			Top Tension	37	0.74		
			Top Cable Vert	37	0.00		
			Top Cable Norm	37	0.74		
			Top Cable Tan	37	0.00		
			Bot Cable Vert	37	0.00		

Maximum Reactions

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Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	195.68	18.42	-10.73
	Max. H_x	18	195.68	18.42	-10.73
	Max. H_z	7	-154.84	-15.25	8.90
	Min. Vert	7	-154.84	-15.25	8.90
	Min. H_x	7	-154.84	-15.25	8.90
	Min. H_z	18	195.68	18.42	-10.73
Leg B	Max. Vert	10	195.03	-18.52	-10.54
	Max. H_x	23	-155.33	15.36	8.72
	Max. H_z	23	-155.33	15.36	8.72
	Min. Vert	23	-155.33	15.36	8.72
	Min. H_x	10	195.03	-18.52	-10.54
	Min. H_z	10	195.03	-18.52	-10.54
Leg A	Max. Vert	2	194.97	-0.21	21.30
	Max. H_x	19	-83.26	1.96	-10.00
	Max. H_z	2	194.97	-0.21	21.30
	Min. Vert	15	-155.37	0.20	-17.66
	Min. H_x	8	11.30	-1.94	0.57
	Min. H_z	15	-155.37	0.20	-17.66
Feed Tower	Max. Vert	26	94.88	-0.01	0.00
	Max. H_x	21	10.70	0.88	0.00
	Max. H_z	3	10.70	-0.00	0.94
	Max. M_x	3	52.65	-0.00	0.94
	Max. M_z	9	48.33	-0.88	0.00
	Min. Vert	11	10.70	-0.82	-0.47
	Min. H_x	9	10.70	-0.88	0.00
	Min. H_z	15	10.70	-0.00	-0.87
	Min. M_x	14	-46.89	-0.00	-0.86
	Min. M_z	20	-48.40	0.88	0.00

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	40.79	-0.00	0.00	3.62	5.32	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	48.93	-0.00	-35.25	-3163.38	6.41	-7.06
0.9 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	36.71	-0.00	-35.25	-3161.03	4.80	-7.05
1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	48.93	15.95	-27.63	-2518.85	-1450.37	-5.62
0.9 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	36.71	15.95	-27.63	-2517.17	-1450.37	-5.62
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	48.93	26.67	-15.40	-1410.04	-2443.42	-2.68
0.9 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	36.71	26.67	-15.40	-1409.58	-2442.33	-2.68
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	48.93	31.90	-0.00	4.37	-2907.15	0.98
0.9 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	36.71	31.90	0.00	3.28	-2905.56	0.98
1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	48.93	30.52	17.62	1588.25	-2736.95	4.38
0.9 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	36.71	30.52	17.62	1585.43	-2735.57	4.37
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	48.93	15.95	27.63	2527.58	-1450.38	6.60

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Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
0.9 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	36.71	15.95	27.63	2523.71	-1450.39	6.59
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	48.93	0.00	30.79	2833.19	6.40	7.05
0.9 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	36.71	0.00	30.79	2828.97	4.80	7.05
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	48.93	-15.95	27.63	2527.58	1463.18	5.62
0.9 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	36.71	-15.95	27.63	2523.71	1459.98	5.62
1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	48.93	-30.52	17.62	1588.25	2749.76	2.68
0.9 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	36.71	-30.52	17.62	1585.43	2745.16	2.68
1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	48.93	-31.90	-0.00	4.37	2919.96	-0.98
0.9 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	36.71	-31.90	0.00	3.28	2915.15	-0.98
1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	48.93	-26.67	-15.40	-1410.04	2456.23	-4.37
0.9 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	36.71	-26.67	-15.40	-1409.58	2451.93	-4.37
1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	48.93	-15.95	-27.63	-2518.85	1463.18	-6.60
0.9 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	36.71	-15.95	-27.63	-2517.17	1459.97	-6.59
1.2 Dead+1.0 Ice+1.0 Temp+Guy	170.14	0.00	-0.00	2.06	19.95	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	-0.00	-5.42	-513.99	20.13	-1.65
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	2.60	-4.50	-430.17	-229.43	-1.46
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	4.44	-2.56	-244.65	-407.23	-0.87
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	5.20	0.00	2.09	-479.00	-0.05
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	4.70	2.71	260.13	-426.81	0.79
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	2.60	4.50	434.34	-229.44	1.41
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	-0.00	5.13	495.56	20.12	1.65
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	-2.60	4.50	434.34	269.69	1.46
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	-4.70	2.71	260.13	467.06	0.87
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	-5.20	0.00	2.09	519.25	0.05
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	-4.44	-2.56	-244.65	447.48	-0.79
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	-2.60	-4.50	-430.17	269.69	-1.41
Dead+Wind 0 deg - Service+Guy	40.79	-0.00	-9.17	-819.88	5.34	-1.84
Dead+Wind 30 deg - Service+Guy	40.79	4.15	-7.19	-652.33	-373.38	-1.46
Dead+Wind 60 deg - Service+Guy	40.79	6.94	-4.01	-364.07	-631.56	-0.70
Dead+Wind 90 deg - Service+Guy	40.79	8.30	0.00	3.64	-752.11	0.25
Dead+Wind 120 deg -	40.79	7.94	4.58	415.40	-707.85	1.14

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	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Service+Guy						
Dead+Wind 150 deg - Service+Guy	40.79	4.15	7.19	659.60	-373.39	1.72
Dead+Wind 180 deg - Service+Guy	40.79	-0.00	8.01	739.05	5.33	1.84
Dead+Wind 210 deg - Service+Guy	40.79	-4.15	7.19	659.60	384.06	1.46
Dead+Wind 240 deg - Service+Guy	40.79	-7.94	4.58	415.40	718.52	0.70
Dead+Wind 270 deg - Service+Guy	40.79	-8.30	0.00	3.64	762.77	-0.25
Dead+Wind 300 deg - Service+Guy	40.79	-6.94	-4.01	-364.07	642.22	-1.14
Dead+Wind 330 deg - Service+Guy	40.79	-4.15	-7.19	-652.32	384.05	-1.72

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-40.79	0.00	0.00	40.79	-0.00	0.000%
2	0.00	-48.93	-35.25	0.00	48.93	35.25	0.000%
3	0.00	-36.71	-35.25	0.00	36.71	35.25	0.000%
4	15.95	-48.93	-27.63	-15.95	48.93	27.63	0.000%
5	15.95	-36.71	-27.63	-15.95	36.71	27.63	0.000%
6	26.67	-48.93	-15.40	-26.67	48.93	15.40	0.000%
7	26.67	-36.71	-15.40	-26.67	36.71	15.40	0.000%
8	31.90	-48.93	0.00	-31.90	48.93	0.00	0.000%
9	31.90	-36.71	0.00	-31.90	36.71	-0.00	0.000%
10	30.52	-48.93	17.62	-30.52	48.93	-17.62	0.000%
11	30.52	-36.71	17.62	-30.52	36.71	-17.62	0.000%
12	15.95	-48.93	27.63	-15.95	48.93	-27.63	0.000%
13	15.95	-36.71	27.63	-15.95	36.71	-27.63	0.000%
14	0.00	-48.93	30.79	-0.00	48.93	-30.79	0.000%
15	0.00	-36.71	30.79	-0.00	36.71	-30.79	0.000%
16	-15.95	-48.93	27.63	15.95	48.93	-27.63	0.000%
17	-15.95	-36.71	27.63	15.95	36.71	-27.63	0.000%
18	-30.52	-48.93	17.62	30.52	48.93	-17.62	0.000%
19	-30.52	-36.71	17.62	30.52	36.71	-17.62	0.000%
20	-31.90	-48.93	-0.00	31.90	48.93	0.00	0.000%
21	-31.90	-36.71	-0.00	31.90	36.71	-0.00	0.000%
22	-26.67	-48.93	-15.40	26.67	48.93	15.40	0.000%
23	-26.67	-36.71	-15.40	26.67	36.71	15.40	0.000%
24	-15.95	-48.93	-27.63	15.95	48.93	27.63	0.000%
25	-15.95	-36.71	-27.63	15.95	36.71	27.63	0.000%
26	0.00	-170.15	0.00	-0.00	170.14	0.00	0.000%
27	0.00	-170.15	-5.42	0.00	170.14	5.42	0.000%
28	2.60	-170.15	-4.50	-2.60	170.14	4.50	0.000%
29	4.44	-170.15	-2.56	-4.44	170.14	2.56	0.000%
30	5.20	-170.15	0.00	-5.20	170.14	-0.00	0.000%
31	4.70	-170.15	2.71	-4.70	170.14	-2.71	0.000%
32	2.60	-170.15	4.50	-2.60	170.14	-4.50	0.000%
33	0.00	-170.15	5.13	0.00	170.14	-5.13	0.000%
34	-2.60	-170.15	4.50	2.60	170.14	-4.50	0.000%
35	-4.70	-170.15	2.71	4.70	170.14	-2.71	0.000%
36	-5.20	-170.15	0.00	5.20	170.14	-0.00	0.000%
37	-4.44	-170.15	-2.56	4.44	170.14	2.56	0.000%

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	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
38	-2.60	-170.15	-4.50	2.60	170.14	4.50	0.000%
39	0.00	-40.79	-9.17	0.00	40.79	9.17	0.000%
40	4.15	-40.79	-7.19	-4.15	40.79	7.19	0.000%
41	6.94	-40.79	-4.01	-6.94	40.79	4.01	0.000%
42	8.30	-40.79	0.00	-8.30	40.79	-0.00	0.000%
43	7.94	-40.79	4.58	-7.94	40.79	-4.58	0.000%
44	4.15	-40.79	7.19	-4.15	40.79	-7.19	0.000%
45	0.00	-40.79	8.01	0.00	40.79	-8.01	0.000%
46	-4.15	-40.79	7.19	4.15	40.79	-7.19	0.000%
47	-7.94	-40.79	4.58	7.94	40.79	-4.58	0.000%
48	-8.30	-40.79	0.00	8.30	40.79	-0.00	0.000%
49	-6.94	-40.79	-4.01	6.94	40.79	4.01	0.000%
50	-4.15	-40.79	-7.19	4.15	40.79	7.19	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00002179
2	Yes	4	0.00019903	0.00045120
3	Yes	4	0.00015916	0.00042876
4	Yes	4	0.00000001	0.00041963
5	Yes	4	0.00000001	0.00040110
6	Yes	4	0.00000001	0.00012440
7	Yes	4	0.00000001	0.00011985
8	Yes	4	0.00000001	0.00042183
9	Yes	4	0.00000001	0.00040493
10	Yes	4	0.00019906	0.00047444
11	Yes	4	0.00015930	0.00045689
12	Yes	4	0.00000001	0.00044399
13	Yes	4	0.00000001	0.00043082
14	Yes	4	0.00000001	0.00015585
15	Yes	4	0.00000001	0.00015519
16	Yes	4	0.00000001	0.00045193
17	Yes	4	0.00000001	0.00043000
18	Yes	4	0.00020075	0.00046599
19	Yes	4	0.00016033	0.00044017
20	Yes	4	0.00000001	0.00042371
21	Yes	4	0.00000001	0.00040680
22	Yes	4	0.00000001	0.00015701
23	Yes	4	0.00000001	0.00015790
24	Yes	4	0.00000001	0.00042789
25	Yes	4	0.00000001	0.00040971
26	Yes	17	0.00000001	0.00003084
27	Yes	16	0.00092743	0.00002961
28	Yes	16	0.00093714	0.00002932
29	Yes	16	0.00093575	0.00002906
30	Yes	16	0.00093795	0.00002924
31	Yes	16	0.00092985	0.00002949
32	Yes	16	0.00092605	0.00002917
33	Yes	16	0.00091734	0.00002896
34	Yes	16	0.00092020	0.00002934
35	Yes	16	0.00091704	0.00002973
36	Yes	16	0.00091586	0.00002931
37	Yes	16	0.00091122	0.00002897
38	Yes	16	0.00092090	0.00002922

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39	Yes	4	0.00000001	0.00024773
40	Yes	4	0.00000001	0.00011426
41	Yes	4	0.00000001	0.00003405
42	Yes	4	0.00000001	0.00013829
43	Yes	4	0.00000001	0.00027670
44	Yes	4	0.00000001	0.00013979
45	Yes	4	0.00000001	0.00003409
46	Yes	4	0.00000001	0.00009670
47	Yes	4	0.00000001	0.00022103
48	Yes	4	0.00000001	0.00009541
49	Yes	4	0.00000001	0.00003397
50	Yes	4	0.00000001	0.00011207

Maximum Tower Deflections - Service Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		°	°
T1	170 - 160	2.867	47	0.145	0.069
T2	160 - 140	2.564	47	0.141	0.025
T3	140 - 120	1.974	47	0.132	0.008
T4	120 - 100	1.437	47	0.114	0.006
T5	100 - 80	0.988	47	0.092	0.004
T6	80 - 60	0.622	47	0.071	0.003
T7	60 - 40	0.351	47	0.051	0.002
T8	40 - 20	0.163	47	0.032	0.001
T9	20 - 0	0.047	47	0.017	0.001

Critical Deflections and Radius of Curvature - Service Wind

Elevation	*Appurtenance*	*Gov. Load Comb.*	*Deflection*	*Tilt*	*Twist*	*Radius of Curvature*
ft			*in*	°	°	*ft*
170.50	(2) Flashing Beacon	47	2.867	0.145	0.069	561398
168.00	20' Dipole	47	2.806	0.144	0.059	561398
166.67	DB420-D	47	2.766	0.143	0.053	561398
150.00	Rohn 6'x12' Boom Gate (3)	47	2.265	0.137	0.011	148579

Maximum Tower Deflections - Design Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		°	°
T1	170 - 160	10.974	18	0.549	0.252
T2	160 - 140	9.820	18	0.539	0.097
T3	140 - 120	7.559	18	0.508	0.031
T4	120 - 100	5.500	18	0.434	0.022
T5	100 - 80	3.784	18	0.352	0.016
T6	80 - 60	2.381	18	0.270	0.010
T7	60 - 40	1.345	18	0.195	0.007
T8	40 - 20	0.623	18	0.123	0.004

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T9	20 - 0	0.180	18	0.064	0.002

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
170.50	(2) Flashing Beacon	18	10.974	0.549	0.252	207396
168.00	20' Dipole	18	10.743	0.547	0.217	207396
166.67	DB420-D	18	10.589	0.545	0.195	207396
150.00	Rohn 6'x12' Boom Gate (3)	18	8.676	0.527	0.042	43143

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	170	Leg	A325N	0.6250	8	0.80	18.28	0.044	1	Bearing
		Diagonal	A325N	0.5000	1	2.11	3.81	0.554	1	Member Block Shear
		Horizontal	A325N	0.6250	1	1.29	3.87	0.334	1	Member Block Shear
T2	160	Leg	A325N	0.6250	8	5.55	24.85	0.223	1	Bolt DS
		Diagonal	A325N	0.5000	1	3.20	5.71	0.560	1	Member Block Shear
T3	140	Leg	A325N	0.6250	8	12.36	24.85	0.497	1	Bolt DS
		Diagonal	A325N	0.5000	1	2.96	5.71	0.519	1	Member Block Shear
		Secondary Horizontal	A325N	0.6250	1	0.30	9.11	0.032	1	Member Block Shear
T4	120	Leg	A325N	0.6250	8	18.41	24.85	0.741	1	Bolt DS
		Diagonal	A325N	0.6250	1	3.85	9.11	0.422	1	Member Block Shear
		Secondary Horizontal	A325N	0.6250	1	0.30	9.11	0.033	1	Member Block Shear
T5	100	Leg	A325X	0.7500	12	16.47	43.74	0.377	1	Bolt DS
		Diagonal	A325N	0.6250	1	3.86	6.83	0.565	1	Member Block Shear
		Secondary Horizontal	A325N	0.6250	1	0.30	9.11	0.033	1	Member Block Shear
T6	80	Leg	A325X	0.7500	12	20.62	43.74	0.471	1	Bolt DS
		Diagonal	A325N	0.6250	1	4.94	12.43	0.397	1	Bolt Shear
		Secondary Horizontal	A325N	0.6250	1	0.33	9.11	0.036	1	Member Block Shear
T7	60	Leg	A325X	0.7500	12	24.46	43.74	0.559	1	Bolt DS
		Diagonal	A325N	0.6250	1	5.76	12.43	0.464	1	Bolt Shear
		Horizontal	A325N	0.6250	1	0.24	6.83	0.035	1	Member Block Shear
T8	40	Leg	A325X	0.7500	16	21.41	43.74	0.490	1	Bolt DS
		Diagonal	A325N	0.6250	1	6.24	12.43	0.502	1	Bolt Shear
		Horizontal	A325N	0.6250	1	0.29	6.83	0.043	1	Member Block

tnxTower

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Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T9	20	Diagonal	A325N	0.6250	2	2.62	12.43	0.211	1	Shear Bolt Shear
		Horizontal	A325N	0.6250	2	0.14	7.19	0.019	1	Member Block Shear

Feed Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T1	170.00 (289)	7/16 EHS	0.31	20.80	0.74	12.48	1.000	16.852
	170.00 (290)	7/16 EHS	0.31	20.80	0.70	12.48	1.000	17.730
	170.00 (291)	7/16 EHS	0.31	20.80	0.71	12.48	1.000	17.635
T2	160.00 (292)	7/16 EHS	0.31	20.80	0.47	12.48	1.000	26.674
	160.00 (293)	7/16 EHS	0.31	20.80	0.56	12.48	1.000	22.360
	160.00 (294)	7/16 EHS	0.31	20.80	0.48	12.48	1.000	26.064
T3	140.00 (295)	7/16 EHS	0.31	20.80	1.16	12.48	1.000	10.796
	140.00 (296)	7/16 EHS	0.31	20.80	1.13	12.48	1.000	11.021
	140.00 (297)	7/16 EHS	0.31	20.80	1.15	12.48	1.000	10.853
T4	120.00 (298)	7/16 EHS	0.31	20.80	1.60	12.48	1.000	7.814
	120.00 (299)	7/16 EHS	0.31	20.80	1.59	12.48	1.000	7.839
	120.00 (300)	7/16 EHS	0.31	20.80	1.60	12.48	1.000	7.823
T5	100.00 (301)	7/16 EHS	0.31	20.80	0.96	12.48	1.000	13.014
	100.00 (302)	7/16 EHS	0.31	20.80	0.96	12.48	1.000	12.988
	100.00 (303)	7/16 EHS	0.31	20.80	0.96	12.48	1.000	12.997
T6	80.00 (304)	7/16 EHS	0.31	20.80	1.16	12.48	1.000	10.780
	80.00 (305)	7/16 EHS	0.31	20.80	1.16	12.48	1.000	10.777
	80.00 (306)	7/16 EHS	0.31	20.80	1.16	12.48	1.000	10.787
T7	60.00 (307)	7/16 EHS	0.31	20.80	0.74	12.48	1.000	16.846
	60.00 (308)	7/16 EHS	0.31	20.80	0.74	12.48	1.000	16.841
	60.00 (309)	7/16 EHS	0.31	20.80	0.74	12.48	1.000	16.849
T8	40.00 (310)	7/16 EHS	0.31	20.80	0.63	12.48	1.000	19.699
	40.00 (311)	7/16 EHS	0.31	20.80	0.63	12.48	1.000	19.673
	40.00 (312)	7/16 EHS	0.31	20.80	0.63	12.48	1.000	19.690
T9	20.00 (313)	7/16 EHS	0.31	20.80	0.74	12.48	1.000	16.974
	20.00 (314)	7/16 EHS	0.31	20.80	0.74	12.48	1.000	16.867
	20.00 (315)	7/16 EHS	0.31	20.80	0.74	12.48	1.000	16.913

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	V3x3x1/4	10.00	3.33	57.6	1.4375	-3.14	50.76	0.062 [1]

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Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	160 - 140	V3x3x3/16 with Plate	20.02	5.01	78.3 K=1.00	5.1013	-22.19	146.63	0.151 [1]
T3	140 - 120	V3x3x1/4 with Plate	20.04	2.60	39.7 K=1.00	5.5670	-49.43	223.31	0.221 [1]
T4	120 - 100	V4x4x1/4 with Plate	20.04	3.48	49.7 K=1.00	6.3517	-73.63	238.66	0.308 [1]
T5	100 - 80	V4x4x3/8 with Plate 2.25x2.25	20.04	3.45	55.8 K=1.00	6.9337	-98.83	248.58	0.398 [1]
T6	80 - 60	V4x4x3/8 with Plate	20.04	3.43	47.1 K=1.00	8.1658	-123.71	312.35	0.396 [1]
T7	60 - 40	V4x4x0.711 with Plate	20.04	5.01	70.0 K=1.00	8.8775	-146.79	279.26	0.526 [1]
T8	40 - 20	V4x4x0.779 with Plate	20.04	5.01	57.6 K=1.00	11.0135	-171.30	389.01	0.440 [1]
T9	20 - 0	V5x5x0.6487 with Plate	20.05	5.01	58.9 K=1.00	10.1539	-191.95	354.62	0.541 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L1 3/4x1 3/4x1/8	4.43	3.84	133.0 K=1.00	0.4219	-2.18	5.39	0.405 [1]
T2	160 - 140	L 1-3/4x1-3/4x3/16	6.68	3.17	113.1 K=1.02	0.6211	-3.12	10.26	0.304 [1]
T3	140 - 120	L 1-3/4x1-3/4x3/16	8.16	3.95	138.0 K=1.00	0.6211	-2.81	7.37	0.381 [1]
T4	120 - 100	L2x2x1/4	10.75	5.24	160.9 K=1.00	0.9380	-3.86	8.19	0.471 [1]
T5	100 - 80	L2x2x3/16	12.43	6.09	185.6 K=1.00	0.7150	-3.96	4.69	0.845 [1]
T6	80 - 60	L2 1/2x2 1/2x5/16	14.21	6.99	171.4 K=1.00	1.4600	-4.94	11.22	0.440 [1]
T7	60 - 40	L3x3x5/16	9.00	8.55	174.2 K=1.00	1.7800	-5.76	13.24	0.435 [1]
T8	40 - 20	L3 1/2x3 1/2x5/16	9.87	9.42	163.8 K=1.00	2.0900	-6.24	17.59	0.355 [1]
T9	20 - 0	L3 1/2x3 1/2x5/16	11.00	10.37	157.1 K=0.87	2.0900	-4.84	19.14	0.253 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$

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Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L1 3/4x1 3/4x1/8	2.92	2.43	102.0 K=1.21	0.4219	-1.33	7.90	0.168 [1]
T7	60 - 40	L2x2x3/16	14.44	6.93	211.1 K=1.00	0.7150	-0.28	3.63	0.076 [1]
T8	40 - 20	L2x2x3/16	15.47	7.44	226.5 K=1.00	0.7150	-0.33	3.15	0.104 [1]
T9	20 - 0	L 2-1/2x2-1/2x3/16	17.66	12.74	196.4 K=1.00	0.9023	-0.35	5.29	0.065 [1]

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	140 - 120	L2x2x1/4	6.44	5.90	118.1 K=1.02	0.9380	-0.29	14.58	0.020 [1]
T4	120 - 100	L2x2x1/4	8.41	7.81	153.9 K=1.00	0.9380	-0.32	8.94	0.036 [1]
T5	100 - 80	L2x2x1/4	10.48	9.89	194.9 K=1.00	0.9380	-0.32	5.58	0.057 [1]
T6	80 - 60	L2x2x1/4	12.54	11.96	235.6 K=1.00	0.9380	-0.32	3.82	0.084 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L1 3/4x1 1/4x3/16	2.92	2.67	106.6 K=1.14	0.6211	-0.44	11.07	0.040 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L1 3/4x1 3/4x1/8	2.92	2.67	106.2 K=1.15	0.4219	-0.91	7.55	0.120 [1]

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[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	V3x3x1/4	10.00	3.33	43.8	1.0625	3.20	51.80	0.062 [1]
T2	160 - 140	V3x3x3/16 with Plate	20.02	5.01	78.3	5.1013	17.34	229.56	0.076 [1]
T3	140 - 120	V3x3x1/4 with Plate	20.04	2.40	36.6	5.5670	41.08	250.51	0.164 [1]
T4	120 - 100	V4x4x1/4 with Plate	20.04	3.20	45.8	6.3517	62.25	285.83	0.218 [1]
T5	100 - 80	V4x4x3/8 with Plate 2.25x2.25	20.04	3.23	52.2	6.9337	82.45	312.02	0.264 [1]
T6	80 - 60	V4x4x3/8 with Plate	20.04	3.25	44.6	8.1658	102.46	367.46	0.279 [1]
T7	60 - 40	V4x4x0.711 with Plate	20.04	5.01	70.0	8.8775	120.13	399.49	0.301 [1]
T8	40 - 20	V4x4x0.779 with Plate	20.04	5.01	57.6	11.0135	138.28	495.61	0.279 [1]
T9	20 - 0	V5x5x0.6487 with Plate	20.05	5.01	58.9	10.1539	152.55	456.93	0.334 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L1 3/4x1 3/4x1/8	4.43	3.84	89.1	0.2578	2.11	11.21	0.188 [1]
T2	160 - 140	L 1-3/4x1-3/4x3/16	6.41	3.04	70.3	0.3779	3.20	16.44	0.195 [1]
T3	140 - 120	L 1-3/4x1-3/4x3/16	7.38	3.57	82.1	0.3779	2.96	16.44	0.180 [1]
T4	120 - 100	L2x2x1/4	10.22	4.99	100.6	0.5629	3.85	24.49	0.157 [1]
T5	100 - 80	L2x2x3/16	11.85	5.81	115.4	0.4308	3.86	18.74	0.206 [1]
T6	80 - 60	L2 1/2x2 1/2x5/16	13.61	6.69	107.3	0.9192	4.64	39.99	0.116 [1]
T7	60 - 40	L3x3x5/16	8.16	7.71	103.5	1.1592	5.43	50.43	0.108 [1]
T8	40 - 20	L3 1/2x3 1/2x5/16	9.43	8.98	102.4	1.3917	5.84	60.54	0.096 [1]
T9	20 - 0	L3 1/2x3 1/2x5/16	10.43	9.80	113.3	1.3917	5.05	60.54	0.083 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L1 3/4x1 3/4x1/8	2.92	2.43	58.7	0.2461	1.29	10.71	0.121 [1]
T7	60 - 40	L2x2x3/16	13.41	6.41	190.6	0.4308	0.24	18.74	0.013 [1]
T8	40 - 20	L2x2x3/16	15.47	7.44	220.4	0.4308	0.29	18.74	0.016 [1]
T9	20 - 0	L 2-1/2x2-1/2x3/16	17.66	12.74	199.4	0.5713	0.27	24.85	0.011 [1]

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[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	140 - 120	L2x2x1/4	6.44	5.90	120.9	0.5629	0.30	24.49	0.012 [1]
T4	120 - 100	L2x2x1/4	7.72	7.12	145.1	0.5629	0.30	24.49	0.012 [1]
T5	100 - 80	L2x2x1/4	10.48	9.89	199.7	0.5629	0.30	24.49	0.012 [1]
T6	80 - 60	L2x2x1/4	11.85	11.27	226.8	0.5629	0.33	24.49	0.013 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L1 3/4x1 1/4x3/16	2.92	2.67	59.6	0.6211	0.06	20.12	0.003 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L1 3/4x1 3/4x1/8	2.92	2.67	58.7	0.4219	0.46	13.67	0.034 [1]

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	170 - 160	Leg	V3x3x1/4	1	-3.14	50.76	6.2	Pass
T2	160 - 140	Leg	V3x3x3/16 with Plate	26	-22.19	146.63	15.1 22.3 (b)	Pass
T3	140 - 120	Leg	V3x3x1/4 with Plate	52	-49.43	223.31	22.1 49.7 (b)	Pass
T4	120 - 100	Leg	V4x4x1/4 with Plate	91	-73.63	238.66	30.8 74.1 (b)	Pass
T5	100 - 80	Leg	V4x4x3/8 with Plate 2.25x2.25	121	-98.83	248.58	39.8	Pass
T6	80 - 60	Leg	V4x4x3/8 with Plate	151	-123.71	312.35	39.6 47.1 (b)	Pass

tnxTower	Job: Gumboro	Page: 30 of 31
Trylon 1825 W. Walnut Hill Lane, Suite 302 Irving, TX 75038 Phone: (214) 930-1730 FAX:	Project: 196812	Date: 18:16:26 12/02/21
	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T7	60 - 40	Leg	V4x4x0.711 with Plate	181	-146.79	279.26	52.6 55.9 (b)	Pass
T8	40 - 20	Leg	V4x4x0.779 with Plate	214	-171.30	389.01	44.0 49.0 (b)	Pass
T9	20 - 0	Leg	V5x5x0.6487 with Plate	247	-191.95	354.62	54.1	Pass
T1	170 - 160	Diagonal	L1 3/4x1 3/4x1/8	12	-2.18	5.39	40.5 55.4 (b)	Pass
T2	160 - 140	Diagonal	L 1-3/4x1-3/4x3/16	28	-3.12	10.26	30.4 56.0 (b)	Pass
T3	140 - 120	Diagonal	L 1-3/4x1-3/4x3/16	55	-2.81	7.37	38.1 51.9 (b)	Pass
T4	120 - 100	Diagonal	L2x2x1/4	95	-3.86	8.19	47.1	Pass
T5	100 - 80	Diagonal	L2x2x3/16	128	-3.96	4.69	84.5	Pass
T6	80 - 60	Diagonal	L2 1/2x2 1/2x5/16	158	-4.94	11.22	44.0	Pass
T7	60 - 40	Diagonal	L3x3x5/16	191	-5.76	13.24	43.5 46.4 (b)	Pass
T8	40 - 20	Diagonal	L3 1/2x3 1/2x5/16	224	-6.24	17.59	35.5 50.2 (b)	Pass
T9	20 - 0	Diagonal	L3 1/2x3 1/2x5/16	257	-4.84	19.14	25.3	Pass
T1	170 - 160	Horizontal	L1 3/4x1 3/4x1/8	13	-1.33	7.90	16.8 33.4 (b)	Pass
T7	60 - 40	Horizontal	L2x2x3/16	190	-0.28	3.63	7.6	Pass
T8	40 - 20	Horizontal	L2x2x3/16	238	-0.33	3.15	10.4	Pass
T9	20 - 0	Horizontal	L 2-1/2x2-1/2x3/16	271	-0.35	5.29	6.5	Pass
T3	140 - 120	Secondary Horizontal	L2x2x1/4	62	-0.29	14.58	2.0 3.2 (b)	Pass
T4	120 - 100	Secondary Horizontal	L2x2x1/4	102	-0.32	8.94	3.6	Pass
T5	100 - 80	Secondary Horizontal	L2x2x1/4	131	-0.32	5.58	5.7	Pass
T6	80 - 60	Secondary Horizontal	L2x2x1/4	162	-0.32	3.82	8.4	Pass
T1	170 - 160	Top Girt	L1 3/4x1 1/4x3/16	4	-0.44	11.07	4.0	Pass
T1	170 - 160	Bottom Girt	L1 3/4x1 3/4x1/8	7	-0.91	7.55	12.0	Pass
T1	170 - 160	Feed Tower Guy	7/16	289	0.74	12.48	5.9	Pass
T2	160 - 140	Feed Tower Guy	7/16	293	0.56	12.48	4.5	Pass
T3	140 - 120	Feed Tower Guy	7/16	295	1.16	12.48	9.3	Pass
T4	120 - 100	Feed Tower Guy	7/16	298	1.60	12.48	12.8	Pass
T5	100 - 80	Feed Tower Guy	7/16	302	0.96	12.48	7.7	Pass
T6	80 - 60	Feed Tower Guy	7/16	305	1.16	12.48	9.3	Pass
T7	60 - 40	Feed Tower Guy	7/16	308	0.74	12.48	5.9	Pass
T8	40 - 20	Feed Tower Guy	7/16	311	0.63	12.48	5.1	Pass
T9	20 - 0	Feed Tower Guy	7/16	314	0.74	12.48	5.9	Pass
							Summary	
						Leg (T4)	74.1	Pass
						Diagonal (T5)	84.5	Pass
						Horizontal (T1)	33.4	Pass
						Secondary Horizontal (T6)	8.4	Pass
						Top Girt (T1)	4.0	Pass
						Bottom Girt (T1)	12.0	Pass
						Feed Tower Guy (T4)	12.8	Pass
						Bolt Checks	74.1	Pass
						RATING =	**84.5**	**Pass**

tnxTower	Job: Gumboro	Page: 31 of 31
Trylon 1825 W. Walnut Hill Lane, Suite 302 Irving, TX 75038 Phone: (214) 930-1730 FAX:	Project: 196812	Date: 18:16:26 12/02/21
	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.

Program Version 8.1.1.0 - 6/3/2021 File:C:/Users/Arienna.WilsonMuller/Box/Salesforce - Trylon Engineering/Towers/DE_38.478889, -75.366389/Gumboro_SML_MA_Aug 2021_AT&T/Engineering/SA_11-29-2021/RISA or TNX/Gumsboro.eri

Site Name: Gumboro
Date: 12.01.2021

Trylon

Built-Up Member Compression Capacity

Calculations in accordance with AISC 14th ed.,

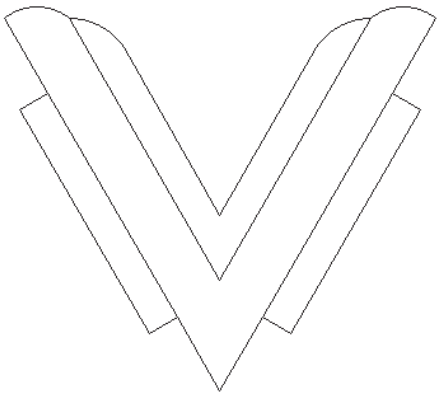
Limitations: User to design in LRFD only

References: Trylon CDs (Job # 196812) dated November 11, 2021

Demand (from tnxTower):

$P_u := 191.95\ kip$ (axial load acting through leg section, 0-20 ft)

Design:
(Briefly describe the built up member configuration and update image below to show connection)



Material & Section Properties:

$\phi := 0.9$	(applicable load reduction factor)
$k := 1$	(effective length factor)
$F_y := 50\ ksi$	(yield strength of built-up member - *composite Fy based off area ratios*)
$E := 29000\ ksi$	(modulus of elasticity of steel)
$A_{orig} := 5.859375\ in^2$	(original member area)
$I_{orig} := 7.8041\ in^4$	(original member min. inertia)
$A_{new} := 4.5112\ in^2$	(new reinf. member area)
$I_{new} := 3.4934\ in^4$	(new reinf. member min. inertia)
$n := 1$	(number of reinf. members to be added)

Site Name: Gumboro
Date: 12.01.2021

Trylon

Section Properties (Continued):

$A_{reinf} := 10.1539\ in^2 = 10.154\ in^2$ (total area of built up member)

$I_{reinf} := 10.6026\ in^4$ (built up member min inertia) - *from CAD*

$r_{exist} := \sqrt{\frac{I_{exist}}{A_{exist}}} = 1.154\ in$ (radius of gyration of the existing member)

$r_{new} := \sqrt{\frac{I_{new}}{A_{new}}} = 0.88\ in$ (radius of gyration of the additonal member)

$r_{reinf} := \sqrt{\frac{I_{reinf}}{A_{reinf}}} = 1.022\ in$ (radius of gyration of the built-up member)

$l_{u.exist} := 60.12\ in$ (unbraced length of existing leg member) - *from tnxTower*

$l_{u.new} := 0\ in$ (intermediate connector spacing; also specified as 'a' per AISC) - *design specific*

$a := l_{u.new} = 0\ in$

(checking limiting slenderness ratio per E6.2)

$\frac{k \cdot a}{r_{exist}} = 0$ (original member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{exist}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

$\frac{k \cdot a}{r_{new}} = 0$ (additional member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{new}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Welded Connector Capacity Calculations (per AISC E6):

if a/ri<=40

$$slenderness_ratio := \frac{k \cdot l_{u.exist}}{r_{reinf}} = 58.834$$ (modified slenderness ratio of built-up member)

if a/ri>40

$K_i := 0.86$

$$slenderness_ratio := \sqrt{\left(\frac{k \cdot l_{u.exist}}{r_{reinf}}\right)^2 + \left(\frac{K_i \cdot a}{min\left(r_{exist}, r_{new}\right)}\right)^2} = 58.834$$ (modified slenderness ratio of built-up member)

$$F_e := \frac{\pi^2 \cdot E}{slenderness_ratio^2} = 82.687\ ksi$$ (elastic buckling stress)

$$\mathbf{F_{cr}} := \mathbf{if}\left(slenderness_ratio \le 4.71 \cdot \sqrt{\frac{E}{F_y}}, \left(0.658^{\frac{F_y}{F_e}}\right) \cdot F_y, 0.877 \cdot F_e\right) = 38.82\ ksi$$ (critical stress)

$\phi P_n := \phi \cdot \mathbf{F_{cr}} \cdot A_{reinf} = 354.755\ kip$ (compressive strength capacity)

Demand to Capacity Ratio:

$$\therefore DCR := \frac{P_u}{\phi P_n} = 54.11\%$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Built-Up Member Compression Capacity

Calculations in accordance with AISC 14th ed.,

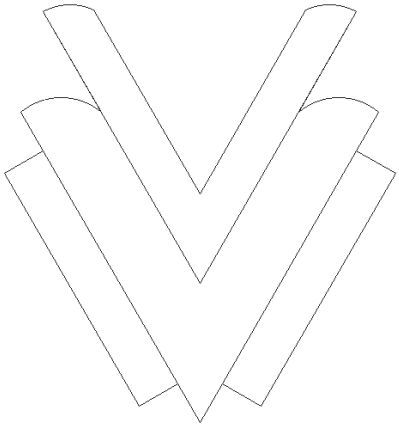
Limitations: User to design in LRFD only

References: Trylon CDs (Job # 196812) dated November 11, 2021

Demand (from tnxTower):

$P_u := 171.30\ kip$ (axial load acting through leg section, 20-40 ft)

Design:
(Briefly describe the built up member configuration and update image below to show connection)



Material & Section Properties:

$\phi := 0.9$	(applicable load reduction factor)
$k := 1$	(effective length factor)
$F_y := 50\ ksi$	(yield strength of built-up member - *composite Fy based off area ratios*)
$E := 29000\ ksi$	(modulus of elasticity of steel)
$A_{orig} := 5.4375\ in^2$	(original member area)
$I_{orig} := 4.25171613\ in^4$	(original member min. inertia)
$A_{new} := 4.2697\ in^2$	(new reinf. member area)
$I_{new} := 3.1399\ in^4$	(new reinf. member min. inertia)
$n := 1$	(number of reinf. members to be added)

Site Name: Gumboro
Date: 12.01.2021

Trylon

Section Properties (Continued):

$A_{reinf} := 11.0135\ in^2 = 11.014\ in^2$ (total area of built up member)

$I_{reinf} := 12.0122\ in^4$ (built up member min inertia) - *from CAD*

$r_{exist} := \sqrt{\frac{I_{exist}}{A_{exist}}} = 0.884\ in$ (radius of gyration of the existing member)

$r_{new} := \sqrt{\frac{I_{new}}{A_{new}}} = 0.858\ in$ (radius of gyration of the additonal member)

$r_{reinf} := \sqrt{\frac{I_{reinf}}{A_{reinf}}} = 1.044\ in$ (radius of gyration of the built-up member)

$l_{u.exist} := 60.12\ in$ (unbraced length of existing leg member) - *from tnxTower*

$l_{u.new} := 0\ in$ (intermediate connector spacing; also specified as 'a' per AISC) - *design specific*

$a := l_{u.new} = 0\ in$

(checking limiting slenderness ratio per E6.2)

$\frac{k \cdot a}{r_{exist}} = 0$ (original member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{exist}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

$\frac{k \cdot a}{r_{new}} = 0$ (additional member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{new}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Welded Connector Capacity Calculations (per AISC E6):

if a/ri<=40

$$slenderness_ratio := \frac{k \cdot l_{u.exist}}{r_{reinf}} = 57.567$$ (modified slenderness ratio of built-up member)

if a/ri>40

$K_i := 0.86$

$$slenderness_ratio := \sqrt{\left(\frac{k \cdot l_{u.exist}}{r_{reinf}}\right)^2 + \left(\frac{K_i \cdot a}{min\left(r_{exist}, r_{new}\right)}\right)^2} = 57.567$$ (modified slenderness ratio of built-up member)

$$F_e := \frac{\pi^2 \cdot E}{slenderness_ratio^2} = 86.369\ ksi$$ (elastic buckling stress)

$$\mathbf{F_{cr}} := \mathbf{if}\left(slenderness_ratio \le 4.71 \cdot \sqrt{\frac{E}{F_y}}, \left(0.658^{\frac{F_y}{F_e}}\right) \cdot F_y, 0.877 \cdot F_e\right) = 39.241\ ksi$$ (critical stress)

$\phi P_n := \phi \cdot \mathbf{F_{cr}} \cdot A_{reinf} = 388.961\ kip$ (compressive strength capacity)

Demand to Capacity Ratio:

$$\therefore\ DCR := \frac{P_u}{\phi P_n} = 44.04\%$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Built-Up Member Compression Capacity

Calculations in accordance with AISC 14th ed.,

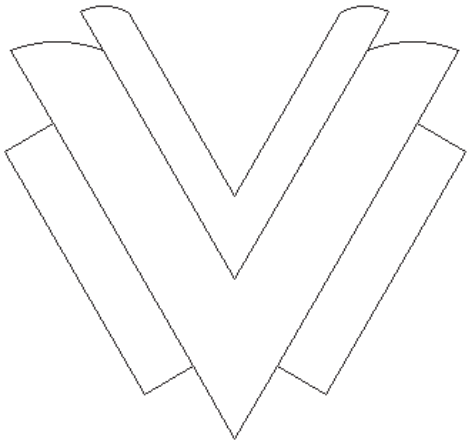
Limitations: User to design in LRFD only

References: Trylon CDs (Job # 196812) dated November 11, 2021

Demand (from tnxTower):

$P_u := 146.79\ kip$ (axial load acting through leg section, 40-60 ft)

Design:
(Briefly describe the built up member configuration and update image below to show connection)



Material & Section Properties:

$\phi := 0.9$	(applicable load reduction factor)
$k := 1$	(effective length factor)
$F_y := 50\ ksi$	(yield strength of built-up member - *composite Fy based off area ratios*)
$E := 29000\ ksi$	(modulus of elasticity of steel)
$A_{exist} := 4.609375\ in^2$	(original member area)
$I_{exist} := 3.73983448\ in^4$	(original member min. inertia)
$A_{new} := 5.4451\ in^2$	(new reinf. member area)
$I_{new} := 3.9071\ in^4$	(new reinf. member min. inertia)
$n := 1$	(number of reinf. members to be added)

Site Name: Gumboro
Date: 12.01.2021

Trylon

Section Properties (Continued):

$A_{reinf} := 8.8775\ in^2 = 8.878\ in^2$ (total area of built up member)

$I_{reinf} := 6.5499\ in^4$ (built up member min inertia) - *from CAD*

$r_{exist} := \sqrt{\frac{I_{exist}}{A_{exist}}} = 0.901\ in$ (radius of gyration of the existing member)

$r_{new} := \sqrt{\frac{I_{new}}{A_{new}}} = 0.847\ in$ (radius of gyration of the additonal member)

$r_{reinf} := \sqrt{\frac{I_{reinf}}{A_{reinf}}} = 0.859\ in$ (radius of gyration of the built-up member)

$l_{u.exist} := 60.12\ in$ (unbraced length of existing leg member) - *from tnxTower*

$l_{u.new} := 0\ in$ (intermediate connector spacing; also specified as 'a' per AISC) - *design specific*

$a := l_{u.new} = 0\ in$

(checking limiting slenderness ratio per E6.2)

$\frac{k \cdot a}{r_{exist}} = 0$ (original member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{exist}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

$\frac{k \cdot a}{r_{new}} = 0$ (additional member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{new}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Welded Connector Capacity Calculations (per AISC E6):

if a/ri<=40

$$slenderness_ratio := \frac{k \cdot l_{u.exist}}{r_{reinf}} = 69.992$$ (modified slenderness ratio of built-up member)

if a/ri>40

$$K_i := 0.86$$

$$slenderness_ratio := \sqrt{\left(\frac{k \cdot l_{u.exist}}{r_{reinf}}\right)^2 + \left(\frac{K_i \cdot a}{min\left(r_{exist}, r_{new}\right)}\right)^2} = 69.992$$ (modified slenderness ratio of built-up member)

$$F_e := \frac{\pi^2 \cdot E}{slenderness_ratio^2} = 58.426\ ksi$$ (elastic buckling stress)

$$\mathbf{F_{cr}} := \mathbf{if}\left(slenderness_ratio \le 4.71 \cdot \sqrt{\frac{E}{F_y}}, \left(0.658^{\frac{F_y}{F_e}}\right) \cdot F_y, 0.877 \cdot F_e\right) = 34.947\ ksi$$ (critical stress)

$$\phi P_n := \phi \cdot \mathbf{F_{cr}} \cdot A_{reinf} = 279.218\ kip$$ (compressive strength capacity)

Demand to Capacity Ratio:

$$\therefore DCR := \frac{P_u}{\phi P_n} = 52.86\%$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Built-Up Member Compression Capacity

Calculations in accordance with AISC 14th ed.,

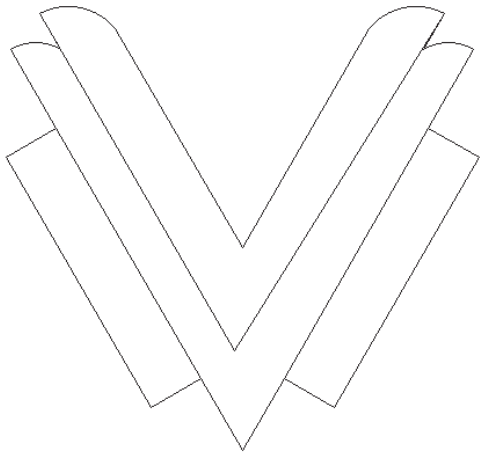
Limitations: User to design in LRFD only

References: Trylon CDs (Job # 196812) dated November 11, 2021

Demand (from tnxTower):

$P_u := 123.71\ kip$ (axial load acting through leg section, 60-80 ft)

Design:
(Briefly describe the built up member configuration and update image below to show connection)



Material & Section Properties:

$\phi := 0.9$	(applicable load reduction factor)
$k := 1$	(effective length factor)
$F_y := 50\ ksi$	(yield strength of built-up member - *composite Fy based off area ratios*)
$E := 29000\ ksi$	(modulus of elasticity of steel)
$A_{orig} := 2.859375\ in^2$	(original member area)
$I_{orig} := 2.48379775\ in^4$	(original member min. inertia)
$A_{new} := 4.1996\ in^2$	(new reinf. member area)
$I_{new} := 2.7891\ in^4$	(new reinf. member min. inertia)
$n := 1$	(number of reinf. members to be added)

Site Name: Gumboro
Date: 12.01.2021

Trylon

Section Properties (Continued):

$A_{reinf} := 8.1658\ in^2 = 8.166\ in^2$ (total area of built up member)

$I_{reinf} := 3.4581\ in^4$ (built up member min inertia) - *from CAD*

$r_{exist} := \sqrt{\frac{I_{exist}}{A_{exist}}} = 0.932\ in$ (radius of gyration of the existing member)

$r_{new} := \sqrt{\frac{I_{new}}{A_{new}}} = 0.815\ in$ (radius of gyration of the additonal member)

$r_{reinf} := \sqrt{\frac{I_{reinf}}{A_{reinf}}} = 0.651\ in$ (radius of gyration of the built-up member)

$l_{u.exist} := 41.28\ in$ (unbraced length of existing leg member) - *from tnxTower*

$l_{u.new} := 0\ in$ (intermediate connector spacing; also specified as 'a' per AISC) - *design specific*

$a := l_{u.new} = 0\ in$

(checking limiting slenderness ratio per E6.2)

$\frac{k \cdot a}{r_{exist}} = 0$ (original member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{exist}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

$\frac{k \cdot a}{r_{new}} = 0$ (additional member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{new}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Welded Connector Capacity Calculations (per AISC E6):

if a/ri<=40

$$slenderness_ratio := \frac{k \cdot l_{u.exist}}{r_{reinf}} = 63.434$$ (modified slenderness ratio of built-up member)

if a/ri>40

$K_i := 0.86$

$$slenderness_ratio := \sqrt{\left(\frac{k \cdot l_{u.exist}}{r_{reinf}}\right)^2 + \left(\frac{K_i \cdot a}{min\left(r_{exist}, r_{new}\right)}\right)^2} = 63.434$$ (modified slenderness ratio of built-up member)

$$F_e := \frac{\pi^2 \cdot E}{slenderness_ratio^2} = 71.131\ ksi$$ (elastic buckling stress)

$$\mathbf{F_{cr}} := \mathbf{if}\left(slenderness_ratio \le 4.71 \cdot \sqrt{\frac{E}{F_y}}, \left(0.658^{\frac{F_y}{F_e}}\right) \cdot F_y, 0.877 \cdot F_e\right) = 37.256\ ksi$$ (critical stress)

$\phi P_n := \phi \cdot \mathbf{F_{cr}} \cdot A_{reinf} = 273.802\ kip$ (compressive strength capacity)

Demand to Capacity Ratio:

$$\therefore\ DCR := \frac{P_u}{\phi P_n} = 45.41\%$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Built-Up Member Compression Capacity

Calculations in accordance with AISC 14th ed.,

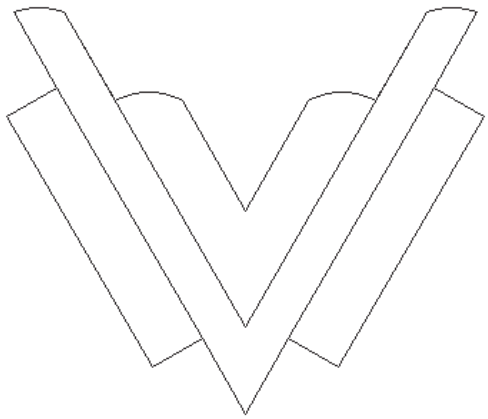
Limitations: User to design in LRFD only

References: Trylon CDs (Job # 196812) dated November 11, 2021

Demand (from tnxTower):

$P_u := 98.83\ kip$ (axial load acting through leg section, 80-100 ft)

Design:
(Briefly describe the built up member configuration and update image below to show connection)



Material & Section Properties:

$\phi := 0.9$ (applicable load reduction factor)
$k := 1$ (effective length factor)
$F_y := 50\ ksi$ (yield strength of built-up member - *composite Fy based off area ratios*)
$E := 29000\ ksi$ (modulus of elasticity of steel)

$A_{orig} := 1.9375\ in^2$ (original member area)
$I_{orig} := 1.74754177\ in^4$ (original member min. inertia)
$A_{new} := 4.2345\ in^2$ (new reinf. member area)
$I_{new} := 1.5247\ in^4$ (new reinf. member min. inertia)
$n := 1$ (number of reinf. members to be added)

Site Name: Gumboro
Date: 12.01.2021

Trylon

Section Properties (Continued):

$A_{reinf} := 6.9337\ in^2 = 6.934\ in^2$ (total area of built up member)

$I_{reinf} := 3.8199\ in^4$ (built up member min inertia) - *from CAD*

$r_{exist} := \sqrt{\frac{I_{exist}}{A_{exist}}} = 0.95\ in$ (radius of gyration of the existing member)

$r_{new} := \sqrt{\frac{I_{new}}{A_{new}}} = 0.6\ in$ (radius of gyration of the additonal member)

$r_{reinf} := \sqrt{\frac{I_{reinf}}{A_{reinf}}} = 0.742\ in$ (radius of gyration of the built-up member)

$l_{u.exist} := 41.64\ in$ (unbraced length of existing leg member) - *from tnxTower*

$l_{u.new} := 0\ in$ (intermediate connector spacing; also specified as 'a' per AISC) - *design specific*

$a := l_{u.new} = 0\ in$

(checking limiting slenderness ratio per E6.2)

$\frac{k \cdot a}{r_{exist}} = 0$ (original member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{exist}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

$\frac{k \cdot a}{r_{new}} = 0$ (additional member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{new}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Welded Connector Capacity Calculations (per AISC E6):

if a/ri<=40

$$slenderness_ratio := \frac{k \cdot l_{u.exist}}{r_{reinf}} = 56.101$$ (modified slenderness ratio of built-up member)

if a/ri>40

$$K_i := 0.86$$

$$slenderness_ratio := \sqrt{\left(\frac{k \cdot l_{u.exist}}{r_{reinf}}\right)^2 + \left(\frac{K_i \cdot a}{min\left(r_{exist}, r_{new}\right)}\right)^2} = 56.101$$ (modified slenderness ratio of built-up member)

$$F_e := \frac{\pi^2 \cdot E}{slenderness_ratio^2} = 90.942\ ksi$$ (elastic buckling stress)

$$\mathbf{F_{cr}} := \mathbf{if}\left(slenderness_ratio \le 4.71 \cdot \sqrt{\frac{E}{F_y}}, \left(0.658^{\frac{F_y}{F_e}}\right) \cdot F_y, 0.877 \cdot F_e\right) = 39.722\ ksi$$ (critical stress)

$$\phi P_n := \phi \cdot \mathbf{F_{cr}} \cdot A_{reinf} = 247.878\ kip$$ (compressive strength capacity)

Demand to Capacity Ratio:

$$\therefore\ DCR := \frac{P_u}{\phi P_n} = 39.95\%$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Built-Up Member Compression Capacity

Calculations in accordance with AISC 14th ed.,

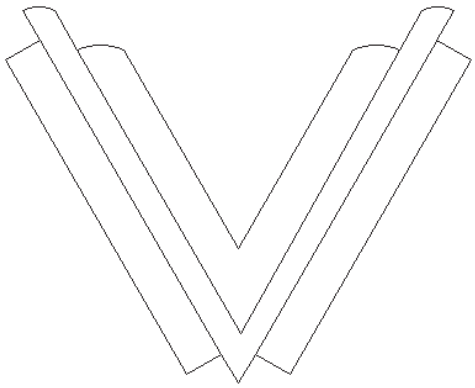
Limitations: User to design in LRFD only

References: Trylon CDs (Job # 196812) dated November 11, 2021

Demand (from tnxTower):

$P_u := 73.63\ kip$ (axial load acting through leg section, 100-120 ft)

Design:
(Briefly describe the built up member configuration and update image below to show connection)



Material & Section Properties:

$\phi := 0.9$	(applicable load reduction factor)
$k := 1$	(effective length factor)
$F_y := 50\ ksi$	(yield strength of built-up member - *composite Fy based off area ratios*)
$E := 29000\ ksi$	(modulus of elasticity of steel)
$A_{orig} := 1.9375\ in^2$	(original member area)
$I_{orig} := 1.74754177\ in^4$	(original member min. inertia)
$A_{new} := 4.4812\ in^2$	(new reinf. member area)
$I_{new} := 2.8155\ in^4$	(new reinf. member min. inertia)
$n := 1$	(number of reinf. members to be added)

Site Name: Gumboro
Date: 12.01.2021

Trylon

Section Properties (Continued):

$A_{reinf} := 6.3517\ in^2 = 6.352\ in^2$ (total area of built up member)

$I_{reinf} := 4.4786\ in^4$ (built up member min inertia) - *from CAD*

$r_{exist} := \sqrt{\frac{I_{exist}}{A_{exist}}} = 0.95\ in$ (radius of gyration of the existing member)

$r_{new} := \sqrt{\frac{I_{new}}{A_{new}}} = 0.793\ in$ (radius of gyration of the additonal member)

$r_{reinf} := \sqrt{\frac{I_{reinf}}{A_{reinf}}} = 0.84\ in$ (radius of gyration of the built-up member)

$l_{u.exist} := 42\ in$ (unbraced length of existing leg member) - *from tnxTower*

$l_{u.new} := 0\ in$ (intermediate connector spacing; also specified as 'a' per AISC) - *design specific*

$a := l_{u.new} = 0\ in$

(checking limiting slenderness ratio per E6.2)

$\frac{k \cdot a}{r_{exist}} = 0$ (original member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{exist}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

$\frac{k \cdot a}{r_{new}} = 0$ (additional member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{new}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Welded Connector Capacity Calculations (per AISC E6):

if a/ri<=40

$$slenderness_ratio := \frac{k \cdot l_{u.exist}}{r_{reinf}} = 50.018$$ (modified slenderness ratio of built-up member)

if a/ri>40

$K_i := 0.86$

$$slenderness_ratio := \sqrt{\left(\frac{k \cdot l_{u.exist}}{r_{reinf}}\right)^2 + \left(\frac{K_i \cdot a}{min\left(r_{exist}, r_{new}\right)}\right)^2} = 50.018$$ (modified slenderness ratio of built-up member)

$$F_e := \frac{\pi^2 \cdot E}{slenderness_ratio^2} = 114.407\ ksi$$ (elastic buckling stress)

$$\mathbf{F_{cr}} := \mathbf{if}\left(slenderness_ratio \le 4.71 \cdot \sqrt{\frac{E}{F_y}}, \left(0.658^{\frac{F_y}{F_e}}\right) \cdot F_y, 0.877 \cdot F_e\right) = 41.642\ ksi$$ (critical stress)

$\phi P_n := \phi \cdot \mathbf{F_{cr}} \cdot A_{reinf} = 238.046\ kip$ (compressive strength capacity)

Demand to Capacity Ratio:

$$\therefore DCR := \frac{P_u}{\phi P_n} = 30.87\%$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Built-Up Member Compression Capacity

Calculations in accordance with AISC 14th ed.,

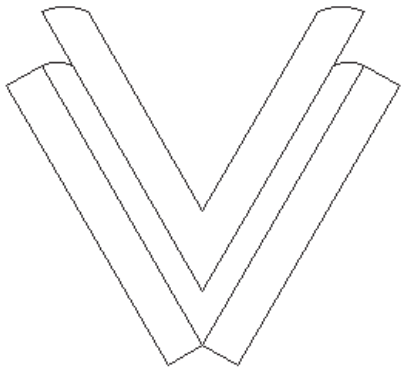
Limitations: User to design in LRFD only

References: Trylon CDs (Job # 196812) dated November 11, 2021

Demand (from tnxTower):

$P_u := 49.43\ kip$ (axial load acting through leg section, 120-140 ft)

Design:
(Briefly describe the built up member configuration and update image below to show connection)



Material & Section Properties:

$\phi := 0.9$	(applicable load reduction factor)
$k := 1$	(effective length factor)
$F_y := 50\ ksi$	(yield strength of built-up member - *composite Fy based off area ratios*)
$E := 29000\ ksi$	(modulus of elasticity of steel)
$A_{orig} := 1.4375\ in^2$	(original member area)
$I_{orig} := 0.69379617\ in^4$	(original member min. inertia)
$A_{new} := 4.1993\ in^2$	(new reinf. member area)
$I_{new} := 2.7842\ in^4$	(new reinf. member min. inertia)
$n := 1$	(number of reinf. members to be added)

Site Name: Gumboro
Date: 12.01.2021

Trylon

Section Properties (Continued):

$A_{reinf} := 5.5670\ in^2 = 5.567\ in^2$ (total area of built up member)

$I_{reinf} := 3.4581\ in^4$ (built up member min inertia) - *from CAD*

$r_{exist} := \sqrt{\frac{I_{exist}}{A_{exist}}} = 0.695\ in$ (radius of gyration of the existing member)

$r_{new} := \sqrt{\frac{I_{new}}{A_{new}}} = 0.814\ in$ (radius of gyration of the additonal member)

$r_{reinf} := \sqrt{\frac{I_{reinf}}{A_{reinf}}} = 0.788\ in$ (radius of gyration of the built-up member)

$l_{u.exist} := 31.68\ in$ (unbraced length of existing leg member) - *from tnxTower*

$l_{u.new} := 0\ in$ (intermediate connector spacing; also specified as 'a' per AISC) - *design specific*

$a := l_{u.new} = 0\ in$

(checking limiting slenderness ratio per E6.2)

$\frac{k \cdot a}{r_{exist}} = 0$ (original member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{exist}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

$\frac{k \cdot a}{r_{new}} = 0$ (additional member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{new}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Welded Connector Capacity Calculations (per AISC E6):

if a/ri<=40

$$slenderness_ratio := \frac{k \cdot l_{u.exist}}{r_{reinf}} = 40.195$$ (modified slenderness ratio of built-up member)

if a/ri>40

$K_i := 0.86$

$$slenderness_ratio := \sqrt{\left(\frac{k \cdot l_{u.exist}}{r_{reinf}}\right)^2 + \left(\frac{K_i \cdot a}{min\left(r_{exist}, r_{new}\right)}\right)^2} = 40.195$$ (modified slenderness ratio of built-up member)

$$F_e := \frac{\pi^2 \cdot E}{slenderness_ratio^2} = 177.151\ ksi$$ (elastic buckling stress)

$$\mathbf{F_{cr}} := \mathbf{if}\left(slenderness_ratio \le 4.71 \cdot \sqrt{\frac{E}{F_y}}, \left(0.658^{\frac{F_y}{F_e}}\right) \cdot F_y, 0.877 \cdot F_e\right) = 44.429\ ksi$$ (critical stress)

$\phi P_n := \phi \cdot \mathbf{F_{cr}} \cdot A_{reinf} = 222.602\ kip$ (compressive strength capacity)

Demand to Capacity Ratio:

$$\therefore DCR := \frac{P_u}{\phi P_n} = 22.17\%$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Built-Up Member Compression Capacity

Calculations in accordance with AISC 14th ed.,

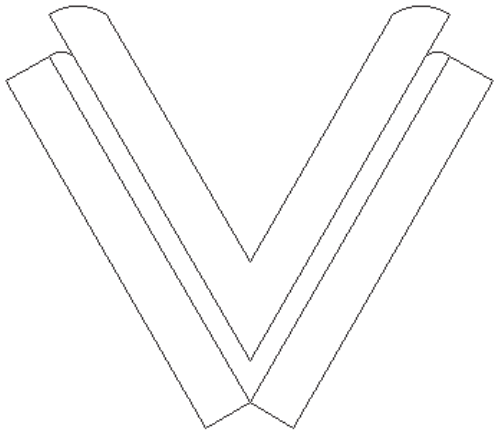
Limitations: User to design in LRFD only

References: Trylon CDs (Job # 196812) dated November 11, 2021

Demand (from tnxTower):

$P_u := 22.19\ kip$ (axial load acting through leg section, 140-160 ft)

Design:
(Briefly describe the built up member configuration and update image below to show connection)



Material & Section Properties:

$\phi := 0.9$	(applicable load reduction factor)
$k := 1$	(effective length factor)
$F_y := 50\ ksi$	(yield strength of built-up member - *composite Fy based off area ratios*)
$E := 29000\ ksi$	(modulus of elasticity of steel)
$A_{orig} := 1.0898\ in^2$	(original member area)
$I_{orig} := 0.53477765\ in^4$	(original member min. inertia)
$A_{new} := 4.2132\ in^2$	(new reinf. member area)
$I_{new} := 2.5433\ in^4$	(new reinf. member min. inertia)
$n := 1$	(number of reinf. members to be added)

Site Name: Gumboro
Date: 12.01.2021

Trylon

Section Properties (Continued):

$A_{reinf} := 5.1013\ in^2 = 5.101\ in^2$ (total area of built up member)

$I_{reinf} := 3.0030\ in^4$ (built up member min inertia) - *from CAD*

$r_{exist} := \sqrt{\frac{I_{exist}}{A_{exist}}} = 0.701\ in$ (radius of gyration of the existing member)

$r_{new} := \sqrt{\frac{I_{new}}{A_{new}}} = 0.777\ in$ (radius of gyration of the additonal member)

$r_{reinf} := \sqrt{\frac{I_{reinf}}{A_{reinf}}} = 0.767\ in$ (radius of gyration of the built-up member)

$l_{u.exist} := 60.12\ in$ (unbraced length of existing leg member) - *from tnxTower*

$l_{u.new} := 0\ in$ (intermediate connector spacing; also specified as 'a' per AISC) - *design specific*

$a := l_{u.new} = 0\ in$

(checking limiting slenderness ratio per E6.2)

$\frac{k \cdot a}{r_{exist}} = 0$ (original member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{exist}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

$\frac{k \cdot a}{r_{new}} = 0$ (additional member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{new}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Welded Connector Capacity Calculations (per AISC E6):

if a/ri<=40

$$slenderness_ratio := \frac{k \cdot l_{u.exist}}{r_{reinf}} = 78.358$$ (modified slenderness ratio of built-up member)

if a/ri>40

$$K_i := 0.86$$

$$slenderness_ratio := \sqrt{\left(\frac{k \cdot l_{u.exist}}{r_{reinf}}\right)^2 + \left(\frac{K_i \cdot a}{min\left(r_{exist}, r_{new}\right)}\right)^2} = 78.358$$ (modified slenderness ratio of built-up member)

$$F_e := \frac{\pi^2 \cdot E}{slenderness_ratio^2} = 46.616\ ksi$$ (elastic buckling stress)

$$\mathbf{F_{cr}} := \mathbf{if}\left(slenderness_ratio \le 4.71 \cdot \sqrt{\frac{E}{F_y}}, \left(0.658^{\frac{F_y}{F_e}}\right) \cdot F_y, 0.877 \cdot F_e\right) = 31.915\ ksi$$ (critical stress)

$$\phi P_n := \phi \cdot \mathbf{F_{cr}} \cdot A_{reinf} = 146.529\ kip$$ (compressive strength capacity)

Demand to Capacity Ratio:

$$\therefore\ DCR := \frac{P_u}{\phi P_n} = 15.14\%$$

Self Support Anchor Rod Capacity

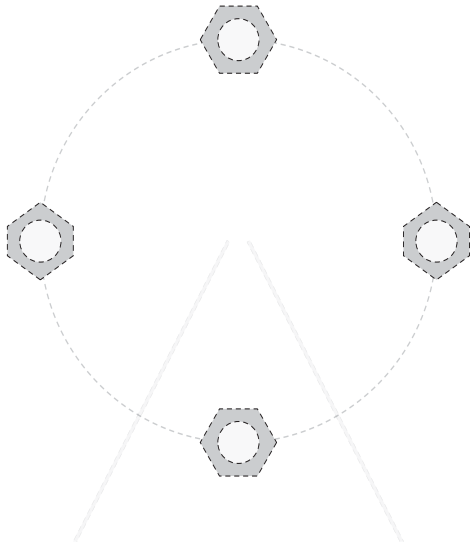
Site Info	
BU #	
Site Name	Gumboro
Order #	

Analysis Considerations	
TIA-222 Revision	G
Grout Considered:	No
Eta Factor, η	0.5

Applied Loads		
	Comp.	Uplift
Axial Force (kips)	195.68	155.37
Shear Force (kips)	21.32	17.66

Considered Eccentricity	
Leg Mod Eccentricity (in)	0.000
Anchor Rod N.A Shift (in)	0.000
Total Eccentricity (in)	0.000

**Anchor Rod Eccentricity Applied*



Connection Properties

Anchor Rod Data

(4) 1-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi)

l_{ar} (in): 1.75

Analysis Results

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

Pu_c = 48.92	ϕPn_t = 77.52	**Stress Rating**
Vu = 5.33	ϕVn = 41.42	**106.6%**
Mu = 6.06	ϕMn = 15.42	**Fail**

Analysis Date: 12/2/2021

Drilled Pier Foundation

BU # :	
Site Name:	Gumboro
Order Number:	
TIA-222 Revison:	G
Tower Type:	Self Support

Applied Loads	Comp.	Uplift
Moment (kip-ft)	0	0
Axial Force (kips)	195.68	155.37
Shear Force (kips)	21.32	17.66

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi
Tie Yield Strength, Fyt:	40	ksi

Pier Design Data		
Depth	30.7	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 0.3' below grade		
Pier Diameter	3	ft
Rebar Quantity	7	
Rebar Size	8	
Clear Cover to Ties	3	in
Tie Size	4	
Tie Spacing		in

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Pier Section 2		
From 0.3' below grade to 2.3' below grade		
Pier Diameter	6	ft
Rebar Quantity	26	
Rebar Size	8	
Clear Cover to Ties	3	in
Tie Size	4	
Tie Spacing		in
Pier Section 3		
From 2.3' below grade to 30.7' below grade		
Pier Diameter	4	ft
Rebar Quantity	12	
Rebar Size	8	
Clear Cover to Ties	3	in
Tie Size	4	
Tie Spacing		in
Rebar Quantity		
Rebar Size		
Rebar Cage Diameter		in
Rebar Quantity		
Rebar Size		
Rebar Cage Diameter		in

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	15.27	15.27
Soil Safety Factor	13.97	16.86
Max Moment (kip-ft)	207.87	172.18
Rating	*9.5%*	*7.9%*
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	124.56	124.56
End Bearing (kips)	65.97	-
Weight of Concrete (kips)	50.30	37.73
Total Capacity (kips)	190.53	162.29
Axial (kips)	245.98	155.37
Rating	*129.1%*	*95.7%*
Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	15.55	14.37
Critical Moment (kip-ft)	207.77	171.37
Critical Moment Capacity	1073.90	664.63
Rating	*19.3%*	*25.8%*
Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	0.81	0.81
Critical Shear (kip)	21.31	17.65
Critical Shear Capacity	169.33	71.57
Rating	*12.6%*	*24.7%*

Soil Interaction Rating	**129.1%**
Structural Foundation Rating	**25.8%**

Min. Steel is assumed

Check Limitation	
N/A	☑
Load Z Normalization:	☐
Shear Design Options	
Check Shear along Depth of Pier:	☑
Utilize Shear-Friction Methodology:	☐
Override Critical Depth:	☐

Go to Soil Calculations

Soil Profile

Groundwater Depth	4	# of Layers	4

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	4	4	110	150	0	30	0.134	0.134				7	Cohesionless
2	4	8	4	45.8	87.6	0	30	0.124	0.124				3	Cohesionless
3	8	23	15	45.8	87.6	0	30	0.437	0.437				7	Cohesionless
4	23	30.7	7.7	45.8	87.6	0	30	0.714	0.714			7	9	Cohesionless

Version 4.2.0

TOWAIR Determination Results

*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results

Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.

Your Specifications

NAD83 Coordinates	
Latitude	38-29-45.9 north
Longitude	075-21-38.9 west
Measurements (Meters)	
Overall Structure Height (AGL)	60.7
Support Structure Height (AGL)	59.4
Site Elevation (AMSL)	11.3
Structure Type	
MTOWER - Monopole	

Tower Construction Notifications
Notify Tribes and Historic Preservation Officers of your plans to build a tower.

CLOSE WINDOW

PO Box 165
Fairview Village, PA 19409
Phone: 610.304.2024
www.dBmEng.com

DBM ENGINEERING, P.C.

April 7, 2026
Sam Averna
NETWORK TOWERS
120 Eastshore Drive, Suite 300
Glen Allen, VA 23059

Subject: **Electromagnetic Exposure Analysis**
"Millsboro" DE-T25.04
22311 Bald Branch Road
Millsboro, DE 19966
Latitude: N 38.495785° (NAD 83)
Longitude: W 75.361079° (NAD 83)

Mr. Averna:

I have received and executed your request that I perform an independent evaluation and certification of the anticipated radio-frequency emission levels for the T-Mobile telecommunications facility proposed at the above-referenced coordinates. The intention of this study is to verify compliance with Federal Communications Commission (hereafter "FCC") guidelines for human exposure limits to radio-frequency electromagnetic fields as per FCC Code of Federal Regulation 47 CFR 1.1307 and 1.1310 which incorporate ANSI standards C95.3. As a registered Professional Engineer, I am bound by a code of ethics to hold paramount the safety, health, and welfare of the public. All statements and calculations offered herein are made in an objective and truthful manner pursuant to that code.

Summary of Findings
The maximum exposure to radio-frequency emissions from the T-Mobile equipment will be complaint with FCC exposure limits. **Using upper limit assumptions for the T-Mobile equipment configuration, the cumulative radio-frequency exposure levels would be 0.04 % of the applicable FCC standard at all locations of public access.** The following charts specifically illustrate the anticipated exposure levels in areas surrounding the facility. All exposure limits have been calculated using the methods prescribed in FCC Office of Engineering and Technology (OET) Bulletin 65 "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio-frequency Electromagnetic Fields". The upper-limit conditions include maximum traffic loading, significant antenna down-tilt, simultaneous maximum pattern gain for all transmitting antennas, and constructive interference from ground reflection. T-Mobile will remain within their FCC governed limits for output power but for worst-case analysis purposes, the equipment theoretical output power is considered in this analysis. Additionally, signal attenuation due to environmental clutter such as buildings, trees, and roadways has been ignored which will overestimate actual power densities. Continuous exposure at 100% of FCC limit is

considered by the scientific community to be just as safe as continuous exposure at 1% of FCC limit.

Applicability of the National Telecommunications Act of 1996
This Act states that "no state or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio-frequency emissions to the extent that such facilities comply with the (Federal Communications) Commission's regulations concerning such emissions". As indicated above, this proposed facility will be in full compliance with the FCC's emissions standards and as such is beyond regulation in that regard.

Technical Parameters of Consideration
The calculation results presented are based on the equipment configuration information furnished by representatives of T-Mobile. Specifically, for this installation, T-Mobile plans to add up twelve (12) new panel-style antennas in three (3) arrays of four (4) antennas per array. The antenna centerline height will be 190' above grade with sector azimuths evenly spaced in the horizontal plane with respect to true north. Transmitting through these antennas will be four (4) LTE transmit paths in the 700 MHz band (per sector) at a cumulative maximum of 160 watts (per sector), up to four (4) LTE or 5GNR transmit paths in the 600 MHz band (per sector) at a cumulative maximum of 160 watts (per sector), up to sixty-four (64) LTE transmit paths in the 1900 MHz band (per sector) at a cumulative maximum of 120 watts (per sector), up to sixty-four (64) LTE transmit paths in the 2100 MHz band (per sector) at a cumulative maximum of 120 watts (per sector), and up to sixty-four (64) LTE and 5GNR transmit paths in the 2500 MHz band (per sector) at a cumulative maximum of 120 watts (per sector).

Co-location of Other Wireless Providers
In an attempt to halt the proliferation of telecommunications structures and preserve as much of their natural landscape as possible many municipalities have adopted telecommunications ordinances that specifically require structures to accommodate additional wireless providers from a structural standpoint. **From the standpoint of radio-frequency exposure**, the T-Mobile equipment would in no way preclude the use of this facility by other providers.

Background Information
In 1985, the FCC first adopted guidelines to be used for evaluating human exposure to RF emissions. The FCC revised and updated these guidelines on August 1, 1996, as a result of a rule-making proceeding initiated in 1993. The new guidelines incorporate limits for Maximum Permissible Exposure (MPE) in terms of electric and magnetic field strength and power density for transmitters operating at frequencies between 300 kHz and 100 GHz.

The FCC's MPE limits are based on exposure limits recommended by the National Council on Radiation Protection and Measurements (NCRP) and, over a wide range of frequencies, the exposure limits were developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI) to replace the 1982 ANSI guidelines. Limits for localized absorption are based on recommendations of both ANSI/IEEE and NCRP.

The FCC's limits, and the NCRP and ANSI/IEEE limits on which they are based, are derived from exposure criteria quantified in terms of specific absorption rate (SAR). The basis for these limits is a whole-body averaged SAR threshold level of 4 watts per kilogram (4 W/kg), as averaged over the entire mass of the body, above which expert organizations have determined that potentially hazardous exposures may occur. The MPE limits are derived by incorporating safety factors that lead, in some cases, to limits that are more conservative than the limits originally adopted by the FCC in 1985. Where more conservative limits exist, they do not arise from a fundamental change in the RF safety criteria for whole-body averaged SAR, but from a precautionary desire to protect subgroups of the general population who, potentially, may be more at risk.

The FCC exposure limits are also based on data showing that the human body absorbs RF energy at some frequencies more efficiently than at others. The most restrictive limits occur in the frequency range of 30-300 MHz where whole-body absorption of RF energy by human beings is most efficient. At other frequencies, whole-body absorption is less efficient, and consequently, the MPE limits are less restrictive.

MPE limits are defined in terms of power density (units of milliwatts per centimeter squared: mW/cm^2), electric field strength (units of volts per meter: V/m) and magnetic field strength (units of amperes per meter: A/m). The far-field of a transmitting antenna is where the electric field vector (E), the magnetic field vector (H), and the direction of propagation can be considered to be all mutually orthogonal ("plane-wave" conditions).

Occupational / controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits, as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

General population / uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be

considered under this category when exposure is not employment-related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area. **In the case of this study, the general population exposure limits have been applied as they are the more conservative set of standards.**

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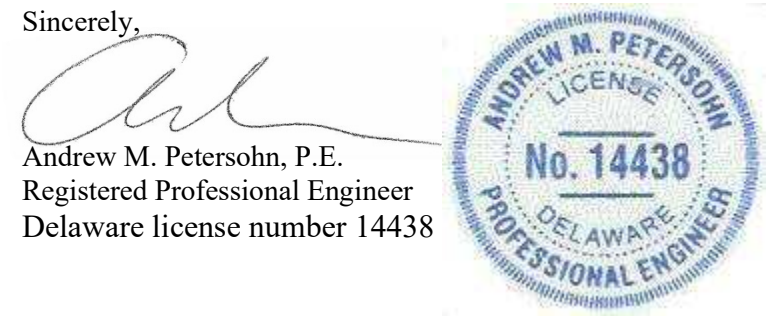
Additional Remarks

The radio-frequency emission levels from T-Mobile and other PCS and Cellular communications base stations are similar to that of other two-way communications systems like those used by police, fire and ambulance personnel. In contrast, commercial broadcast systems like television and radio often transmit at power levels ten times greater or more than the systems discussed above.

The biological effects on humans of non-ionizing radio-frequency exposure have been studied extensively now for decades. There have been thousands of reports produced by government agencies, universities, and private research groups that support the standards adopted by the FCC. **To date, there have been no credible studies conducted whose results showed evidence of any adverse health effects at the above exposure limits.**

Sincerely,



Andrew M. Petersohn, P.E.
Registered Professional Engineer
Delaware license number 14438

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DBM ENGINEERING, P.C.

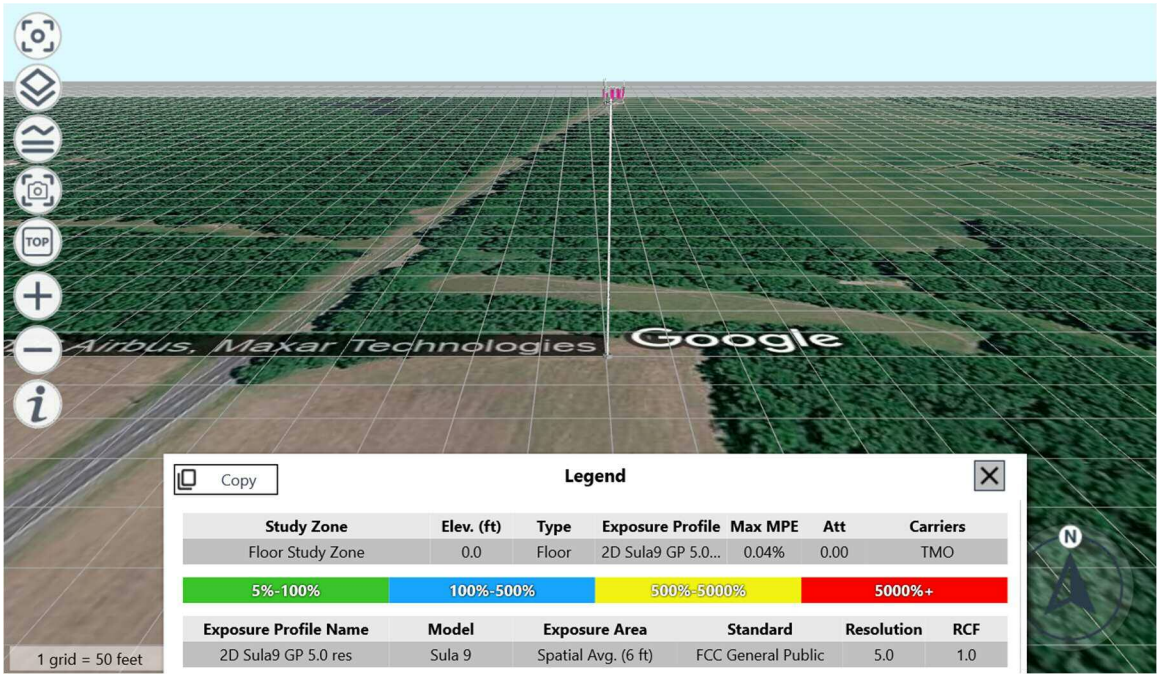

Figure-1 – modeled ground level cumulative exposure surrounding the proposed telecommunications facility expressed in percentage of the applicable FCC standard

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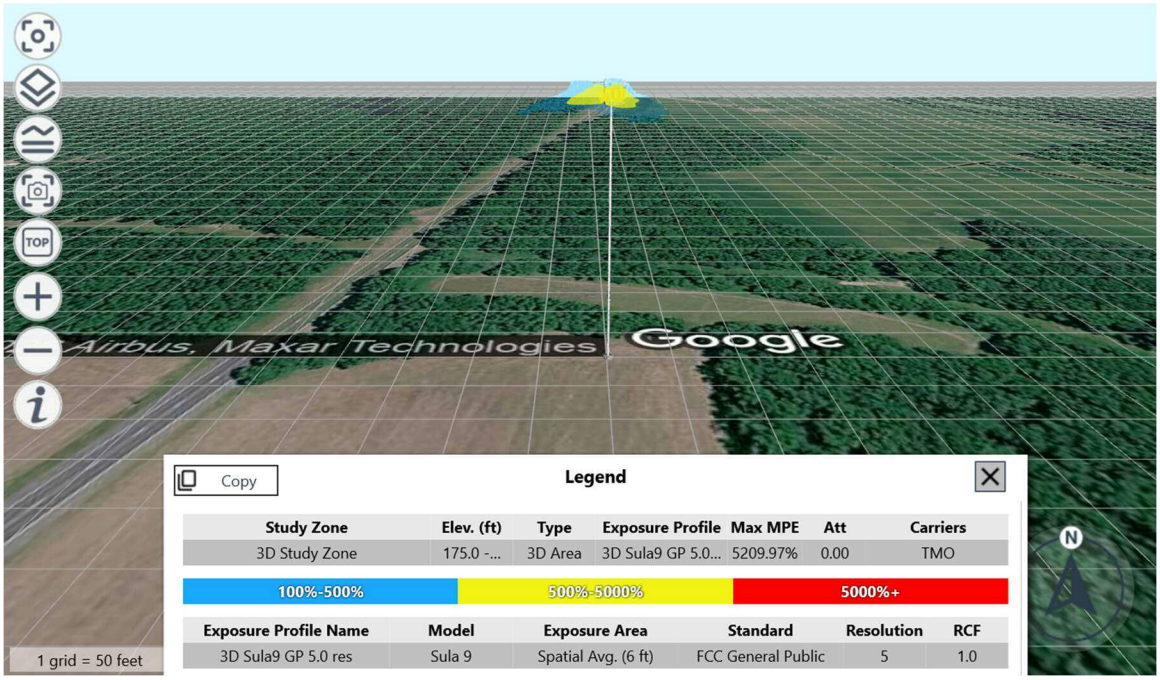


Figure-2 – 3D modeled cumulative exposure surrounding the proposed telecommunications facility expressed in percentage of the applicable FCC standard

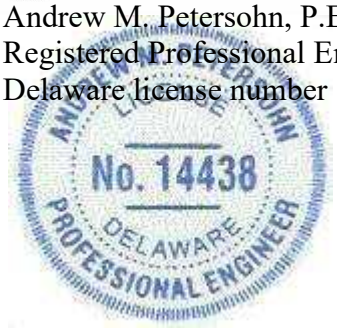
DECLARATION OF ENGINEER

Andrew M. Petersohn, P.E., hereby states that he is a graduate telecommunications consulting engineer possessing Master and Bachelor Degrees in Electrical Engineering from Lehigh University (2005 and 1999, respectively). He has been retained by representatives of Network Towers to perform an electromagnetic exposure analysis for a proposed telecommunications facility.

Mr. Petersohn asserts that the calculations and/or measurements described in this report were made personally and in a truthful and objective manner. Mr. Petersohn is a Registered Professional Engineer licensed in Pennsylvania, Delaware, Maryland, Virginia, New York, Florida and New Jersey. He has over two decades of engineering experience in the field of wireless communications. Mr. Petersohn is an active member of the National Society of Professional Engineers (NSPE) and the Pennsylvania Society of Professional Engineers (PSPE). Mr. Petersohn further states that all facts and statements contained in the foregoing document are true and accurate to the best of his knowledge.



Andrew M. Petersohn, P.E.
Registered Professional Engineer
Delaware license number 14438



Executed this the 7th day of April, 2026.

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TOTALLY COMMITTED.

Oscar Posada
Network Towers II, LLC
3095 Marshalee Drive, Suite 300
Elkridge, MD 21075

April 2, 2026

Subject: Certification of Code Compliance for Proposed Telecommunications Tower
NB+C Project No. 101189

Dear Oscar Posada,

NB+C Engineering Services, LLC (NB+C) is pleased to submit this certification letter outlining the approximate geometry and design parameters for a proposed telecommunications structure. It is our understanding that Network Towers II, LLC intends to build a new wireless telecommunications facility at the below-mentioned site to include a new monopole tower and fenced compound as defined in the preliminary construction drawings by The Crossroads Group, LLC dated March 24, 2026.

This letter certifies that the tower will be designed and manufactured to meet all structural requirements and safety specifications outlined in the codes and standards listed below as well as local code requirements. Please see below for tower site information, approximate geometry, design parameters, and design loading summary:

Tower Site Information

Tower Owner:	Network Towers II
Site Name:	Millsboro
Site ID:	DE-T25.04
Lat:	38.495785°
Long:	-75.361079°
Address:	22311 Bald Branch Road, Millsboro, DE, 19966, Sussex County

Approximate Monopole Tower Geometry

Tower Height:	195 ft
Base Diameter:	6 ft
Anchor Rod Diameter:	2-1/4”
Foundation Type:	Drilled Shaft or Pad-Pier/Single Mat
# of Design Carriers:	4

Tower Site Design Parameters

Building Code:	2021 International Building Code (2021 IBC)
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	C
Topographic Cat:	1
Ice Thickness:	1.0 in
Wind Speed w/ Ice:	40 mph
Serviceability:	Must meet serviceability requirements outlined in TIA-222-H Section 2.8 applicable to the specified tower type

Tower Design Loading

Antenna Centerline Elevation (ft)	Appurtenance Loading	Feed Lines	Carrier	Effective Projected Area (EPA)	Weight
190.0	Total Design EPA	(4) 1-5/8	T-Mobile	20,000 in^2	5,000 lbs
178.0	Total Design EPA	(4) 1-5/8	-	34,000 in^2	5,000 lbs
166.0	Total Design EPA	(4) 1-5/8	-	25,000 in^2	4,500 lbs
154.0	Total Design EPA	(4) 1-5/8	-	10,000 in^2	3,000 lbs

Note:
1) Feedlines to be installed inside the pole shaft.

Should you have any questions or require additional information, please feel free to contact us.

Respectfully Prepared by: Ross Alexander, PE

NB&C ENGINEERING SERVICES, LLC

Krupakaran Kolandaivelu, PE
Vice President - Engineering
DE PE License No. 16876



4/2/2026

PO Box 165
Fairview Village, PA 19409
Phone: 610.304.2024
www.dBmEng.com

DBM ENGINEERING, P.C.

April 7, 2026
Sam Averna
NETWORK TOWERS
120 Eastshore Drive, Suite 300
Glen Allen, VA 23059

Subject: **Radio Frequency Design Analysis**
"Millsboro" DE-T25.04
22311 Bald Branch Road
Millsboro, DE 19966
Latitude: N 38.495785° (NAD 83)
Longitude: W 75.361079° (NAD 83)

Mr. Averna:

I have received and executed the request that I perform an independent evaluation and design review for the T-Mobile telecommunications facility proposed at the above-referenced address. The intention of this study is to provide an objective, professional opinion regarding the proposed facilities from a Radio Frequency design perspective. Specifically, how the site complements the existing network and what service objectives it fulfills. As a registered Professional Engineer, I am bound by a code of ethics to hold paramount the safety, health, and welfare of the public. All statements and calculations offered herein are made in an objective and truthful manner pursuant to that code.

Summary of Findings
In my professional opinion, the proposed facility is extremely well suited to provide enhanced wireless service in the southern portions of Sussex County that suffer from unreliable service. Currently, the nearby T-Mobile facilities do not provide adequate coverage for the targeted geography resulting in service issues. The proposed facility is the only feasible alternative that will satisfy the design objective for affected areas. The design, location, and proposed antenna height is the least intrusive means of providing adequate service for T-Mobile subscribers in the targeted geography. The proposed antenna height is the absolute minimum acceptable to achieve a high percentage of the site's design goals.

Sincerely,



Andrew M. Petersohn, P.E.
Registered Professional Engineer
Delaware license number 14438

Existing T-Mobile Coverage

The in-building commercial (green), in-building residential (yellow), in-vehicle (orange), and on-street (blue) coverage footprints, at 2100 MHz, from the above existing facilities are illustrated below in figure 1. There exists a significant gap in reliable coverage for T-Mobile subscribers in southern Sussex County along and around the Rt. 26 corridor between Rt. 24 and the Maryland Border inhibiting dependable service to T-Mobile subscribers living, working, traveling and recreating throughout the area.

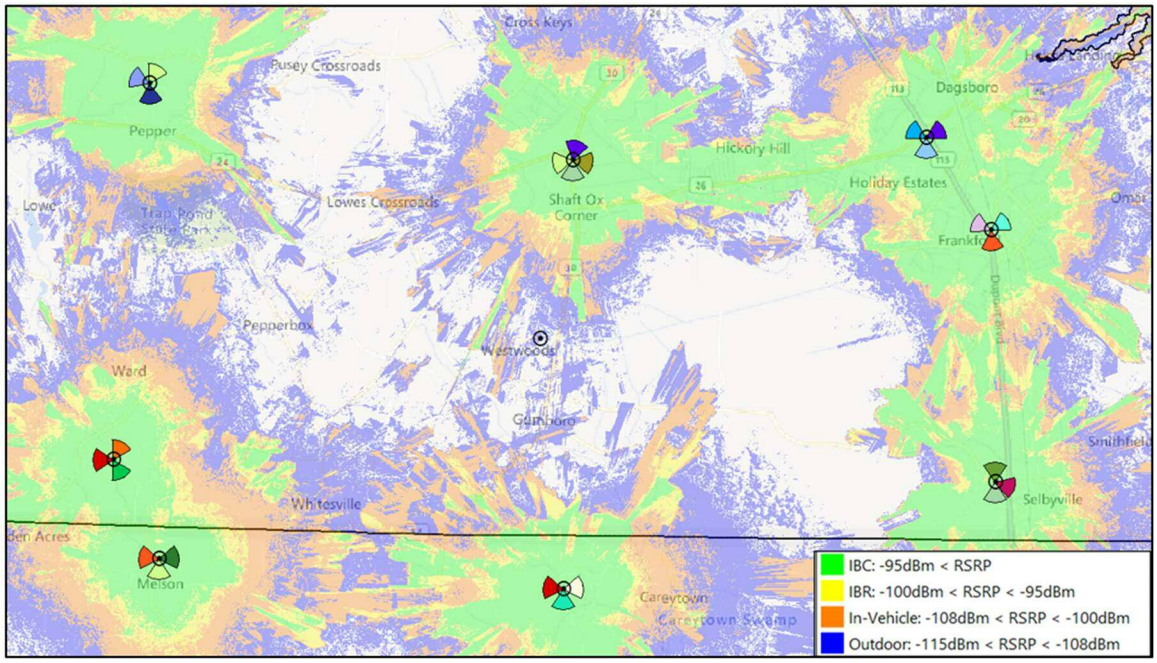

Figure 1 – Existing Coverage

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Proposed T-Mobile Coverage Improvement

Figure 2 below illustrates the T-Mobile in-building commercial (green), in-building residential (yellow), in-vehicle (orange), and on-street (blue) coverage footprints, at 2100 MHz, with the proposed facility activated. The proposed facility will clearly remedy the existing coverage issues in the aforementioned areas of need enabling reliable in-building and in-vehicle service for the T-Mobile subscribers residing, working or traveling in the area. Any decrease in the height of the proposed facility will significantly diminish the effectiveness of the proposed site.

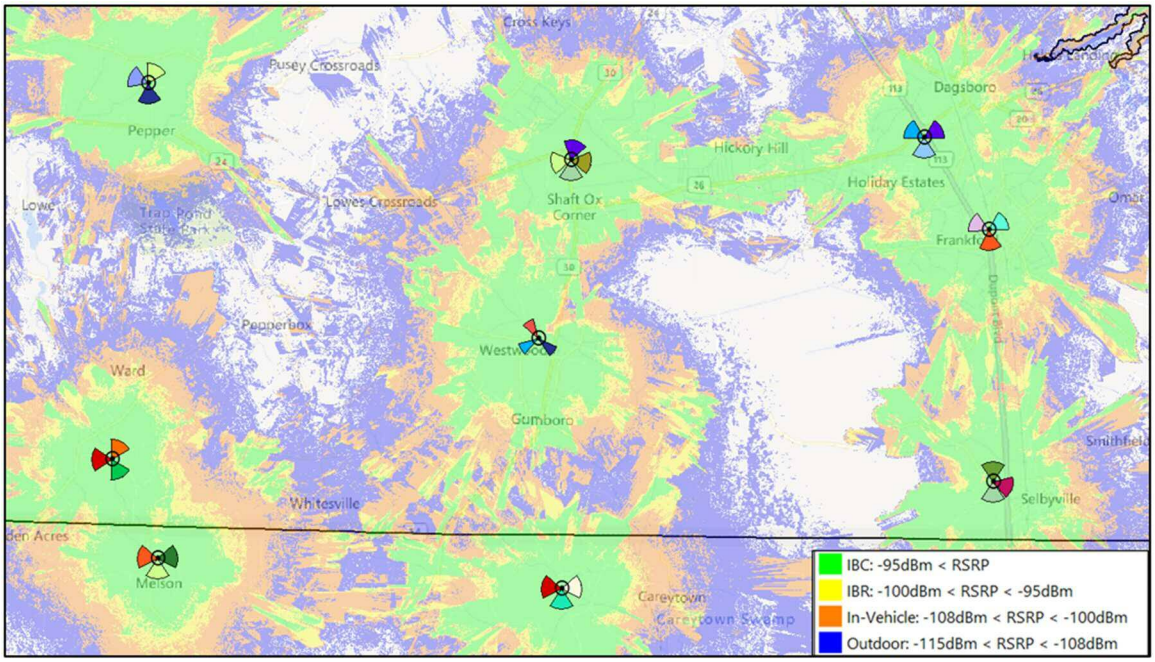

Figure 2 – Proposed Coverage

Reliable Service

The term "reliable" is used to describe areas where a T-Mobile subscriber has the ability to place, receive, and maintain a phone call. Additionally, the concept of reliable service extends beyond just voice communication; access to the data network with a high probability of success and adequate throughput is now a pre-requisite to reliable service. Reliable service provided from a facility is affected by many factors including surrounding topography, clutter types, foliage, and subscriber loading during the site's hour of heaviest use, its "busy hour". Because the network must maintain reliability under all conditions, these factors are taken into consideration when designing a new facility.

Wireless Substitution

According to the CDC[1] 78.0% of adults and 86.9% of children lived in wireless-only households during the second half of 2024. The increase in the prevalence of adults living in wireless-only households is a continuation of the increasing trend that has been seen over time. Demographic subgroups with the highest percentages of wireless-only adults include adults aged 25–29 (88.9%) and 35-44 (88.3%), and adults renting their homes (88.1%) As wireless substitution continues to spread, availability of in-building wireless service, both data and voice, becomes increasingly important.

Emergency Services Implications

Wireless devices are widely used by municipal emergency services for voice and data services including those that impact public safety. Additionally enhanced 911 (E911) services, which allow a mobile caller to be located by the dispatch center, are dependent on an adequate service level to provide help in an emergency. It is estimated that approximately 80% of 911 calls originate from mobile devices[2]. In the service challenged areas, an unreliable level of wireless service could, in many cases, negatively affect the ability of an individual in need of emergency services who is dialing 911.

[1] https://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless202506.pdf
[2] https://www.nena.org/page/911Statistics

Alternate Candidate Discussion

It is T-Mobile policy and overwhelming preference to utilize existing, tall structures as antenna support platforms when their location, available attachment height, and structural capacity are congruent with T-Mobile's network requirements. This is because the co-location process is almost always less expensive, faster to market, and less involved from a permitting perspective than the construction of a new tower structure. In this case, there were no other existing tall structures within the area of technical need that would satisfy the T-Mobile design objectives.

Technical Parameters of Consideration

The above calculations were based on the equipment configuration information furnished by representatives of Network Towers. Specifically, for this installation, T-Mobile plans to add up twelve (12) new panel-style antennas in three (3) arrays of four (4) antennas per array. The antenna centerline height will be 190' above grade with sector azimuths evenly spaced in the horizontal plane with respect to true north. Transmitting through these antennas will be four (4) LTE transmit paths in the 700 MHz band (per sector) at a cumulative maximum of 160 watts (per sector), up to four (4) LTE or 5GNR transmit paths in the 600 MHz band (per sector) at a cumulative maximum of 160 watts (per sector), up to sixty-four (64) LTE transmit paths in the 1900 MHz band (per sector) at a cumulative maximum of 120 watts (per sector), up to sixty-four (64) LTE transmit paths in the 2100 MHz band (per sector) at a cumulative maximum of 120 watts (per sector), and up to sixty-four (64) LTE and 5GNR transmit paths in the 2500 MHz band (per sector) at a cumulative maximum of 120 watts (per sector).

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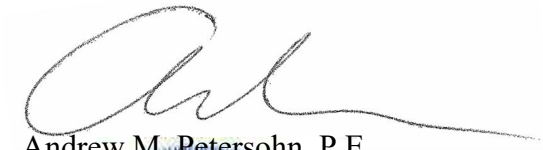
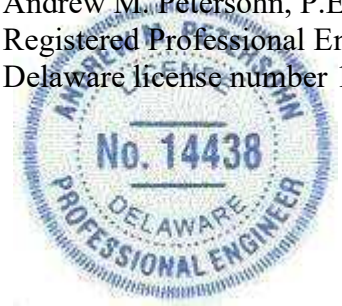
DECLARATION OF ENGINEER

Andrew M. Petersohn, P.E., hereby states that he is a graduate telecommunications consulting engineer possessing Master and Bachelor Degrees in Electrical Engineering from Lehigh University (2005 and 1999, respectively). His corporation, dBm Engineering, P.C., has been retained by representatives of Network Towers to perform a radio frequency design analysis for a proposed telecommunications facility.

Mr. Petersohn also asserts that the calculations and/or measurements described in this report were made personally and in a truthful and objective manner. Mr. Petersohn is a Registered Professional Engineer licensed in Pennsylvania, Delaware, Maryland, Virginia, New York, Florida and New Jersey. He has over two decades of engineering experience in the field of wireless communications. Mr. Petersohn is an active member of the National Society of Professional Engineers (NSPE) and the Pennsylvania Society of Professional Engineers (PSPE). Mr. Petersohn further states that all facts and statements contained in the foregoing document are true and accurate to the best of his knowledge. He believes, under penalty of perjury, the foregoing to be correct.



Andrew M. Petersohn, P.E.
Registered Professional Engineer
Delaware license number 14438



Executed this the 7th day of April, 2026.

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SUSSEX COUNTY
DELAWARE

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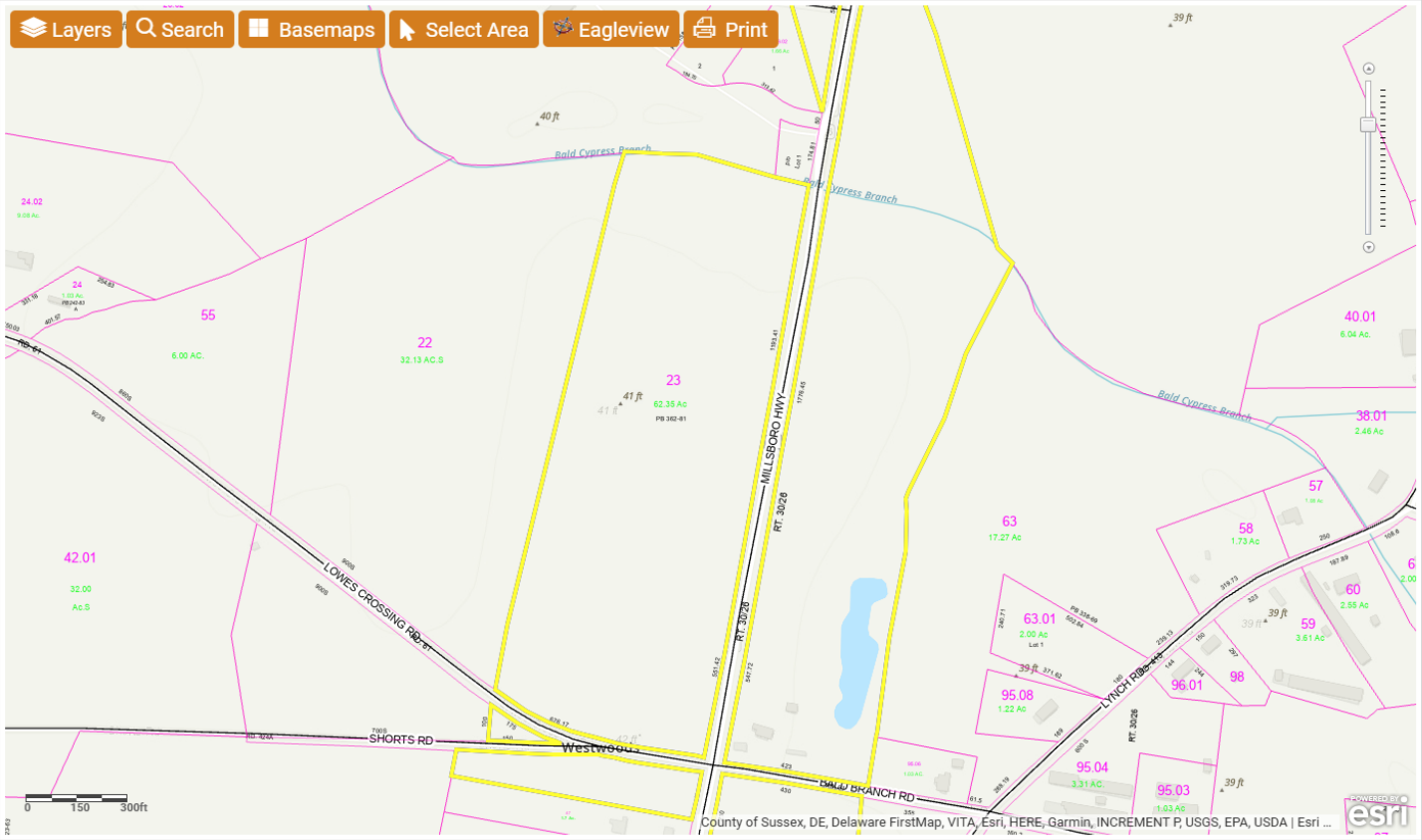
Layers | Search | Basemaps | Select Area | Eagleview | Print



Eagleview | Search Results

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1) 333-7.00-23.00 Zoom

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FULLNAME	S J GROWERS LLC
Second_Owner_Name	
MAILINGADDRESS	20512 CAREY'S CAMP ROAD
CITY	MILLSBORO
STATE	DE
a_account	
DESCRIPTION	HWY MILLSBORO TO
DESCRIPTION2	GUMBORO
DESCRIPTION3	T#41645
LUC	103
SCHOOL	1
MUNI	00
CAP	0
APRBLDG	87500
APRLAND	66000
PINWASSEMENTUNIT	333-7.00-23.00
PIN	333-7.00-23.00

Selected Features (1)

Clear Selected

SUSSEX COUNTY
DELAWARE

Help



Eagleview | Search Results

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CAP	0
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Clear Selected


CONNECTEXPLORER
Search
Search by SUSSEXPARCELS
333-7.00-23.00
Search results (1)
Options
333-7.00-23.00
Workspaces
© 2026 Microsoft Corporation © 2026 Maxar ©CNES (2026) Distribution Airbus DS
200 ft
50 m
map: Aerial
Mar 2025 - Mar 2025

Criteria for a Variance: (Please provide a written statement regarding each criteria).

*You shall demonstrate to the Board of Adjustment that the property meets **all** of the following criteria for a Variance to be granted.*

In granting any variance the Board may attach such reasonable conditions and safeguards as it may deem necessary to implement the purposes of the Zoning Ordinance or Code. The Board is empowered in no case, however, to grant a variance in the use of land or structures thereon.

1. Uniqueness of property:

That there are unique physical circumstances or conditions, including irregularity, narrowness, or shallowness of lot size or shape, or exceptional topographical or other physical conditions peculiar to the particular property and that the exceptional practical difficulty is due to such conditions and not to circumstances or conditions generally created by the provisions of the Zoning Ordinance or Code in the neighborhood or district in which the property is located.

See submitted cover letter and narrative.

2. Cannot otherwise be developed:

That because of such physical circumstances or conditions, there is no possibility that the property can be developed in strict conformity with the provisions of the Zoning Ordinance or Code and that the authorization of a variance is therefore necessary to enable the reasonable use of the property.

See submitted cover letter and narrative.

3. Not created by the applicant:

That such exceptional practical difficulty has not been created by the appellant.

See submitted cover letter and narrative.

4. Will not alter the essential character of the neighborhood:

That the variance, if authorized, will not alter the essential character of the neighborhood or district in which the property is located and nor substantially or permanently impair the appropriate use of development of adjacent property, nor be detrimental to the public welfare.

See submitted cover letter and narrative.

5. Minimum variance:

That the variance, if authorized, will represent the minimum variance that will afford relief and will represent the least modification possible of the regulation in issue.

See submitted cover letter and narrative.

Criteria for a Special Use Exception: (Please provide a written statement regarding each criteria)

*You shall demonstrate to the Board of Adjustment that the property meets **all** of the following criteria for a Special Use Exception to be granted.*

1. Such exception will not substantially affect adversely the uses of adjacent and neighboring property.

The presence of a tower at the proposed location has no bearing on neighboring property or adjacent uses. Conversely, it will bring much needed coverage and capacity to the community in and travelers through the area.

---

2. Any other requirements which apply to a specific type of special use exception as required by the Sussex County Code. (Ex. Time limitations – 5 year maximum)

See submitted application cover letter and narrative along with supporting documents.

Basis for Appeal: (Please provide a written statement regarding reason for appeal)

Check List for Applications

The following shall be submitted with the application

- ☐ • **Completed Application**
- ☐ • **Provide a survey of the property** (Variance)
  - Survey shall show the location of building(s), building setbacks, stairs, deck, etc.
  - Survey shall show distances from property lines to buildings, stairs, deck, etc.
  - Survey shall be signed and sealed by a Licensed Surveyor.
- ☐ • **Provide a Site Plan or survey of the property** (Special Use Exception)
- ☐ • **Provide relevant Application Fee (please refer to fees effective July 1, 2022)**
- ☐ • **Provide written response to criteria for Variance or Special Use Exception** (may be on a separate document if not enough room on the form)
- ☐ • **Copy of Receipt (staff)**
- ☐ • **Optional - Additional information for the Board to consider** (ex. photos, letters from neighbors, etc.)
- ☐ • **Please be aware that Public Notice will be sent to property owners within 200 feet of the subject site and County staff will come out to the subject site, take photos and place a sign on the site stating the date and time of the Public Hearing for the application.**

Please be advised that the decision of the Board of Adjustment is only final when the written decision is filed with the Board's secretary. To determine whether the written decision has been filed, you may call the Planning & Zoning Department at 302-855-7878. The written decision is generally completed within thirty (30) to sixty (60) days following the Board's vote on the application or appeal. Please include the case number when calling about the decision.

Please be advised that any action taken in reliance of the Board's decision prior to the filing of the written decision and the expiration of any applicable appeal period is taken at the Property Owner's Risk.

The undersigned acknowledges that that he or she has read the application completely and that if the appellant / applicant is unable to convince the Board that the standards for granting relief have been met, the appeal / application will be denied.

Signature of Owner/Agent/Attorney

Samuel Averna _____ Date: 4/23/26

For office use only:

Date Submitted: _____ Fee: Check #: _____

Staff accepting application: _____ Application & Case #: _____

Location of property: _____

_____

Subdivision: _____ Lot#: _____ Block#: _____

Date of Hearing: _____ Decision of Board: _____

Sam Averna
Land Use Manager
Network Towers
120 Eastshore Drive, Suite 300
Glen Allen, VA 23059

April 23, 2026

Jamie Whitehouse
Sussex County Planning and Zoning Department
2 The Circle
P.O. Box 417
Georgetown, DE 19947

RE: Special Use Exception Permit and Variance Application for New Wireless Telecommunications Facility
Parcel Address: 22311 Bald Branch Road, Millsboro, DE 19966
Parcel #: 333-7.00-23.00

Dear Mr. Whitehouse:

The application filed on behalf of the applicant, Network Towers, with respect to its proposed telecommunications facility (monopole tower) on the above referenced property:

- Special Use Exception Permit & Variance Application;
- Applicant narrative and associated filing materials;

If you have any questions or require any additional information, please contact me at (571) 340-5493.

Sincerely,

Sam Averna

Land Use Manager
Network Towers

NETWORK TOWERS
SITE NAME: Millsboro
SPECIAL USE EXCEPTION – APPLICANT NARRATIVE

Request

Network Towers (the "Applicant") proposes to construct and operate a 199-foot monopole wireless telecommunications tower on a 61.64-acre parcel located at 22311 Bald Branch Road, Millsboro, DE 19966 ("Property"). The Property is owned by S J Growers, LLC. T-Mobile ("TMO") has a need for improved coverage in this area and will be the anchor tenant on the tower. However, the tower will be built for up to three (3) additional carriers.

Design and Compatibility

The proposed tower will have an overall structure height of 199 feet (195-foot monopole tower with a 4 foot lightning rod), which will accommodate TMO and at least three (3) other collocators. The overall lease area will be 100' x 100' and the fenced in compound will be 60' x 60'. The tower and associated ground equipment will be compatible with the surrounding area for the following reasons:

- The tower is strategically sited adjacent to the mature wooded area on the property to reduce visibility from adjacent properties;
- The tower will be located as far back from Millsboro Hwy as possible (240'+) to reduce visibility and meet jurisdictional setback requirements;
- The ground equipment will be enclosed by a security fence and surrounded by existing mature trees;
- The facility will be unmanned and will only be visited approximately once a month by technicians;
- The facility will not emit any odor, fumes or glare;
- The noises emitted from the ground equipment are not louder than normal residential HVAC equipment.

Height Variance

As part of this Special Use Exception application, the Applicant respectfully requests a 49-foot variance from the 150-foot maximum allowable tower height. The proposed height of 199 feet is essential to achieving the radio-frequency coverage objectives required by TMO. This additional height is necessary to ensure reliable service, meet system performance standards, and resolve existing coverage deficiencies that cannot be remedied with a shorter structure.

Furthermore, the requested height is critical for accommodating the future wireless needs of at least two additional carriers, as required by Ordinance. Designing the tower with adequate vertical space now will allow

additional providers to co-locate on the structure at optimal elevations, promoting shared infrastructure and minimizing the need for duplicative towers in the area.

Granting this variance will also reduce the overall number of telecommunications structures required within the community. A shorter tower would not provide the needed propagation coverage for TMO or future carriers, thereby necessitating the construction of multiple lower-height facilities to achieve equivalent service. By allowing a single 199-foot monopole, the County can avoid unnecessary visual impacts, construction activity, and land disturbance associated with additional towers.

For these reasons, the applicant respectfully maintains that the requested variance represents the most practical and appropriate solution to meeting current and future wireless service needs while minimizing long-term infrastructure impacts within the community.

Purpose of Tower

In today's society, reliable wireless service is a necessity for residents, students, businesses and emergency personnel. The proposed tower will provide the infrastructure needed for TMO, as well as multiple other wireless carriers, to expand and improve their networks in this area of Sussex County. This reliable wireless service will enhance and protect the local economy and complement economic development by (1) providing citizens the opportunity to work and shop from home (2) allowing students the ability to utilize the latest online educational opportunities while at home (3) helping nearby businesses to be more effective and efficient in their everyday operations and (4) providing dependable wireless service to citizens travelling and emergency services operating on roadways in the area. This tower will specifically provide the latest wireless technologies to the following:

- Those traveling on Millsboro Hwy, Lowes Crossing Road, and surrounding roads;
- Those working and farming in this area of Sussex County;
- Those visiting nearby businesses;
- Those attending, working, and visiting Gumboro Community Center, Splash Bay Shore Day School, West Woods Methodist Episcopal Church, and surrounding businesses;
- Those living in the Greater Westwoods and Gumboro region.

ORDINANCE REQUIREMENTS

The subject property is zoned AR-1, Agricultural Residential District. In accordance with the Zoning Ordinance, commercial communications towers and antennas are permitted in the AR-1 District with an approved Special Use Exception. Commercial Communication Towers and Antennas are governed within the Sussex County Zoning Ordinance, by Article XXV, Section 115-194.2. The applicable requirements in these sections are as follows:

§115-194.2 Commercial Communications Towers and Antennas

A. Any new freestanding commercial communications tower or antenna or monopole in any residential district requires a minimum lot size of one acre and shall require a special use exception. In nonresidential districts, no minimum lot size shall be required nor shall a special use exception be required, except that if any new freestanding commercial communications tower or antenna or monopole is to be erected within 500 feet of any residentially zoned lot, improved or which can be improved with a residential dwelling unit, a special use exception shall be required.

Duly noted. The subject parcel (333-7.00-23.00) exceeds the minimum lot size requirement and is 61.64-acres.

B. Collocation of telecommunications equipment on existing freestanding towers, antennas, monopoles, buildings, water towers/tanks and other similar structures shall be permitted without special use exception, subject to site plan review by the Planning and Zoning Commission.

Not applicable. There is no existing infrastructure within the area that can accommodate colocation or meet TMO's coverage objectives. The closest structure is a 170' self support tower at the Gumboro Volunteer Fire Department at 37030 Millsboro Hwy. TMO did look at the possibility of collocating on this tower; however, the tower cannot structurally handle any additional equipment. A structural analysis was performed in December, 2021 that showed that the tower was failing at 129% with equipment modifications from the carrier that is currently on the tower. Adding a whole new carrier is simply not possible. Therefore, a new monopole is required and is being proposed to achieve the necessary service coverage.

C. All applicants for special use exceptions shall submit a site plan and appropriate documentation demonstrating compliance with the applicable conditions listed in this section.

Please see the submitted Zoning Drawings (ZD's) along with all other applicable application documents for this Special Use Exception application.

D. The applicant shall submit to the Board of Adjustment documentation showing that existing structures within a two-mile radius of the proposed location are not available for collocation. Any application for a new commercial communications tower or antenna or monopole shall include documentation substantiating the need for such tower at the proposed location.

Please see the 2-mile collocation map showing that the only existing structure within a 2-mile radius is the 170' self-support tower at the Gumboro Fire Department. As previously noted, this tower is not structurally capable of handling a new colocator.

E. All new towers or antennas or monopoles shall be designed to accommodate at least two additional PCS/cellular platforms.

TMO will be the anchor tenant on the tower, but the tower is designed to accommodate three (3) additional collocators. Please see sheet Z-3 of the submitted Zoning Drawings (ZD's).

F. All new freestanding towers or antennas or monopoles shall be set back from adjoining property lines by a minimum of 1/3 the height of the tower, antenna or monopole.

The tower will far exceed the required setbacks for monopole towers. Please see the required and proposed setbacks below:

Setback	*Required*	*Proposed*
Front	*66.3'*	*241.9'*
Right Side	*66.3'*	*845.9'*
Left Side	*66.3'*	*415.4'*
Rear	*66.3'*	*277.7'*
Off-Site Residential Structure	*N/A*	*1,517.3'*

G. Pad sites, ground equipment structures and guy wires shall be surrounded by a minimum six-foot tall fence.

The proposed 60'x60' compound will be enclosed in a 6' tall chain-link fence, with 1' of barbed wire (7' total).

H. All towers, antennas, or monopoles shall have warning lights. Such lights shall be placed every 50 feet of elevation. The tower, antenna or monopole shall meet all applicable requirements of the Federal Communications Commission and the Federal Aviation Administration.

Although the proposed site does not require lighting per FAA requirements, the applicant will adhere to the lighting requirement of this code section by installing warning lights every 50' of vertical elevation on the tower. Please see submitted Zoning Drawings (ZD's).

I. Any tower, antenna or monopole that is not operated for a continuous period of six months shall be considered abandoned, and the owner of such tower or antenna or monopole shall remove the same within 90 days of a receipt of notice from the county notifying the owner of such abandonment. If such tower is not removed within 90 days, the county may remove the tower or antenna or monopole at the owner's expense.

Duly noted.

J. No signs shall be permitted on any commercial antenna or towers or monopole. Any blinking or rotating lights thereon shall be screened so as not to throw their light below the horizontal plane upon which they are located, except as required by the Federal Aviation Administration.

The only signage being proposed is required by the FCC and no lights will be installed aside from those required by this ordinance.

Variance Criteria

1. Uniqueness of Property:
   That there are unique physical circumstances or conditions, including irregularity, narrowness, or shallowness of lot size or shape, or exceptional topographical or other physical conditions peculiar to the particular property and that the exceptional practical difficulty is due to such conditions and not to circumstances or conditions generally created by the provisions of the Zoning Ordinance or Code in the neighborhood or district in which the property is located.

The requested Variance is for an additional 49' of height; however, the uniqueness/physical characteristics of the property do necessitate the need for a taller tower. Specifically, this tower will be a handoff site to the closest existing tower to the south, which is also 199'. Having both towers at the same height and ground elevation is important for effective operation and call handoff. Furthermore, the existing mature trees on the property and in the general area range between 60-80' in height. Having the tower at 199' will allow not only TMO to propagate over the trees, but it will also allow the second and third colocation positions at 180' and 170' to propagate effectively. Permitting the tower at 199' will allow a one-tower solution for all three carriers to operate effectively in this area.

2. Cannot otherwise be developed:
   That because of such physical circumstances or conditions, there is no possibility that the property can be developed in strict conformity with the provisions of the Zoning Ordinance or Code and that the authorization of a variance is therefore necessary to enable the reasonable use of the property.

Due to the strict physical circumstances noted above, there is no possibility that the property can be developed in strict conformity with the provisions of the Zoning Ordinance. There is nowhere else on this property, or any other property in the area, that could achieve TMO's needed coverage objective with a 150' tower. The Zoning Ordinance requires an applicant to build a tower for a minimum of 3 carriers; therefore, the bottom two carriers would not be able to achieve their future objectives either. Simply stated, in an area that is this rural and the surrounding towers are 3+ miles apart, taller towers and needed to cover larger areas.

3. Not created by the applicant:
   That such exceptional practical difficulty has not been created by the appellant.

The exceptional practical difficulty and resulting hardship were not created by the applicant. This area lacks cell coverage and it lacks the existing infrastructure to provide colocation opportunities. In order to achieve

TMO's coverage objective and to comply with the Zoning Ordinance's requirement to construct a tower with colocation potential for at least two additional carriers, a 49' height variance is required.

4. Will not alter the essential character of the neighborhood:
   That the variance, if authorized, will not alter the essential character of the neighborhood or district in which the property is located and nor substantially or permanently impair the appropriate use of development of adjacent property, nor be detrimental to the public welfare.

The proposed 199-foot telecommunications tower will not alter the essential character of the neighborhood or district. The surrounding area is predominantly large rural or semi-rural parcels, and the tower site is positioned deep within the property, far removed from public roadways and residential structures. Its placement, setbacks, and screening ensure that the facility will not interfere with existing land uses or the future development potential of nearby parcels.

The tower is designed for minimal visual and physical impact, with a monopole profile, neutral finish, and a compact fenced compound. No noise, traffic, lighting, or emissions will be generated that could affect nearby properties or public use. The facility operates passively and will be unmanned, visited only periodically for maintenance.

Additionally, the improved wireless coverage provided by the proposed height will enhance public safety, emergency communications, and general connectivity within the region. For these reasons, the requested height variance will not impair adjacent properties nor be detrimental to the public welfare, will maintain the established character of the surrounding district, and benefit the public by providing the much needed coverage to this area.

5. Minimum Variance:
   That the variance, if authorized, will represent the minimum variance that will afford relief and will represent the least modification possible of the regulation in issue.

The requested 49-foot variance represents the minimum relief necessary for the applicant to achieve T-Mobile's coverage objectives as well as to accommodate future carrier needs. A tower constructed at a shorter height would be unable to deliver the required propagation or reliability and would ultimately necessitate the installation of additional infrastructure within the surrounding area. Approving the requested height therefore reduces the long-term proliferation of towers while ensuring strong, dependable wireless coverage for the community.


NETWORK
TOWERS
AN NB+C COMPANY


NETWORK
TOWERS
AN NB+C COMPANY

SITE INFORMATION

SITE NAME:	MILLSBORO
SITE IDENTIFIER:	DE–T25.04
SITE ADDRESS:	22311 BALD BRANCH ROAD MILLSBORO, DE 19966
COUNTY:	SUSSEX COUNTY
JURISDICTION:	SUSSEX COUNTY
PARCEL #:	333–7.00–23.00
ZONING:	AR–1 AGRICULTURAL–RESIDENTIAL
OCCUPANCY:	UNMANNED
CONSTRUCTION TYPE:	RAW LAND
PROPERTY OWNER:	S J GROWERS LLC
PROPERTY OWNER ADDRESS:	20521 CAREY'S CAMP ROAD MILLSBORO, DE 19966
PROPERTY OWNER PHONE #:	302–245–4384
SITE COORDINATES:	1A
LATITUDE:	38.495785° (GPS)
LONGITUDE:	–75.361079° (GPS)
ELEVATION:	40' (GPS)
SITE ACCESS COORDINATES:	
LATITUDE:	38.495682° (GPS)
LONGITUDE:	–75.361998° (GPS)
1A DATE:	02/20/26

PROJECT SUMMARY

APPLICANT:	NETWORK TOWERS
APPLICANT ADDRESS:	120 EASTSHORE DR, SUITE 300 GLEN ALLEN, VA 23059
APPLICANT PHONE #:	(804) 548–4079
APPLICANT PROJECT MANAGER:	BRANDI HALE
PROJECT MANAGER CONTACT:	(919) 717–1941
TENANT:	T–MOBILE
TENANT PROJECT #:	TBD
TENANT MDG LOCATION #:	1SU4500A
TENANT CONSTRUCTION ENGINEER CONTACT:	TBD TBD
TENANT REAL ESTATE SPECIALIST CONTACT:	TBD TBD

EMERGENCY SERVICES

FIRE DEPARTMENT:
GUMBORO VOLUNTEER FIRE CO
37030 MILLSBORO HWY
MILLSBORO, DE 19966
(302) 238–7411

POLICE DEPARTMENT:
MILLSBORO POLICE DEPARTMENT
120 RAILROAD ST
MILLSBORO, DE 19966
(302) 934–8174

CONSULTING TEAM

ENGINEERING FIRM:
THE CROSSROADS GROUP, LLC
769 STATE ST
HAMBURG, PA 19526
PHONE: (484) 660–3055 FAX: (484) 660–3742

SURVEYING FIRM:
ASH ASSOCIATES
765 TENNIS AVE
AMBLER, PA 19002
(215) 367–5261 TELECOMENGINEERING@THECROSSROADSGROUPLLC.COM

UTILITY INFORMATION

POWER COMPANY:
TBD
TBD
TBD
CONTACT: TBD
POWER COMPANY CONTACT #: TBD
WORK ORDER #: TBD

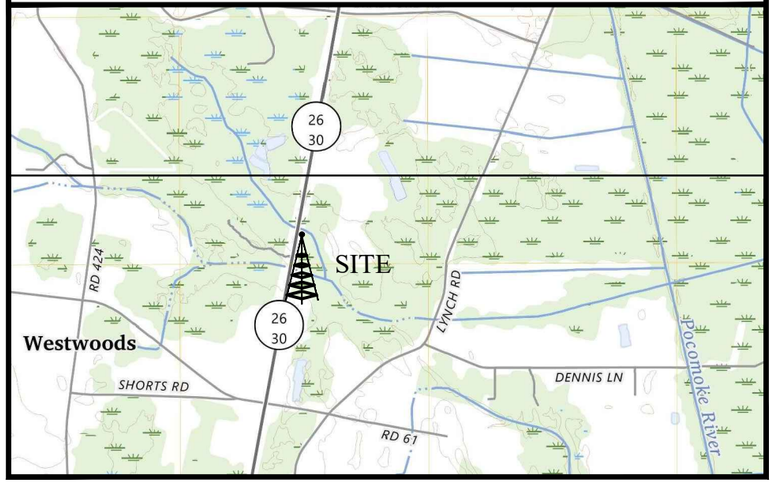
APPROVALS

LANDLORD SIGNATURE DATE

NETWORK TOWERS

SITE NAME
MILLSBORO
SITE I.D.
DE–T25.04
E911 ADDRESS
TBD
TBD
PROJECT TYPE
195' MONOPOLE

USGS QUAD MAP 1"=2,000'



FROM CITY OR NEAREST MAJOR INTERSECTION: (FROM MILLSBORO)
* TURN RIGHT ONTO DE–24W/LAUREL RD
* IN 4.8 MI CONTINUE ONTO MILLSBORO HWY
* IN 3.0 MI DESTINATION IS ON THE LEFT

1 (800) 441–8555
www.delmarva811.com
CONTRACTOR TO CALL DELAWARE ONE–CALL SYSTEMS AT LEAST (3) WORKING DAYS PRIOR TO CONSTRUCTION

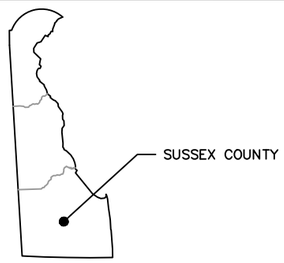
Sheet List Table

Sheet Number	Sheet Title
T–1	TITLE SHEET
T–2	TCG – LEGEND
Z–1	OVERALL ZONING PLAN
Z–2	ENLARGED ZONING PLAN
Z–3	TOWER ELEVATION PLAN
Z–4	FENCE DETAILS (1)
Z–5	FENCE DETAILS (2)

EXHIBIT NOTES

1. THIS PLAN IS BASED ON SUSSEX COUNTY DELAWARE ZONING ORDINANCE. THE PROPOSAL INCLUDES A 195' COMMERCIAL COMMUNICATIONS TOWER AND ASSOCIATED EQUIPMENT BUILDINGS.
2. BOUNDARY LINES AND ADJOINER INFORMATION SHOWN HEREIN WAS PREPARED USING AVAILABLE DEEDS, TAX MAPS AND PLANS OF RECORD. NO BOUNDARY SURVEY WAS PERFORMED AND SHOULD NOT BE CONSTRUED AS AN ACCURATE BOUNDARY SURVEY.
3. EXISTING TOPOGRAPHY INFORMATION SHOWN HEREIN WAS TAKEN FROM AN ACTUAL GROUND SURVEY PERFORMED BY ASH ASSOCIATES, INC. IN FEBRUARY 2026. GROUND SURVEY HAS BEEN SUPPLEMENTED WITH INFORMATION FROM PUBLICLY AVAILABLE AERIAL IMAGERY.
4. THERE ARE WETLANDS LOCATED IN THE PROPOSED LEASE AREA AS PER A WETLANDS DELINEATION REPORT PREPARED BY H&B SITE SERVICES, LLC ON JANURAY 23, 2026
5. PROPOSED LEASE AREA IS LOCATED IN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN. PER FEMA F.I.R.M. PANEL NUMBER: 10005C0625J, EFFECTIVE DATE: 1/6/2005.
6. LOCATION OF ALL UNDERGROUND UTILITIES ARE APPROXIMATE. ALL LOCATIONS AND SIZES ARE BASED ON UTILITY MARK–OUTS, ABOVE GROUND STRUCTURES THAT ARE VISIBLE & ACCESSIBLE IN THE FIELD, AND THE MAPS LISTED IN THE REFERENCES AVAILABLE AT THE TIME OF THE SURVEYS. ALL UNDERGROUND UTILITIES SHOULD BE VERIFIED AS TO THEIR LOCATION, SIZE AND TYPE BY THE PROPER UTILITY COMPANIES BEFORE ANY EXCAVATION BEGINS.

STATE COUNTY MAP



NETWORK TOWERS
120 EASTSHORE DR, SUITE 300
GLEN ALLEN, VA 23059
(804) 548–4079

THE CROSSROADS GROUP, LLC
www.thecrossroadsgroupllc.com
769 State St
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Ph: 484-660-3055
454 W Valley Ave
Elysburg, PA 17824
Ph: 570-672-2317

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SCALE:	N.T.S.
DRAWN BY:	EBS
PLAN ORIG. DATE:	03/11/26

REVISIONS

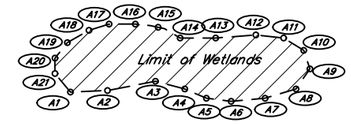
NO.	DATE	DESCRIPTION
0	04–21–26	ISSUED FOR CONSTRUCTION
A	03–11–26	PRELIMINARY

JOSHUA D. HOAGLAND LICENSE No. 21024 DELAWARE PROFESSIONAL ENGINEER

PROJECT No.	6462
SITE NAME:	MILLSBORO
SITE NUMBER:	DE–T25.04
SITE ADDRESS:	22311 BALD BRANCH ROAD MILLSBORO, DE 19966 SUSSEX COUNTY
FILE NAME:	TITLE–LEGEND – ZDS.DWG
SHEET TITLE:	TITLE SHEET
DRAWING NO.	T–1
REVISION:	0

EXISTING LEGEND

- TRACT BOUNDARY
- EXISTING PARCEL LINE TO BE ABOLISHED
- EXISTING RIGHT–OF–WAY
- EXISTING EASEMENT
- ADJOINING PROPERTY LINE
- EXISTING ZONING/TOWNSHIP BOUNDARY
- EXISTING WATER LINE/SERVICE
- EXISTING STORM SEWER LINE/INLET
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE (UNDERGROUND)
- EXISTING ELECTRIC LINE (OVERHEAD)
- EXISTING SANITARY SEWER LINE/MANHOLE
- EXISTING SANITARY LATERAL
- EXISTING CURB
- EXISTING EDGE OF ROAD (PAVED)
- EXISTING SHOULDER (ROAD)
- EXISTING EDGE OF ROAD (UNPAVED)
- EXISTING DRIVEWAY
- EXISTING ROAD CENTERLINE
- EXISTING FENCE
- EXISTING CONTOUR
- EXISTING INDEX CONTOUR
- SOILS DELINEATION LINE
- STREAM CHANNEL
- FEMA DELINEATED FLOODPLAIN
- EXISTING GUIDERAIL
- EXISTING WOODLINE
- EXISTING BRUSHLINE
- EXISTING BUILDINGS
- EXISTING WETLANDS



- EXIST–DECIDUOUS
- EXIST–EVERGREEN
- EXIST–HEADWALL
- LIGHT POST
- SIGN
- STREET SIGN
- UTILITY–POLE
- WELL
- IP
- BOUND

PROPOSED LEGEND

- PROPOSED BUILDING
- PROPOSED BUILDING – SETBACK LINE
- PROPOSED LOT – PARCEL LINE
- PROPOSED EASEMENT – LINE
- PROPOSED RIGHT–OF–WAY
- PROPOSED ROAD CENTERLINE
- PROPOSED ROAD EDGE (PAVED/NO CURB)
- PROPOSED STORM SEWER – PIPING
- PROPOSED FENCE LINE
- PROPOSED CURBLINE
- CLEAR SIGHT TRIANGLE
- PROPOSED PHASE LINE
- PROPOSED CONCRETE
- PROPOSED RIP–RAP
- PROPOSED CONCRETE MONUMENT
- PROPOSED LIGHT POST
- PROPOSED TRAFFIC SIGN
- PROPOSED UTILITY POLE
- PROPOSED HEADWALL/ENDWALL
- PROPOSED INLET
- PROPOSED STORM MANHOLE
- A10 — PROPOSED STORM SEWER LABEL
- 94 — PROPOSED CONTOUR
- 100 — PROPOSED CONTOUR INDEX
- +185.4 — PROPOSED SPOT ELEVATION
- PROPOSED ALTERED TREE LINE
- PROPOSED HIGH WATER ELEVATION
- PROPOSED SPILLWAY
- PROPOSED SPILLWAY – HATCH
- +185.4 — PROPOSED BERM – TEXT
- PROPOSED BERM – SHADE
- PROPOSED BERM – OUTLINE

1 ABBREVIATIONS & SYMBOLS

NETWORK TOWERS
120 EASTSHORE DR, SUITE 300
GLEN ALLEN, VA 23059
(804) 548–4079

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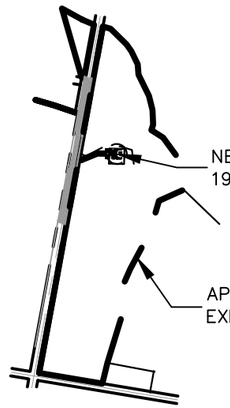
JOSHUA D. HOAGLAND
LICENSED
No. 21024
PROFESSIONAL ENGINEER
DELAWARE

PROJECT No.: 6462
SITE NAME: MILLSBORO
SITE NUMBER: DE–T25.04
SITE ADDRESS: 22311 BALD BRANCH ROAD MILLSBORO, DE 19966 SUSSEX COUNTY
FILE NAME: TITLE–LEGEND – ZDS.DWG
SHEET TITLE: TCG – LEGEND

DRAWING NO.: T–2
REVISION: 0



NETWORK TOWERS
195' MONOPOLE

APPROXIMATE LOCATION OF
EXISTING PROPERTY LINE (TYP)

Parent Parcel

0 1000 2000 Feet
(2"=1000'WHEN PRINTED ON 24"X36")

ZONING DATA

OBTAINED FROM THE SUSSEX COUNTY ZONING ORDINANCE, CHAPTER 205, AS REVISED APRIL 25, 2023.

ZONING DISTRICT:	AR-1 – AGRICULTURAL RESIDENTIAL
PROPOSED USE:	COMMERCIAL COMMUNICATIONS TOWER – SPECIAL EXCEPTION

MINIMUM REQUIREMENTS	PERMITTED	ACTUAL
MINIMUM LOT AREA:	1 ACRE*	61.64 ACRES (BY DEED)
MINIMUM TOWER SETBACK:	⅓ TOWER HEIGHT (66.33')*	241.99'
MINIMUM FRONT YARD:	40'	241.99'
MINIMUM SIDE YARD:	15'	845.97'
MINIMUM REAR YARD:	20'	277.77'
MINIMUM LOT WIDTH:	100'	2324.17'
MAXIMUM BUILDING HEIGHT:	42'	N/A**

*PER SUSSEX COUNTY ZONING ORDINANCE 115-194.2 COMMERCIAL COMMUNICATIONS TOWERS AND ANTENNAS

** DOES NOT APPLY TO COMMERCIAL COMMUNICATIONS TOWERS AND ANTENNAS

0 100 200 Feet
(2"=100' WHEN PRINTED ON 24"X36")

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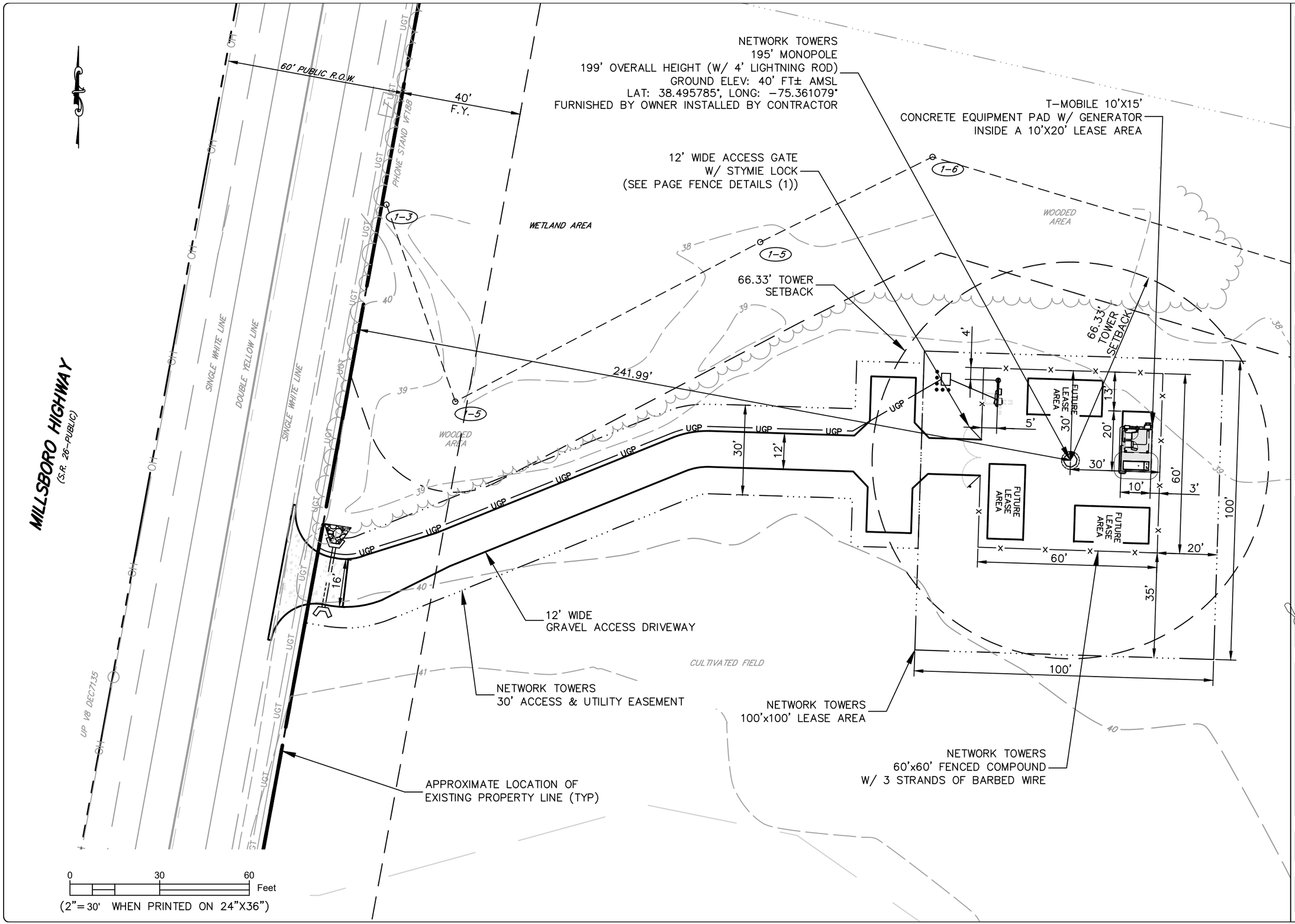
SITE NAME:	MILLSBORO
SITE NUMBER:	DE-T25.04
SITE ADDRESS:	22311 BALD BRANCH ROAD MILLSBORO, DE 19966 SUSSEX COUNTY
FILE NAME:	ZONING-PLAN.DWG
SHEET TITLE:	OVERALL ZONING PLAN
DRAWING NO.	Z-1
REVISION:	0



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JOSHUA D. HOAGLAND
LICENSED
No. 21024
DELAWARE
PROFESSIONAL ENGINEER

PROJECT No.	6462
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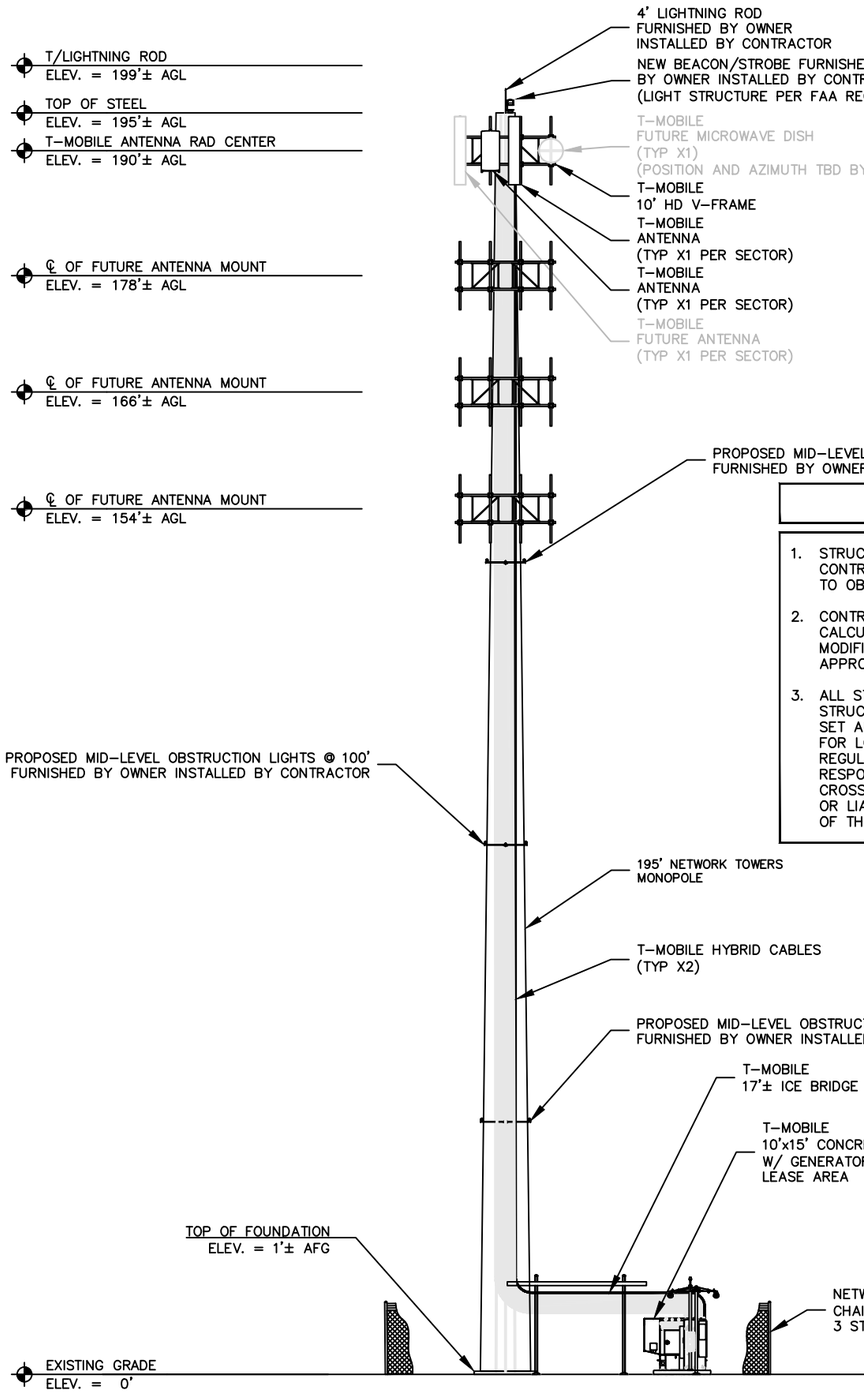
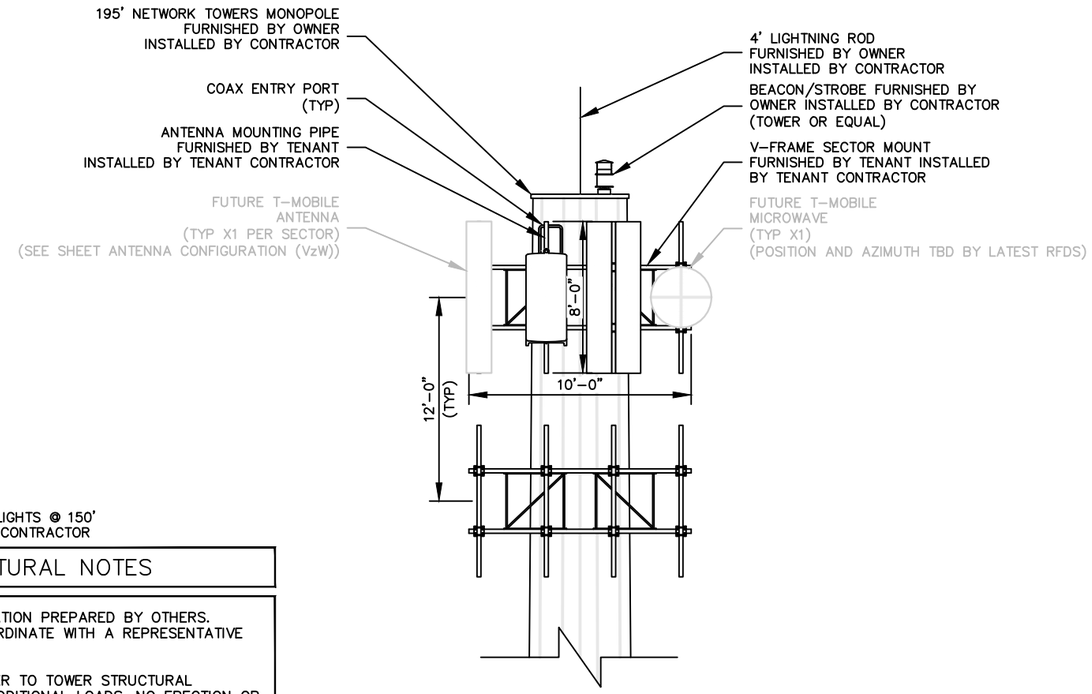
SITE NUMBER:	DE-T25.04
SITE ADDRESS:	22311 BALD BRANCH ROAD MILLSBORO, DE 19966 SUSSEX COUNTY
FILE NAME:	ZONING-PLAN.DWG
SHEET TITLE:	ENLARGED ZONING PLAN
DRAWING NO.	Z-2
REVISION:	0



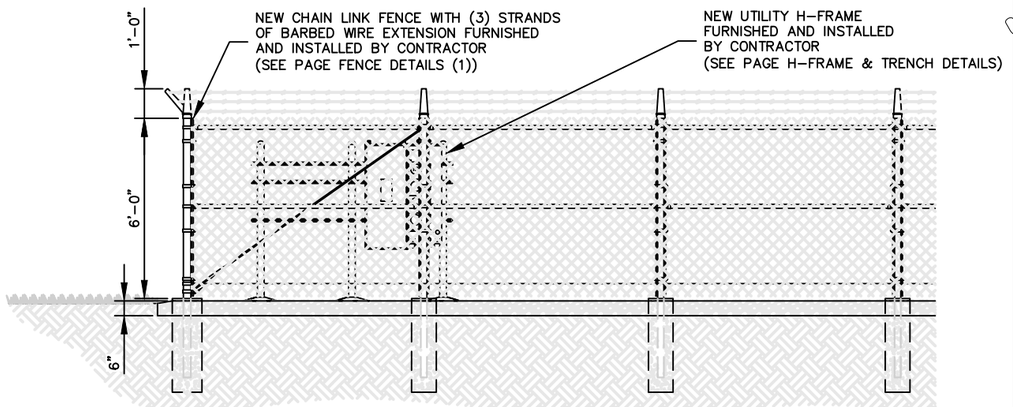
1 / Z-3 TOWER ELEVATION VIEW
SCALE = N.T.S.

STRUCTURAL NOTES

1. STRUCTURAL CALCULATION PREPARED BY OTHERS. CONTRACTOR TO COORDINATE WITH A REPRESENTATIVE TO OBTAIN A COPY.
2. CONTRACTOR TO REFER TO TOWER STRUCTURAL CALCULATIONS FOR ADDITIONAL LOADS. NO ERECTION OR MODIFICATION OF TOWER SHALL BE MADE WITHOUT APPROVAL OF STRUCTURAL ENGINEER.
3. ALL STRUCTURES, STRUCTURAL DETAILS, AND STRUCTURAL SPECIFICATIONS DEPICTED ON THIS PLAN SET ARE DESIGNED BY OTHERS. THEY ARE PROVIDED FOR LOCATION AND GENERAL REFERENCE ONLY. ALL REGULATORY AND DESIGN OBLIGATIONS ARE THE RESPONSIBILITY OF THE STRUCTURAL ENGINEER. THE CROSSROADS GROUP, LLC ASSUMES NO RESPONSIBILITY OR LIABILITY ASSOCIATED WITH THE DESIGN OBLIGATIONS OF THE STRUCTURAL ENGINEER.



2 / Z-3 ELEVATION VIEW @ TOP OF TOWER
SCALE = N.T.S.



3 / Z-3 ELEVATION VIEW @ UTILITY FRAME
SCALE = N.T.S.

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Ph: 570-672-2317

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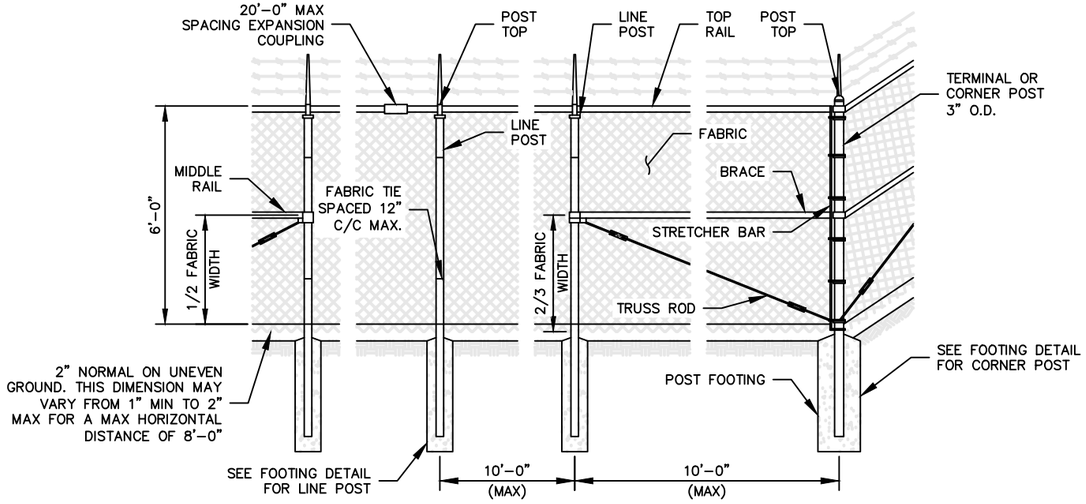
SCALE:	N.T.S.
DRAWN BY:	EBS
PLAN ORIG. DATE:	03/11/26

REVISIONS

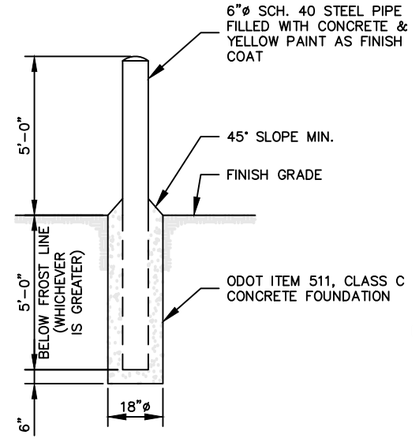
NO.	DATE	DESCRIPTION
0	04-21-26	ISSUED FOR CONSTRUCTION
A	03-11-26	PRELIMINARY

JOSHUA D. HOAGLAND
LICENSEE
No. 21024
DELAWARE
PROFESSIONAL ENGINEER

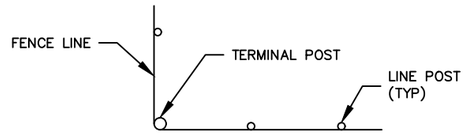
PROJECT No.	6462
SITE NAME:	MILLSBORO
SITE NUMBER:	DE-T25.04
SITE ADDRESS:	22311 BALD BRANCH ROAD MILLSBORO, DE 19966 SUSSEX COUNTY
FILE NAME:	ZONING-PLAN.DWG
SHEET TITLE:	TOWER ELEVATION PLAN
DRAWING NO.	Z-3
REVISION:	0



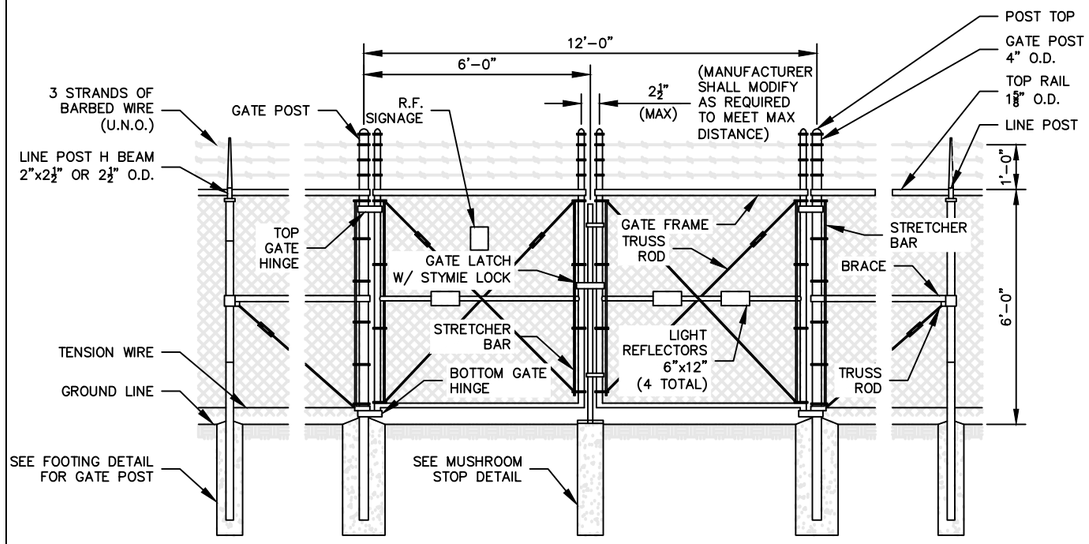
1 Z-4 TYPICAL FENCING DETAIL
SCALE = N.T.S.



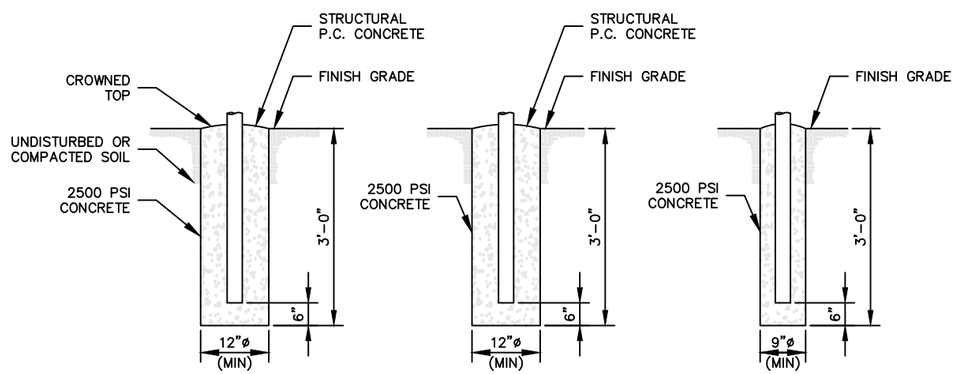
2 Z-4 BOLLARD DETAIL
SCALE = N.T.S.



3 Z-4 INSTALLATION AT CORNERS DETAIL
SCALE = N.T.S.



4 Z-4 DOUBLE-SWING GATE DETAIL
SCALE = N.T.S.



5 Z-4 POST FOOTINGS DETAIL
SCALE = N.T.S.

NETWORK TOWERS
120 EASTSHORE DR, SUITE 300
GLEN ALLEN, VA 23059
(804) 548-4079

THE CROSSROADS GROUP, LLC
www.thecrossroadsgroupllc.com
769 State St
Hamburg, PA 19526
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454 W Valley Ave
Elysburg, PA 17824
Ph: 570-672-2317

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SCALE:	N.T.S.
DRAWN BY:	EBS
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REVISIONS

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0	04-21-26	ISSUED FOR CONSTRUCTION
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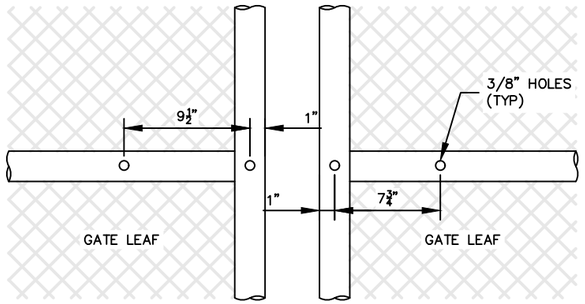
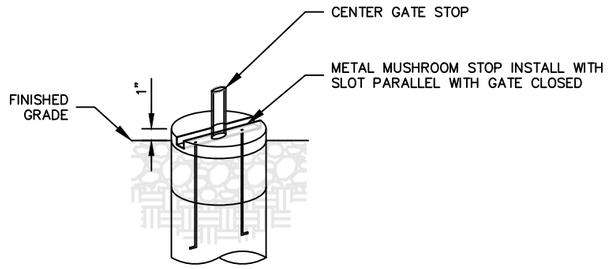
JOSHUA D. HOAGLAND LICENSE No. 21024 PROFESSIONAL ENGINEER DELAWARE

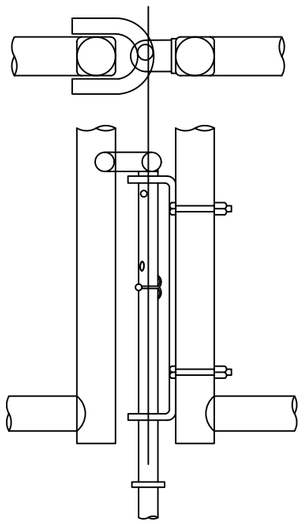
PROJECT No.	6462
SITE NAME:	MILLSBORO
SITE NUMBER:	DE-T25.04
SITE ADDRESS:	22311 BALD BRANCH ROAD MILLSBORO, DE 19966 SUSSEX COUNTY
FILE NAME:	ZONING-PLAN.DWG
SHEET TITLE:	FENCE DETAILS (1)
DRAWING NO.	Z-4
REVISION:	0



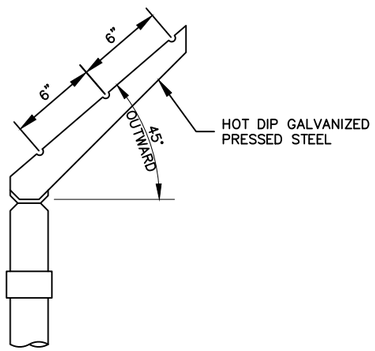
1 Z-5 GATE FACE – ACCOMODATING STYMIELOCK DETAIL
SCALE = N.T.S.



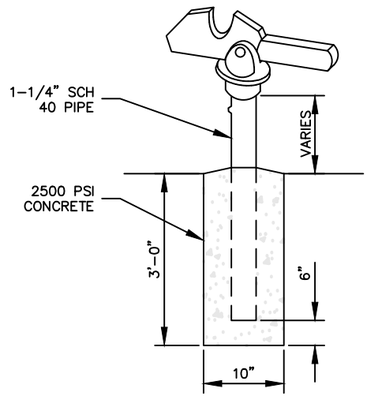
2 Z-5 MUSHROOM STOP DETAIL
SCALE = N.T.S.



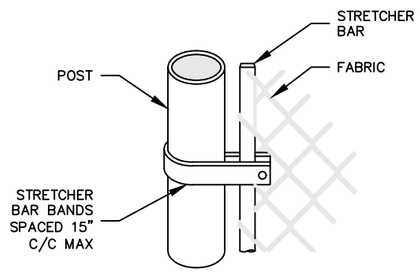
3 Z-5 DROP ROD ASSEMBLY DETAIL
SCALE = N.T.S.



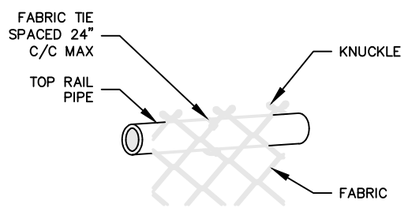
4 Z-5 BARBED WIRE ARM OF LINE POST DETAIL
SCALE = N.T.S.



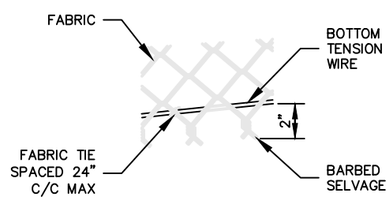
5 Z-5 GATE KEEPER DETAIL
SCALE = N.T.S.



METHOD OF FASTENING STRETCHER BAR TO POST



METHOD OF TYING FABRIC TO PIPE



METHOD OF TYING FABRIC TO TENSION WIRE

6 Z-5 FABRIC/BAR CONNECTIONS DETAIL
SCALE = N.T.S.

NOTES

1. ZINC COATING – THE WEIGHT OF THE COATING SHALL NOT BE LESS THAN 1.2 OUNCES PER SQUARE FOOT OF ACTUAL COVERED SURFACE. ALL FERROUS METALS USED AS PART OF THE FENCE INSTALLATION SHALL BE HOT DIP GALVANIZED OR STAINLESS STEEL. ALL SCREWS, BOLTS, LOCK WASHERS, NUTS, ETC. SHALL BE HOT DIP GALVANIZED OR MADE OF STAINLESS STEEL.
2. FABRIC – STANDARD INDUSTRIAL GRADE #9 GAUGE WITH 2" MESH ZINC COATED CHAIN LINK WITH A BREAKING STRENGTH OF NOT LESS THAN 1290 POUNDS SHALL BE USED. THE FABRIC SHALL BE ZINC COATED BY THE HOT DIP PROCESS AFTER FABRICATION.
3. METAL POSTS – METAL POSTS (LINE, CORNER, TERMINAL, GATE POSTS, MIDDLE RAILS, BRACES, AND TOP RAIL) SHALL BE HOT DIP GALVANIZED SCHEDULE 40 TUBULAR STEEL WITH AN OUTSIDE DIAMETER AS INDICATED ON THIS DRAWING. A POST TOP FITTING OF GALVANIZED STEEL WILL BE INSTALLED TO EXCLUDE MOISTURE.
4. POST CAPS – ALL POST CAPS TO USE THE BARBED WIRE OUTRIGGER BRACKET AND SHALL BE ATTACHED TO THE POST WITH TAMPER RESISTANT SCREWS, BRADS, OR BOLTS.
5. TOP RAIL – A MINIMUM OR ONE COUPLING IN EACH STRAIGHT RUN OF TOP RAIL SHALL HAVE A HEAVY SPRING INSERTED WITHIN THE COUPLING TO TAKE UP EXPANSION AND CONTRACTION OF THE TOP RAIL. THE TOP RAIL SHALL BE FASTENED TO TERMINAL POSTS WITH PRESSED STEEL CONNECTIONS.
6. MIDDLE RAIL – THE MIDDLE RAIL SHALL BE OF THE SAME MATERIAL AS THE TOP RAIL AND INSTALLED WITH HOT DIP GALVANIZED FITTINGS ATTACHED TO THE POSTS.
7. BRACE RAIL – BRACE RAIL MATERIAL SHALL BE OF THE SAME MATERIAL AS THE TOP RAIL AND LOCATED 2/3 OF THE DISTANCE UP FROM THE BOTTOM OF THE FABRIC BRACE RAILS. IT SHALL BE SECURELY FASTENED TO POSTS BY SUITABLE PRESSED STEEL CONNECTIONS.
8. TRUSS RODS – SHALL BE 3/8" ROUND GALVANIZED STEEL RODS WITH GALVANIZED TURNBUCKLES. THE ZINC COATINGS SHALL BE NOT LESS THAN 1.2 OUNCES PER SQUARE FOOT OF SURFACE.
9. TENSION WIRE – THE TENSION WIRE SHALL BE #7 GAUGE HOT DIP GALVANIZED SPRING TENSION WIRE WITH A BREAKING STRENGTH OF NOT LESS THAN 1900 POUNDS. THIS WIRE SHALL BE KEPT TAUT WITH GALVANIZED TURNBUCKLES AND ATTACHED TO POSTS WITH GALVANIZED HARDWARE OR CABLE CLAMPS.
10. FABRIC TIES – THE FABRIC TIES SHALL BE ALUMINUM WIRE, NOT LESS THAN #9 GAUGE.
11. STRETCHER BARS – THE STRETCHER BARS SHALL BE FLAT GALVANIZED STEEL BARS NOT LESS THAN 5/16"x3/4" AND NOT LESS THAN 2" SHORTER THAN THE FABRIC. STRETCHER BAR BANDS SHALL BE FLAT GALVANIZED STEEL BARS NOT LESS THAN 5/16"x1–1/2" WITH 5/16" DIAMETER GALVANIZED CARRIAGE BOLT.
12. BARBED WIRE – BARBED WIRE OF GALVANIZED STEEL (OR ALUMINUM) CONSISTING OF 12–1/2 GAUGE WIRE WITH 4–POINT BARBS OF 14 GAUGE WIRE SPACED 5" APART.
13. GATE FRAMES – GATE FRAMES SHALL BE CONSTRUCTED OF 2–1/2" OUTSIDE DIAMETER HEAVY DUTY GALVANIZED STEEL PIPE. THE GATES SHALL BE ASSEMBLED USING CORNER FITTINGS OF HEAVY PRESSED STEEL OR MALLEABLE CASTINGS OR MAY BE WELDED IF THE ENTIRE GATE FRAME IS HOT DIP GALVANIZED AFTER WELDING. ALL GATES SHALL BE EQUIPPED WITH HEAVY DUTY GALVANIZED STEEL TYPE HINGES WITH LARGE BEARING SURFACES OF ADEQUATE STRENGTH TO SUPPORT THE GATE. GATES WILL PROVIDE A FULL RANGE OF MOTION AND BE EASILY OPENED AND CLOSED BY ONE PERSON. GATE LATCH SHALL BE CARGO PROTECTORS, INC. MODEL FL–100. LATCH SHALL BE EQUIPPED TO RECEIVE A PADLOCK.
14. PROVIDE R.F. WARNING SIGNAGE ON ALL GATES.

GENERAL NOTES:

1. INSTALL FENCING PER ASTM F–567.
2. INSTALL SWING GATES PER ASTM F–900.
3. LOCAL ORDINANCE OF BARBED WIRE PERMIT REQUIREMENT SHALL BE COMPLIED WITH IF REQUIRED.
4. POST & GATE PIPE SIZES ARE INDUSTRY STANDARDS. ALL PIPE TO BE GALVANIZED (HOT DIP, ASTM A120 GRADE "A" STEEL). ALL GATE FRAMES SHALL BE WELDED. ALL WELDING SHALL BE COATED WITH (3) COATS OF COLD GALV (OR EQUAL).
5. ALL OPEN POSTS SHALL HAVE END–CAPS.
6. USE GALVANIZED HDG–RING WIRE TO MOUNT ALL SIGNS.
7. ALL SIGNS MUST BE MOUNTED ON THE OUTSIDE.
8. MUSHROOM ANCHOR & PLUNGER REQUIRED FOR GATE.
9. LINE POST AND CORNER POST CONNECTIONS TO BE MECHANICAL.
10. CAUTION – RFE SIGN (BLACK, YELLOW, WHITE) TO BE MOUNTED NEAR TOWER LEG W/ CLIMBING CABLE. DO NOT RESTRICT CLIMBING ACCESS.
11. VERIZON WIRELESS SITE ID, RFE SIGNS, NOC INFORMATION SIGN, AND ALL OTHER SIGNAGE NOT REFERENCED IN THESE DRAWINGS WILL BE FURNISHED AND INSTALLED BY VERIZON WIRELESS PERSONNEL PER VERIZON WIRELESS RFC SIGNAGE & DEMARCATION POLICY.

NETWORK TOWERS
120 EASTSHORE DR, SUITE 300
GLEN ALLEN, VA 23059
(804) 548–4079

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SCALE:	N.T.S.
DRAWN BY:	EBS
PLAN ORIG. DATE:	03/11/26

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NO.	DATE	DESCRIPTION
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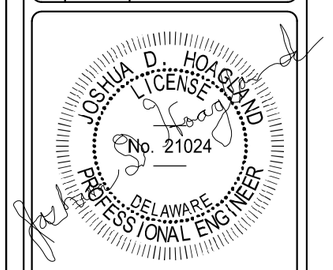


PROJECT No.	6462
SITE NAME:	MILLSBORO
SITE NUMBER:	DE–T25.04
SITE ADDRESS:	22311 BALD BRANCH ROAD MILLSBORO, DE 19966 SUSSEX COUNTY
FILE NAME:	ZONING–PLAN.DWG
SHEET TITLE:	FENCE DETAILS (2)
DRAWING NO.	Z–5
REVISION:	0

****
* ANALYSIS REPORT *
****
****
* Federal Airways & Airspace *
* Summary Report: New Construction *
* Monopole *
****

SITE ID: Millsboro Hwy TRANSACTION ID: 35755014

LOCATION : Frankford, DE RURAL TOWER ID: 18996

LATITUDE: 38° 29' 44.820" LONGITUDE: 75° 21' 39.880"

SITE ELEVATION AMSL . . . . . 40 ft.
STRUCTURE HEIGHT. . . . . 199 ft.
OVERALL HEIGHT AMSL . . . . . 239 ft.

NOTICE CRITERIA

FAR 77.9(a): NNR (DNE 200 ft. AGL)
FAR 77.9(b): NNR (DNE Notice Slope)
FAR 77.9(c): NNR (Not a Traverse Way)
FAR 77.9: NNR FAR 77.9 IFR Straight-In Notice Criteria
FAR 77.9: NNR FAR 77.9 IFR Offset Notice Criteria
FAR 77.9: NNR (DNE EMI Notice Screening Criteria)
FAR 77.9(d): NNR (Off Airport Construction)

NR = Notice Required
NNR = Notice Not Required
PNR = Possible Notice Required(depends upon actual IFR procedure)
Review Air Navigation Facilities at bottom of this report.

Notice to the FAA is not required
The maximum height to avoid notice is 240 ft. AMSL.

OBSTRUCTION STANDARDS
Civil airport imaginary surfaces
FAR 77.17(a)(1): DNE 499 ft. AGL
FAR 77.17(a)(2): DNE - Airport Surface
FAR 77.19(a): DNE - Horizontal Surface
FAR 77.19(b): DNE - Conical Surface
FAR 77.19(c): DNE - Primary Surface
FAR 77.19(d): DNE - Approach Surface
FAR 77.19(e): DNE - Transitional Surface

Department of Defense (DOD) airport imaginary surfaces
FAR 77.21(a)(1): DNE - Inner Horizontal Surface
FAR 77.21(a)(2): DNE - Conical Surface
FAR 77.21(a)(3): DNE - Outer Horizontal Surface
FAR 77.21(b)(1): DNE - Primary Surface
FAR 77.21(b)(2): DNE - Clear Zone Surface
FAR 77.21(b)(3): DNE - Approach Surface
FAR 77.21(b)(4): DNE - Transitional Surface

Heliport imaginary surfaces
FAR 77.23(b): DNE - Approach Surface

VFR TRAFFIC PATTERN AIRSPACE FOR: N06 : LAUREL
Type: A RD: 67453.71 RE: 30.1

FAR 77.17(a)(1): DNE 499 ft. AGL
FAR 77.17(a)(2): N/A
VFR Horizontal Surface: DNE
VFR Conical Surface: DNE
VFR Primary Surface: DNE
VFR Approach Surface: DNE
VFR Transitional Surface: DNE

VFR TRAFFIC PATTERN AIRSPACE FOR: GED : DELAWARE COASTAL
Type: A RD: 67500.03 RE: 49

FAR 77.17(a)(1): DNE 499 ft. AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM
VFR Horizontal Surface: DNE
VFR Conical Surface: DNE
VFR Primary Surface: DNE

VFR Approach Surface: DNE
VFR Transitional Surface: DNE

MINIMUM OBSTACLE CLEARANCE ALTITUDE (MOCA)

FAR 77.17(a)(4) MOCA Altitude Enroute Criteria
The Maximum Height Permitted is 900 ft. AMSL

TERPS DEPARTURE PROCEDURE (FAA Order 8260.3, Volume 4)

FAR 77.17(a)(3) Departure Surface Criteria (40:1)
DNE Departure Surface

PRIVATE LANDING FACILITIES

FAC IDNT	TYPE	NAME	BEARING To FACIL	RANGE IN NM	DELTA ARP ELEVATION	FAA IFR
6MD8	AIR	DELMARVAIR	211.58	3.77	+184	

No Impact to VFR Transitional Surface. Below surface height of 277 ft above ARP.

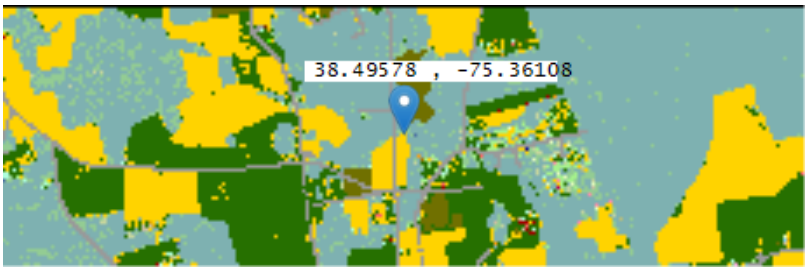
AIR NAVIGATION ELECTRONIC FACILITIES

FAC IDNT	TYPE	ST AT	FREQ	VECTOR	DIST (ft)	DELTA ELEVA	ST	LOCATION	GRD ANGLE	APCH BEAR
SBY	VORTAC	R	111.2	217.91	69638	+191	MD	SALISBURY	.16	
SBY	LOCALIZER	I	108.7	220.06	70497	+195	MD	RWY 32 SALISBURY-	.16	319
SBY	ATCT	I	A/G	218.42	71209	+121	MD	SALISBURY-OCEAN C	.10	
OXB	LOCALIZER	I	109.1	134.7	93618	+226	MD	RWY 32 OCEAN CITY	.14	325
ATR	VOR/DME	R	112.6	20.46	122102	+234	DE	WATERLOO	.11	
DOX	RADAR WXL	Y		349.4	122197	+75	DE	ELLENDALE	.04	
SWL	VORTAC	R	112.4	190.42	162644	+205	MD	SNOW HILL	.07	
ZDC	CO	Y	A/G	190.42	162713	+206	MD	SNOW HILL	.07	
WAL	ATCT	I	A/G	188.56	204039	+119	VA	WALLOPS FLIGHT FA	.03	
CEJ	LOCALIZER	U	108.9	35.1	225129	+220	NJ	RWY 19 CAPE MAY C	.06	190
LIR	LOCALIZER	I	111.9	352.55	227109	+215	DE	RWY 19 DOVER AFB	.05	195
DOV	RADAR ASR	I		353.09	229348	+138	DE	DOVER AFB	.03	
FGH	LOCALIZER	I	109.3	300.15	230684	+172	MD	RWY 04 EASTON/ NEW	.04	41
DOV	ATCT	I	A/G	352.25	231303	+106	DE	DOVER AFB	.03	
ESN	ATCT	I	A/G	299.38	231823	+132	MD	EASTON ATCT	.03	
DOV	TACAN	I	110.0	352.59	233825	+222	DE	DOVER	.05	
DOV	LOCALIZER	I	109.9	353.1	239246	+220	DE	RWY 01 DOVER AFB	.05	15

SECTION 2110 FAA EXTENSION, SAFETY AND SECURITY ACT - RURAL AREA ANALYSIS

Warning! The object is within a rural area and on agricultural land.(View agricultural land-use image).Please use the Rural Tower Analysis (RTA) certification tool to confirm the object is compliant with the Section 2110 FAA EXTENSION,SAFETY AND SECURITY ACT, is eligible for an exemption, or if additional actions are required.

Agriculture Area



Map Legend

Corn: Agricultural use type land at this location

CFR Title 47, §1.30000-§1.30004

NOT REQUIRED: Structure is not within critical wavelength(s) of a FCC licensed AM radio station. Movement Method Proof and notification to the AM station is not required. Please review AM Station Report for details.

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03-27-2026
11:00:38

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                    ****************************************
                    *         OBSTRUCTION CRITERIA         *
                    ****************************************

                  SITE ID: Millsboro Hwy       TRANSACTION ID:
                                               35755014

                  LATITUDE: 38° 29' 44.820"    LONGITUDE: 75° 21' 39.880"

                  SITE ELEVATION AMSL . . . . . .  40 ft.
                  STRUCTURE HEIGHT. . . . . . . .  199 ft.
                  OVERALL HEIGHT AMSL . . . . . .  239 ft.

77.17(a)(1) A height more than 499 ft. Above Ground Level (AGL).

              ************* DOES NOT EXCEED *************

              THE MAXIMUM ALLOWABLE HEIGHT IS:.......539 ft. AMSL

              THE GROUND ELEVATION AT THE SITE IS:...40 ft. AMSL

              THE OVERALL CASE ELEVATION IS:.........239 ft. AMSL

              THE CASE IS BELOW THE ALLOWABLE BY:....300 ft. AMSL


                 ******************************************
                        BEGIN AIRPORT ANALYSIS FOR N06
                 ******************************************

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

              ************* DOES NOT EXCEED **************

              BECAUSE: Proposed height does not exceed 200 feet AGL.

              THE REFERENCE AIRPORT IDENT IS:........N06

              THE AIRPORT ELEVATION IS:..............30.1 ft. AMSL

              THE DISTANCE FROM THE CASE TO ARP IS:..11.3364 NAUTICAL MILES

              THE BEARING AIRPORT TO CASE IS:........104.286 DEGREES

              THE HEIGHT OF THE STRUCTURE IS:........199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above
              airport elevation within a radius of >> N06 <<.

              ************* DOES NOT EXCEED **************

              NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft.
              from the horizontal surface at 20/1 ratio).

              ************* DOES NOT EXCEED **************

              NOT WITHIN SPECIFIED CONICAL SURFACE AREA

                           ************************
                           * BEGIN RUNWAY ANALYSIS *
                           ************************

                               RUNWAY 15/33
                            EXISTING RUNWAY 15/33
77.19(c) A height exceeding runway primary surface.

              ************* DOES NOT EXCEED **************

              NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 15/33

              THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.......36654.41 ft.

              THE RUNWAY THRESHOLD ELEVATION IS...................30.1 ft.

              THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...56516.78 ft.

              THE CRITICAL WIDTH OF HALF THE APPROACH IS..........5776.678 ft.

              ************* DOES NOT EXCEED **************
```

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 6516.78 ft.

RUNWAY CENTERLINE OFFSET IS.....36654.41 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....56516.78 ft.

THE SLOPE OF RUNWAY 15 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR GED
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....GED

THE AIRPORT ELEVATION IS:.....53.3 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..11.5080 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....180.382 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> GED <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 04/22
EXISTING RUNWAY 04/22

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 04/22

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....38168.54 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....48.9 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...56274.58 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....8691.188 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 6274.58 ft.

RUNWAY CENTERLINE OFFSET IS.....38168.54 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....56274.58 ft.

THE SLOPE OF RUNWAY 04 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 10/28
EXISTING RUNWAY 10/28

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 10/28

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....38168.54 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....49 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...616.247 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....186.625 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

OUTSIDE APPROACH ANGULAR CRITERIA FOR THIS RUNWAY.

RUNWAY CENTERLINE OFFSET IS.....38168.54 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....616.247 ft.

THE SLOPE OF RUNWAY 10 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 04/22
PROPOSED RUNWAY 04/22

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 04/22

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....38168.59 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....49 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...55475.13 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....8571.27 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 5475.13 ft.

RUNWAY CENTERLINE OFFSET IS.....38168.59 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....55475.13 ft.

THE SLOPE OF RUNWAY 04 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 10/28
PROPOSED RUNWAY 10/28

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 10/28

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....38168.59 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....49 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...619.729 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....296.48 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

OUTSIDE APPROACH ANGULAR CRITERIA FOR THIS RUNWAY.

RUNWAY CENTERLINE OFFSET IS.....38168.59 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....619.729 ft.

THE SLOPE OF RUNWAY 10 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This

airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR SBY
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....SBY

THE AIRPORT ELEVATION IS:.....52.5 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..11.6542 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....36.848 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> SBY <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 05/23
EXISTING RUNWAY 05/23

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 05/23

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....574.1862 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....50 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...68744.68 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....10561.7 ft.

********** DOES NOT EXCEED **********

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 18744.68 ft.

RUNWAY CENTERLINE OFFSET IS.....574.1862 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....68744.68 ft.

THE SLOPE OF RUNWAY 05 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 14/32
EXISTING RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 14/32

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....574.1862 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....51.5 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...3437.931 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....1015.69 ft.

********** DOES NOT EXCEED **********

OUTSIDE APPROACH ANGULAR CRITERIA FOR THIS RUNWAY.

RUNWAY CENTERLINE OFFSET IS.....574.1862 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....3437.931 ft.

THE SLOPE OF RUNWAY 14 IS: 50 TO 1.

The FAA has defined this runway as a non-utility runway. It has a precision approach. The obstacle surface extends 50,000 feet with a 50:1 Slope for the first 10,000 feet and a 40:1 Slope for 40,000 feet. The obstacle approach surface is centered symmetrically along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Precision instrument procedures will have the greatest impact between the final approach fix (FAF) and the runway end. The FAF is located approximately 5 NM from the runway end. This type of approach usually has a non-precision and a circling approach also. A circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 05/23
PROPOSED RUNWAY 05/23

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 05/23

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....571.7458 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....50 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...68743.38 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....10561.51 ft.

********** DOES NOT EXCEED **********

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 18743.38 ft.

RUNWAY CENTERLINE OFFSET IS.....571.7458 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....68743.38 ft.

THE SLOPE OF RUNWAY 05 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 14/32
PROPOSED RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 14/32

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....571.7458 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....46 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...3437.992 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....765.699 ft.

********** DOES NOT EXCEED **********

OUTSIDE APPROACH ANGULAR CRITERIA FOR THIS RUNWAY.

RUNWAY CENTERLINE OFFSET IS.....571.7458 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....3437.992 ft.

THE SLOPE OF RUNWAY 14 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR 1N5
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....1N5

THE AIRPORT ELEVATION IS:.....46.0 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..13.0456 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....67.503 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> 1N5 <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 08/26
EXISTING RUNWAY 08/26

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 08/26

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....5866.245 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....44 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...78182.97 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....7943.297 ft.

********** DOES NOT EXCEED **********

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED GREATER THAN 50,000 ft. FROM THE START OF ANY APPROACH TYPE, OUT BY 28182.97 ft.

RUNWAY CENTERLINE OFFSET IS.....5866.245 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....78182.97 ft.

THE SLOPE OF RUNWAY 08 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 17/35

EXISTING RUNWAY 17/35

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 17/35

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....78808.27 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....46 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...2454.886 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....370.489 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE NOT WITHIN APPROACH SURFACE AREA, OUT BY.....73437.781 ft.

RUNWAY CENTERLINE OFFSET IS.....78808.27 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....2454.886 ft.

THE SLOPE OF RUNWAY 17 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR OXB
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....OXB

THE AIRPORT ELEVATION IS:.....15.9 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..15.7609 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....314.854 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> OXB <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *

****

RUNWAY 02/20
EXISTING RUNWAY 02/20

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 02/20

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....77901.2 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....10.9 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...52595.66 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....4194.675 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 2595.66 ft.

RUNWAY CENTERLINE OFFSET IS.....77901.2 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....52595.66 ft.

THE SLOPE OF RUNWAY 02 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 14/32
EXISTING RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 14/32

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....2553.699 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....11.2 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...94020.7 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....14353.11 ft.

********** DOES NOT EXCEED **********

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 44020.7 ft.

RUNWAY CENTERLINE OFFSET IS.....2553.699 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....94020.7 ft.

THE SLOPE OF RUNWAY 14 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a non-precision approach. The obstacle surface extends 5000 feet

(20:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 14/32
PROPOSED RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 14/32

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....2571.262 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....12 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...92634.99 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....14145.25 ft.

********** DOES NOT EXCEED **********

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 42634.99 ft.

RUNWAY CENTERLINE OFFSET IS.....2571.262 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....92634.99 ft.

THE SLOPE OF RUNWAY 14 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 20/02
PROPOSED RUNWAY 20/02

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 20/02

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....77809.58 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....11 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...51979.04 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....8046.857 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 1979.04 ft.

RUNWAY CENTERLINE OFFSET IS.....77809.58 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....51979.04 ft.

THE SLOPE OF RUNWAY 20 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR D74
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....D74

THE AIRPORT ELEVATION IS:.....65.0 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..24.2744 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....150.919 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> D74 <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 16/34
EXISTING RUNWAY 16/34

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 16/34

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....13278.58 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....66 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...144968.6 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....14621.86 ft.

********** DOES NOT EXCEED **********

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 94968.6 ft.

RUNWAY CENTERLINE OFFSET IS.....13278.58 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....144968.6 ft.

THE SLOPE OF RUNWAY 16 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR CGE
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....CGE

THE AIRPORT ELEVATION IS:.....19.6 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..31.6220 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....94.955 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> CGE <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 16/34
EXISTING RUNWAY 16/34

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 16/34

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.......145678.5 ft.

THE RUNWAY THRESHOLD ELEVATION IS...................15.7 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...123944.3 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS..........18841.64 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 73944.3 ft.

RUNWAY CENTERLINE OFFSET IS.........................145678.5 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS............123944.3 ft.

THE SLOPE OF RUNWAY 16 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 16/34
PROPOSED RUNWAY 16/34

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 16/34

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.......145679.1 ft.

THE RUNWAY THRESHOLD ELEVATION IS...................13.9 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...122940.2 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS..........18691.02 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 72940.2 ft.

RUNWAY CENTERLINE OFFSET IS.........................145679.1 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS............122940.2 ft.

THE SLOPE OF RUNWAY 16 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR WAL
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....WAL

THE AIRPORT ELEVATION IS:.....40.2 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..33.6641 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....8.474 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.21(a)(1) A height exceeding military inner horizontal surface 150' above airport elevation within a 7,500 feet of >> WAL <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.21(a)(2) A height exceeding military conical surface (a slope outward 7,000' from the inner horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

77.21(a)(3) A height exceeding military outer horizontal surface 500' airport elevation between 14,500' and 44,500' of >> WAL <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 04/22
EXISTING RUNWAY 04/22

77.21(b)(1) A height exceeding military primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.21(b)(2) A height exceeding military clear zone surface

********** DOES NOT EXCEED **********

NOT WITHIN MILITARY RUNWAY CLEAR ZONE SURFACE

77.21(b)(3) A height exceeding military approach surface of RUNWAY 04/22

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....83675.76 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....31.3 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...183199.8 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....27729.97 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF

ANY APPROACH TYPE, OUT BY 133199.8 ft.

RUNWAY CENTERLINE OFFSET IS.....83675.76 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....183199.8 ft.

THE SLOPE OF RUNWAY 04 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.21(b)(4) A height exceeding military transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 10/28
EXISTING RUNWAY 10/28

77.21(b)(1) A height exceeding military primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.21(b)(2) A height exceeding military clear zone surface

********** DOES NOT EXCEED **********

NOT WITHIN MILITARY RUNWAY CLEAR ZONE SURFACE

77.21(b)(3) A height exceeding military approach surface of RUNWAY 10/28

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....201565.6 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....35.2 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...26262.63 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....4189.395 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE NOT WITHIN APPROACH SURFACE AREA, OUT BY.....192376.204 ft.

RUNWAY CENTERLINE OFFSET IS.....201565.6 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....26262.63 ft.

THE SLOPE OF RUNWAY 10 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.21(b)(4) A height exceeding military transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 17/35
EXISTING RUNWAY 17/35

77.21(b)(1) A height exceeding military primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.21(b)(2) A height exceeding military clear zone surface

********** DOES NOT EXCEED **********

NOT WITHIN MILITARY RUNWAY CLEAR ZONE SURFACE

77.21(b)(3) A height exceeding military approach surface of RUNWAY 17/35

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....104021.7 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....30.7 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...172986.1 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....26197.92 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 122986.1 ft.

RUNWAY CENTERLINE OFFSET IS.....104021.7 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....172986.1 ft.

THE SLOPE OF RUNWAY 17 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.21(b)(4) A height exceeding military transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR W41
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....W41

THE AIRPORT ELEVATION IS:.....4.1 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..36.1188 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....37.415 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> W41 <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 06/24
EXISTING RUNWAY 06/24

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 06/24

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....20859.39 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....3 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...217451.1 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....21870.11 ft.

********** DOES NOT EXCEED **********

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 167451.1 ft.

RUNWAY CENTERLINE OFFSET IS.....20859.39 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....217451.1 ft.

THE SLOPE OF RUNWAY 06 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 14/32
EXISTING RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 14/32

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....218567 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....3.8 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...13832.36 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....1287.427 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE NOT WITHIN APPROACH SURFACE AREA, OUT BY.....212279.573 ft.

RUNWAY CENTERLINE OFFSET IS.....218567 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....13832.36 ft.

THE SLOPE OF RUNWAY 14 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 14/32
PROPOSED RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 14/32

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....218470.5 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....4 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...13476.33 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....2271.449 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE NOT WITHIN APPROACH SURFACE AREA, OUT BY.....211199.051 ft.

RUNWAY CENTERLINE OFFSET IS.....218470.5 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....13476.33 ft.

THE SLOPE OF RUNWAY 14 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 24/06
PROPOSED RUNWAY 24/06

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 24/06

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....21555.98 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....4 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...219609.4 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....33191.41 ft.

********** DOES NOT EXCEED **********

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 169609.4 ft.

RUNWAY CENTERLINE OFFSET IS.....21555.98 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....219609.4 ft.

THE SLOPE OF RUNWAY 24 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR RJD
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....RJD

THE AIRPORT ELEVATION IS:.....64.0 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..37.0243 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....140.307 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> RJD <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 12/30
EXISTING RUNWAY 12/30

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 12/30

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....116090.9 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....63.6 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...190978.9 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....28896.84 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 140978.9 ft.

RUNWAY CENTERLINE OFFSET IS.....116090.9 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....190978.9 ft.

THE SLOPE OF RUNWAY 12 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 12/30
PROPOSED RUNWAY 12/30

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 12/30

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....115180.8 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....63.6 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...191475 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....28971.25 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 141475 ft.

RUNWAY CENTERLINE OFFSET IS.....115180.8 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....191475 ft.

THE SLOPE OF RUNWAY 12 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR WWD
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....WWD

THE AIRPORT ELEVATION IS:.....21.7 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..37.3482 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....214.515 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> WWD <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 01/19
EXISTING RUNWAY 01/19

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 01/19

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....131585.6 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....22.6 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...183972.3 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....9698.613 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 133972.3 ft.

RUNWAY CENTERLINE OFFSET IS.....131585.6 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....183972.3 ft.

THE SLOPE OF RUNWAY 01 IS: 20 TO 1.

The FAA has defined this runway as a non-utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist use Terps® Professional

software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 10/28
EXISTING RUNWAY 10/28

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 10/28

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....185041.7 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....16.9 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...126383.4 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....19207.51 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 76383.4 ft.

RUNWAY CENTERLINE OFFSET IS.....185041.7 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....126383.4 ft.

THE SLOPE OF RUNWAY 10 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 14/32
EXISTING RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 14/32

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....225300.4 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....20.5 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...28004.61 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....3050.461 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE NOT WITHIN APPROACH SURFACE AREA, OUT BY.....217249.939 ft.

RUNWAY CENTERLINE OFFSET IS.....225300.4 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....28004.61 ft.

THE SLOPE OF RUNWAY 14 IS: 20 TO 1.

The FAA has defined this runway as a non-utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 01/19
PROPOSED RUNWAY 01/19

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 01/19

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....129105.2 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....23 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...185713.2 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....28106.99 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 135713.2 ft.

RUNWAY CENTERLINE OFFSET IS.....129105.2 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....185713.2 ft.

THE SLOPE OF RUNWAY 01 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR ESN
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....ESN

THE AIRPORT ELEVATION IS:.....72.2 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..38.0604 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....119.276 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> ESN <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 04/22
EXISTING RUNWAY 04/22

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 04/22

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....230670.6 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....72.2 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...2099.67 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....762.459 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE NOT WITHIN APPROACH SURFACE AREA, OUT BY.....224908.141 ft.

RUNWAY CENTERLINE OFFSET IS.....230670.6 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....2099.67 ft.

THE SLOPE OF RUNWAY 04 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 15/33
EXISTING RUNWAY 15/33

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 15/33

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....74801.95 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....51 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...217991.2 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....32948.68 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 167991.2 ft.

RUNWAY CENTERLINE OFFSET IS.....74801.95 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....217991.2 ft.

THE SLOPE OF RUNWAY 15 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 22/04
PROPOSED RUNWAY 22/04

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 22/04

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....230672.2 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....67 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...2797.789 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....669.668 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE NOT WITHIN APPROACH SURFACE AREA, OUT BY.....225002.532 ft.

RUNWAY CENTERLINE OFFSET IS.....230672.2 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....2797.789 ft.

THE SLOPE OF RUNWAY 22 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure.

Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR DOV
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....DOV

THE AIRPORT ELEVATION IS:.....28.9 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..38.2999 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....172.643 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.21(a)(1) A height exceeding military inner horizontal surface 150' above airport elevation within a 7,500 feet of >> DOV <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.21(a)(2) A height exceeding military conical surface (a slope outward 7,000' from the inner horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

77.21(a)(3) A height exceeding military outer horizontal surface 500' airport elevation between 14,500' and 44,500' of >> DOV <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 01/19
EXISTING RUNWAY 01/19

77.21(b)(1) A height exceeding military primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.21(b)(2) A height exceeding military clear zone surface

********** DOES NOT EXCEED **********

NOT WITHIN MILITARY RUNWAY CLEAR ZONE SURFACE

77.21(b)(3) A height exceeding military approach surface of RUNWAY 01/19

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....42422.38 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....25 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...228030.5 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....32345.7 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 178030.5 ft.

RUNWAY CENTERLINE OFFSET IS.....42422.38 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....228030.5 ft.

THE SLOPE OF RUNWAY 01 IS: 50 TO 1.

This is a military airport runway. All runways on military airports have a 50:1 approach obstacle surface that extends 50,000 feet. It has a maximum height of 500 feet above the established airport elevation.

77.21(b)(4) A height exceeding military transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 14/32
EXISTING RUNWAY 14/32

77.21(b)(1) A height exceeding military primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.21(b)(2) A height exceeding military clear zone surface

********** DOES NOT EXCEED **********

NOT WITHIN MILITARY RUNWAY CLEAR ZONE SURFACE

77.21(b)(3) A height exceeding military approach surface of RUNWAY 14/32

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....169109.9 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....25 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...228030.5 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....22373.7 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 178030.5 ft.

RUNWAY CENTERLINE OFFSET IS.....169109.9 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....228030.5 ft.

THE SLOPE OF RUNWAY 14 IS: 50 TO 1.

This is a military airport runway. All runways on military airports have a 50:1 approach obstacle surface that extends 50,000 feet. It has a maximum height of 500 feet above the established airport elevation.

77.21(b)(4) A height exceeding military transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

****
BEGIN AIRPORT ANALYSIS FOR 15N
****

77.17(a)(2) A height AGL or airport elevation, whichever is higher.

********** DOES NOT EXCEED **********

BECAUSE: Proposed height does not exceed 200 feet AGL.

THE REFERENCE AIRPORT IDENT IS:.....15N

THE AIRPORT ELEVATION IS:.....53.0 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:..38.6944 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:.....164.361 DEGREES

THE HEIGHT OF THE STRUCTURE IS:.....199 ft.

77.19(a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> 15N <<.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

****
* BEGIN RUNWAY ANALYSIS *
****

RUNWAY 12/30
EXISTING RUNWAY 12/30

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 12/30

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....181623.1 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....53 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...147674 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....14892.41 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED GREATER THAN 50,000 ft. FROM THE START OF ANY APPROACH TYPE, OUT BY 97674 ft.

RUNWAY CENTERLINE OFFSET IS.....181623.1 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....147674 ft.

THE SLOPE OF RUNWAY 12 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

RUNWAY 18/36
EXISTING RUNWAY 18/36

77.19(c) A height exceeding runway primary surface.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 18/36

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS.....28380.04 ft.

THE RUNWAY THRESHOLD ELEVATION IS.....54 ft.

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS...232318.2 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS.....23356.82 ft.

********** DOES NOT EXCEED **********

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 182318.2 ft.

RUNWAY CENTERLINE OFFSET IS.....28380.04 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS.....232318.2 ft.

THE SLOPE OF RUNWAY 18 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

77.19(e) A height exceeding a transitional surface runway.

********** DOES NOT EXCEED **********

NOT WITHIN SPECIFIED RUNWAY TRANSITIONAL SURFACE

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11:00:38

****
* VFR - TRAFFIC PATTERN AIRSPACE ANALYSIS *
****

SITE ID: Millsboro Hwy TRANSACTION ID: 35755014

LATITUDE: 38° 29' 44.820" LONGITUDE: 75° 21' 39.880"

SITE ELEVATION AMSL . . . . . 40 ft.
STRUCTURE HEIGHT. . . . . 199 ft.
OVERALL HEIGHT AMSL . . . . . 239 ft.

Traffic Pattern Airspace, a structure that exceed any of the following maximum allowable heights is considered to constitute a hazard to air navigation :

1. The height of the transition surface (other than abeam the runway), the approach slope, the horizontal surface, and the conical surface(as applied to visual approach runways).

2. Beyond the lateral limits of the conical surface and in the climb/descent area - 350' above airport elevation or the height of part 77.17(a)(2), whichever is greater not to exceed 499' above ground level (AGL). The climb / descent area begins abeam the runway threshold being used and is the area where the pilot is either descending to land on the runway or climbing to pattern altitude after departure.

3. Beyond the lateral limits of the conical surface and NOT in the climb/descent area of any runway. - Above Airport Elevation not to exceed 499' AGL.

**********Landing Facility Identifier**********

N06

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): Does Not Apply.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing
Runway 15/33 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.

**********Landing Facility Identifier**********

GED

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing
Runway 04/22 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.
Proposed
Runway 10/28 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.
Proposed
Runway 04/22 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.
Runway 10/28 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.

**********Landing Facility Identifier**********

SBY

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing
Runway 05/23 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.
Existing
Runway 14/32 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.
Proposed
Runway 05/23 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.
Proposed
Runway 14/32 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.

**********Landing Facility Identifier**********

1N5

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): Does Not Apply.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing
Runway 08/26 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.
Existing
Runway 17/35 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.

**********Landing Facility Identifier**********

OXB

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing
Runway 02/20 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.
Existing
Runway 14/32 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.
Proposed
Runway 14/32 DNE Runway VFR Approach Surface.
DNE Runway VFR Transitional Surface.
DNE Runway VFR Primary Surface.
Proposed

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        Runway 20/02       DNE Runway VFR Approach Surface.
                           DNE Runway VFR Transitional Surface.
                           DNE Runway VFR Primary Surface.

       ************************Landing Facility Identifier************************

                                          D74
FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

        Existing
        Runway 16/34       DNE Runway VFR Approach Surface.
                           DNE Runway VFR Transitional Surface.
                           DNE Runway VFR Primary Surface.

       ************************Landing Facility Identifier************************

                                          CGE
FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

        Proposed
        Runway 16/34       DNE Runway VFR Approach Surface.
                           DNE Runway VFR Transitional Surface.
                           DNE Runway VFR Primary Surface.
        Runway 16/34       DNE Runway VFR Approach Surface.
                           DNE Runway VFR Transitional Surface.
                           DNE Runway VFR Primary Surface.

       ************************Landing Facility Identifier************************

                                          WAL
FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

        Existing
        Runway 04/22       DNE Runway VFR Approach Surface.
                           DNE Runway VFR Transitional Surface.
                           DNE Runway VFR Primary Surface.
        Existing
        Runway 10/28       DNE Runway VFR Approach Surface.
                           DNE Runway VFR Transitional Surface.
                           DNE Runway VFR Primary Surface.
        Existing
        Runway 17/35       DNE Runway VFR Approach Surface.
                           DNE Runway VFR Transitional Surface.
                           DNE Runway VFR Primary Surface.

       ************************Landing Facility Identifier************************

                                          W41
FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.
```

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing	
Runway 06/24	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Existing	
Runway 14/32	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Proposed	
Runway 14/32	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Proposed	
Runway 24/06	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.

**********Landing Facility Identifier**********

RJD

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Proposed	
Runway 12/30	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Runway 12/30	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.

**********Landing Facility Identifier**********

WWD

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing	
Runway 01/19	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Existing	
Runway 10/28	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Existing	
Runway 14/32	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Proposed	
Runway 01/19	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.

**********Landing Facility Identifier**********

DOV

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing	
Runway 01/19	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Existing	
Runway 14/32	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.

**********Landing Facility Identifier**********

ESN

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater than 5.99 NM.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing	
Runway 04/22	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Existing	
Runway 15/33	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Proposed	
Runway 22/04	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.

**********Landing Facility Identifier**********

15N

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): Does Not Apply.
DNE VFR Horizontal Surface.
DNE VFR Conical Surface.

DNE VFR - Traffic Pattern Airspace Climb/Descent Area.

DNE VFR - Traffic Pattern Airspace Cross Traffic Area.

Existing	
Runway 12/30	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.
Existing	
Runway 18/36	DNE Runway VFR Approach Surface.
	DNE Runway VFR Transitional Surface.
	DNE Runway VFR Primary Surface.

* ********** *
* The above analysis was conducted using default parameters - Category C *
* aircraft and a maximum of 4 like category aircraft in the VFR -Traffic *
* Pattern at one time. *
* *
* To view a graphical image of VFR - Traffic Pattern Airspace for these *
* airports use Terps® Professional Software. Open the airport and Airspace® *
* study. From the Map Menu select 'VFR - Traffic Pattern Airspace'. The *
* proposed structure, airport, and the traffic pattern will now be shown *
* together. Use this information to locate an alternate site if necessary. *

* **

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****
* AIRWAY ANALYSIS *
* FAR 77.17(a)(4) (EN ROUTE CRITERIA) *
* MINIMUM OBSTACLE CLEARANCE ALTITUDE (MOCA) *
* MINIMUM ENROUTE ALTITUDE (MEA) *
****

SITE ID: Millsboro Hwy TRANSACTION ID: 35755014

LATITUDE: 38° 29' 44.820" LONGITUDE: 75° 21' 39.880"

SITE ELEVATION AMSL . . . . . 40 ft.
STRUCTURE HEIGHT. . . . . 199 ft.
OVERALL HEIGHT AMSL . . . . . 239 ft.

AIRWAY	SEQUENCE	LATITUDE	LONGITUDE	MEA	LENGTH (NM)
Q133	20	38-16-10.9N	075-24-32.98W	18000	30.47
Q133	30	38-46-16.0N	075-18-09.0W	18000	

Minimum Obstacle Clearance Altitude (MOCA) is: 18000 AMSL.

Proposed structure is between the above points along Airway Q133.The Abeam distance from the course centerline is 0.00 NM.The proposed structure is within the width of the primary area of this airway.The width of the primary area of this airway is 8 NM.The minimum en route altitude(MEA) for this airway segment Is 17000 feet AMSL.Any Height above 17000 feet AMSL will not be approved.Your proposed structure must remain below this value.

AIRWAY	SEQUENCE	LATITUDE	LONGITUDE	MEA	LENGTH (NM)
Q481	20	38-16-10.9N	075-24-32.98W	18000	30.47
Q481	30	38-46-16.0N	075-18-09.0W	18000	

Minimum Obstacle Clearance Altitude (MOCA) is: 18000 AMSL.

Proposed structure is between the above points along Airway Q481.The Abeam distance from the course centerline is 0.00 NM.The proposed structure is within the width of the primary area of this airway.The width of the primary area of this airway is 8 NM.The minimum en route altitude(MEA) for this airway segment Is 17000 feet AMSL.Any Height above 17000 feet AMSL will not be approved.Your proposed structure must remain below this value.

AIRWAY	SEQUENCE	LATITUDE	LONGITUDE	MEA	LENGTH (NM)
T303	130	38-20-20.33N	075-32-01.85W	1900	32.04
T303	140	38-48-35.317N	075-12-40.761W	1800	

Minimum Obstacle Clearance Altitude (MOCA) is: 1900 AMSL.

Proposed structure is between the above points along Airway T303.The Abeam distance from the course centerline is 2.70 NM.The proposed structure is within the width of the primary area of this airway.The width of the primary area of this airway is 8 NM.The minimum en route altitude(MEA) for this airway segment Is 900 feet AMSL.Any Height above 900 feet AMSL will not be approved.Your proposed structure must remain below this value.

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****
* IFR RUNWAY DEPARTURE SURFACE ANALYSIS *
****

SITE ID: Millsboro Hwy TRANSACTION ID: 35755014

LATITUDE: 38° 29' 44.820" LONGITUDE: 75° 21' 39.880"

SITE ELEVATION AMSL . . . . . 40 ft.
STRUCTURE HEIGHT. . . . . 199 ft.
OVERALL HEIGHT AMSL . . . . . 239 ft.

An airport with at least one instrument approach procedure (IAP) will require all airport runways to be analyzed using 40: 1 criteria for Departure. FAA application of the 40: 1 screening criteria extendes 22.09 nautical miles and 180° semi - circle area around the Runway centerline extended. Penetration of the 40: 1 surface will result initially in a determination of presumed hazard (NPH). An extended study is normally required to remove the NPH.

A specified climb gradient (CG) greater than the standard (200 ft / nm) is sometimes necessary to allow acceptable obstacle clearance. Should the proposed location exceed the maximum height you may need to determine if there is a published climb gradient and conduct additional calculations to determine if the climb gradient will provide proper clearance for the proposed structure. Should you require additional assistance please contact Federal Airways & Airspace or another aeronautical consult to perform these calculations.

Ident	Dep Rwy	Elev	Distance	40:1	Max Hgt	CG	Rwy Status
N06	15	30.1	67454	DNE	Below	DNE	Existing Rwy
GED	22	48.9	68161	DNE	Below	DNE	Existing Rwy
GED	10/28		DNE		Between	DNE	
GED	22	49	67500	DNE	Below	DNE	Proposed Rwy
GED	10/28		DNE		Between	DNE	
SBY	05	50	68948	DNE	Below	DNE	Existing Rwy
SBY	14/32		DNE		Between	DNE	
SBY	05	50	68947	DNE	Below	DNE	Proposed Rwy
SBY	14/32		DNE		Between	DNE	
1N5	08	44	78618	DNE	Below	DNE	Existing Rwy
1N5	17	46	78846	DNE	Below	DNE	Existing Rwy
OXB	02	10.9	94218	DNE	Below	DNE	Existing Rwy
OXB	32	11.2	94249	DNE	Below	DNE	Existing Rwy
OXB	32	12	92864	DNE	Below	DNE	Proposed Rwy
OXB	02	11	93796	DNE	Below	DNE	Proposed Rwy
D74	16	66	145739	DNE	Beyond	DNE	Existing Rwy
CGE	16	15.7	190717	DNE	Beyond	DNE	Existing Rwy
CGE	16	13.9	190073	DNE	Beyond	DNE	Proposed Rwy
WAL	04	31.3	201510	DNE	Beyond	DNE	Existing Rwy
WAL	10	35.2	203268	DNE	Beyond	DNE	Existing Rwy
WAL	35	30.7	202128	DNE	Beyond	DNE	Existing Rwy
W41	06	3	218544	DNE	Beyond	DNE	Existing Rwy
W41	32	3.8	219088	DNE	Beyond	DNE	Existing Rwy
W41	32	4	218968	DNE	Beyond	DNE	Proposed Rwy
W41	06	4	220755	DNE	Beyond	DNE	Proposed Rwy
RJD	12	63.6	224209	DNE	Beyond	DNE	Existing Rwy
RJD	12	63.6	224160	DNE	Beyond	DNE	Proposed Rwy
WWD	19	22.6	225816	DNE	Beyond	DNE	Existing Rwy
WWD	28	16.9	224698	DNE	Beyond	DNE	Existing Rwy
WWD	14	20.5	226918	DNE	Beyond	DNE	Existing Rwy
WWD	19	23	225816	DNE	Beyond	DNE	Proposed Rwy
ESN	04	72.2	230700	DNE	Beyond	DNE	Existing Rwy
ESN	15	51	230112	DNE	Beyond	DNE	Existing Rwy
ESN	04	67	230715	DNE	Beyond	DNE	Proposed Rwy
DOV	19	25	228227	DNE	Beyond	DNE	Existing Rwy
DOV	14	25	228206	DNE	Beyond	DNE	Existing Rwy

Ident	Dep Rwy	Elev	Distance	40:1	Max Hgt	CG	Rwy Status
15N	12	53	234484	DNE	Beyond	DNE	Existing Rwy
15N	18	54	234175	DNE	Beyond	DNE	Existing Rwy

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****
* NAVAIDS IN PROXIMITY OF CASE *
****

SITE ID: Millsboro Hwy TRANSACTION ID: 35755014

LATITUDE: 38° 29' 44.820" LONGITUDE: 75° 21' 39.880"

SITE ELEVATION AMSL . . . . . 40 ft.
STRUCTURE HEIGHT. . . . . 199 ft.
OVERALL HEIGHT AMSL . . . . . 239 ft.

FAC IDNT	TYPE	ST AT	FREQ	VECTOR	DIST (ft)	DELTA ELEVA	ST	LOCATION	GRD ANGLE	APCH BEAR
N06	UN	I	122.80	284.28	68845	+209	DE	LAUREL	.17	
SBY	VORTAC	R	111.2	217.91	69638	+191	MD	SALISBURY	.16	
GED	UN	I	123.00	.42	69863	+186	DE	DELAWARE COASTAL	.15	
SBY	GLIDE SLOPE	I	330.5	214.86	70001	+191	MD	RWY 32 SBY	.16	319
SBY	LOCALIZER	I	108.7	220.06	70497	+195	MD	RWY 32 SALISBURY-	.16	319
SBY	UN	I	122.95	216.83	70849	+186	MD	SALISBURY-OCEAN C	.15	
SBY	ATCT	I	A/G	218.42	71209	+121	MD	SALISBURY-OCEAN C	.10	
1N5	UN	I	122.80	247.49	79263	+193	MD	BENNETT	.14	
11MD	UN	I	122.70	253.33	79682	+197	MD	TIM'S	.14	
OXB	LOCALIZER	I	109.1	134.7	93618	+226	MD	RWY 32 OCEAN CITY	.14	325
OXB	UN	I	123.05	134.88	95776	+227	MD	OCEAN CITY MUNI	.14	
ATR	VOR/DME	R	112.6	20.46	122102	+234	DE	WATERLOO	.11	
DOX	RADAR WXL	Y		349.4	122197	+75	DE	ELLENDALE	.04	
SWL	VORTAC	R	112.4	190.42	162644	+205	MD	SNOW HILL	.07	
ZDC	CO	Y	A/G	190.42	162713	+206	MD	SNOW HILL	.07	
CGE	UN	I	122.70	274.94	192166	+219	MD	CAMBRIDGE-DORCHES	.07	
MD57	UN	I	122.80	202.39	192603	+229	MD	BEVERLY	.07	
0N6	UN	I	123.00	345.38	194677	+189	DE	ALBANNA AVIATION	.06	
VG19	UN	I	122.80	199.75	195525	+226	VA	SAWYER	.07	
WAL	ATCT	I	A/G	188.56	204039	+119	VA	WALLOPS FLIGHT FA	.03	
2DE3	UN	I	122.80	333.71	206242	+184	DE	HRUPSA	.05	
W41	UN	I	122.80	217.42	219414	+235	MD	CRISFIELD-SOMERSE	.06	
RJD	UN	I	122.80	320.32	224979	+175	MD	GOODEN AP	.04	
CEJ	LOCALIZER	U	108.9	35.1	225129	+220	NJ	RWY 19 CAPE MAY C	.06	190
WWD	UN	I	122.70	34.52	226958	+217	NJ	CAPE MAY CNTY	.05	
LIR	LOCALIZER	I	111.9	352.55	227109	+215	DE	RWY 19 DOVER AFB	.05	195
DOV	GLIDE SLOPE	I	333.6	352.77	229179	+218	DE	RWY 01 DOV	.05	15
DOV	RADAR ASR	I		353.09	229348	+138	DE	DOVER AFB	.03	
FGH	GLIDE SLOPE	I	331.8	298.82	230570	+202	MD	RWY 04 ESN	.05	41
FGH	LOCALIZER	I	109.3	300.15	230684	+172	MD	RWY 04 EASTON/NEW	.04	41
DOV	ATCT	I	A/G	352.25	231303	+106	DE	DOVER AFB	.03	
ESN	ATCT	I	A/G	299.38	231823	+132	MD	EASTON ATCT	.03	
DOV	TACAN	I	110.0	352.59	233825	+222	DE	DOVER	.05	
15N	UN	I	122.80	344.37	235148	+186	DE	JENKINS	.05	

FAC IDNT	TYPE	ST AT	FREQ	VECTOR	DIST (ft)	DELTA ELEVA	ST	LOCATION	GRD ANGLE	APCH BEAR
LIR	GLIDE SLOPE	I	331.1	353.1	236569	+225	DE	RWY 19 DOV	.05	195
DOV	LOCALIZER	I	109.9	353.1	239246	+220	DE	RWY 01 DOVER AFB	.05	15
2NJ2	UN	I	122.70	41.4	240590	+229	NJ	SPORTLAND PIER	.05	

THE NEAREST AIR NAVIGATION FACILITY TO CASE COORDINATES IS: N06 (UN)

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****
* AM RADIO STATIONS *
* Disturbance of AM Broadcast Station Antenna Pattern *
* CFR Title 47, Part 1, Subpart BB *
****

SITE ID: Millsboro Hwy TRANSACTION ID: 35755014

LATITUDE: 38° 29' 44.820" LONGITUDE: 75° 21' 39.880"

SITE ELEVATION AMSL . . . . . 40 ft.
STRUCTURE HEIGHT. . . . . 199 ft.
OVERALL HEIGHT AMSL . . . . . 239 ft.

CALL SIGN	FREQ KHz	POWER Watts	ANT MOD	P T	DIST Meters	BEARING Degrees	NAD83 LATITUDE	NAD83 LONGITUDE	CITY	ST
No data available in table										

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****
* COMMUNICATION FACILITIES IN PROXIMITY OF CASE *
****

SITE ID: Millsboro Hwy TRANSACTION ID: 35755014

LATITUDE: 38° 29' 44.820" LONGITUDE: 75° 21' 39.880"

SITE ELEVATION AMSL . . . . . 40 ft.
STRUCTURE HEIGHT. . . . . 199 ft.
OVERALL HEIGHT AMSL . . . . . 239 ft.

IDENT	FACILITY	LOCATION NAME	ST	BEARING (deg) Case to FAC	DISTANCE (ft)
N06	UN	LAUREL	DE	284.22	68779
GED	UN	DELAWARE COASTAL	DE	.45	69823
GED	ASOS	GEORGETOWN	DE	359.73	70631
SBY	UN	SALISBURY-OCEAN CITY	MD	216.8	70893
SBY	ATCT	SALISBURY-OCEAN CITY	MD	218.36	71240
SBY	ASOS	SALISBURY	MD	217.61	71277
1N5	UN	BENNETT	MD	247.41	79231
11MD	UN	TIM'S	MD	253.33	79682
OXB	UN	OCEAN CITY MUNI	MD	134.9	95836
OXB	ASOS	OCEAN CITY	MD	135.04	96306
ATR	BUEC	WATERLOO	DE	20.42	122037
DOX	NEXRAD	ELLENDALE	DE	349.4	122197
ZDC	CO	SNOW HILL	MD	190.42	162713
CGE	UN	CAMBRIDGE-DORCHESTER	MD	274.93	192131
CGE	AWOS-3	CAMBRIDGE	MD	274.68	192227
MD57	UN	BEVERLY	MD	202.37	192619
0N6	UN	ALBANNA AVIATION	DE	345.39	194632
VG19	UN	SAWYER	VA	199.73	195544
WAL	ASOS	WALLOPS ISLAND	VA	188.16	203872
WAL	ATCT	WALLOPS FLIGHT FACILI	VA	188.54	204070
2DE3	UN	HRUPSA	DE	333.71	206242
W41	UN	CRISFIELD-SOMERSET CN	MD	217.4	219413
RJD	UN	GOODEN AP	MD	320.32	224913
WWD	UN	CAPE MAY CNTY	NJ	34.53	226977
WWD	AWOS-3	WILDWOOD	NJ	34.45	227732
DOV	ASR	DOVER AFB	DE	353.09	229326
ESN	AWOS-3	EASTON	MD	299.28	231259
DOV	ATCT	DOVER AFB	DE	352.26	231287
ESN	ATCT	EASTON ATCT	MD	299.38	231760
15N	UN	JENKINS	DE	344.38	235090
2NJ2	UN	SPORTLAND PIER	NJ	41.4	240590

THE NEAREST COMMUNICATION FACILITY TO CASE COORDINATES IS: N06

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****
* NOS OBSTRUCTIONS NEAR CASE *
****

SITE ID: Millsboro Hwy TRANSACTION ID: 35755014

LATITUDE: 38° 29' 44.820" LONGITUDE: 75° 21' 39.880"

SITE ELEVATION AMSL . . . . . 40 ft.
STRUCTURE HEIGHT. . . . . 199 ft.
OVERALL HEIGHT AMSL . . . . . 239 ft.

Obstacle Search Range = 40000

V	TYPE OBSTACLE	CITY	ST	LATITUDE	LONGITUDE	RANGE	DEG	QUAN	AMSL	AGL	L	AH	AV	MK	FAA NUMBER	JULIN DATE	A
U	TANK	GEORGETOWN	DE	38-29-36.00	075-22-19.00		254	1	175	00125	U	4	D	U	0067_NY00270OE	2014124	C
O	TOWER	MILLSBORO	DE	38-32-07.84	075-21-27.50		4	1	199	00155	N	1	A	N	2013AEA00142OE	2014024	A
O	TOWER	DAGSBORO	DE	38-31-28.80	075-17-52.65		60	1	559	00520	R	4	D	P	2015AEA01539OE	2017025	C
O	TOWER	MILLSBORO	DE	38-34-30.14	075-20-18.12		13	1	440	00404	D	4	D	N	2025AEA04830OE	2025305	C
U	TOWER	FORD	DE	38-34-41.00	075-24-51.00		333	1	160	00145	U			U		1976053	A
O	TOWER	MILLSBORO	DE	38-34-45.00	075-17-03.00		36	1	344	00320	R	5	D	M	1987AEA00626OE	2014152	C
U	TOWER	MILLSBORO	DE	38-36-08.30	075-21-39.10		0	1	199	00155	R	4	D	N	2017AEA03968OE	2019242	A

DEFINITIONS
The data for each obstacle record is in the following format:

Field	Data Element	Description
1	"O" or "U"	Verification Status "O": verified "U": unverified
2	Obstacle Type	1. Arch 15. Plant 2. Balloon 16. Pole' 3. Bridge 17. Rig 4. Bldg 18. Refinery 5. Bldg-Twr 19. Sign 6. Catenary 20. Spire 7. Cool TWR 21. Stack 8. Crane 22. Stacks 9. Crane T 23. Tank 10. Ctrl Twr 24. T-L Twr 11. Dam 25. Tower 12. Dome 26. Towers 13. Elevator 27. Tramway 14. Monument 28. Windmill
3	City Name	City
4	State Identifier	State
5	Latitude	Latitude (NAD 1883)
6	Longitude	Longitude (NAD 1983)
7	Range	Distance from Aeronautical Study to NOS Obstruction (feet)
8	DEG	Bearing from Aeronautical Study to NOS Obstruction (feet)
9	Freq	Charted AM station Frequency
10	AMSL	Above Mean Sea Level Height (Feet)
11	AGL	Above Ground Level Height (Feet)
12	Strobe Indicator	(L)ighting, type of "S": High Intensity White Strobe Lighting "M": Medium Intensity White Strobe Lighting "R": Red Lighting "H": Dual, Red with HIGH Intensit White Strobe "D": Dual, Red with MEDIUM Intensity White Strobe "F": Flood Lights "N": No Lights "L": Other, Lighting not listed above
13, 14	Accuracy H V	A Horizontal / A Vertical Accuracy

HORIZONTAL Code	HORIZONTAL Tolerance	VERTICAL Code	VERTICAL Tolerance
1	+-20'	A	+-3'

		A Horizontal Accuracy HORIZONTAL		A Vertical Accuracy VERTICAL	
		Code	Tolerance	Code	Tolerance
		2	+-50'	B	+-10'
		3	+-100'	C	+-20'
		4	+-250'	D	+-50'
		5	+-500'	E	+-125'
		6	+-1000'	F	+-250'
		7	+-1/2 NM'	G	+-500'
		8	+-1M'	H	+-1000'
		9	Unknown	I	Unknown
15	Mark Indicator	Type of Marking "P": Orange or Orange and White Paint "W": White Paint Only "M": Marked "F": Flag Marker "S": Spherical Marker "N": None "U": Unknown			
16	FAA Study Number or NOS Source Code	NOS Source Code (when FAA study number is not available)			
		99CF0000	7610 Form		
		99AM0000	FCC AM List		
		99FM0000	FCC FM List		
		99FC0000	Flight Check		
		99SP0000	Stereoplot		
		99IP0000	IAP Procedures		
		99VR0000	Visual Reported		
		99LR0000	Letter Reported		
		99TR0000	Telephone Reported		
		99MS0000	MSAW Reported		
		99OC####	OC Charts		
		99HC0000	Horizontal Ctrl Data		
		99LM0000	Landmark for Charts		
17	Action: A, C, D, Julian Date	Add, Change, Dismantle, Date of Action *			

* A revision has modified the Julian date field by NOS.The numeric, 5-digit field (YYDDD) has changed to a 7-digit field (YYYYDDD) field.

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****
PRIVATE LANDING FACILITIES IN PROXIMITY OF CASE
****

SITE ID: Millsboro Hwy TRANSACTION ID: 35755014

LATITUDE: 38° 29' 44.820" LONGITUDE: 75° 21' 39.880"

SITE ELEVATION AMSL . . . . . 40 ft.
STRUCTURE HEIGHT. . . . . 199 ft.
OVERALL HEIGHT AMSL . . . . . 239 ft.

FACIL IDENT	TYP	NAME	BEARING To FACIL	RANGE IN NM	DELTA ARP ELEVATION	FAR P77	FAA PROTECTED IFR PROCEDURE
6MD8	AIR	DELMARVAIR	211.58	3.77	+184	NO	
DE21	AIR	WEST PVT	82.02	9.3	+218	NO	
4MD1	AIR	BUNTING'S FLD	141.31	9.82	+234	NO	
4MD3	AIR	CAREY FLD	109.55	10.08	+216	NO	
DE22	HEL	BEEBE	78.49	10.57	+220	NO	
2MD4	AIR	ENNIS AERODROME	236.66	11.07	+195	NO	
31MD	HEL	AGH	142.76	11.72	+227	NO	
11MD	AIR	TIM'S	253.32	13.11	+197	NO	
MD49	HEL	PENINSULA RGNL MEDICAL CENTER	234.2	13.71	+198	NO	
MD35	AIR	SPRING HILL	254.92	14.16	+197	NO	
7MD6	HEL	OCFD NORTHSIDE PARK	105.36	14.74	+235	YES	IFR Procedure
DE23	AIR	OCKEL FARMS	.2	15.25	+192	NO	
DE14	AIR	HUEY	331.24	16.97	+194	NO	
DE15	AIR	RELIANCE	293.8	17.4	+199	NO	
DE25	AIR	EAGLE CREST-HUDSON	19.58	17.82	+211	NO	
5MD4	AIR	OAK GROVE FARM	299.74	19.5	+195	NO	
DE17	AIR	SUGAR HILL	328.34	19.87	+194	NO	
MD80	AIR	BARREN CREEK FLD	263.12	20.69	+218	NO	
39DE	HEL	BAYHEALTH MEDICAL CENTER	356.57	23.49	+37	NO	
2DE2	AIR	WILLAVIEW	335.33	23.7	+176	NO	
3MD5	AIR	HIDDEN HILLS	288.53	23.82	+219	NO	
5MD5	AIR	ARCADIA FARMS	222.36	24.35	+221	NO	
2DE8	AIR	MURPHY'S LANDING	1.7	25.05	+229	NO	
7MD1	AIR	MAGENNIS FARM	298.5	26.19	+199	NO	
9MD9	AIR	G W FARM	324.27	26.33	+189	NO	
MD00	AIR	FAIR'S	198.56	28.44	+217	NO	
DE32	AIR	BELFAIR	337.41	31.13	+175	NO	
7MD7	AIR	BOOMERS FLD	199.38	31.5	+217	NO	
MD57	AIR	BEVERLY	202.39	31.71	+229	NO	
28DE	AIR	ALBANNA AVIATION	345.39	32.03	+189	NO	
VG19	AIR	SAWYER	199.74	32.19	+226	NO	
76DE	HEL	JT21	346.6	32.39	+199	NO	
6MD1	AIR	DILEO FLD	308.71	32.76	+189	NO	
DE00	AIR	DOYLE'S	342.2	33.06	+188	NO	
29MD	HEL	UMM SHORE MEDICAL CENTER AT CA	276.89	33.12	+222	NO	
88MD	AIR	BEAVEN FLD	303.78	33.4	+198	NO	
MD33	HEL	DORCHESTER GENERAL HOSPITAL	278.09	33.55	+227	NO	
2DE3	AIR	HRUPSA	333.71	33.94	+184	NO	
DE09	AIR	JOHNSONS	350.15	34.82	+196	NO	
8MD4	AIR	SPIERING	326.18	35.03	+184	NO	
MD28	AIR	EWING	302.54	35.11	+189	NO	

FACIL IDENT	TYP	NAME	BEARING To FACIL	RANGE IN NM	DELTA ARP ELEVATION	FAR P77	FAA PROTECTED IFR PROCEDURE
VA41	AIR	HIGH HOPES	199.2	35.65	+230	NO	
MD29	HEL	MEML HOSPITAL	296.27	37.46	+157	NO	
DE24	HEL	ELLIOTT	349.64	37.51	+214	NO	
MD52	HEL	MCCREADY MEML HOSPITAL	217.77	37.86	+236	NO	
14NJ	HEL	WUERKERS NEW ACRES FARM	35.65	37.92	+217	NO	
7MD0	AIR	OUR DOMAIN	333.08	38.42	+174	NO	
MD96	HEL	SHORE REGIONAL MEDICAL CENTER	300.89	38.61	+175	NO	
3MD8	AIR	POKETY	280.62	38.76	+229	NO	

THE NEAREST PRIVATE USE LANDING FACILITY IS: DELMARVAIR
DELMARVAIR is an Airport type landing facility.

landing facilities with IFR procedures are protected under FAR 77.17 (a) (3).

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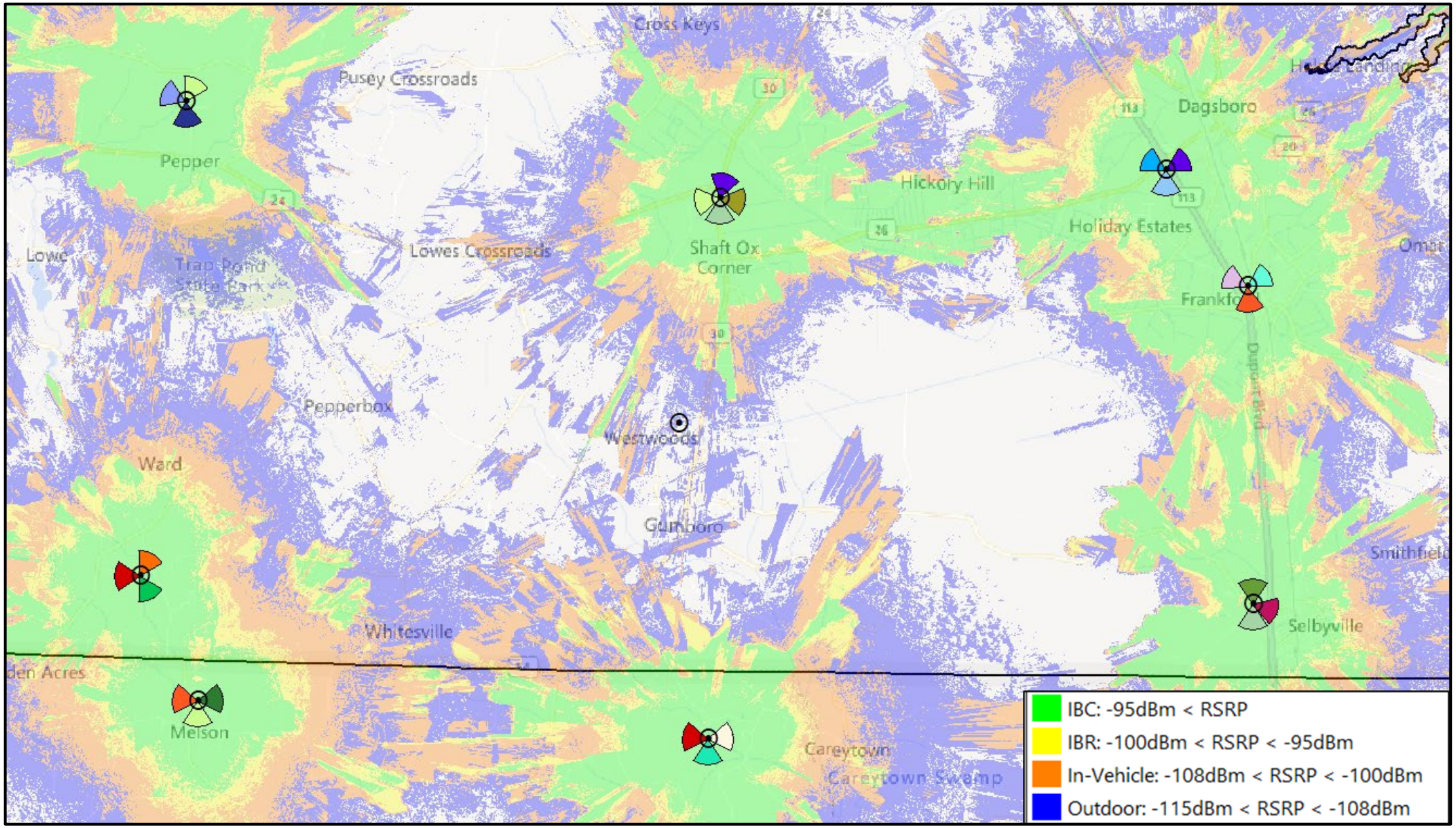
03-27-2026
11:00:38

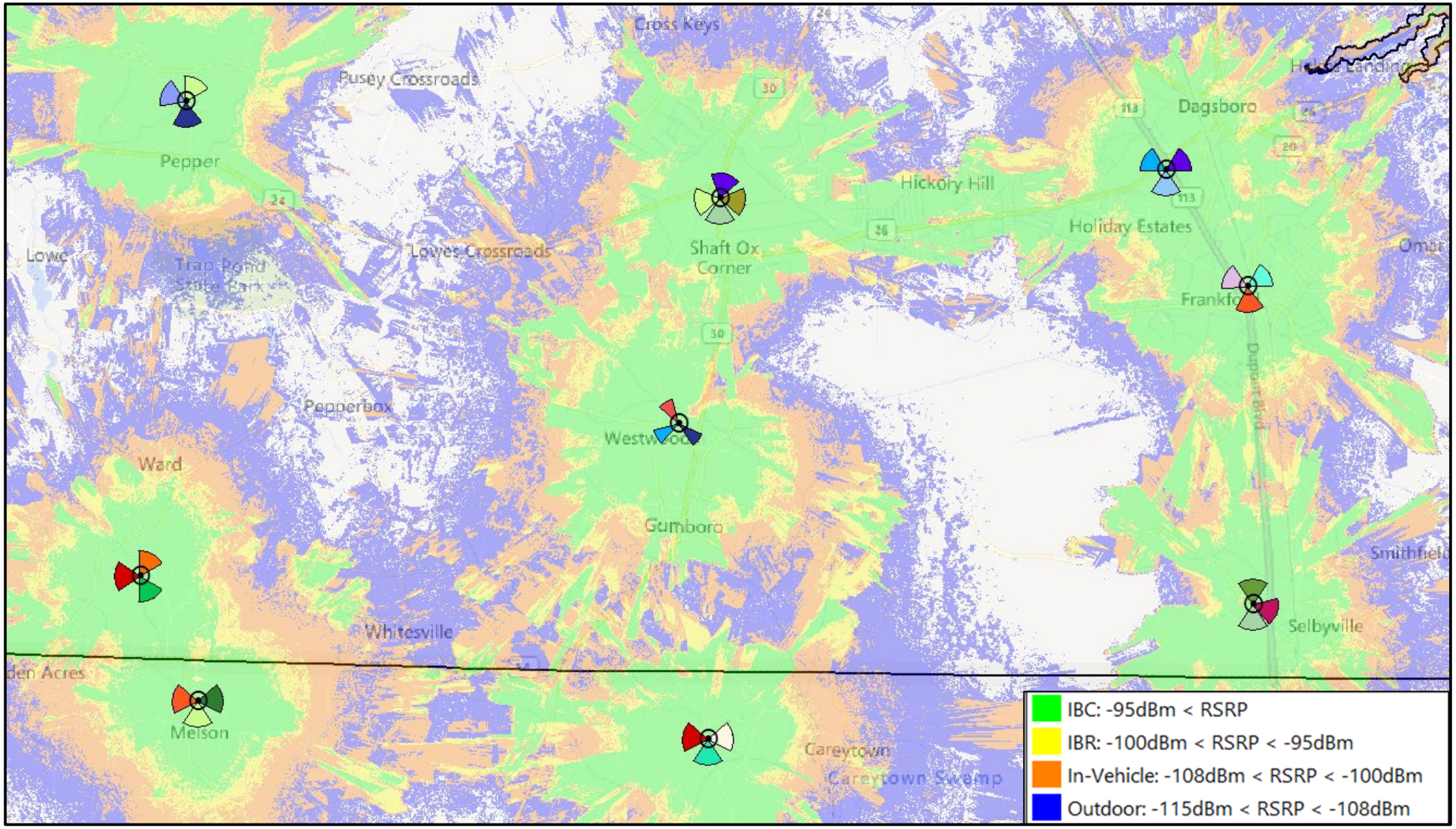


Region: Northeast
Market: PHILADELPHIA PA
Site ID: 1SU4500B
Submission Date: 3/27/2026

Existing LTE (L2100) Coverage



Proposed LTE (L2100) with 1SU4500B



PO Box 165
Fairview Village, PA 19409
Phone: 610.304.2024
www.dBmEng.com

DBM ENGINEERING, P.C.

April 7, 2026
Sam Averna
NETWORK TOWERS
120 Eastshore Drive, Suite 300
Glen Allen, VA 23059

Subject: **Two-Mile Inventory**
"Millsboro" DE-T25.04
22311 Bald Branch Road
Millsboro, DE 19966
Latitude: N 38.495785° (NAD 83)
Longitude: W 75.361079° (NAD 83)

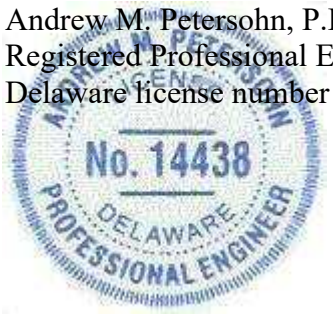
Mr. Averna:

I have received and executed your request that I compile an inventory of existing tall structures located within two miles of the proposed tower at the above-referenced location. As a registered Professional Engineer, I am bound by a code of ethics to hold paramount the safety, health, and welfare of the public. All statements and calculations offered herein are made in an objective and truthful manner pursuant to that code.

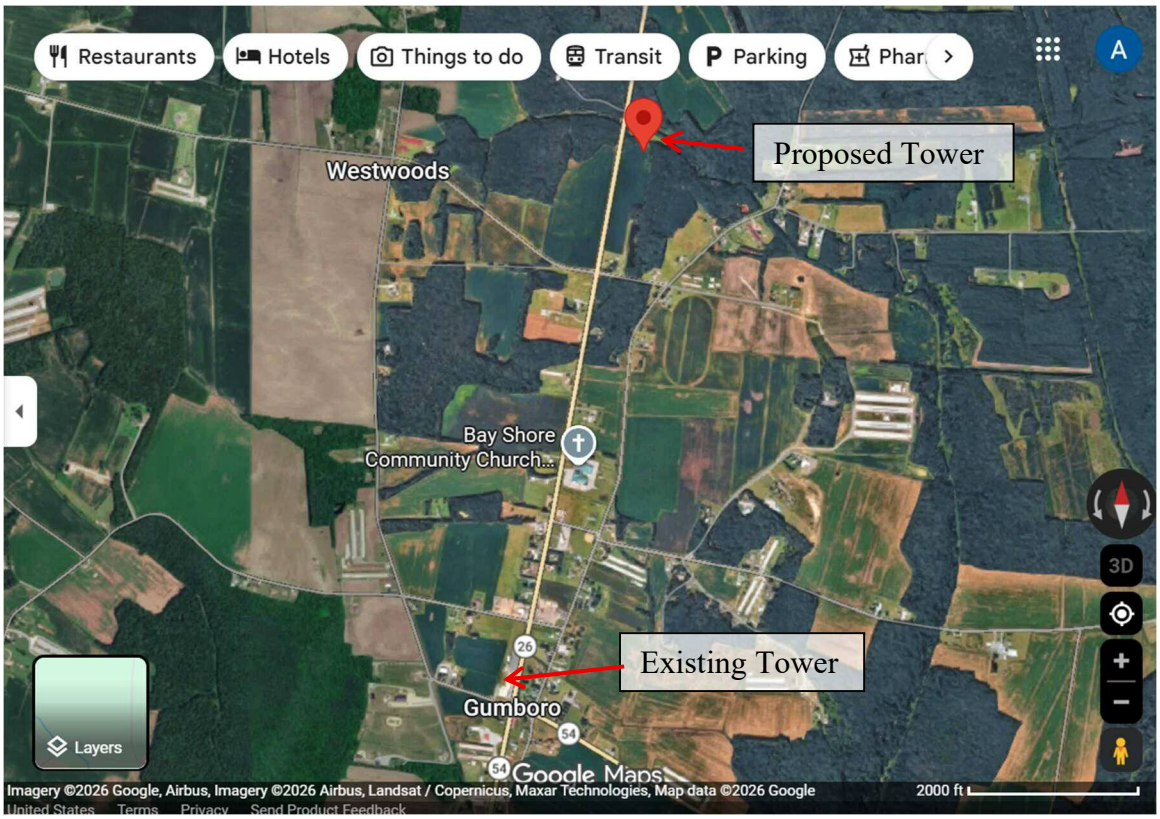
Summary of Findings
The following map illustration accurately accounts for all known existing tall structures within two (2) miles of the proposed tower at the above referenced location. As illustrated, there exists only one known tall structure within two (2) miles of the proposed tower; a lattice tower approximately one and two-tenths (1.2) miles south of the proposed facility. Unfortunately, use of this facility will not satissfy T-Mobile's network improvement objectives for the area so it cannot be used as a satisfactory antenna support structure.

Sincerely,

Andrew M. Petersohn, P.E.
Registered Professional Engineer
Delaware license number 14438



Existing Tall Structures



It is T-Mobile policy and overwhelming preference to utilize existing, tall structures as antenna-support platforms when their location, available attachment height, and structural capacity are congruent with T-Mobile's network requirements. This is because the co-location process is almost always less expensive, faster to market, and less involved from a permitting perspective than the construction of a new tower structure. In this specific case, there is just one (1) existing tall structure within two (2) miles of the proposed tower; a 220' lattice tower roughly one and two-tenths (1.2) miles south of the proposed facility. This site is too far south to satisfy the primary network objective: To provide uninterrupted coverage along and around the Rt. 26 corridor between Rt. 24 and the Maryland Border. Use of the site over a mile south would shift the new coverage too far in the direction of Maryland leaving a gap in connectivity for T-Mobile's mid-band frequencies to the north.

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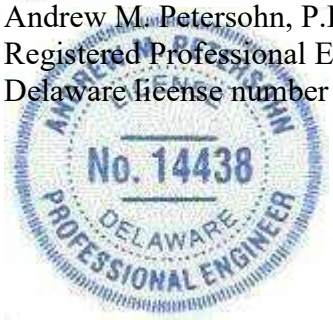
DECLARATION OF ENGINEER

Andrew M. Petersohn, P.E., hereby states that he is a graduate telecommunications consulting engineer possessing Master and Bachelor Degrees in Electrical Engineering from Lehigh University (2005 and 1999, respectively). His corporation, dBm Engineering, P.C., has been retained by representatives of Network Towers to perform a two (2) mile inventory for a proposed telecommunications facility.

Mr. Petersohn also asserts that the calculations and/or measurements described in this report were made personally and in a truthful and objective manner. Mr. Petersohn is a Registered Professional Engineer licensed in Pennsylvania, Delaware, Maryland, Virginia, New York, Florida and New Jersey. He has over two decades of engineering experience in the field of wireless communications. Mr. Petersohn is an active member of the National Society of Professional Engineers (NSPE) and the Pennsylvania Society of Professional Engineers (PSPE). Mr. Petersohn further states that all facts and statements contained in the foregoing document are true and accurate to the best of his knowledge. He believes, under penalty of perjury, the foregoing to be correct.



Andrew M. Petersohn, P.E.
Registered Professional Engineer
Delaware license number 14438



Executed this the 7th day of April, 2026.

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Fairview Village, PA 19409
Phone: 610.304.2024
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Structural Analysis Report

Trylon Project # 196812

December 2, 2021

Project Information	
Client	Smartlink
Carrier Name	AT&T
Carrier Site ID	DEL05348
Carrier Site Name	Gumboro
PACE Number	MRPHL044843, MRPHL044836, MRPHL044982, MRPHL044980, MRPHL044978, MRPHL044979, MRPHL044837
PTN Number	2254A0ZM6V, 2254A0ZM02, 2254A0ZM4F, 2254A0ZMA6, 2254A0ZLYL, 2254A0ZMB9, 2254A0ZM20
FA Number	10063526
Site Address	36996 Millsboro Highway, Millsboro, DE 19966
Site Coordinates	38.47916, -75.3667
Structure Type	Self-Support
Structure Height	170.0 ft

STRUCTURE RATING =	**129.1%**	**FAIL**

Analysis Performed by:

Arienna Wilson-Muller, E.I.

Reviewed and Approved by:

Cliff Abernathy, P.E.



12/02/2021

Structural Analysis Report

Subject: Analysis of the Existing 170.0 ft Self-Support

Dear **Smartlink**,

We have been provided with RF information, documentation, photos, and sketches of the structure for the above referenced sites. AT&T is proposing to change the equipment configuration on the Existing 170.0 self-support tower.

A revised antenna, coax and miscellaneous equipment schematic have been provided to us. We have been asked to evaluate this information to determine whether the supporting structure is adequate to safely support the proposed loading change.

TNX Tower (Version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases.

1. Source Data

Document Type	Source	Reference	Date
RFDS	AT&T	RFDS ID: 4543352	November 30, 2021
Structural Modification	TAE Engineering	Project No: 08510-24	August 31, 2009
Structural Modification	Maser Consulting	Project No: 12950143A	March 6, 2013
Post Modification Inspection	Papay Engineering	WO 2834	March 31, 2014
Structural Analysis	Maser Consulting	Project No: 16916024A	August 25, 2016
Mount Analysis	Trylon	Project No: 190726	October 15, 2021
Construction Drawings	Trylon	Site ID: DEL05348	November 11, 2021

2. Analysis Criteria

Adopted Codes and Site Parameters	
Building Code / Local Code	2012 IBC
Code Standard	TIA-222-G
Design Wind Speed (mph)	120 (V_{ult}) / 93 (V_{nom})
Design Wind Speed with Ice (mph)	30
Design Ice Thickness (in)	0.75
Risk Category	II
Exposure Category	C
Topographic Factor, K_{zt}	1
Seismic Response Acceleration, S_s (g)	0.044
Seismic Response Acceleration, S_1 (g)	0.092

3. Loading Configurations

Proposed Carrier Loading Configuration

Mount CL (ft)	Equip CL (ft)	Qty	Manufacturer	Model	Mount	Feedlines	Carrier
150.0	150.0	6	Commscope	NNHH-65C-R4	(3) 12.5' Sector Frame	(1) Fiber (2) DC	AT&T
		3	Nokia	AIRSCALE TRI RRH 4T4R B12/14/29 370W AHLBBA			
		3	Nokia	AIRSCALE RRH 4T4R B30 100W AHNA			
		3	Nokia	AIRSCALE RRH 4T4R B5 160W AHCA			
		3	Nokia	AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIB			
		1	Raycap	DC6-48-60-18-8F			
		1	Raycap	DC9-48-60-24-8C-EV			

Other Considered Loading Configuration

Mount CL (ft)	Equip CL (ft)	Qty	Manufacturer	Model	Mount	Feedlines	Carrier
168.0	168.0	1	Unknown	20' Dipole	Direct	(1) 1-1/4 (1) 7/8 (1) 5/8	Firestation
166.7	166.7	1	Decibel	DB420D-B	(1) 6' Sidearm		

4. Standard Conditions for Providing Structural Consulting Services on Existing Structures

1) Structural analysis has been performed assuming the tower and foundations were built and maintained in accordance with the manufacturer's specification and in "like new" condition. No allowance was made for excessive corrosion, damaged or missing structural members, loose bolts, misaligned parts, or any reduction in strength due to the age or fatigue of any member.
2) The structural analysis provided is an assessment of the primary load carrying capacity of the tower. We provide a limited scope of service. In some cases, we cannot verify the capacity of every weld, plate, connection detail, etc. In some cases, structural fabrication details are unknown at the time of our analysis, and the detailed field measurement of some of the required details may not be possible. In instances where we cannot perform connection capacity calculations, it is assumed that the existing manufactured connections develop the full capacity of the primary members being connected.
3) The structural analysis has been performed using information currently provided by the client and potentially field verified. We have been provided with a mounting arrangement for all telecommunications equipment, including antennas RRH's, TMA's, RRU's, diplexers, surge protection devices, etc. Our analysis has been based upon a particular mounting arrangement. We are not responsible for deviations in the mounting arrangement that may occur over time. If deviations in equipment type or mounting arrangements are proposed, then we should be contacted to revise the recommendations of this structural report.
4) Structural analysis does not comment on any antenna mounts and mount hardware installed on the tower. It is the carrier's responsibility to ensure adequacy of the antenna mounts outside of this structural analysis.

5. Analysis Results

Component	Critical Member	% Capacity	Pass/Fail
Leg(s)	T4	74.1	Pass
Diagonal(s)	T5	84.5	Pass
Horizontal(s)	T1	33.4	Pass
Secondary Horizontal(s)	T6	8.4	Pass
Top Girt(s)	T1	4.0	Pass
Bottom Girt(s)	T1	12.0	Pass
Bolt Check(s)	--	81.2	Pass
Anchor Rod(s)	**--**	**106.6**	**Fail**

Pole Reactions	Wind Analysis	Ice Analysis
Leg Compression (kip)	196.0	--
Leg Uplift (kip)	155.0	--
Leg Shear (kip)	21.0	--
Global Axial (kip)	3175.0	170.0
Global Shear (kip)	35.0	5.0
Global Moment (kip-ft)	49.0	535.0
Foundation Rating =		**129.1%**

Structure Rating (max from all components) =	**129.1%**

1825 W. Walnut Hill Lane, Suite 120
Irving, Texas 75038

6. Conclusions and Recommendations

Based on the information provided, our calculations conclude that the Existing 170.0 ft self-support does not have sufficient capacity to carry the proposed loading configuration. Trylon recommends the modifications listed below to bring the tower into compliance:

- Reinforce anchor rods.
- Reinforce foundation.

APPENDIX

ADDITIONAL CALCULATIONS

1825 W. Walnut Hill Lane, Suite 120
Irving, Texas 75038

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9
Legs	V3x3x1/4	V3x3x3/16 with Plate	V3x3x1/4 with Plate	V4x4x1/4 with Plate	A	V4x4x3/8 with Plate	V4x4x0.711 with Plate	V4x4x0.779 with Plate	V5x5x0.6487 with Plate
Leg Grade	A572-50								
Diagonals	B	L 1-3/4x1-3/4x3/16		L2x2x1/4	L2x2x3/16	L2 1/2x2 1/2x5/16	L3x3x5/16	L3 1/2x3 1/2x5/16	
Diagonal Grade	A36								
Top Girts	C				N.A.				
Bottom Girts	B				N.A.				
Horizontals	B			N.A.	L2x2x3/16			L2x2x3/16	L 2-1/2x2-1/2x3/16
Sec. Horizontals		N.A.			L2x2x1/4			N.A.	
Face Width (ft)	2.91667	2.92	4.65	6.71	8.77	10.83	12.89	14.96	17.02
# Panels @ (ft)	3 @ 3.33333	8 @ 5			9 @ 6.66667			12 @ 5	
Weight (K)	0.3	1.4	1.8	2.2	2.3	3.4	3.4	4.3	4.4

23.6

170.0 ft
160.0 ft
140.0 ft
120.0 ft
100.0 ft
80.0 ft
60.0 ft
40.0 ft
20.0 ft
0.0 ft

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) Flashing Beacon	170.5	AHNA	150
20' Dipole	168	AHNA	150
DB420-D	166.67	AHNA	150
Rohn 6' Side-Arm(1)	166.67	AHCA	150
Rohn 6'x12' Boom Gate (3)	150	AHCA	150
(2) NNHH-65C-R4 w/ Mount Pipe	150	AHCA	150
(2) NNHH-65C-R4 w/ Mount Pipe	150	AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIB	150
(2) NNHH-65C-R4 w/ Mount Pipe	150		
AIRSCALE TRI RRH 4T4R B12/14/29 320W AHLBBA	150	AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIB	150
AIRSCALE TRI RRH 4T4R B12/14/29 320W AHLBBA	150	AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIB	150
AIRSCALE TRI RRH 4T4R B12/14/29 320W AHLBBA	150	DC6-48-60-18-8F	150
		DC9-48-60-24-8C-EV	150

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	V4x4x3/8 with Plate 2.25x2.25	C	L1 3/4x1 1/4x3/16
B	L1 3/4x1 3/4x1/8		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Sussex County, Delaware.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 93 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 30 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. TOWER RATING: 84.5%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 196 K
SHEAR: 21 K

UPLIFT: -155 K
SHEAR: 18 K

AXIAL 170 K
SHEAR 5 K
MOMENT 535 kip-ft

TORQUE 2 kip-ft
30 mph WIND - 0.7500 in ICE

AXIAL 49 K
SHEAR 35 K
MOMENT 3175 kip-ft

TORQUE 7 kip-ft
REACTIONS - 93 mph WIND

Trylon
1825 W. Walnut Hill Lane, Suite 302
Irving, TX 75038
Phone: (214) 930-1730
FAX:
Trylon

Job: *Gumboro*
Project: *196812*
Client: Smartlink | Drawn by: Arienna Wilson-Muller, E.I. | App'd:
Code: TIA-222-G | Date: 12/02/21 | Scale: NTS
Path: | Dwg No. E-1

tnxTower	Job: Gumboro	Page: 1 of 31
Trylon 1825 W. Walnut Hill Lane, Suite 302 Irving, TX 75038 Phone: (214) 930-1730 FAX:	Project: 196812	Date: 18:16:26 12/02/21
	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.

Tower Input Data

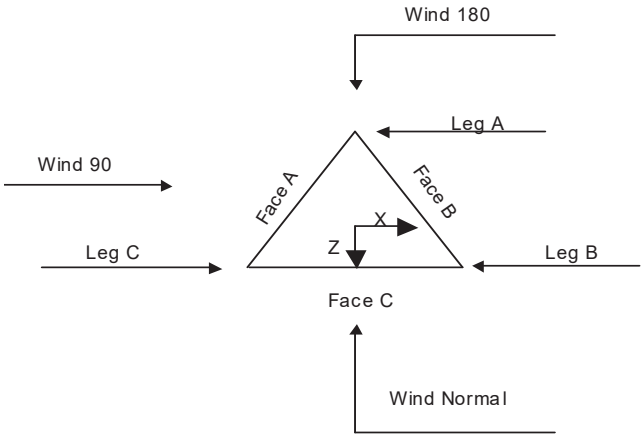
The main tower is a 3x free standing tower with an overall height of 170.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 2.92 ft at the top and 19.58 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Sussex County, Delaware.
Basic wind speed of 93 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 30 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

tnxTower	Job: Gumboro	Page: 2 of 31
Trylon 1825 W. Walnut Hill Lane, Suite 302 Irving, TX 75038 Phone: (214) 930-1730 FAX:	Project: 196812	Date: 18:16:26 12/02/21
	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	170.00-160.00			2.92	1	10.00
T2	160.00-140.00			2.92	1	20.00
T3	140.00-120.00			4.65	1	20.00
T4	120.00-100.00			6.71	1	20.00
T5	100.00-80.00			8.77	1	20.00
T6	80.00-60.00			10.83	1	20.00
T7	60.00-40.00			12.89	1	20.00
T8	40.00-20.00			14.96	1	20.00
T9	20.00-0.00			17.02	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	170.00-160.00	3.33	Diag Up	No	Yes	0.0000	0.0000
T2	160.00-140.00	5.00	X Brace	No	No	0.0000	0.0000
T3	140.00-120.00	5.00	X Brace	No	Yes	0.0000	0.0000
T4	120.00-100.00	6.67	X Brace	No	Yes	0.0000	0.0000
T5	100.00-80.00	6.67	X Brace	No	Yes	0.0000	0.0000
T6	80.00-60.00	6.67	X Brace	No	Yes	0.0000	0.0000

tnxTower	Job: Gumboro	Page: 3 of 31
Trylon 1825 W. Walnut Hill Lane, Suite 302 Irving, TX 75038 Phone: (214) 930-1730 FAX:	Project: 196812	Date: 18:16:26 12/02/21
	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T7	60.00-40.00	5.00	Double K	No	Yes	0.0000	0.0000
T8	40.00-20.00	5.00	Double K	No	Yes	0.0000	0.0000
T9	20.00-0.00	5.00	Double K	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 170.00-160.00	60 Angle	V3x3x1/4	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x1/8	A36 (36 ksi)
T2 160.00-140.00	Arbitrary Shape	V3x3x3/16 with Plate	A572-50 (50 ksi)	Single Angle	L 1-3/4x1-3/4x3/16	A36 (36 ksi)
T3 140.00-120.00	Arbitrary Shape	V3x3x1/4 with Plate	A572-50 (50 ksi)	Single Angle	L 1-3/4x1-3/4x3/16	A36 (36 ksi)
T4 120.00-100.00	Arbitrary Shape	V4x4x1/4 with Plate	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T5 100.00-80.00	Arbitrary Shape	V4x4x3/8 with Plate 2.25x2.25	A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T6 80.00-60.00	Arbitrary Shape	V4x4x3/8 with Plate	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x5/16	A36 (36 ksi)
T7 60.00-40.00	Arbitrary Shape	V4x4x0.711 with Plate	A572-50 (50 ksi)	Single Angle	L3x3x5/16	A36 (36 ksi)
T8 40.00-20.00	Arbitrary Shape	V4x4x0.779 with Plate	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)
T9 20.00-0.00	Arbitrary Shape	V5x5x0.6487 with Plate	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 170.00-160.00	Single Angle	L1 3/4x1 1/4x3/16	A36 (36 ksi)	Single Angle	L1 3/4x1 3/4x1/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 170.00-160.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 3/4x1 3/4x1/8	A36 (36 ksi)
T7 60.00-40.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T8 40.00-20.00	None	Flat Bar		A36	Single Angle	L2x2x3/16	A36

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Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T9 20.00-0.00	None	Flat Bar		(36 ksi) A36 (36 ksi)	Single Angle	L 2-1/2x2-1/2x3/16	(36 ksi) A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T3 140.00-120.00	Single Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T4 120.00-100.00	Single Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T5 100.00-80.00	Single Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T6 80.00-60.00	Single Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 170.00-160.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T2 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T3 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T4 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T5 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T6 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T7 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T8 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T9 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

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Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	No	1	1	1	1	1	1	1	1
170.00-160.00				1	1	1	1	1	1	1
T2	Yes	No	1	1	1	1	1	1	1	1
160.00-140.00				1	1	1	1	1	1	1
T3	Yes	No	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1
T4	Yes	No	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1
T5	Yes	No	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T6	Yes	No	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T7	Yes	No	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T8	Yes	No	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T9 20.00-0.00	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
170.00-160.00														
T2	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
160.00-140.00														
T3	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
140.00-120.00														
T4	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
120.00-100.00														
T5	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
100.00-80.00														
T6 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

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Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 170.00-160.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 160.00-140.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 140.00-120.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 120.00-100.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 100.00-80.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 80.00-60.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 60.00-40.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 40.00-20.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 20.00-0.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 170.00-160.00	Sleeve DS	0.6250 A325N	8	0.5000 A325N	1	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T2 160.00-140.00	Sleeve DS	0.6250 A325N	8	0.5000 A325N	1	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 140.00-120.00	Sleeve DS	0.6250 A325N	8	0.5000 A325N	1	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1
T4 120.00-100.00	Sleeve DS	0.6250 A325N	8	0.6250 A325N	1	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1
T5 100.00-80.00	Sleeve DS	0.7500 A325X	12	0.6250 A325N	1	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1
T6 80.00-60.00	Sleeve DS	0.7500 A325X	12	0.6250 A325N	1	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1
T7 60.00-40.00	Sleeve DS	0.7500 A325X	12	0.6250 A325N	1	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T8 40.00-20.00	Sleeve DS	0.7500 A325X	16	0.6250 A325N	1	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T9 20.00-0.00	Flange	1.2500 A325N	0	0.6250 A325N	2	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Climbing	C	No	No	Af (CaAa)	170.00 -	0.0000	0.4	1	1	3.0000	3.8400		8.40

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Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Ladder (Flat) ***					3.00								
LDF6-50A (1-1/4 FOAM)	B	No	No	Ar (CaAa)	167.00 - 3.50	0.0000	-0.5	1	1	0.5000	1.5500		0.66
LDF5-50A (7/8 FOAM)	A	No	No	Ar (CaAa)	168.00 - 3.50	0.0000	0.5	1	1	5.0000 0.5000	1.0900		0.33
5/8" Black Cable ***	A	No	No	Ar (CaAa)	170.00 - 3.50	0.0000	0.5	1	1	0.5000	0.8700		0.15
RFFT-12SM-001-75M(3/8")	C	No	No	Ar (CaAa)	150.00 - 3.50	0.0000	0.4	1	1	0.4000	0.4000		0.09
PWRT-606-S(7/8")	C	No	No	Ar (CaAa)	150.00 - 3.50	0.0000	0.4	1	1	0.9200	0.9200		0.00
FB-L98B-235 (3/8") ***	C	No	No	Ar (CaAa)	150.00 - 3.50	0.0000	0.4	1	1	0.3937	0.3937		0.06

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight plf
***								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	170.00-160.00	A	0.000	0.000	1.742	0.000	0.00
		B	0.000	0.000	1.085	0.000	0.00
		C	0.000	0.000	6.400	0.000	0.08
T2	160.00-140.00	A	0.000	0.000	3.920	0.000	0.01
		B	0.000	0.000	3.100	0.000	0.01
		C	0.000	0.000	14.514	0.000	0.17
T3	140.00-120.00	A	0.000	0.000	3.920	0.000	0.01
		B	0.000	0.000	3.100	0.000	0.01
		C	0.000	0.000	16.227	0.000	0.17
T4	120.00-100.00	A	0.000	0.000	3.920	0.000	0.01
		B	0.000	0.000	3.100	0.000	0.01
		C	0.000	0.000	16.227	0.000	0.17
T5	100.00-80.00	A	0.000	0.000	3.920	0.000	0.01
		B	0.000	0.000	3.100	0.000	0.01
		C	0.000	0.000	16.227	0.000	0.17
T6	80.00-60.00	A	0.000	0.000	3.920	0.000	0.01
		B	0.000	0.000	3.100	0.000	0.01
		C	0.000	0.000	16.227	0.000	0.17
T7	60.00-40.00	A	0.000	0.000	3.920	0.000	0.01
		B	0.000	0.000	3.100	0.000	0.01

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Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	16.227	0.000	0.17
T8	40.00-20.00	A	0.000	0.000	3.920	0.000	0.01
		B	0.000	0.000	3.100	0.000	0.01
		C	0.000	0.000	16.227	0.000	0.17
T9	20.00-0.00	A	0.000	0.000	3.234	0.000	0.01
		B	0.000	0.000	2.558	0.000	0.01
		C	0.000	0.000	13.708	0.000	0.15

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	170.00-160.00	A	1.762	0.000	0.000	8.085	0.000	0.11
		B		0.000	0.000	3.552	0.000	0.05
		C		0.000	0.000	9.924	0.000	0.23
T2	160.00-140.00	A	1.745	0.000	0.000	17.882	0.000	0.24
		B		0.000	0.000	10.081	0.000	0.15
		C		0.000	0.000	31.966	0.000	0.62
T3	140.00-120.00	A	1.720	0.000	0.000	17.683	0.000	0.24
		B		0.000	0.000	9.982	0.000	0.15
		C		0.000	0.000	43.754	0.000	0.75
T4	120.00-100.00	A	1.692	0.000	0.000	17.455	0.000	0.23
		B		0.000	0.000	9.868	0.000	0.15
		C		0.000	0.000	43.298	0.000	0.74
T5	100.00-80.00	A	1.658	0.000	0.000	17.186	0.000	0.22
		B		0.000	0.000	9.733	0.000	0.14
		C		0.000	0.000	42.760	0.000	0.72
T6	80.00-60.00	A	1.617	0.000	0.000	16.857	0.000	0.21
		B		0.000	0.000	9.569	0.000	0.14
		C		0.000	0.000	42.102	0.000	0.70
T7	60.00-40.00	A	1.564	0.000	0.000	16.429	0.000	0.20
		B		0.000	0.000	9.355	0.000	0.13
		C		0.000	0.000	41.246	0.000	0.67
T8	40.00-20.00	A	1.486	0.000	0.000	15.806	0.000	0.19
		B		0.000	0.000	9.043	0.000	0.12
		C		0.000	0.000	40.000	0.000	0.64
T9	20.00-0.00	A	1.331	0.000	0.000	12.020	0.000	0.13
		B		0.000	0.000	6.950	0.000	0.09
		C		0.000	0.000	31.412	0.000	0.48

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	170.00-160.00	-1.5949	-0.0073	-1.2413	-1.2967
T2	160.00-140.00	-2.0984	-0.1872	-2.9682	-1.5804
T3	140.00-120.00	-2.7741	-0.0224	-4.7497	-0.9919
T4	120.00-100.00	-3.2294	-0.0747	-6.1467	-1.3370
T5	100.00-80.00	-3.7335	-0.1190	-7.0365	-1.5583
T6	80.00-60.00	-3.8379	-0.1447	-7.4611	-1.6719
T7	60.00-40.00	-4.4717	-0.1866	-8.6435	-1.9512
T8	40.00-20.00	-4.3813	-0.1964	-8.6920	-1.9609

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Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T9	20.00-0.00	-3.7557	-0.0986	-7.3715	-1.5247

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	Climbing Ladder (Flat)	160.00 - 170.00	0.6000	0.3898
T1	3	LDF6-50A (1-1/4 FOAM)	160.00 - 167.00	0.6000	0.3898
T1	4	LDF5-50A (7/8 FOAM)	160.00 - 168.00	0.6000	0.3898
T1	5	5/8" Black Cable	160.00 - 170.00	0.6000	0.3898
T2	1	Climbing Ladder (Flat)	140.00 - 160.00	0.6000	0.5218
T2	3	LDF6-50A (1-1/4 FOAM)	140.00 - 160.00	0.6000	0.5218
T2	4	LDF5-50A (7/8 FOAM)	140.00 - 160.00	0.6000	0.5218
T2	5	5/8" Black Cable	140.00 - 160.00	0.6000	0.5218
T2	7	RFFT-12SM-001-75M(3/8")	140.00 - 150.00	0.6000	0.5218
T2	8	PWRT-606-S(7/8")	140.00 - 150.00	0.6000	0.5218
T2	9	FB-L98B-235 (3/8")	140.00 - 150.00	0.6000	0.5218
T3	1	Climbing Ladder (Flat)	120.00 - 140.00	0.6000	0.5516
T3	3	LDF6-50A (1-1/4 FOAM)	120.00 - 140.00	0.6000	0.5516
T3	4	LDF5-50A (7/8 FOAM)	120.00 - 140.00	0.6000	0.5516
T3	5	5/8" Black Cable	120.00 - 140.00	0.6000	0.5516
T3	7	RFFT-12SM-001-75M(3/8")	120.00 - 140.00	0.6000	0.5516
T3	8	PWRT-606-S(7/8")	120.00 - 140.00	0.6000	0.5516
T3	9	FB-L98B-235 (3/8")	120.00 - 140.00	0.6000	0.5516
T4	1	Climbing Ladder (Flat)	100.00 - 120.00	0.6000	0.6000
T4	3	LDF6-50A (1-1/4 FOAM)	100.00 - 120.00	0.6000	0.6000
T4	4	LDF5-50A (7/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T4	5	5/8" Black Cable	100.00 - 120.00	0.6000	0.6000
T4	7	RFFT-12SM-001-75M(3/8")	100.00 - 120.00	0.6000	0.6000
T4	8	PWRT-606-S(7/8")	100.00 - 120.00	0.6000	0.6000
T4	9	FB-L98B-235 (3/8")	100.00 -	0.6000	0.6000

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	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			120.00		
T5	1	Climbing Ladder (Flat)	80.00 - 100.00	0.6000	0.6000
T5	3	LDF6-50A (1-1/4 FOAM)	80.00 - 100.00	0.6000	0.6000
T5	4	LDF5-50A (7/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T5	5	5/8" Black Cable	80.00 - 100.00	0.6000	0.6000
T5	7	RFFT-12SM-001-75M(3/8")	80.00 - 100.00	0.6000	0.6000
T5	8	PWRT-606-S(7/8")	80.00 - 100.00	0.6000	0.6000
T5	9	FB-L98B-235 (3/8")	80.00 - 100.00	0.6000	0.6000
T6	1	Climbing Ladder (Flat)	60.00 - 80.00	0.6000	0.6000
T6	3	LDF6-50A (1-1/4 FOAM)	60.00 - 80.00	0.6000	0.6000
T6	4	LDF5-50A (7/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T6	5	5/8" Black Cable	60.00 - 80.00	0.6000	0.6000
T6	7	RFFT-12SM-001-75M(3/8")	60.00 - 80.00	0.6000	0.6000
T6	8	PWRT-606-S(7/8")	60.00 - 80.00	0.6000	0.6000
T6	9	FB-L98B-235 (3/8")	60.00 - 80.00	0.6000	0.6000
T7	1	Climbing Ladder (Flat)	40.00 - 60.00	0.6000	0.6000
T7	3	LDF6-50A (1-1/4 FOAM)	40.00 - 60.00	0.6000	0.6000
T7	4	LDF5-50A (7/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T7	5	5/8" Black Cable	40.00 - 60.00	0.6000	0.6000
T7	7	RFFT-12SM-001-75M(3/8")	40.00 - 60.00	0.6000	0.6000
T7	8	PWRT-606-S(7/8")	40.00 - 60.00	0.6000	0.6000
T7	9	FB-L98B-235 (3/8")	40.00 - 60.00	0.6000	0.6000
T8	1	Climbing Ladder (Flat)	20.00 - 40.00	0.6000	0.6000
T8	3	LDF6-50A (1-1/4 FOAM)	20.00 - 40.00	0.6000	0.6000
T8	4	LDF5-50A (7/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T8	5	5/8" Black Cable	20.00 - 40.00	0.6000	0.6000
T8	7	RFFT-12SM-001-75M(3/8")	20.00 - 40.00	0.6000	0.6000
T8	8	PWRT-606-S(7/8")	20.00 - 40.00	0.6000	0.6000
T8	9	FB-L98B-235 (3/8")	20.00 - 40.00	0.6000	0.6000
T9	1	Climbing Ladder (Flat)	3.00 - 20.00	0.6000	0.6000
T9	3	LDF6-50A (1-1/4 FOAM)	3.50 - 20.00	0.6000	0.6000
T9	4	LDF5-50A (7/8 FOAM)	3.50 - 20.00	0.6000	0.6000
T9	5	5/8" Black Cable	3.50 - 20.00	0.6000	0.6000
T9	7	RFFT-12SM-001-75M(3/8")	3.50 - 20.00	0.6000	0.6000
T9	8	PWRT-606-S(7/8")	3.50 - 20.00	0.6000	0.6000
T9	9	FB-L98B-235 (3/8")	3.50 - 20.00	0.6000	0.6000

Feed Tower

Description	Placement	Guy Grade	Guy Size		C_AA_A	Weight
	ft				ft^2/ft	plf
Feed Tower	0.00 - 250.00	EHS	7/16	No Ice	1.08	69.90
				1/2" Ice	2.86	217.00
				1" Ice	4.64	364.10

Discrete Tower Loads

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	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) Flashing Beacon	A	From Leg	0.00 0.00 0.00	0.000	170.50	No Ice 1/2" Ice 1" Ice	2.70 3.10 3.50	2.70 3.10 3.50	0.05 0.07 0.09
20' Dipole	B	From Leg	0.00 0.00 10.00	0.000	168.00	No Ice 1/2" Ice 1" Ice	3.33 5.99 8.65	3.33 5.99 8.65	0.03 0.04 0.05
DB420-D	C	From Leg	6.00 0.00 10.00	0.000	166.67	No Ice 1/2" Ice 1" Ice	3.33 5.99 8.66	3.33 5.99 8.66	0.03 0.04 0.05
Rohn 6' Side-Arm(1)	C	From Leg	3.00 0.00 0.00	0.000	166.67	No Ice 1/2" Ice 1" Ice	10.60 15.40 20.20	10.60 15.40 20.20	0.14 0.21 0.28
***									
Rohn 6'x12' Boom Gate (3)	C	None		0.000	150.00	No Ice 1/2" Ice 1" Ice	49.80 59.30 68.80	49.80 59.30 68.80	1.68 2.10 2.52
(2) NNHH-65C-R4 w/ Mount Pipe	A	From Leg	3.00 4.50 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	9.68 10.27 10.87	5.17 5.71 6.26	0.13 0.24 0.37
(2) NNHH-65C-R4 w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	9.68 10.27 10.87	5.17 5.71 6.26	0.13 0.24 0.37
(2) NNHH-65C-R4 w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	9.68 10.27 10.87	5.17 5.71 6.26	0.13 0.24 0.37
AIRSCALE TRI RRH 4T4R B12/14/29 320W AHLBBA	A	From Leg	3.00 3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	2.82 3.03 3.26	0.92 1.04 1.18	0.10 0.12 0.15
AIRSCALE TRI RRH 4T4R B12/14/29 320W AHLBBA	B	From Leg	3.00 3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	2.82 3.03 3.26	0.92 1.04 1.18	0.10 0.12 0.15
AIRSCALE TRI RRH 4T4R B12/14/29 320W AHLBBA	C	From Leg	3.00 3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	2.82 3.03 3.26	0.92 1.04 1.18	0.10 0.12 0.15
AHNA	A	From Leg	3.00 3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	1.79 1.96 2.13	1.15 1.29 1.44	0.04 0.06 0.08
AHNA	B	From Leg	3.00 3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	1.79 1.96 2.13	1.15 1.29 1.44	0.04 0.06 0.08
AHNA	C	From Leg	3.00 3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	1.79 1.96 2.13	1.15 1.29 1.44	0.04 0.06 0.08
AHCA	A	From Leg	3.00 -3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	1.29 1.43 1.58	0.72 0.83 0.96	0.04 0.05 0.06
AHCA	B	From Leg	3.00 -3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	1.29 1.43 1.58	0.72 0.83 0.96	0.04 0.05 0.06
AHCA	C	From Leg	3.00 -3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	1.29 1.43 1.58	0.72 0.83 0.96	0.04 0.05 0.06
AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIB	A	From Leg	3.00 -3.00 0.00	0.000	150.00	No Ice 1/2" Ice 1" Ice	2.90 3.13 3.37	1.53 1.72 1.92	0.09 0.11 0.13
AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIB	B	From Leg	3.00 -3.00	0.000	150.00	No Ice 1/2" Ice	2.90 3.13	1.53 1.72	0.09 0.11

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	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	3.37	1.92	0.13
AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIB	C	From Leg	3.00	0.000	150.00	No Ice	2.90	1.53	0.09
			-3.00			1/2" Ice	3.13	1.72	0.11
			0.00			1" Ice	3.37	1.92	0.13
DC6-48-60-18-8F	A	From Leg	1.50	0.000	150.00	No Ice	0.79	0.79	0.02
			0.00			1/2" Ice	1.27	1.27	0.04
			0.00			1" Ice	1.45	1.45	0.05
DC9-48-60-24-8C-EV	B	From Leg	1.50	0.000	150.00	No Ice	1.99	1.99	0.03
			0.00			1/2" Ice	3.04	3.04	0.07
			0.00			1" Ice	3.29	3.29	0.11
***									

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	13.51					
Bracing Weight	10.09					
Total Member Self-Weight	23.60			3.62	5.32	
Guy Weight	0.06					
Total Weight	40.79			3.62	5.32	
Wind 0 deg - No Ice		0.00	-22.03	-1967.65	5.32	-4.40
Wind 30 deg - No Ice		9.97	-17.27	-1566.49	-901.19	-3.51
Wind 60 deg - No Ice		16.67	-9.62	-876.50	-1519.11	-1.68
Wind 90 deg - No Ice		19.94	0.00	3.62	-1807.70	0.60
Wind 120 deg - No Ice		19.08	11.01	989.26	-1701.86	2.72
Wind 150 deg - No Ice		9.97	17.27	1573.74	-901.19	4.11
Wind 180 deg - No Ice		0.00	19.24	1763.88	5.32	4.40
Wind 210 deg - No Ice		-9.97	17.27	1573.74	911.82	3.51
Wind 240 deg - No Ice		-19.08	11.01	989.26	1712.49	1.68
Wind 270 deg - No Ice		-19.94	0.00	3.62	1818.33	-0.60
Wind 300 deg - No Ice		-16.67	-9.62	-876.50	1529.74	-2.72
Wind 330 deg - No Ice		-9.97	-17.27	-1566.49	911.82	-4.11
Member Ice	28.02					
Total Weight Ice	162.00			1.31	18.80	
Wind 0 deg - Ice		0.00	-5.42	-506.05	18.80	-1.65
Wind 30 deg - Ice		2.60	-4.50	-423.61	-226.52	-1.45
Wind 60 deg - Ice		4.44	-2.56	-241.23	-401.30	-0.87
Wind 90 deg - Ice		5.20	0.00	1.31	-471.85	-0.05
Wind 120 deg - Ice		4.70	2.71	255.00	-420.58	0.78
Wind 150 deg - Ice		2.60	4.50	426.24	-226.52	1.40
Wind 180 deg - Ice		0.00	5.13	486.40	18.80	1.65
Wind 210 deg - Ice		-2.60	4.50	426.24	264.13	1.45
Wind 240 deg - Ice		-4.70	2.71	255.00	458.19	0.87
Wind 270 deg - Ice		-5.20	0.00	1.31	509.46	0.05
Wind 300 deg - Ice		-4.44	-2.56	-241.23	438.91	-0.78
Wind 330 deg - Ice		-2.60	-4.50	-423.61	264.13	-1.40
Total Weight	40.79			3.62	5.32	
Wind 0 deg - Service		0.00	-9.17	-820.27	-0.53	-1.83

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	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 30 deg - Service		4.15	-7.19	-653.28	-377.88	-1.46
Wind 60 deg - Service		6.94	-4.01	-366.07	-635.10	-0.70
Wind 90 deg - Service		8.30	0.00	0.30	-755.22	0.25
Wind 120 deg - Service		7.94	4.58	410.58	-711.16	1.13
Wind 150 deg - Service		4.15	7.19	653.88	-377.88	1.71
Wind 180 deg - Service		0.00	8.01	733.03	-0.53	1.83
Wind 210 deg - Service		-4.15	7.19	653.88	376.81	1.46
Wind 240 deg - Service		-7.94	4.58	410.58	710.09	0.70
Wind 270 deg - Service		-8.30	0.00	0.30	754.15	-0.25
Wind 300 deg - Service		-6.94	-4.01	-366.07	634.03	-1.13
Wind 330 deg - Service		-4.15	-7.19	-653.28	376.81	-1.71

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
3	0.9 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
4	1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
5	0.9 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
6	1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
7	0.9 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
8	1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
9	0.9 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
10	1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
11	0.9 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
12	1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
13	0.9 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
14	1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
15	0.9 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
16	1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
17	0.9 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
18	1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
19	0.9 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
20	1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
21	0.9 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
22	1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
23	0.9 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
24	1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
25	0.9 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
26	1.2 Dead+1.0 Ice+1.0 Temp+Guy
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
39	Dead+Wind 0 deg - Service+Guy
40	Dead+Wind 30 deg - Service+Guy

tnxTower

Trylon
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Irving, TX 75038
Phone: (214) 930-1730
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Comb. No.	Description
41	Dead+Wind 60 deg - Service+Guy
42	Dead+Wind 90 deg - Service+Guy
43	Dead+Wind 120 deg - Service+Guy
44	Dead+Wind 150 deg - Service+Guy
45	Dead+Wind 180 deg - Service+Guy
46	Dead+Wind 210 deg - Service+Guy
47	Dead+Wind 240 deg - Service+Guy
48	Dead+Wind 270 deg - Service+Guy
49	Dead+Wind 300 deg - Service+Guy
50	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	170 - 160	Leg	Max Tension	23	3.20	0.01	0.01
			Max. Compression	16	-3.14	-0.05	-0.04
			Max. Mx	25	0.83	-0.09	0.02
			Max. My	10	-3.12	-0.07	-0.05
			Max. Vy	24	-0.73	-0.07	-0.00
			Max. Vx	18	0.23	0.01	-0.02
		Diagonal	Max Tension	15	2.11	0.00	0.00
			Max. Compression	2	-2.18	0.00	0.00
			Max. Mx	34	0.21	-0.02	0.00
			Max. My	31	-0.07	0.00	0.00
			Max. Vy	34	0.02	0.00	0.00
			Max. Vx	31	-0.00	0.00	0.00
		Horizontal	Max Tension	2	1.29	0.00	0.00
			Max. Compression	10	-1.33	0.00	0.00
			Max. Mx	29	-0.01	-0.01	0.00
			Max. My	32	-0.07	0.00	0.00
			Max. Vy	29	0.02	0.00	0.00
			Max. Vx	32	0.00	0.00	0.00
		Top Girt	Max Tension	10	0.06	0.00	0.00
			Max. Compression	16	-0.44	0.00	0.00
			Max. Mx	29	-0.18	-0.01	0.00
			Max. My	32	-0.17	0.00	0.00
			Max. Vy	29	0.02	0.00	0.00
			Max. Vx	32	-0.00	0.00	0.00
		Bottom Girt	Max Tension	23	0.46	0.00	0.00
			Max. Compression	10	-0.91	0.00	0.00
			Max. Mx	26	-0.25	-0.01	0.00
			Max. My	32	-0.29	0.00	0.00
			Max. Vy	26	0.02	0.00	0.00
			Max. Vx	32	-0.00	0.00	0.00
		Feed Tower	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-6.03	0.87	-0.48
			Max. Mx	20	-0.84	8.05	-0.73
			Max. My	3	-0.63	0.29	8.13
			Max. Vy	20	-1.00	8.05	-0.73
			Max. Vx	3	-1.01	0.29	8.13
		Feed Tower Guy	Bottom Tension	18	0.74		
			Top Tension	18	0.74		
			Top Cable Vert	18	0.01		
			Top Cable Norm	18	0.74		
			Top Cable Tan	18	0.00		
			Bot Cable Vert	18	-0.01		
T2	160 - 140	Leg	Max Tension	15	17.34	-0.13	0.00

tnxTower

Trylon
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Smartlink	Arienna Wilson-Muller, E.I.

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	10	-22.19	0.18	-0.00
			Max. Mx	10	-22.19	0.18	-0.00
			Max. My	16	-0.46	0.08	-0.23
			Max. Vy	22	-1.33	0.01	0.03
			Max. Vx	16	1.52	0.08	-0.23
		Diagonal	Max Tension	20	3.20	0.00	0.00
			Max. Compression	20	-3.12	0.00	0.00
			Max. Mx	31	0.26	0.02	-0.00
			Max. My	12	-1.42	0.00	-0.01
			Max. Vy	30	0.02	0.01	-0.00
			Max. Vx	12	0.00	0.00	0.00
		Feed Tower	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-17.98	-0.45	-0.27
			Max. Mx	20	-2.51	27.57	0.30
			Max. My	3	-1.88	0.04	28.19
			Max. Vy	8	1.39	-27.44	0.39
			Max. Vx	14	1.43	0.16	-27.97
		Feed Tower Guy	Bottom Tension	24	0.56		
			Top Tension	24	0.56		
			Top Cable Vert	24	-0.00		
			Top Cable Norm	24	0.56		
			Top Cable Tan	24	0.00		
			Bot Cable Vert	24	0.00		
T3	140 - 120	Leg	Max Tension	15	41.08	0.00	-0.00
			Max. Compression	18	-49.43	-0.02	0.00
			Max. Mx	10	-49.27	-0.29	-0.00
			Max. My	12	-2.85	0.13	-0.36
			Max. Vy	10	-0.26	0.28	0.00
			Max. Vx	12	0.20	0.13	-0.36
		Diagonal	Max Tension	8	2.96	0.01	-0.00
			Max. Compression	8	-3.31	0.00	0.00
			Max. Mx	31	-0.13	0.02	-0.00
			Max. My	20	-2.80	0.01	0.00
			Max. Vy	30	0.02	0.02	-0.00
			Max. Vx	28	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	6	0.30	0.01	-0.00
			Max. Compression	19	-0.29	0.00	0.00
			Max. Mx	31	-0.01	0.02	0.01
			Max. My	36	-0.01	0.02	0.01
			Max. Vy	31	0.03	0.02	0.01
			Max. Vx	34	-0.00	0.00	0.00
		Feed Tower	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-29.78	-0.18	-0.13
			Max. Mx	20	-4.19	42.96	0.96
			Max. My	2	-4.19	0.03	44.11
			Max. Vy	8	1.15	-42.90	0.96
			Max. Vx	2	-1.17	0.03	44.11
		Feed Tower Guy	Bottom Tension	8	1.16		
			Top Tension	8	1.16		
			Top Cable Vert	8	-0.01		
			Top Cable Norm	8	1.16		
			Top Cable Tan	8	0.00		
			Bot Cable Vert	8	0.01		
T4	120 - 100	Leg	Max Tension	15	62.25	0.18	-0.00
			Max. Compression	18	-73.63	-0.25	-0.00
			Max. Mx	18	-66.00	0.43	-0.00
			Max. My	12	-2.49	0.13	-0.36
			Max. Vy	10	-0.26	0.43	0.00
			Max. Vx	12	-0.18	0.13	-0.36
		Diagonal	Max Tension	8	3.85	0.02	-0.00

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Smartlink	Arienna Wilson-Muller, E.I.

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	8	-4.10	0.00	0.00
			Max. Mx	33	0.23	0.04	-0.00
			Max. My	27	-0.83	0.04	0.00
			Max. Vy	33	0.04	0.04	-0.00
			Max. Vx	33	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	12	0.30	0.01	-0.00
			Max. Compression	19	-0.33	-0.00	0.00
			Max. Mx	37	-0.01	0.03	0.01
			Max. My	36	-0.03	0.03	0.01
			Max. Vy	37	-0.04	0.03	0.01
			Max. Vx	34	-0.00	0.00	0.00
		Feed Tower	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.42	0.14	-0.08
			Max. Mx	20	-5.87	45.66	-0.78
			Max. My	2	-5.86	0.08	48.27
			Max. Vy	20	-0.50	45.66	-0.78
			Max. Vx	2	-0.57	0.08	48.27
		Feed Tower Guy	Bottom Tension	8	1.60		
			Top Tension	8	1.60		
			Top Cable Vert	8	-0.01		
			Top Cable Norm	8	1.60		
			Top Cable Tan	8	0.00		
			Bot Cable Vert	8	0.01		
T5	100 - 80	Leg	Max Tension	15	82.45	0.13	-0.01
			Max. Compression	18	-98.83	-0.09	-0.00
			Max. Mx	18	-90.71	0.34	0.00
			Max. My	12	-5.11	0.01	-0.49
			Max. Vy	10	-0.21	0.33	0.00
			Max. Vx	12	0.21	0.01	-0.49
		Diagonal	Max Tension	5	3.86	0.01	0.00
			Max. Compression	4	-3.96	0.00	0.00
			Max. Mx	37	0.25	0.05	0.00
			Max. My	33	-0.83	0.05	-0.01
			Max. Vy	37	0.04	0.05	0.00
			Max. Vx	33	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	6	0.30	0.01	0.00
			Max. Compression	19	-0.32	0.00	0.00
			Max. Mx	31	0.04	0.05	0.01
			Max. My	36	-0.04	0.05	0.01
			Max. Vy	27	-0.04	0.05	0.01
			Max. Vx	34	-0.00	0.00	0.00
		Feed Tower	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.86	0.24	-0.05
			Max. Mx	20	-7.54	46.15	0.22
			Max. My	2	-7.54	0.08	48.53
			Max. Vy	20	-0.37	46.15	0.22
			Max. Vx	14	0.41	0.05	-45.59
		Feed Tower Guy	Bottom Tension	24	0.96		
			Top Tension	24	0.96		
			Top Cable Vert	24	-0.00		
			Top Cable Norm	24	0.96		
			Top Cable Tan	24	0.00		
			Bot Cable Vert	24	0.01		
T6	80 - 60	Leg	Max Tension	15	102.46	0.15	-0.01
			Max. Compression	18	-123.71	-0.17	-0.00
			Max. Mx	18	-115.80	0.51	0.00
			Max. My	12	-5.02	0.01	-0.49
			Max. Vy	18	0.27	0.51	0.00
			Max. Vx	12	-0.21	0.01	-0.49

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Diagonal	Max Tension	5	4.64	0.04	-0.00
			Max. Compression	2	-4.94	0.00	0.00
			Max. Mx	37	0.44	0.09	0.01
			Max. My	33	-0.85	0.09	-0.01
			Max. Vy	37	0.07	0.09	0.01
			Max. Vx	33	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	12	0.33	0.02	-0.00
			Max. Compression	19	-0.35	0.01	0.00
			Max. Mx	29	-0.01	0.06	0.01
			Max. My	36	-0.02	0.06	0.01
			Max. Vy	29	-0.05	0.06	0.01
			Max. Vx	34	-0.00	0.00	0.00
		Feed Tower	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.05	0.26	-0.04
			Max. Mx	20	-7.55	46.15	0.22
			Max. My	2	-7.55	0.08	48.53
			Max. Vy	8	-0.62	-45.99	0.21
			Max. Vx	14	-0.63	0.05	-45.59
		Feed Tower Guy	Bottom Tension	21	1.16		
			Top Tension	21	1.16		
			Top Cable Vert	21	-0.00		
			Top Cable Norm	21	1.16		
			Top Cable Tan	21	0.00		
			Bot Cable Vert	21	0.01		
T7	60 - 40	Leg	Max Tension	15	120.13	0.20	-0.01
			Max. Compression	18	-146.79	-0.19	-0.01
			Max. Mx	18	-134.59	0.53	-0.00
			Max. My	12	-7.47	-0.10	-0.59
			Max. Vy	10	0.23	0.53	0.00
			Max. Vx	12	0.19	-0.10	-0.59
		Diagonal	Max Tension	4	5.43	0.00	0.00
			Max. Compression	2	-5.76	0.00	0.00
			Max. Mx	36	0.98	-0.16	0.00
			Max. My	27	0.23	0.00	-0.01
			Max. Vy	36	0.07	0.00	0.00
			Max. Vx	27	0.00	0.00	0.00
		Horizontal	Max Tension	14	0.24	0.00	0.00
			Max. Compression	13	-0.29	0.01	0.01
			Max. Mx	37	0.08	0.07	0.04
			Max. My	35	-0.03	0.07	0.05
			Max. Vy	37	0.05	0.07	0.04
			Max. Vx	35	-0.01	0.00	0.00
		Feed Tower	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.94	0.26	-0.03
			Max. Mx	20	-9.23	40.33	0.12
			Max. My	2	-9.23	0.09	42.82
			Max. Vy	20	0.58	40.33	0.12
			Max. Vx	14	-0.60	0.08	-39.56
		Feed Tower Guy	Bottom Tension	25	0.74		
			Top Tension	25	0.74		
			Top Cable Vert	25	-0.00		
			Top Cable Norm	25	0.74		
			Top Cable Tan	25	0.00		
			Bot Cable Vert	25	0.00		
T8	40 - 20	Leg	Max Tension	15	138.28	0.27	-0.01
			Max. Compression	18	-171.30	-0.15	-0.00
			Max. Mx	18	-159.13	0.74	0.00
			Max. My	12	-8.94	-0.18	-0.67
			Max. Vy	10	0.31	0.74	0.00
			Max. Vx	12	0.21	-0.18	-0.67

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Diagonal	Max Tension	4	5.84	0.00	0.00
			Max. Compression	2	-6.24	0.00	0.00
			Max. Mx	36	1.42	-0.22	0.00
			Max. My	27	0.70	0.00	-0.01
			Max. Vy	36	0.09	0.00	0.00
			Max. Vx	35	-0.00	0.00	0.00
		Horizontal	Max Tension	12	0.29	0.02	0.02
			Max. Compression	13	-0.33	0.02	0.02
			Max. Mx	37	0.10	0.09	0.04
			Max. My	35	-0.07	0.08	0.11
			Max. Vy	37	0.06	0.09	0.04
			Max. Vx	35	-0.02	0.00	0.00
		Feed Tower	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-85.36	0.24	-0.02
			Max. Mx	20	-12.59	35.42	-0.24
			Max. My	2	-12.58	0.07	38.39
			Max. Vy	8	0.30	-35.27	-0.23
			Max. Vx	2	-0.31	0.07	38.39
		Feed Tower Guy	Bottom Tension	37	0.63		
			Top Tension	37	0.63		
			Top Cable Vert	37	0.00		
			Top Cable Norm	37	0.63		
			Top Cable Tan	37	0.00		
			Bot Cable Vert	37	0.00		
T9	20 - 0	Leg	Max Tension	15	152.55	0.31	-0.01
			Max. Compression	18	-191.95	-0.00	0.00
			Max. Mx	18	-181.77	0.68	0.00
			Max. My	12	-10.56	-0.12	-0.97
			Max. Vy	10	0.29	0.67	0.00
			Max. Vx	12	-0.26	-0.12	-0.97
		Diagonal	Max Tension	4	5.05	0.00	0.00
			Max. Compression	2	-5.23	0.00	0.00
			Max. Mx	27	2.10	-0.26	0.00
			Max. My	31	1.52	0.00	0.01
			Max. Vy	27	-0.09	0.00	0.00
			Max. Vx	31	0.00	0.00	0.00
		Horizontal	Max Tension	12	0.27	0.03	0.05
			Max. Compression	13	-0.35	0.03	0.03
			Max. Mx	35	-0.10	0.13	0.24
			Max. My	37	0.01	0.13	0.26
			Max. Vy	37	-0.07	0.11	0.05
			Max. Vx	37	0.03	0.00	0.00
		Feed Tower	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-94.88	0.13	-0.01
			Max. Mx	20	-14.27	48.40	-0.14
			Max. My	3	-10.70	0.03	52.65
			Max. Vy	9	0.89	-48.33	-0.13
			Max. Vx	3	-0.95	0.03	52.65
		Feed Tower Guy	Bottom Tension	37	0.74		
			Top Tension	37	0.74		
			Top Cable Vert	37	0.00		
			Top Cable Norm	37	0.74		
			Top Cable Tan	37	0.00		
			Bot Cable Vert	37	0.00		

Maximum Reactions

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Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	195.68	18.42	-10.73
	Max. H_x	18	195.68	18.42	-10.73
	Max. H_z	7	-154.84	-15.25	8.90
	Min. Vert	7	-154.84	-15.25	8.90
	Min. H_x	7	-154.84	-15.25	8.90
	Min. H_z	18	195.68	18.42	-10.73
Leg B	Max. Vert	10	195.03	-18.52	-10.54
	Max. H_x	23	-155.33	15.36	8.72
	Max. H_z	23	-155.33	15.36	8.72
	Min. Vert	23	-155.33	15.36	8.72
	Min. H_x	10	195.03	-18.52	-10.54
	Min. H_z	10	195.03	-18.52	-10.54
Leg A	Max. Vert	2	194.97	-0.21	21.30
	Max. H_x	19	-83.26	1.96	-10.00
	Max. H_z	2	194.97	-0.21	21.30
	Min. Vert	15	-155.37	0.20	-17.66
	Min. H_x	8	11.30	-1.94	0.57
	Min. H_z	15	-155.37	0.20	-17.66
Feed Tower	Max. Vert	26	94.88	-0.01	0.00
	Max. H_x	21	10.70	0.88	0.00
	Max. H_z	3	10.70	-0.00	0.94
	Max. M_x	3	52.65	-0.00	0.94
	Max. M_z	9	48.33	-0.88	0.00
	Min. Vert	11	10.70	-0.82	-0.47
	Min. H_x	9	10.70	-0.88	0.00
	Min. H_z	15	10.70	-0.00	-0.87
	Min. M_x	14	-46.89	-0.00	-0.86
	Min. M_z	20	-48.40	0.88	0.00

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	40.79	-0.00	0.00	3.62	5.32	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	48.93	-0.00	-35.25	-3163.38	6.41	-7.06
0.9 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	36.71	-0.00	-35.25	-3161.03	4.80	-7.05
1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	48.93	15.95	-27.63	-2518.85	-1450.37	-5.62
0.9 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	36.71	15.95	-27.63	-2517.17	-1450.37	-5.62
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	48.93	26.67	-15.40	-1410.04	-2443.42	-2.68
0.9 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	36.71	26.67	-15.40	-1409.58	-2442.33	-2.68
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	48.93	31.90	-0.00	4.37	-2907.15	0.98
0.9 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	36.71	31.90	0.00	3.28	-2905.56	0.98
1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	48.93	30.52	17.62	1588.25	-2736.95	4.38
0.9 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	36.71	30.52	17.62	1585.43	-2735.57	4.37
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	48.93	15.95	27.63	2527.58	-1450.38	6.60

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Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
0.9 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	36.71	15.95	27.63	2523.71	-1450.39	6.59
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	48.93	0.00	30.79	2833.19	6.40	7.05
0.9 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	36.71	0.00	30.79	2828.97	4.80	7.05
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	48.93	-15.95	27.63	2527.58	1463.18	5.62
0.9 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	36.71	-15.95	27.63	2523.71	1459.98	5.62
1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	48.93	-30.52	17.62	1588.25	2749.76	2.68
0.9 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	36.71	-30.52	17.62	1585.43	2745.16	2.68
1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	48.93	-31.90	-0.00	4.37	2919.96	-0.98
0.9 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	36.71	-31.90	0.00	3.28	2915.15	-0.98
1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	48.93	-26.67	-15.40	-1410.04	2456.23	-4.37
0.9 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	36.71	-26.67	-15.40	-1409.58	2451.93	-4.37
1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	48.93	-15.95	-27.63	-2518.85	1463.18	-6.60
0.9 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	36.71	-15.95	-27.63	-2517.17	1459.97	-6.59
1.2 Dead+1.0 Ice+1.0 Temp+Guy	170.14	0.00	-0.00	2.06	19.95	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	-0.00	-5.42	-513.99	20.13	-1.65
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	2.60	-4.50	-430.17	-229.43	-1.46
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	4.44	-2.56	-244.65	-407.23	-0.87
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	5.20	0.00	2.09	-479.00	-0.05
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	4.70	2.71	260.13	-426.81	0.79
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	2.60	4.50	434.34	-229.44	1.41
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	-0.00	5.13	495.56	20.12	1.65
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	-2.60	4.50	434.34	269.69	1.46
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	-4.70	2.71	260.13	467.06	0.87
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	-5.20	0.00	2.09	519.25	0.05
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	-4.44	-2.56	-244.65	447.48	-0.79
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	170.14	-2.60	-4.50	-430.17	269.69	-1.41
Dead+Wind 0 deg - Service+Guy	40.79	-0.00	-9.17	-819.88	5.34	-1.84
Dead+Wind 30 deg - Service+Guy	40.79	4.15	-7.19	-652.33	-373.38	-1.46
Dead+Wind 60 deg - Service+Guy	40.79	6.94	-4.01	-364.07	-631.56	-0.70
Dead+Wind 90 deg - Service+Guy	40.79	8.30	0.00	3.64	-752.11	0.25
Dead+Wind 120 deg -	40.79	7.94	4.58	415.40	-707.85	1.14

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Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Service+Guy						
Dead+Wind 150 deg - Service+Guy	40.79	4.15	7.19	659.60	-373.39	1.72
Dead+Wind 180 deg - Service+Guy	40.79	-0.00	8.01	739.05	5.33	1.84
Dead+Wind 210 deg - Service+Guy	40.79	-4.15	7.19	659.60	384.06	1.46
Dead+Wind 240 deg - Service+Guy	40.79	-7.94	4.58	415.40	718.52	0.70
Dead+Wind 270 deg - Service+Guy	40.79	-8.30	0.00	3.64	762.77	-0.25
Dead+Wind 300 deg - Service+Guy	40.79	-6.94	-4.01	-364.07	642.22	-1.14
Dead+Wind 330 deg - Service+Guy	40.79	-4.15	-7.19	-652.32	384.05	-1.72

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-40.79	0.00	0.00	40.79	-0.00	0.000%
2	0.00	-48.93	-35.25	0.00	48.93	35.25	0.000%
3	0.00	-36.71	-35.25	0.00	36.71	35.25	0.000%
4	15.95	-48.93	-27.63	-15.95	48.93	27.63	0.000%
5	15.95	-36.71	-27.63	-15.95	36.71	27.63	0.000%
6	26.67	-48.93	-15.40	-26.67	48.93	15.40	0.000%
7	26.67	-36.71	-15.40	-26.67	36.71	15.40	0.000%
8	31.90	-48.93	0.00	-31.90	48.93	0.00	0.000%
9	31.90	-36.71	0.00	-31.90	36.71	-0.00	0.000%
10	30.52	-48.93	17.62	-30.52	48.93	-17.62	0.000%
11	30.52	-36.71	17.62	-30.52	36.71	-17.62	0.000%
12	15.95	-48.93	27.63	-15.95	48.93	-27.63	0.000%
13	15.95	-36.71	27.63	-15.95	36.71	-27.63	0.000%
14	0.00	-48.93	30.79	-0.00	48.93	-30.79	0.000%
15	0.00	-36.71	30.79	-0.00	36.71	-30.79	0.000%
16	-15.95	-48.93	27.63	15.95	48.93	-27.63	0.000%
17	-15.95	-36.71	27.63	15.95	36.71	-27.63	0.000%
18	-30.52	-48.93	17.62	30.52	48.93	-17.62	0.000%
19	-30.52	-36.71	17.62	30.52	36.71	-17.62	0.000%
20	-31.90	-48.93	-0.00	31.90	48.93	0.00	0.000%
21	-31.90	-36.71	-0.00	31.90	36.71	-0.00	0.000%
22	-26.67	-48.93	-15.40	26.67	48.93	15.40	0.000%
23	-26.67	-36.71	-15.40	26.67	36.71	15.40	0.000%
24	-15.95	-48.93	-27.63	15.95	48.93	27.63	0.000%
25	-15.95	-36.71	-27.63	15.95	36.71	27.63	0.000%
26	0.00	-170.15	0.00	-0.00	170.14	0.00	0.000%
27	0.00	-170.15	-5.42	0.00	170.14	5.42	0.000%
28	2.60	-170.15	-4.50	-2.60	170.14	4.50	0.000%
29	4.44	-170.15	-2.56	-4.44	170.14	2.56	0.000%
30	5.20	-170.15	0.00	-5.20	170.14	-0.00	0.000%
31	4.70	-170.15	2.71	-4.70	170.14	-2.71	0.000%
32	2.60	-170.15	4.50	-2.60	170.14	-4.50	0.000%
33	0.00	-170.15	5.13	0.00	170.14	-5.13	0.000%
34	-2.60	-170.15	4.50	2.60	170.14	-4.50	0.000%
35	-4.70	-170.15	2.71	4.70	170.14	-2.71	0.000%
36	-5.20	-170.15	0.00	5.20	170.14	-0.00	0.000%
37	-4.44	-170.15	-2.56	4.44	170.14	2.56	0.000%

tnxTower

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	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
38	-2.60	-170.15	-4.50	2.60	170.14	4.50	0.000%
39	0.00	-40.79	-9.17	0.00	40.79	9.17	0.000%
40	4.15	-40.79	-7.19	-4.15	40.79	7.19	0.000%
41	6.94	-40.79	-4.01	-6.94	40.79	4.01	0.000%
42	8.30	-40.79	0.00	-8.30	40.79	-0.00	0.000%
43	7.94	-40.79	4.58	-7.94	40.79	-4.58	0.000%
44	4.15	-40.79	7.19	-4.15	40.79	-7.19	0.000%
45	0.00	-40.79	8.01	0.00	40.79	-8.01	0.000%
46	-4.15	-40.79	7.19	4.15	40.79	-7.19	0.000%
47	-7.94	-40.79	4.58	7.94	40.79	-4.58	0.000%
48	-8.30	-40.79	0.00	8.30	40.79	-0.00	0.000%
49	-6.94	-40.79	-4.01	6.94	40.79	4.01	0.000%
50	-4.15	-40.79	-7.19	4.15	40.79	7.19	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00002179
2	Yes	4	0.00019903	0.00045120
3	Yes	4	0.00015916	0.00042876
4	Yes	4	0.00000001	0.00041963
5	Yes	4	0.00000001	0.00040110
6	Yes	4	0.00000001	0.00012440
7	Yes	4	0.00000001	0.00011985
8	Yes	4	0.00000001	0.00042183
9	Yes	4	0.00000001	0.00040493
10	Yes	4	0.00019906	0.00047444
11	Yes	4	0.00015930	0.00045689
12	Yes	4	0.00000001	0.00044399
13	Yes	4	0.00000001	0.00043082
14	Yes	4	0.00000001	0.00015585
15	Yes	4	0.00000001	0.00015519
16	Yes	4	0.00000001	0.00045193
17	Yes	4	0.00000001	0.00043000
18	Yes	4	0.00020075	0.00046599
19	Yes	4	0.00016033	0.00044017
20	Yes	4	0.00000001	0.00042371
21	Yes	4	0.00000001	0.00040680
22	Yes	4	0.00000001	0.00015701
23	Yes	4	0.00000001	0.00015790
24	Yes	4	0.00000001	0.00042789
25	Yes	4	0.00000001	0.00040971
26	Yes	17	0.00000001	0.00003084
27	Yes	16	0.00092743	0.00002961
28	Yes	16	0.00093714	0.00002932
29	Yes	16	0.00093575	0.00002906
30	Yes	16	0.00093795	0.00002924
31	Yes	16	0.00092985	0.00002949
32	Yes	16	0.00092605	0.00002917
33	Yes	16	0.00091734	0.00002896
34	Yes	16	0.00092020	0.00002934
35	Yes	16	0.00091704	0.00002973
36	Yes	16	0.00091586	0.00002931
37	Yes	16	0.00091122	0.00002897
38	Yes	16	0.00092090	0.00002922

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39	Yes	4	0.00000001	0.00024773
40	Yes	4	0.00000001	0.00011426
41	Yes	4	0.00000001	0.00003405
42	Yes	4	0.00000001	0.00013829
43	Yes	4	0.00000001	0.00027670
44	Yes	4	0.00000001	0.00013979
45	Yes	4	0.00000001	0.00003409
46	Yes	4	0.00000001	0.00009670
47	Yes	4	0.00000001	0.00022103
48	Yes	4	0.00000001	0.00009541
49	Yes	4	0.00000001	0.00003397
50	Yes	4	0.00000001	0.00011207

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	170 - 160	2.867	47	0.145	0.069
T2	160 - 140	2.564	47	0.141	0.025
T3	140 - 120	1.974	47	0.132	0.008
T4	120 - 100	1.437	47	0.114	0.006
T5	100 - 80	0.988	47	0.092	0.004
T6	80 - 60	0.622	47	0.071	0.003
T7	60 - 40	0.351	47	0.051	0.002
T8	40 - 20	0.163	47	0.032	0.001
T9	20 - 0	0.047	47	0.017	0.001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
170.50	(2) Flashing Beacon	47	2.867	0.145	0.069	561398
168.00	20' Dipole	47	2.806	0.144	0.059	561398
166.67	DB420-D	47	2.766	0.143	0.053	561398
150.00	Rohn 6'x12' Boom Gate (3)	47	2.265	0.137	0.011	148579

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	170 - 160	10.974	18	0.549	0.252
T2	160 - 140	9.820	18	0.539	0.097
T3	140 - 120	7.559	18	0.508	0.031
T4	120 - 100	5.500	18	0.434	0.022
T5	100 - 80	3.784	18	0.352	0.016
T6	80 - 60	2.381	18	0.270	0.010
T7	60 - 40	1.345	18	0.195	0.007
T8	40 - 20	0.623	18	0.123	0.004

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T9	20 - 0	0.180	18	0.064	0.002

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
170.50	(2) Flashing Beacon	18	10.974	0.549	0.252	207396
168.00	20' Dipole	18	10.743	0.547	0.217	207396
166.67	DB420-D	18	10.589	0.545	0.195	207396
150.00	Rohn 6'x12' Boom Gate (3)	18	8.676	0.527	0.042	43143

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	170	Leg	A325N	0.6250	8	0.80	18.28	0.044	1	Bearing
		Diagonal	A325N	0.5000	1	2.11	3.81	0.554	1	Member Block Shear
		Horizontal	A325N	0.6250	1	1.29	3.87	0.334	1	Member Block Shear
T2	160	Leg	A325N	0.6250	8	5.55	24.85	0.223	1	Bolt DS
		Diagonal	A325N	0.5000	1	3.20	5.71	0.560	1	Member Block Shear
T3	140	Leg	A325N	0.6250	8	12.36	24.85	0.497	1	Bolt DS
		Diagonal	A325N	0.5000	1	2.96	5.71	0.519	1	Member Block Shear
		Secondary Horizontal	A325N	0.6250	1	0.30	9.11	0.032	1	Member Block Shear
T4	120	Leg	A325N	0.6250	8	18.41	24.85	0.741	1	Bolt DS
		Diagonal	A325N	0.6250	1	3.85	9.11	0.422	1	Member Block Shear
		Secondary Horizontal	A325N	0.6250	1	0.30	9.11	0.033	1	Member Block Shear
T5	100	Leg	A325X	0.7500	12	16.47	43.74	0.377	1	Bolt DS
		Diagonal	A325N	0.6250	1	3.86	6.83	0.565	1	Member Block Shear
		Secondary Horizontal	A325N	0.6250	1	0.30	9.11	0.033	1	Member Block Shear
T6	80	Leg	A325X	0.7500	12	20.62	43.74	0.471	1	Bolt DS
		Diagonal	A325N	0.6250	1	4.94	12.43	0.397	1	Bolt Shear
		Secondary Horizontal	A325N	0.6250	1	0.33	9.11	0.036	1	Member Block Shear
T7	60	Leg	A325X	0.7500	12	24.46	43.74	0.559	1	Bolt DS
		Diagonal	A325N	0.6250	1	5.76	12.43	0.464	1	Bolt Shear
		Horizontal	A325N	0.6250	1	0.24	6.83	0.035	1	Member Block Shear
T8	40	Leg	A325X	0.7500	16	21.41	43.74	0.490	1	Bolt DS
		Diagonal	A325N	0.6250	1	6.24	12.43	0.502	1	Bolt Shear
		Horizontal	A325N	0.6250	1	0.29	6.83	0.043	1	Member Block

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Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T9	20	Diagonal	A325N	0.6250	2	2.62	12.43	0.211	1	Shear Bolt Shear
		Horizontal	A325N	0.6250	2	0.14	7.19	0.019	1	Member Block Shear

Feed Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T1	170.00 (289)	7/16 EHS	0.31	20.80	0.74	12.48	1.000	16.852
	170.00 (290)	7/16 EHS	0.31	20.80	0.70	12.48	1.000	17.730
	170.00 (291)	7/16 EHS	0.31	20.80	0.71	12.48	1.000	17.635
T2	160.00 (292)	7/16 EHS	0.31	20.80	0.47	12.48	1.000	26.674
	160.00 (293)	7/16 EHS	0.31	20.80	0.56	12.48	1.000	22.360
	160.00 (294)	7/16 EHS	0.31	20.80	0.48	12.48	1.000	26.064
T3	140.00 (295)	7/16 EHS	0.31	20.80	1.16	12.48	1.000	10.796
	140.00 (296)	7/16 EHS	0.31	20.80	1.13	12.48	1.000	11.021
	140.00 (297)	7/16 EHS	0.31	20.80	1.15	12.48	1.000	10.853
T4	120.00 (298)	7/16 EHS	0.31	20.80	1.60	12.48	1.000	7.814
	120.00 (299)	7/16 EHS	0.31	20.80	1.59	12.48	1.000	7.839
	120.00 (300)	7/16 EHS	0.31	20.80	1.60	12.48	1.000	7.823
T5	100.00 (301)	7/16 EHS	0.31	20.80	0.96	12.48	1.000	13.014
	100.00 (302)	7/16 EHS	0.31	20.80	0.96	12.48	1.000	12.988
	100.00 (303)	7/16 EHS	0.31	20.80	0.96	12.48	1.000	12.997
T6	80.00 (304)	7/16 EHS	0.31	20.80	1.16	12.48	1.000	10.780
	80.00 (305)	7/16 EHS	0.31	20.80	1.16	12.48	1.000	10.777
	80.00 (306)	7/16 EHS	0.31	20.80	1.16	12.48	1.000	10.787
T7	60.00 (307)	7/16 EHS	0.31	20.80	0.74	12.48	1.000	16.846
	60.00 (308)	7/16 EHS	0.31	20.80	0.74	12.48	1.000	16.841
	60.00 (309)	7/16 EHS	0.31	20.80	0.74	12.48	1.000	16.849
T8	40.00 (310)	7/16 EHS	0.31	20.80	0.63	12.48	1.000	19.699
	40.00 (311)	7/16 EHS	0.31	20.80	0.63	12.48	1.000	19.673
	40.00 (312)	7/16 EHS	0.31	20.80	0.63	12.48	1.000	19.690
T9	20.00 (313)	7/16 EHS	0.31	20.80	0.74	12.48	1.000	16.974
	20.00 (314)	7/16 EHS	0.31	20.80	0.74	12.48	1.000	16.867
	20.00 (315)	7/16 EHS	0.31	20.80	0.74	12.48	1.000	16.913

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	V3x3x1/4	10.00	3.33	57.6	1.4375	-3.14	50.76	0.062 [1]

tnxTower

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Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	160 - 140	V3x3x3/16 with Plate	20.02	5.01	78.3 K=1.00	5.1013	-22.19	146.63	0.151 [1]
T3	140 - 120	V3x3x1/4 with Plate	20.04	2.60	39.7 K=1.00	5.5670	-49.43	223.31	0.221 [1]
T4	120 - 100	V4x4x1/4 with Plate	20.04	3.48	49.7 K=1.00	6.3517	-73.63	238.66	0.308 [1]
T5	100 - 80	V4x4x3/8 with Plate 2.25x2.25	20.04	3.45	55.8 K=1.00	6.9337	-98.83	248.58	0.398 [1]
T6	80 - 60	V4x4x3/8 with Plate	20.04	3.43	47.1 K=1.00	8.1658	-123.71	312.35	0.396 [1]
T7	60 - 40	V4x4x0.711 with Plate	20.04	5.01	70.0 K=1.00	8.8775	-146.79	279.26	0.526 [1]
T8	40 - 20	V4x4x0.779 with Plate	20.04	5.01	57.6 K=1.00	11.0135	-171.30	389.01	0.440 [1]
T9	20 - 0	V5x5x0.6487 with Plate	20.05	5.01	58.9 K=1.00	10.1539	-191.95	354.62	0.541 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L1 3/4x1 3/4x1/8	4.43	3.84	133.0 K=1.00	0.4219	-2.18	5.39	0.405 [1]
T2	160 - 140	L 1-3/4x1-3/4x3/16	6.68	3.17	113.1 K=1.02	0.6211	-3.12	10.26	0.304 [1]
T3	140 - 120	L 1-3/4x1-3/4x3/16	8.16	3.95	138.0 K=1.00	0.6211	-2.81	7.37	0.381 [1]
T4	120 - 100	L2x2x1/4	10.75	5.24	160.9 K=1.00	0.9380	-3.86	8.19	0.471 [1]
T5	100 - 80	L2x2x3/16	12.43	6.09	185.6 K=1.00	0.7150	-3.96	4.69	0.845 [1]
T6	80 - 60	L2 1/2x2 1/2x5/16	14.21	6.99	171.4 K=1.00	1.4600	-4.94	11.22	0.440 [1]
T7	60 - 40	L3x3x5/16	9.00	8.55	174.2 K=1.00	1.7800	-5.76	13.24	0.435 [1]
T8	40 - 20	L3 1/2x3 1/2x5/16	9.87	9.42	163.8 K=1.00	2.0900	-6.24	17.59	0.355 [1]
T9	20 - 0	L3 1/2x3 1/2x5/16	11.00	10.37	157.1 K=0.87	2.0900	-4.84	19.14	0.253 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$

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Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L1 3/4x1 3/4x1/8	2.92	2.43	102.0 K=1.21	0.4219	-1.33	7.90	0.168 [1]
T7	60 - 40	L2x2x3/16	14.44	6.93	211.1 K=1.00	0.7150	-0.28	3.63	0.076 [1]
T8	40 - 20	L2x2x3/16	15.47	7.44	226.5 K=1.00	0.7150	-0.33	3.15	0.104 [1]
T9	20 - 0	L 2-1/2x2-1/2x3/16	17.66	12.74	196.4 K=1.00	0.9023	-0.35	5.29	0.065 [1]

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	140 - 120	L2x2x1/4	6.44	5.90	118.1 K=1.02	0.9380	-0.29	14.58	0.020 [1]
T4	120 - 100	L2x2x1/4	8.41	7.81	153.9 K=1.00	0.9380	-0.32	8.94	0.036 [1]
T5	100 - 80	L2x2x1/4	10.48	9.89	194.9 K=1.00	0.9380	-0.32	5.58	0.057 [1]
T6	80 - 60	L2x2x1/4	12.54	11.96	235.6 K=1.00	0.9380	-0.32	3.82	0.084 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L1 3/4x1 1/4x3/16	2.92	2.67	106.6 K=1.14	0.6211	-0.44	11.07	0.040 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L1 3/4x1 3/4x1/8	2.92	2.67	106.2 K=1.15	0.4219	-0.91	7.55	0.120 [1]

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[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	V3x3x1/4	10.00	3.33	43.8	1.0625	3.20	51.80	0.062 [1]
T2	160 - 140	V3x3x3/16 with Plate	20.02	5.01	78.3	5.1013	17.34	229.56	0.076 [1]
T3	140 - 120	V3x3x1/4 with Plate	20.04	2.40	36.6	5.5670	41.08	250.51	0.164 [1]
T4	120 - 100	V4x4x1/4 with Plate	20.04	3.20	45.8	6.3517	62.25	285.83	0.218 [1]
T5	100 - 80	V4x4x3/8 with Plate 2.25x2.25	20.04	3.23	52.2	6.9337	82.45	312.02	0.264 [1]
T6	80 - 60	V4x4x3/8 with Plate	20.04	3.25	44.6	8.1658	102.46	367.46	0.279 [1]
T7	60 - 40	V4x4x0.711 with Plate	20.04	5.01	70.0	8.8775	120.13	399.49	0.301 [1]
T8	40 - 20	V4x4x0.779 with Plate	20.04	5.01	57.6	11.0135	138.28	495.61	0.279 [1]
T9	20 - 0	V5x5x0.6487 with Plate	20.05	5.01	58.9	10.1539	152.55	456.93	0.334 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L1 3/4x1 3/4x1/8	4.43	3.84	89.1	0.2578	2.11	11.21	0.188 [1]
T2	160 - 140	L 1-3/4x1-3/4x3/16	6.41	3.04	70.3	0.3779	3.20	16.44	0.195 [1]
T3	140 - 120	L 1-3/4x1-3/4x3/16	7.38	3.57	82.1	0.3779	2.96	16.44	0.180 [1]
T4	120 - 100	L2x2x1/4	10.22	4.99	100.6	0.5629	3.85	24.49	0.157 [1]
T5	100 - 80	L2x2x3/16	11.85	5.81	115.4	0.4308	3.86	18.74	0.206 [1]
T6	80 - 60	L2 1/2x2 1/2x5/16	13.61	6.69	107.3	0.9192	4.64	39.99	0.116 [1]
T7	60 - 40	L3x3x5/16	8.16	7.71	103.5	1.1592	5.43	50.43	0.108 [1]
T8	40 - 20	L3 1/2x3 1/2x5/16	9.43	8.98	102.4	1.3917	5.84	60.54	0.096 [1]
T9	20 - 0	L3 1/2x3 1/2x5/16	10.43	9.80	113.3	1.3917	5.05	60.54	0.083 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L1 3/4x1 3/4x1/8	2.92	2.43	58.7	0.2461	1.29	10.71	0.121 [1]
T7	60 - 40	L2x2x3/16	13.41	6.41	190.6	0.4308	0.24	18.74	0.013 [1]
T8	40 - 20	L2x2x3/16	15.47	7.44	220.4	0.4308	0.29	18.74	0.016 [1]
T9	20 - 0	L 2-1/2x2-1/2x3/16	17.66	12.74	199.4	0.5713	0.27	24.85	0.011 [1]

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[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	140 - 120	L2x2x1/4	6.44	5.90	120.9	0.5629	0.30	24.49	0.012 [1]
T4	120 - 100	L2x2x1/4	7.72	7.12	145.1	0.5629	0.30	24.49	0.012 [1]
T5	100 - 80	L2x2x1/4	10.48	9.89	199.7	0.5629	0.30	24.49	0.012 [1]
T6	80 - 60	L2x2x1/4	11.85	11.27	226.8	0.5629	0.33	24.49	0.013 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L1 3/4x1 1/4x3/16	2.92	2.67	59.6	0.6211	0.06	20.12	0.003 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L1 3/4x1 3/4x1/8	2.92	2.67	58.7	0.4219	0.46	13.67	0.034 [1]

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	170 - 160	Leg	V3x3x1/4	1	-3.14	50.76	6.2	Pass
T2	160 - 140	Leg	V3x3x3/16 with Plate	26	-22.19	146.63	15.1 22.3 (b)	Pass
T3	140 - 120	Leg	V3x3x1/4 with Plate	52	-49.43	223.31	22.1 49.7 (b)	Pass
T4	120 - 100	Leg	V4x4x1/4 with Plate	91	-73.63	238.66	30.8 74.1 (b)	Pass
T5	100 - 80	Leg	V4x4x3/8 with Plate 2.25x2.25	121	-98.83	248.58	39.8	Pass
T6	80 - 60	Leg	V4x4x3/8 with Plate	151	-123.71	312.35	39.6 47.1 (b)	Pass

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Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T7	60 - 40	Leg	V4x4x0.711 with Plate	181	-146.79	279.26	52.6 55.9 (b)	Pass
T8	40 - 20	Leg	V4x4x0.779 with Plate	214	-171.30	389.01	44.0 49.0 (b)	Pass
T9	20 - 0	Leg	V5x5x0.6487 with Plate	247	-191.95	354.62	54.1	Pass
T1	170 - 160	Diagonal	L1 3/4x1 3/4x1/8	12	-2.18	5.39	40.5 55.4 (b)	Pass
T2	160 - 140	Diagonal	L 1-3/4x1-3/4x3/16	28	-3.12	10.26	30.4 56.0 (b)	Pass
T3	140 - 120	Diagonal	L 1-3/4x1-3/4x3/16	55	-2.81	7.37	38.1 51.9 (b)	Pass
T4	120 - 100	Diagonal	L2x2x1/4	95	-3.86	8.19	47.1	Pass
T5	100 - 80	Diagonal	L2x2x3/16	128	-3.96	4.69	84.5	Pass
T6	80 - 60	Diagonal	L2 1/2x2 1/2x5/16	158	-4.94	11.22	44.0	Pass
T7	60 - 40	Diagonal	L3x3x5/16	191	-5.76	13.24	43.5 46.4 (b)	Pass
T8	40 - 20	Diagonal	L3 1/2x3 1/2x5/16	224	-6.24	17.59	35.5 50.2 (b)	Pass
T9	20 - 0	Diagonal	L3 1/2x3 1/2x5/16	257	-4.84	19.14	25.3	Pass
T1	170 - 160	Horizontal	L1 3/4x1 3/4x1/8	13	-1.33	7.90	16.8 33.4 (b)	Pass
T7	60 - 40	Horizontal	L2x2x3/16	190	-0.28	3.63	7.6	Pass
T8	40 - 20	Horizontal	L2x2x3/16	238	-0.33	3.15	10.4	Pass
T9	20 - 0	Horizontal	L 2-1/2x2-1/2x3/16	271	-0.35	5.29	6.5	Pass
T3	140 - 120	Secondary Horizontal	L2x2x1/4	62	-0.29	14.58	2.0 3.2 (b)	Pass
T4	120 - 100	Secondary Horizontal	L2x2x1/4	102	-0.32	8.94	3.6	Pass
T5	100 - 80	Secondary Horizontal	L2x2x1/4	131	-0.32	5.58	5.7	Pass
T6	80 - 60	Secondary Horizontal	L2x2x1/4	162	-0.32	3.82	8.4	Pass
T1	170 - 160	Top Girt	L1 3/4x1 1/4x3/16	4	-0.44	11.07	4.0	Pass
T1	170 - 160	Bottom Girt	L1 3/4x1 3/4x1/8	7	-0.91	7.55	12.0	Pass
T1	170 - 160	Feed Tower Guy	7/16	289	0.74	12.48	5.9	Pass
T2	160 - 140	Feed Tower Guy	7/16	293	0.56	12.48	4.5	Pass
T3	140 - 120	Feed Tower Guy	7/16	295	1.16	12.48	9.3	Pass
T4	120 - 100	Feed Tower Guy	7/16	298	1.60	12.48	12.8	Pass
T5	100 - 80	Feed Tower Guy	7/16	302	0.96	12.48	7.7	Pass
T6	80 - 60	Feed Tower Guy	7/16	305	1.16	12.48	9.3	Pass
T7	60 - 40	Feed Tower Guy	7/16	308	0.74	12.48	5.9	Pass
T8	40 - 20	Feed Tower Guy	7/16	311	0.63	12.48	5.1	Pass
T9	20 - 0	Feed Tower Guy	7/16	314	0.74	12.48	5.9	Pass
							Summary	
						Leg (T4)	74.1	Pass
						Diagonal (T5)	84.5	Pass
						Horizontal (T1)	33.4	Pass
						Secondary Horizontal (T6)	8.4	Pass
						Top Girt (T1)	4.0	Pass
						Bottom Girt (T1)	12.0	Pass
						Feed Tower Guy (T4)	12.8	Pass
						Bolt Checks	74.1	Pass
						RATING =	**84.5**	**Pass**

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	Client: Smartlink	Designed by: Arienna Wilson-Muller, E.I.

Program Version 8.1.1.0 - 6/3/2021 File:C:/Users/Arienna.WilsonMuller/Box/Salesforce - Trylon Engineering/Towers/DE_38.478889, -75.366389/Gumboro_SML_MA_Aug 2021_AT&T/Engineering/SA_11-29-2021/RISA or TNX/Gumsboro.eri

Site Name: Gumboro
Date: 12.01.2021

Trylon

Built-Up Member Compression Capacity

Calculations in accordance with AISC 14th ed.,

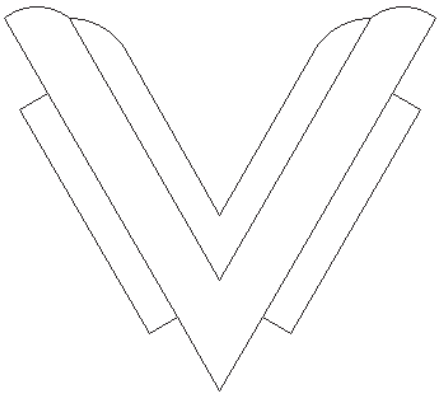
Limitations: User to design in LRFD only

References: Trylon CDs (Job # 196812) dated November 11, 2021

Demand (from tnxTower):

$P_u := 191.95\ kip$ (axial load acting through leg section, 0-20 ft)

Design:
(Briefly describe the built up member configuration and update image below to show connection)



Material & Section Properties:

$\phi := 0.9$	(applicable load reduction factor)
$k := 1$	(effective length factor)
$F_y := 50\ ksi$	(yield strength of built-up member - *composite Fy based off area ratios*)
$E := 29000\ ksi$	(modulus of elasticity of steel)
$A_{orig} := 5.859375\ in^2$	(original member area)
$I_{orig} := 7.8041\ in^4$	(original member min. inertia)
$A_{new} := 4.5112\ in^2$	(new reinf. member area)
$I_{new} := 3.4934\ in^4$	(new reinf. member min. inertia)
$n := 1$	(number of reinf. members to be added)

Site Name: Gumboro
Date: 12.01.2021

Trylon

Section Properties (Continued):

$A_{reinf} := 10.1539\ in^2 = 10.154\ in^2$ (total area of built up member)

$I_{reinf} := 10.6026\ in^4$ (built up member min inertia) - *from CAD*

$r_{exist} := \sqrt{\frac{I_{exist}}{A_{exist}}} = 1.154\ in$ (radius of gyration of the existing member)

$r_{new} := \sqrt{\frac{I_{new}}{A_{new}}} = 0.88\ in$ (radius of gyration of the additonal member)

$r_{reinf} := \sqrt{\frac{I_{reinf}}{A_{reinf}}} = 1.022\ in$ (radius of gyration of the built-up member)

$l_{u.exist} := 60.12\ in$ (unbraced length of existing leg member) - *from tnxTower*

$l_{u.new} := 0\ in$ (intermediate connector spacing; also specified as 'a' per AISC) - *design specific*

$a := l_{u.new} = 0\ in$

(checking limiting slenderness ratio per E6.2)

$\frac{k \cdot a}{r_{exist}} = 0$ (original member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{exist}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

$\frac{k \cdot a}{r_{new}} = 0$ (additional member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{new}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Welded Connector Capacity Calculations (per AISC E6):

if a/ri<=40

$$slenderness_ratio := \frac{k \cdot l_{u.exist}}{r_{reinf}} = 58.834$$ (modified slenderness ratio of built-up member)

if a/ri>40

$$K_i := 0.86$$

$$slenderness_ratio := \sqrt{\left(\frac{k \cdot l_{u.exist}}{r_{reinf}}\right)^2 + \left(\frac{K_i \cdot a}{min\left(r_{exist}, r_{new}\right)}\right)^2} = 58.834$$ (modified slenderness ratio of built-up member)

$$F_e := \frac{\pi^2 \cdot E}{slenderness_ratio^2} = 82.687\ ksi$$ (elastic buckling stress)

$$\mathbf{F_{cr}} := \mathbf{if}\left(slenderness_ratio \le 4.71 \cdot \sqrt{\frac{E}{F_y}}, \left(0.658^{\frac{F_y}{F_e}}\right) \cdot F_y, 0.877 \cdot F_e\right) = 38.82\ ksi$$ (critical stress)

$$\phi P_n := \phi \cdot \mathbf{F_{cr}} \cdot A_{reinf} = 354.755\ kip$$ (compressive strength capacity)

Demand to Capacity Ratio:

$$\therefore\ DCR := \frac{P_u}{\phi P_n} = 54.11\%$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Built-Up Member Compression Capacity

Calculations in accordance with AISC 14th ed.,

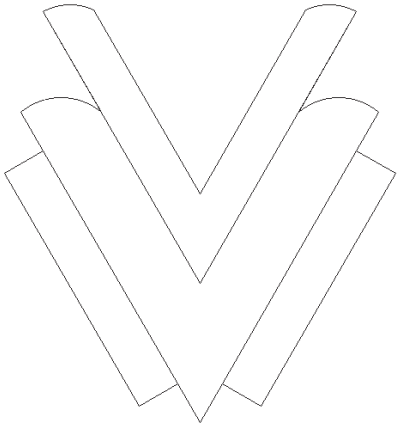
Limitations: User to design in LRFD only

References: Trylon CDs (Job # 196812) dated November 11, 2021

Demand (from tnxTower):

$P_u := 171.30\ kip$ (axial load acting through leg section, 20-40 ft)

Design:
(Briefly describe the built up member configuration and update image below to show connection)



Material & Section Properties:

$\phi := 0.9$ (applicable load reduction factor)
$k := 1$ (effective length factor)
$F_y := 50\ ksi$ (yield strength of built-up member - *composite Fy based off area ratios*)
$E := 29000\ ksi$ (modulus of elasticity of steel)

$A_{orig} := 5.4375\ in^2$ (original member area)
$I_{orig} := 4.25171613\ in^4$ (original member min. inertia)
$A_{new} := 4.2697\ in^2$ (new reinf. member area)
$I_{new} := 3.1399\ in^4$ (new reinf. member min. inertia)
$n := 1$ (number of reinf. members to be added)

Site Name: Gumboro
Date: 12.01.2021

Trylon

Section Properties (Continued):

$A_{reinf} := 11.0135\ in^2 = 11.014\ in^2$ (total area of built up member)

$I_{reinf} := 12.0122\ in^4$ (built up member min inertia) - *from CAD*

$r_{exist} := \sqrt{\frac{I_{exist}}{A_{exist}}} = 0.884\ in$ (radius of gyration of the existing member)

$r_{new} := \sqrt{\frac{I_{new}}{A_{new}}} = 0.858\ in$ (radius of gyration of the additonal member)

$r_{reinf} := \sqrt{\frac{I_{reinf}}{A_{reinf}}} = 1.044\ in$ (radius of gyration of the built-up member)

$l_{u.exist} := 60.12\ in$ (unbraced length of existing leg member) - *from tnxTower*

$l_{u.new} := 0\ in$ (intermediate connector spacing; also specified as 'a' per AISC) - *design specific*

$a := l_{u.new} = 0\ in$

(checking limiting slenderness ratio per E6.2)

$\frac{k \cdot a}{r_{exist}} = 0$ (original member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{exist}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

$\frac{k \cdot a}{r_{new}} = 0$ (additional member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{new}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Welded Connector Capacity Calculations (per AISC E6):

if a/ri<=40

$$slenderness_ratio := \frac{k \cdot l_{u.exist}}{r_{reinf}} = 57.567$$ (modified slenderness ratio of built-up member)

if a/ri>40

$$K_i := 0.86$$

$$slenderness_ratio := \sqrt{\left(\frac{k \cdot l_{u.exist}}{r_{reinf}}\right)^2 + \left(\frac{K_i \cdot a}{min\left(r_{exist}, r_{new}\right)}\right)^2} = 57.567$$ (modified slenderness ratio of built-up member)

$$F_e := \frac{\pi^2 \cdot E}{slenderness_ratio^2} = 86.369\ ksi$$ (elastic buckling stress)

$$\mathbf{F_{cr}} := \mathbf{if}\left(slenderness_ratio \le 4.71 \cdot \sqrt{\frac{E}{F_y}}, \left(0.658^{\frac{F_y}{F_e}}\right) \cdot F_y, 0.877 \cdot F_e\right) = 39.241\ ksi$$ (critical stress)

$$\phi P_n := \phi \cdot \mathbf{F_{cr}} \cdot A_{reinf} = 388.961\ kip$$ (compressive strength capacity)

Demand to Capacity Ratio:

$$\therefore\ DCR := \frac{P_u}{\phi P_n} = 44.04\%$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Built-Up Member Compression Capacity

Calculations in accordance with AISC 14th ed.,

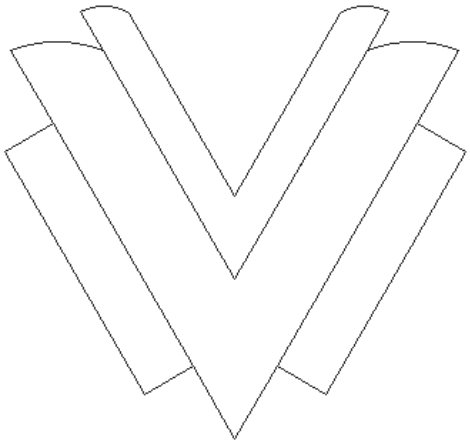
Limitations: User to design in LRFD only

References: Trylon CDs (Job # 196812) dated November 11, 2021

Demand (from tnxTower):

$P_u := 146.79\ kip$ (axial load acting through leg section, 40-60 ft)

Design:
(Briefly describe the built up member configuration and update image below to show connection)



Material & Section Properties:

$\phi := 0.9$ (applicable load reduction factor)
$k := 1$ (effective length factor)
$F_y := 50\ ksi$ (yield strength of built-up member - *composite Fy based off area ratios*)
$E := 29000\ ksi$ (modulus of elasticity of steel)

$A_{orig} := 4.609375\ in^2$ (original member area)
$I_{orig} := 3.73983448\ in^4$ (original member min. inertia)
$A_{new} := 5.4451\ in^2$ (new reinf. member area)
$I_{new} := 3.9071\ in^4$ (new reinf. member min. inertia)
$n := 1$ (number of reinf. members to be added)

Site Name: Gumboro
Date: 12.01.2021

Trylon

Section Properties (Continued):

$A_{reinf} := 8.8775\ in^2 = 8.878\ in^2$ (total area of built up member)

$I_{reinf} := 6.5499\ in^4$ (built up member min inertia) - *from CAD*

$r_{exist} := \sqrt{\frac{I_{exist}}{A_{exist}}} = 0.901\ in$ (radius of gyration of the existing member)

$r_{new} := \sqrt{\frac{I_{new}}{A_{new}}} = 0.847\ in$ (radius of gyration of the additonal member)

$r_{reinf} := \sqrt{\frac{I_{reinf}}{A_{reinf}}} = 0.859\ in$ (radius of gyration of the built-up member)

$l_{u.exist} := 60.12\ in$ (unbraced length of existing leg member) - *from tnxTower*

$l_{u.new} := 0\ in$ (intermediate connector spacing; also specified as 'a' per AISC) - *design specific*

$a := l_{u.new} = 0\ in$

(checking limiting slenderness ratio per E6.2)

$\frac{k \cdot a}{r_{exist}} = 0$ (original member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{exist}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

$\frac{k \cdot a}{r_{new}} = 0$ (additional member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{new}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Welded Connector Capacity Calculations (per AISC E6):

if a/ri<=40

$$slenderness_ratio := \frac{k \cdot l_{u.exist}}{r_{reinf}} = 69.992$$ (modified slenderness ratio of built-up member)

if a/ri>40

$K_i := 0.86$

$$slenderness_ratio := \sqrt{\left(\frac{k \cdot l_{u.exist}}{r_{reinf}}\right)^2 + \left(\frac{K_i \cdot a}{min\left(r_{exist}, r_{new}\right)}\right)^2} = 69.992$$ (modified slenderness ratio of built-up member)

$$F_e := \frac{\pi^2 \cdot E}{slenderness_ratio^2} = 58.426\ ksi$$ (elastic buckling stress)

$$\mathbf{F_{cr}} := \mathbf{if}\left(slenderness_ratio \le 4.71 \cdot \sqrt{\frac{E}{F_y}}, \left(0.658^{\frac{F_y}{F_e}}\right) \cdot F_y, 0.877 \cdot F_e\right) = 34.947\ ksi$$ (critical stress)

$\phi P_n := \phi \cdot \mathbf{F_{cr}} \cdot A_{reinf} = 279.218\ kip$ (compressive strength capacity)

Demand to Capacity Ratio:

$$\therefore DCR := \frac{P_u}{\phi P_n} = 52.86\%$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Built-Up Member Compression Capacity

Calculations in accordance with AISC 14th ed.,

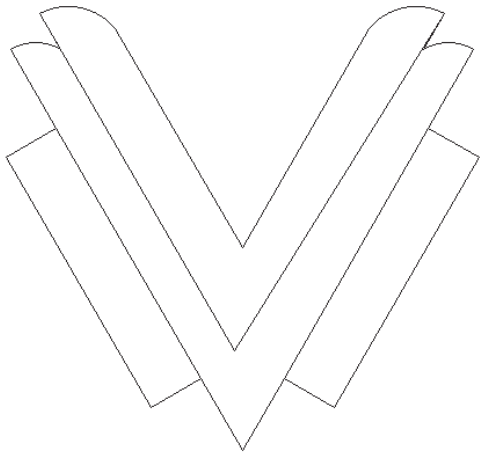
Limitations: User to design in LRFD only

References: Trylon CDs (Job # 196812) dated November 11, 2021

Demand (from tnxTower):

$P_u := 123.71\ kip$ (axial load acting through leg section, 60-80 ft)

Design:
(Briefly describe the built up member configuration and update image below to show connection)



Material & Section Properties:

$\phi := 0.9$	(applicable load reduction factor)
$k := 1$	(effective length factor)
$F_y := 50\ ksi$	(yield strength of built-up member - *composite Fy based off area ratios*)
$E := 29000\ ksi$	(modulus of elasticity of steel)
$A_{orig} := 2.859375\ in^2$	(original member area)
$I_{orig} := 2.48379775\ in^4$	(original member min. inertia)
$A_{new} := 4.1996\ in^2$	(new reinf. member area)
$I_{new} := 2.7891\ in^4$	(new reinf. member min. inertia)
$n := 1$	(number of reinf. members to be added)

Site Name: Gumboro
Date: 12.01.2021

Trylon

Section Properties (Continued):

$A_{reinf} := 8.1658\ in^2 = 8.166\ in^2$ (total area of built up member)

$I_{reinf} := 3.4581\ in^4$ (built up member min inertia) - *from CAD*

$r_{exist} := \sqrt{\frac{I_{exist}}{A_{exist}}} = 0.932\ in$ (radius of gyration of the existing member)

$r_{new} := \sqrt{\frac{I_{new}}{A_{new}}} = 0.815\ in$ (radius of gyration of the additonal member)

$r_{reinf} := \sqrt{\frac{I_{reinf}}{A_{reinf}}} = 0.651\ in$ (radius of gyration of the built-up member)

$l_{u.exist} := 41.28\ in$ (unbraced length of existing leg member) - *from tnxTower*

$l_{u.new} := 0\ in$ (intermediate connector spacing; also specified as 'a' per AISC) - *design specific*

$a := l_{u.new} = 0\ in$

(checking limiting slenderness ratio per E6.2)

$\frac{k \cdot a}{r_{exist}} = 0$ (original member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{exist}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

$\frac{k \cdot a}{r_{new}} = 0$ (additional member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{new}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Welded Connector Capacity Calculations (per AISC E6):

if a/ri<=40

$$slenderness_ratio := \frac{k \cdot l_{u.exist}}{r_{reinf}} = 63.434$$ (modified slenderness ratio of built-up member)

if a/ri>40

$K_i := 0.86$

$$slenderness_ratio := \sqrt{\left(\frac{k \cdot l_{u.exist}}{r_{reinf}}\right)^2 + \left(\frac{K_i \cdot a}{min\left(r_{exist}, r_{new}\right)}\right)^2} = 63.434$$ (modified slenderness ratio of built-up member)

$$F_e := \frac{\pi^2 \cdot E}{slenderness_ratio^2} = 71.131\ ksi$$ (elastic buckling stress)

$$\mathbf{F_{cr}} := \mathbf{if}\left(slenderness_ratio \le 4.71 \cdot \sqrt{\frac{E}{F_y}}, \left(0.658^{\frac{F_y}{F_e}}\right) \cdot F_y, 0.877 \cdot F_e\right) = 37.256\ ksi$$ (critical stress)

$\phi P_n := \phi \cdot \mathbf{F_{cr}} \cdot A_{reinf} = 273.802\ kip$ (compressive strength capacity)

Demand to Capacity Ratio:

$$\therefore\ DCR := \frac{P_u}{\phi P_n} = 45.41\%$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Built-Up Member Compression Capacity

Calculations in accordance with AISC 14th ed.,

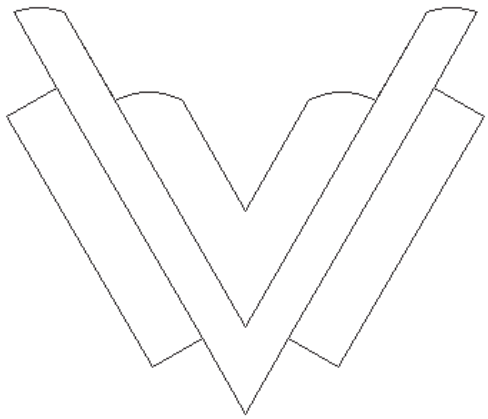
Limitations: User to design in LRFD only

References: Trylon CDs (Job # 196812) dated November 11, 2021

Demand (from tnxTower):

$P_u := 98.83\ kip$ (axial load acting through leg section, 80-100 ft)

Design:
(Briefly describe the built up member configuration and update image below to show connection)



Material & Section Properties:

$\phi := 0.9$	(applicable load reduction factor)
$k := 1$	(effective length factor)
$F_y := 50\ ksi$	(yield strength of built-up member - *composite Fy based off area ratios*)
$E := 29000\ ksi$	(modulus of elasticity of steel)
$A_{orig} := 1.9375\ in^2$	(original member area)
$I_{orig} := 1.74754177\ in^4$	(original member min. inertia)
$A_{new} := 4.2345\ in^2$	(new reinf. member area)
$I_{new} := 1.5247\ in^4$	(new reinf. member min. inertia)
$n := 1$	(number of reinf. members to be added)

Site Name: Gumboro
Date: 12.01.2021

Trylon

Section Properties (Continued):

$A_{reinf} := 6.9337\ in^2 = 6.934\ in^2$ (total area of built up member)

$I_{reinf} := 3.8199\ in^4$ (built up member min inertia) - *from CAD*

$r_{exist} := \sqrt{\frac{I_{exist}}{A_{exist}}} = 0.95\ in$ (radius of gyration of the existing member)

$r_{new} := \sqrt{\frac{I_{new}}{A_{new}}} = 0.6\ in$ (radius of gyration of the additonal member)

$r_{reinf} := \sqrt{\frac{I_{reinf}}{A_{reinf}}} = 0.742\ in$ (radius of gyration of the built-up member)

$l_{u.exist} := 41.64\ in$ (unbraced length of existing leg member) - *from tnxTower*

$l_{u.new} := 0\ in$ (intermediate connector spacing; also specified as 'a' per AISC) - *design specific*

$a := l_{u.new} = 0\ in$

(checking limiting slenderness ratio per E6.2)

$\frac{k \cdot a}{r_{exist}} = 0$ (original member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{exist}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

$\frac{k \cdot a}{r_{new}} = 0$ (additional member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{new}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Welded Connector Capacity Calculations (per AISC E6):

if a/ri<=40

$$slenderness_ratio := \frac{k \cdot l_{u.exist}}{r_{reinf}} = 56.101$$ (modified slenderness ratio of built-up member)

if a/ri>40

$K_i := 0.86$

$$slenderness_ratio := \sqrt{\left(\frac{k \cdot l_{u.exist}}{r_{reinf}}\right)^2 + \left(\frac{K_i \cdot a}{min\left(r_{exist}, r_{new}\right)}\right)^2} = 56.101$$ (modified slenderness ratio of built-up member)

$$F_e := \frac{\pi^2 \cdot E}{slenderness_ratio^2} = 90.942\ ksi$$ (elastic buckling stress)

$$\mathbf{F_{cr}} := \mathbf{if}\left(slenderness_ratio \le 4.71 \cdot \sqrt{\frac{E}{F_y}}, \left(0.658^{\frac{F_y}{F_e}}\right) \cdot F_y, 0.877 \cdot F_e\right) = 39.722\ ksi$$ (critical stress)

$\phi P_n := \phi \cdot \mathbf{F_{cr}} \cdot A_{reinf} = 247.878\ kip$ (compressive strength capacity)

Demand to Capacity Ratio:

$$\therefore\ DCR := \frac{P_u}{\phi P_n} = 39.95\%$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Built-Up Member Compression Capacity

Calculations in accordance with AISC 14th ed.,

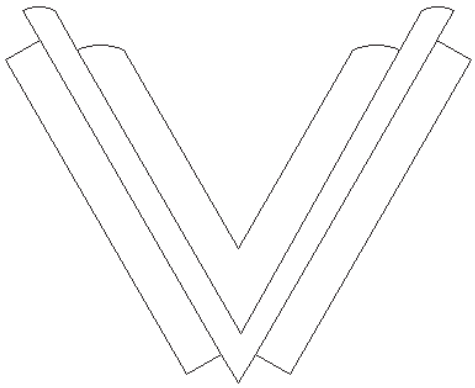
Limitations: User to design in LRFD only

References: Trylon CDs (Job # 196812) dated November 11, 2021

Demand (from tnxTower):

$P_u := 73.63\ kip$ (axial load acting through leg section, 100-120 ft)

Design:
(Briefly describe the built up member configuration and update image below to show connection)



Material & Section Properties:

$\phi := 0.9$	(applicable load reduction factor)
$k := 1$	(effective length factor)
$F_y := 50\ ksi$	(yield strength of built-up member - *composite Fy based off area ratios*)
$E := 29000\ ksi$	(modulus of elasticity of steel)
$A_{orig} := 1.9375\ in^2$	(original member area)
$I_{orig} := 1.74754177\ in^4$	(original member min. inertia)
$A_{new} := 4.4812\ in^2$	(new reinf. member area)
$I_{new} := 2.8155\ in^4$	(new reinf. member min. inertia)
$n := 1$	(number of reinf. members to be added)

Site Name: Gumboro
Date: 12.01.2021

Trylon

Section Properties (Continued):

$A_{reinf} := 6.3517\ in^2 = 6.352\ in^2$ (total area of built up member)

$I_{reinf} := 4.4786\ in^4$ (built up member min inertia) - *from CAD*

$r_{exist} := \sqrt{\frac{I_{exist}}{A_{exist}}} = 0.95\ in$ (radius of gyration of the existing member)

$r_{new} := \sqrt{\frac{I_{new}}{A_{new}}} = 0.793\ in$ (radius of gyration of the additonal member)

$r_{reinf} := \sqrt{\frac{I_{reinf}}{A_{reinf}}} = 0.84\ in$ (radius of gyration of the built-up member)

$l_{u.exist} := 42\ in$ (unbraced length of existing leg member) - *from tnxTower*

$l_{u.new} := 0\ in$ (intermediate connector spacing; also specified as 'a' per AISC) - *design specific*

$a := l_{u.new} = 0\ in$

(checking limiting slenderness ratio per E6.2)

$\frac{k \cdot a}{r_{exist}} = 0$ (original member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{exist}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

$\frac{k \cdot a}{r_{new}} = 0$ (additional member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{new}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Welded Connector Capacity Calculations (per AISC E6):

if a/ri<=40

$$slenderness_ratio := \frac{k \cdot l_{u.exist}}{r_{reinf}} = 50.018$$ (modified slenderness ratio of built-up member)

if a/ri>40

$$K_i := 0.86$$

$$slenderness_ratio := \sqrt{\left(\frac{k \cdot l_{u.exist}}{r_{reinf}}\right)^2 + \left(\frac{K_i \cdot a}{min\left(r_{exist}, r_{new}\right)}\right)^2} = 50.018$$ (modified slenderness ratio of built-up member)

$$F_e := \frac{\pi^2 \cdot E}{slenderness_ratio^2} = 114.407\ ksi$$ (elastic buckling stress)

$$\mathbf{F_{cr}} := \mathbf{if}\left(slenderness_ratio \le 4.71 \cdot \sqrt{\frac{E}{F_y}}, \left(0.658^{\frac{F_y}{F_e}}\right) \cdot F_y, 0.877 \cdot F_e\right) = 41.642\ ksi$$ (critical stress)

$$\phi P_n := \phi \cdot \mathbf{F_{cr}} \cdot A_{reinf} = 238.046\ kip$$ (compressive strength capacity)

Demand to Capacity Ratio:

$$\therefore\ DCR := \frac{P_u}{\phi P_n} = 30.87\%$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Built-Up Member Compression Capacity

Calculations in accordance with AISC 14th ed.,

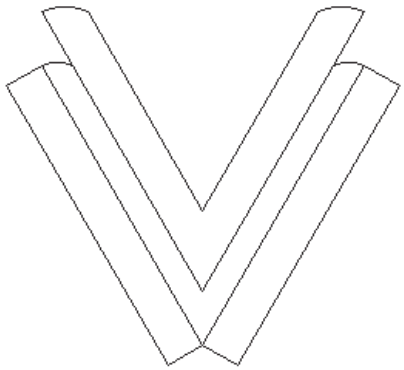
Limitations: User to design in LRFD only

References: Trylon CDs (Job # 196812) dated November 11, 2021

Demand (from tnxTower):

$P_u := 49.43\ kip$ (axial load acting through leg section, 120-140 ft)

Design:
(Briefly describe the built up member configuration and update image below to show connection)



Material & Section Properties:

$\phi := 0.9$	(applicable load reduction factor)
$k := 1$	(effective length factor)
$F_y := 50\ ksi$	(yield strength of built-up member - *composite Fy based off area ratios*)
$E := 29000\ ksi$	(modulus of elasticity of steel)
$A_{orig} := 1.4375\ in^2$	(original member area)
$I_{orig} := 0.69379617\ in^4$	(original member min. inertia)
$A_{new} := 4.1993\ in^2$	(new reinf. member area)
$I_{new} := 2.7842\ in^4$	(new reinf. member min. inertia)
$n := 1$	(number of reinf. members to be added)

Site Name: Gumboro
Date: 12.01.2021

Trylon

Section Properties (Continued):

$A_{reinf} := 5.5670\ in^2 = 5.567\ in^2$ (total area of built up member)

$I_{reinf} := 3.4581\ in^4$ (built up member min inertia) - *from CAD*

$r_{exist} := \sqrt{\frac{I_{exist}}{A_{exist}}} = 0.695\ in$ (radius of gyration of the existing member)

$r_{new} := \sqrt{\frac{I_{new}}{A_{new}}} = 0.814\ in$ (radius of gyration of the additonal member)

$r_{reinf} := \sqrt{\frac{I_{reinf}}{A_{reinf}}} = 0.788\ in$ (radius of gyration of the built-up member)

$l_{u.exist} := 31.68\ in$ (unbraced length of existing leg member) - *from tnxTower*

$l_{u.new} := 0\ in$ (intermediate connector spacing; also specified as 'a' per AISC) - *design specific*

$a := l_{u.new} = 0\ in$

(checking limiting slenderness ratio per E6.2)

$\frac{k \cdot a}{r_{exist}} = 0$ (original member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{exist}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

$\frac{k \cdot a}{r_{new}} = 0$ (additional member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{new}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Welded Connector Capacity Calculations (per AISC E6):

if a/ri<=40

$$slenderness_ratio := \frac{k \cdot l_{u.exist}}{r_{reinf}} = 40.195$$ (modified slenderness ratio of built-up member)

if a/ri>40

$$K_i := 0.86$$

$$slenderness_ratio := \sqrt{\left(\frac{k \cdot l_{u.exist}}{r_{reinf}}\right)^2 + \left(\frac{K_i \cdot a}{min\left(r_{exist}, r_{new}\right)}\right)^2} = 40.195$$ (modified slenderness ratio of built-up member)

$$F_e := \frac{\pi^2 \cdot E}{slenderness_ratio^2} = 177.151\ ksi$$ (elastic buckling stress)

$$\mathbf{F_{cr}} := \mathbf{if}\left(slenderness_ratio \le 4.71 \cdot \sqrt{\frac{E}{F_y}}, \left(0.658^{\frac{F_y}{F_e}}\right) \cdot F_y, 0.877 \cdot F_e\right) = 44.429\ ksi$$ (critical stress)

$$\phi P_n := \phi \cdot \mathbf{F_{cr}} \cdot A_{reinf} = 222.602\ kip$$ (compressive strength capacity)

Demand to Capacity Ratio:

$$\therefore\ DCR := \frac{P_u}{\phi P_n} = 22.17\%$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Built-Up Member Compression Capacity

Calculations in accordance with AISC 14th ed.,

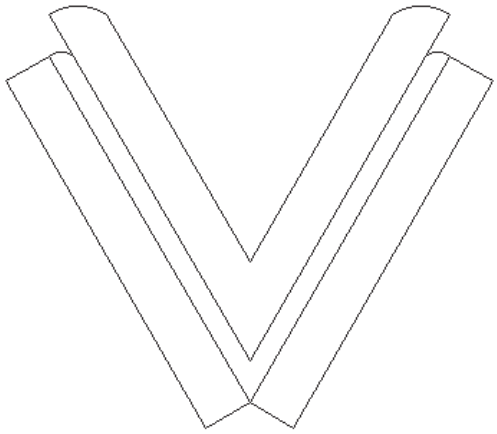
Limitations: User to design in LRFD only

References: Trylon CDs (Job # 196812) dated November 11, 2021

Demand (from tnxTower):

$P_u := 22.19\ kip$ (axial load acting through leg section, 140-160 ft)

Design:
(Briefly describe the built up member configuration and update image below to show connection)



Material & Section Properties:

$\phi := 0.9$	(applicable load reduction factor)
$k := 1$	(effective length factor)
$F_y := 50\ ksi$	(yield strength of built-up member - *composite Fy based off area ratios*)
$E := 29000\ ksi$	(modulus of elasticity of steel)
$A_{orig} := 1.0898\ in^2$	(original member area)
$I_{orig} := 0.53477765\ in^4$	(original member min. inertia)
$A_{new} := 4.2132\ in^2$	(new reinf. member area)
$I_{new} := 2.5433\ in^4$	(new reinf. member min. inertia)
$n := 1$	(number of reinf. members to be added)

Site Name: Gumboro
Date: 12.01.2021

Trylon

Section Properties (Continued):

$A_{reinf} := 5.1013\ in^2 = 5.101\ in^2$ (total area of built up member)

$I_{reinf} := 3.0030\ in^4$ (built up member min inertia) - *from CAD*

$r_{exist} := \sqrt{\frac{I_{exist}}{A_{exist}}} = 0.701\ in$ (radius of gyration of the existing member)

$r_{new} := \sqrt{\frac{I_{new}}{A_{new}}} = 0.777\ in$ (radius of gyration of the additonal member)

$r_{reinf} := \sqrt{\frac{I_{reinf}}{A_{reinf}}} = 0.767\ in$ (radius of gyration of the built-up member)

$l_{u.exist} := 60.12\ in$ (unbraced length of existing leg member) - *from tnxTower*

$l_{u.new} := 0\ in$ (intermediate connector spacing; also specified as 'a' per AISC) - *design specific*

$a := l_{u.new} = 0\ in$

(checking limiting slenderness ratio per E6.2)

$\frac{k \cdot a}{r_{exist}} = 0$ (original member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{exist}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

$\frac{k \cdot a}{r_{new}} = 0$ (additional member ka/r)

$$\text{if}\left(\frac{k \cdot a}{r_{new}} < \frac{3}{4} \cdot \frac{k \cdot l_{u.exist}}{r_{reinf}}, \text{“Good”}, \text{“Decrease Stitch Spacing”}\right) = \text{“Good”}$$

Site Name: Gumboro
Date: 12.01.2021

Trylon

Welded Connector Capacity Calculations (per AISC E6):

if a/ri<=40

$$slenderness_ratio := \frac{k \cdot l_{u.exist}}{r_{reinf}} = 78.358$$ (modified slenderness ratio of built-up member)

if a/ri>40

$K_i := 0.86$

$$slenderness_ratio := \sqrt{\left(\frac{k \cdot l_{u.exist}}{r_{reinf}}\right)^2 + \left(\frac{K_i \cdot a}{min\left(r_{exist}, r_{new}\right)}\right)^2} = 78.358$$ (modified slenderness ratio of built-up member)

$$F_e := \frac{\pi^2 \cdot E}{slenderness_ratio^2} = 46.616\ ksi$$ (elastic buckling stress)

$$\mathbf{F_{cr}} := \mathbf{if}\left(slenderness_ratio \le 4.71 \cdot \sqrt{\frac{E}{F_y}}, \left(0.658^{\frac{F_y}{F_e}}\right) \cdot F_y, 0.877 \cdot F_e\right) = 31.915\ ksi$$ (critical stress)

$\phi P_n := \phi \cdot \mathbf{F_{cr}} \cdot A_{reinf} = 146.529\ kip$ (compressive strength capacity)

Demand to Capacity Ratio:

$$\therefore\ DCR := \frac{P_u}{\phi P_n} = 15.14\%$$

Self Support Anchor Rod Capacity

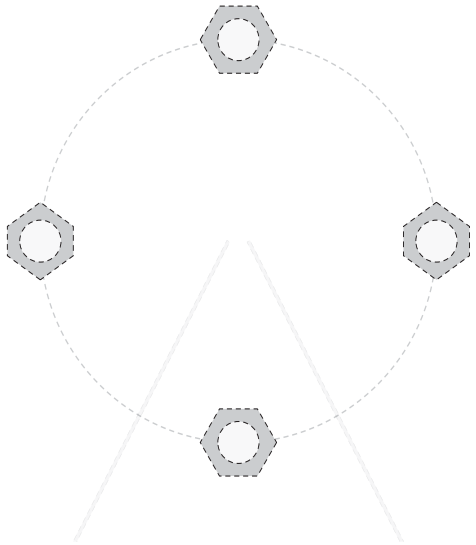
Site Info	
BU #	
Site Name	Gumboro
Order #	

Analysis Considerations	
TIA-222 Revision	G
Grout Considered:	No
Eta Factor, η	0.5

Applied Loads		
	Comp.	Uplift
Axial Force (kips)	195.68	155.37
Shear Force (kips)	21.32	17.66

Considered Eccentricity	
Leg Mod Eccentricity (in)	0.000
Anchor Rod N.A Shift (in)	0.000
Total Eccentricity (in)	0.000

**Anchor Rod Eccentricity Applied*



Connection Properties

Anchor Rod Data

(4) 1-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi)

l_{ar} (in): 1.75

Analysis Results

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

Pu_c = 48.92	ϕPn_t = 77.52	**Stress Rating**
Vu = 5.33	ϕVn = 41.42	**106.6%**
Mu = 6.06	ϕMn = 15.42	**Fail**

Analysis Date: 12/2/2021

Drilled Pier Foundation

BU # :	
Site Name:	Gumboro
Order Number:	
TIA-222 Revison:	G
Tower Type:	Self Support

Applied Loads	Comp.	Uplift
Moment (kip-ft)	0	0
Axial Force (kips)	195.68	155.37
Shear Force (kips)	21.32	17.66

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi
Tie Yield Strength, Fyt:	40	ksi

Pier Design Data		
Depth	30.7	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 0.3' below grade		
Pier Diameter	3	ft
Rebar Quantity	7	
Rebar Size	8	
Clear Cover to Ties	3	in
Tie Size	4	
Tie Spacing		in

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Pier Section 2		
From 0.3' below grade to 2.3' below grade		
Pier Diameter	6	ft
Rebar Quantity	26	
Rebar Size	8	
Clear Cover to Ties	3	in
Tie Size	4	
Tie Spacing		in
Pier Section 3		
From 2.3' below grade to 30.7' below grade		
Pier Diameter	4	ft
Rebar Quantity	12	
Rebar Size	8	
Clear Cover to Ties	3	in
Tie Size	4	
Tie Spacing		in
Rebar Quantity		
Rebar Size		
Rebar Cage Diameter		in
Rebar Quantity		
Rebar Size		
Rebar Cage Diameter		in

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	15.27	15.27
Soil Safety Factor	13.97	16.86
Max Moment (kip-ft)	207.87	172.18
Rating	*9.5%*	*7.9%*
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	124.56	124.56
End Bearing (kips)	65.97	-
Weight of Concrete (kips)	50.30	37.73
Total Capacity (kips)	190.53	162.29
Axial (kips)	245.98	155.37
Rating	*129.1%*	*95.7%*
Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	15.55	14.37
Critical Moment (kip-ft)	207.77	171.37
Critical Moment Capacity	1073.90	664.63
Rating	*19.3%*	*25.8%*
Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	0.81	0.81
Critical Shear (kip)	21.31	17.65
Critical Shear Capacity	169.33	71.57
Rating	*12.6%*	*24.7%*

Soil Interaction Rating	**129.1%**
Structural Foundation Rating	**25.8%**

Min. Steel is assumed

Check Limitation	
N/A	☑
Load Z Normalization:	☐
Shear Design Options	
Check Shear along Depth of Pier:	☑
Utilize Shear-Friction Methodology:	☐
Override Critical Depth:	☐

Go to Soil Calculations

Soil Profile

Groundwater Depth	4	# of Layers	4

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	4	4	110	150	0	30	0.134	0.134				7	Cohesionless
2	4	8	4	45.8	87.6	0	30	0.124	0.124				3	Cohesionless
3	8	23	15	45.8	87.6	0	30	0.437	0.437				7	Cohesionless
4	23	30.7	7.7	45.8	87.6	0	30	0.714	0.714			7	9	Cohesionless

TOWAIR Determination Results

*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results

Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.

Your Specifications

NAD83 Coordinates	
Latitude	38-29-45.9 north
Longitude	075-21-38.9 west
Measurements (Meters)	
Overall Structure Height (AGL)	60.7
Support Structure Height (AGL)	59.4
Site Elevation (AMSL)	11.3
Structure Type	
MTOWER - Monopole	

Tower Construction Notifications
Notify Tribes and Historic Preservation Officers of your plans to build a tower.

CLOSE WINDOW

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DBM ENGINEERING, P.C.

April 7, 2026
Sam Averna
NETWORK TOWERS
120 Eastshore Drive, Suite 300
Glen Allen, VA 23059

Subject: **Electromagnetic Exposure Analysis**
"Millsboro" DE-T25.04
22311 Bald Branch Road
Millsboro, DE 19966
Latitude: N 38.495785° (NAD 83)
Longitude: W 75.361079° (NAD 83)

Mr. Averna:

I have received and executed your request that I perform an independent evaluation and certification of the anticipated radio-frequency emission levels for the T-Mobile telecommunications facility proposed at the above-referenced coordinates. The intention of this study is to verify compliance with Federal Communications Commission (hereafter "FCC") guidelines for human exposure limits to radio-frequency electromagnetic fields as per FCC Code of Federal Regulation 47 CFR 1.1307 and 1.1310 which incorporate ANSI standards C95.3. As a registered Professional Engineer, I am bound by a code of ethics to hold paramount the safety, health, and welfare of the public. All statements and calculations offered herein are made in an objective and truthful manner pursuant to that code.

Summary of Findings
The maximum exposure to radio-frequency emissions from the T-Mobile equipment will be complaint with FCC exposure limits. **Using upper limit assumptions for the T-Mobile equipment configuration, the cumulative radio-frequency exposure levels would be 0.04 % of the applicable FCC standard at all locations of public access.** The following charts specifically illustrate the anticipated exposure levels in areas surrounding the facility. All exposure limits have been calculated using the methods prescribed in FCC Office of Engineering and Technology (OET) Bulletin 65 "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio-frequency Electromagnetic Fields". The upper-limit conditions include maximum traffic loading, significant antenna down-tilt, simultaneous maximum pattern gain for all transmitting antennas, and constructive interference from ground reflection. T-Mobile will remain within their FCC governed limits for output power but for worst-case analysis purposes, the equipment theoretical output power is considered in this analysis. Additionally, signal attenuation due to environmental clutter such as buildings, trees, and roadways has been ignored which will overestimate actual power densities. Continuous exposure at 100% of FCC limit is

considered by the scientific community to be just as safe as continuous exposure at 1% of FCC limit.

Applicability of the National Telecommunications Act of 1996
This Act states that "no state or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio-frequency emissions to the extent that such facilities comply with the (Federal Communications) Commission's regulations concerning such emissions". As indicated above, this proposed facility will be in full compliance with the FCC's emissions standards and as such is beyond regulation in that regard.

Technical Parameters of Consideration
The calculation results presented are based on the equipment configuration information furnished by representatives of T-Mobile. Specifically, for this installation, T-Mobile plans to add up twelve (12) new panel-style antennas in three (3) arrays of four (4) antennas per array. The antenna centerline height will be 190' above grade with sector azimuths evenly spaced in the horizontal plane with respect to true north. Transmitting through these antennas will be four (4) LTE transmit paths in the 700 MHz band (per sector) at a cumulative maximum of 160 watts (per sector), up to four (4) LTE or 5GNR transmit paths in the 600 MHz band (per sector) at a cumulative maximum of 160 watts (per sector), up to sixty-four (64) LTE transmit paths in the 1900 MHz band (per sector) at a cumulative maximum of 120 watts (per sector), up to sixty-four (64) LTE transmit paths in the 2100 MHz band (per sector) at a cumulative maximum of 120 watts (per sector), and up to sixty-four (64) LTE and 5GNR transmit paths in the 2500 MHz band (per sector) at a cumulative maximum of 120 watts (per sector).

Co-location of Other Wireless Providers
In an attempt to halt the proliferation of telecommunications structures and preserve as much of their natural landscape as possible many municipalities have adopted telecommunications ordinances that specifically require structures to accommodate additional wireless providers from a structural standpoint. **From the standpoint of radio-frequency exposure**, the T-Mobile equipment would in no way preclude the use of this facility by other providers.

Background Information
In 1985, the FCC first adopted guidelines to be used for evaluating human exposure to RF emissions. The FCC revised and updated these guidelines on August 1, 1996, as a result of a rule-making proceeding initiated in 1993. The new guidelines incorporate limits for Maximum Permissible Exposure (MPE) in terms of electric and magnetic field strength and power density for transmitters operating at frequencies between 300 kHz and 100 GHz.

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The FCC's MPE limits are based on exposure limits recommended by the National Council on Radiation Protection and Measurements (NCRP) and, over a wide range of frequencies, the exposure limits were developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI) to replace the 1982 ANSI guidelines. Limits for localized absorption are based on recommendations of both ANSI/IEEE and NCRP.

The FCC's limits, and the NCRP and ANSI/IEEE limits on which they are based, are derived from exposure criteria quantified in terms of specific absorption rate (SAR). The basis for these limits is a whole-body averaged SAR threshold level of 4 watts per kilogram (4 W/kg), as averaged over the entire mass of the body, above which expert organizations have determined that potentially hazardous exposures may occur. The MPE limits are derived by incorporating safety factors that lead, in some cases, to limits that are more conservative than the limits originally adopted by the FCC in 1985. Where more conservative limits exist, they do not arise from a fundamental change in the RF safety criteria for whole-body averaged SAR, but from a precautionary desire to protect subgroups of the general population who, potentially, may be more at risk.

The FCC exposure limits are also based on data showing that the human body absorbs RF energy at some frequencies more efficiently than at others. The most restrictive limits occur in the frequency range of 30-300 MHz where whole-body absorption of RF energy by human beings is most efficient. At other frequencies, whole-body absorption is less efficient, and consequently, the MPE limits are less restrictive.

MPE limits are defined in terms of power density (units of milliwatts per centimeter squared: mW/cm^2), electric field strength (units of volts per meter: V/m) and magnetic field strength (units of amperes per meter: A/m). The far-field of a transmitting antenna is where the electric field vector (E), the magnetic field vector (H), and the direction of propagation can be considered to be all mutually orthogonal ("plane-wave" conditions).

Occupational / controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits, as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

General population / uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be

considered under this category when exposure is not employment-related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area. **In the case of this study, the general population exposure limits have been applied as they are the more conservative set of standards.**

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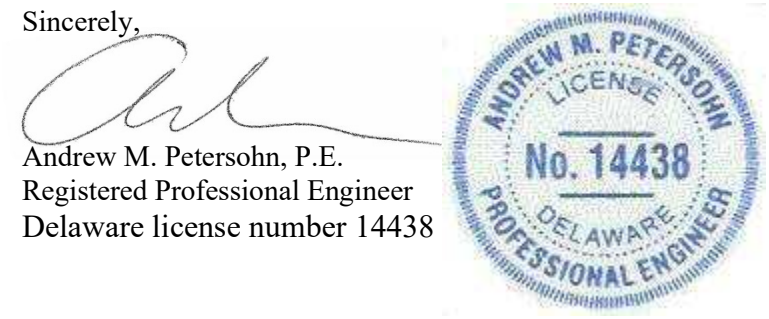
Additional Remarks

The radio-frequency emission levels from T-Mobile and other PCS and Cellular communications base stations are similar to that of other two-way communications systems like those used by police, fire and ambulance personnel. In contrast, commercial broadcast systems like television and radio often transmit at power levels ten times greater or more than the systems discussed above.

The biological effects on humans of non-ionizing radio-frequency exposure have been studied extensively now for decades. There have been thousands of reports produced by government agencies, universities, and private research groups that support the standards adopted by the FCC. **To date, there have been no credible studies conducted whose results showed evidence of any adverse health effects at the above exposure limits.**

Sincerely,



Andrew M. Petersohn, P.E.
Registered Professional Engineer
Delaware license number 14438

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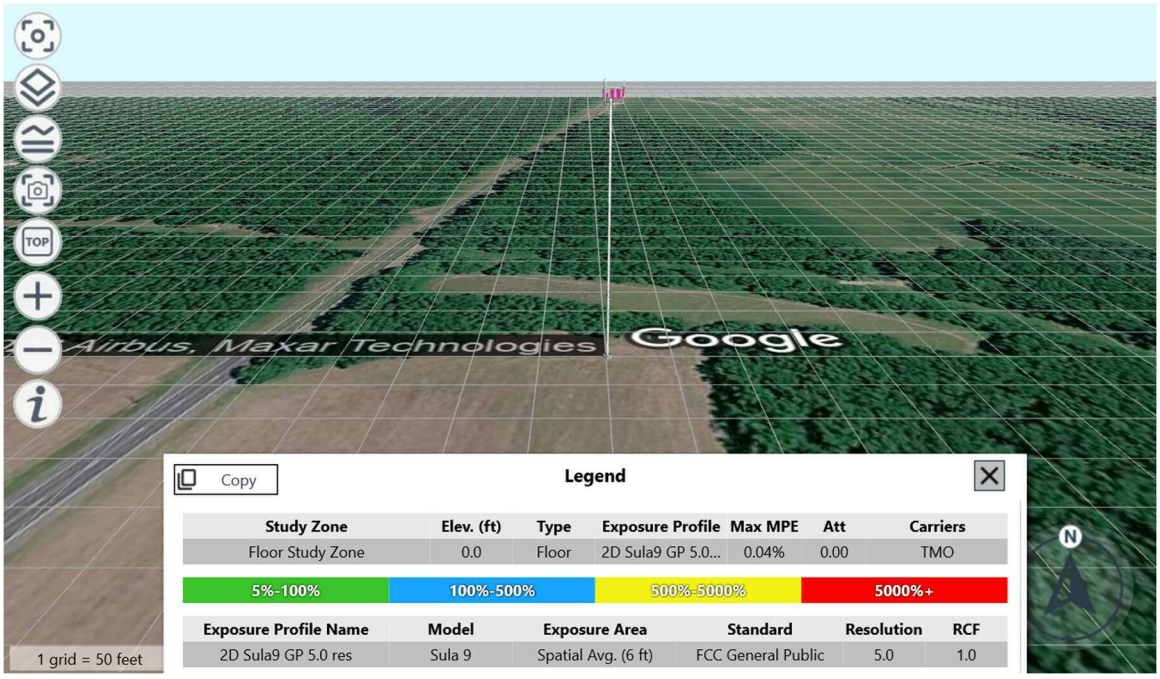

Figure-1 – modeled ground level cumulative exposure surrounding the proposed telecommunications facility expressed in percentage of the applicable FCC standard

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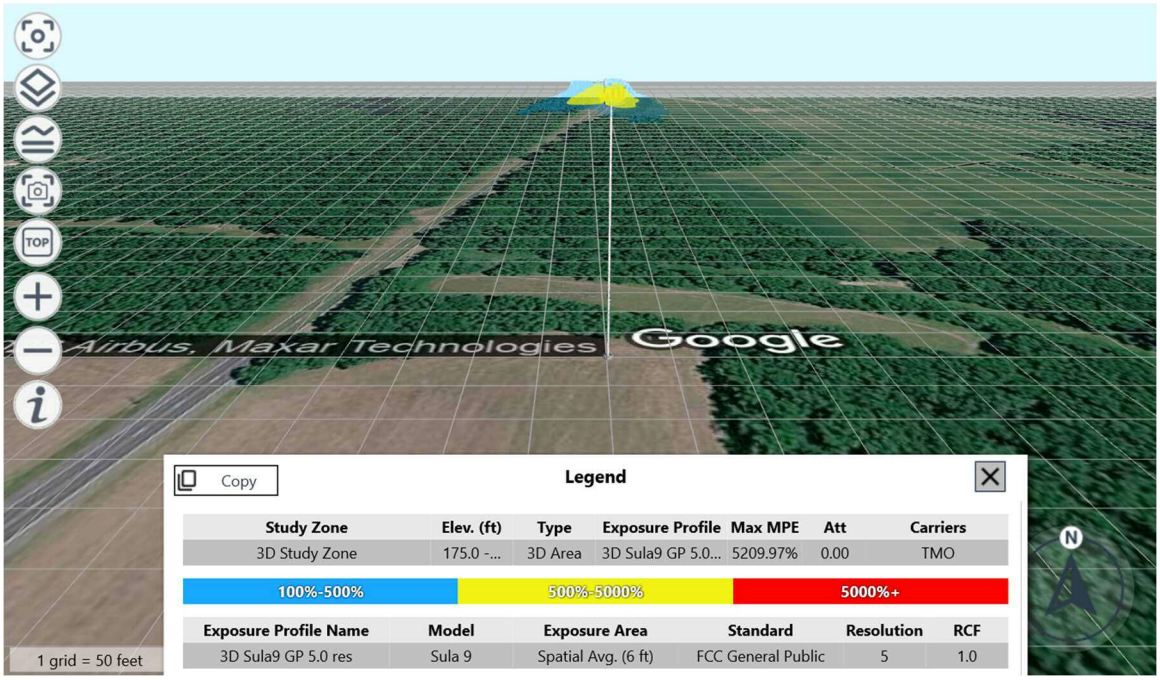

Figure-2 – 3D modeled cumulative exposure surrounding the proposed telecommunications facility expressed in percentage of the applicable FCC standard

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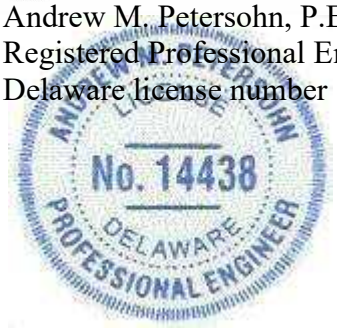
DECLARATION OF ENGINEER

Andrew M. Petersohn, P.E., hereby states that he is a graduate telecommunications consulting engineer possessing Master and Bachelor Degrees in Electrical Engineering from Lehigh University (2005 and 1999, respectively). He has been retained by representatives of Network Towers to perform an electromagnetic exposure analysis for a proposed telecommunications facility.

Mr. Petersohn asserts that the calculations and/or measurements described in this report were made personally and in a truthful and objective manner. Mr. Petersohn is a Registered Professional Engineer licensed in Pennsylvania, Delaware, Maryland, Virginia, New York, Florida and New Jersey. He has over two decades of engineering experience in the field of wireless communications. Mr. Petersohn is an active member of the National Society of Professional Engineers (NSPE) and the Pennsylvania Society of Professional Engineers (PSPE). Mr. Petersohn further states that all facts and statements contained in the foregoing document are true and accurate to the best of his knowledge.



Andrew M. Petersohn, P.E.
Registered Professional Engineer
Delaware license number 14438



Executed this the 7th day of April, 2026.

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TOTALLY COMMITTED.

Oscar Posada
Network Towers II, LLC
3095 Marshalee Drive, Suite 300
Elkridge, MD 21075

April 2, 2026

Subject: Certification of Code Compliance for Proposed Telecommunications Tower
NB+C Project No. 101189

Dear Oscar Posada,

NB+C Engineering Services, LLC (NB+C) is pleased to submit this certification letter outlining the approximate geometry and design parameters for a proposed telecommunications structure. It is our understanding that Network Towers II, LLC intends to build a new wireless telecommunications facility at the below-mentioned site to include a new monopole tower and fenced compound as defined in the preliminary construction drawings by The Crossroads Group, LLC dated March 24, 2026.

This letter certifies that the tower will be designed and manufactured to meet all structural requirements and safety specifications outlined in the codes and standards listed below as well as local code requirements. Please see below for tower site information, approximate geometry, design parameters, and design loading summary:

Tower Site Information

Tower Owner:	Network Towers II
Site Name:	Millsboro
Site ID:	DE-T25.04
Lat:	38.495785°
Long:	-75.361079°
Address:	22311 Bald Branch Road, Millsboro, DE, 19966, Sussex County

Approximate Monopole Tower Geometry

Tower Height:	195 ft
Base Diameter:	6 ft
Anchor Rod Diameter:	2-1/4”
Foundation Type:	Drilled Shaft or Pad-Pier/Single Mat
# of Design Carriers:	4

Tower Site Design Parameters

Building Code:	2021 International Building Code (2021 IBC)
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	C
Topographic Cat:	1
Ice Thickness:	1.0 in
Wind Speed w/ Ice:	40 mph
Serviceability:	Must meet serviceability requirements outlined in TIA-222-H Section 2.8 applicable to the specified tower type

Tower Design Loading

Antenna Centerline Elevation (ft)	Appurtenance Loading	Feed Lines	Carrier	Effective Projected Area (EPA)	Weight
190.0	Total Design EPA	(4) 1-5/8	T-Mobile	20,000 in^2	5,000 lbs
178.0	Total Design EPA	(4) 1-5/8	-	34,000 in^2	5,000 lbs
166.0	Total Design EPA	(4) 1-5/8	-	25,000 in^2	4,500 lbs
154.0	Total Design EPA	(4) 1-5/8	-	10,000 in^2	3,000 lbs

Note:
1) Feedlines to be installed inside the pole shaft.

Should you have any questions or require additional information, please feel free to contact us.

Respectfully Prepared by: Ross Alexander, PE

NB&C ENGINEERING SERVICES, LLC

Krupakaran Kolandaivelu, PE
Vice President - Engineering
DE PE License No. 16876



4/2/2026

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DBM ENGINEERING, P.C.

April 7, 2026
Sam Averna
NETWORK TOWERS
120 Eastshore Drive, Suite 300
Glen Allen, VA 23059

Subject: **Radio Frequency Design Analysis**
"Millsboro" DE-T25.04
22311 Bald Branch Road
Millsboro, DE 19966
Latitude: N 38.495785° (NAD 83)
Longitude: W 75.361079° (NAD 83)

Mr. Averna:

I have received and executed the request that I perform an independent evaluation and design review for the T-Mobile telecommunications facility proposed at the above-referenced address. The intention of this study is to provide an objective, professional opinion regarding the proposed facilities from a Radio Frequency design perspective. Specifically, how the site complements the existing network and what service objectives it fulfills. As a registered Professional Engineer, I am bound by a code of ethics to hold paramount the safety, health, and welfare of the public. All statements and calculations offered herein are made in an objective and truthful manner pursuant to that code.

Summary of Findings
In my professional opinion, the proposed facility is extremely well suited to provide enhanced wireless service in the southern portions of Sussex County that suffer from unreliable service. Currently, the nearby T-Mobile facilities do not provide adequate coverage for the targeted geography resulting in service issues. The proposed facility is the only feasible alternative that will satisfy the design objective for affected areas. The design, location, and proposed antenna height is the least intrusive means of providing adequate service for T-Mobile subscribers in the targeted geography. The proposed antenna height is the absolute minimum acceptable to achieve a high percentage of the site's design goals.

Sincerely,



Andrew M. Petersohn, P.E.
Registered Professional Engineer
Delaware license number 14438

Existing T-Mobile Coverage

The in-building commercial (green), in-building residential (yellow), in-vehicle (orange), and on-street (blue) coverage footprints, at 2100 MHz, from the above existing facilities are illustrated below in figure 1. There exists a significant gap in reliable coverage for T-Mobile subscribers in southern Sussex County along and around the Rt. 26 corridor between Rt. 24 and the Maryland Border inhibiting dependable service to T-Mobile subscribers living, working, traveling and recreating throughout the area.

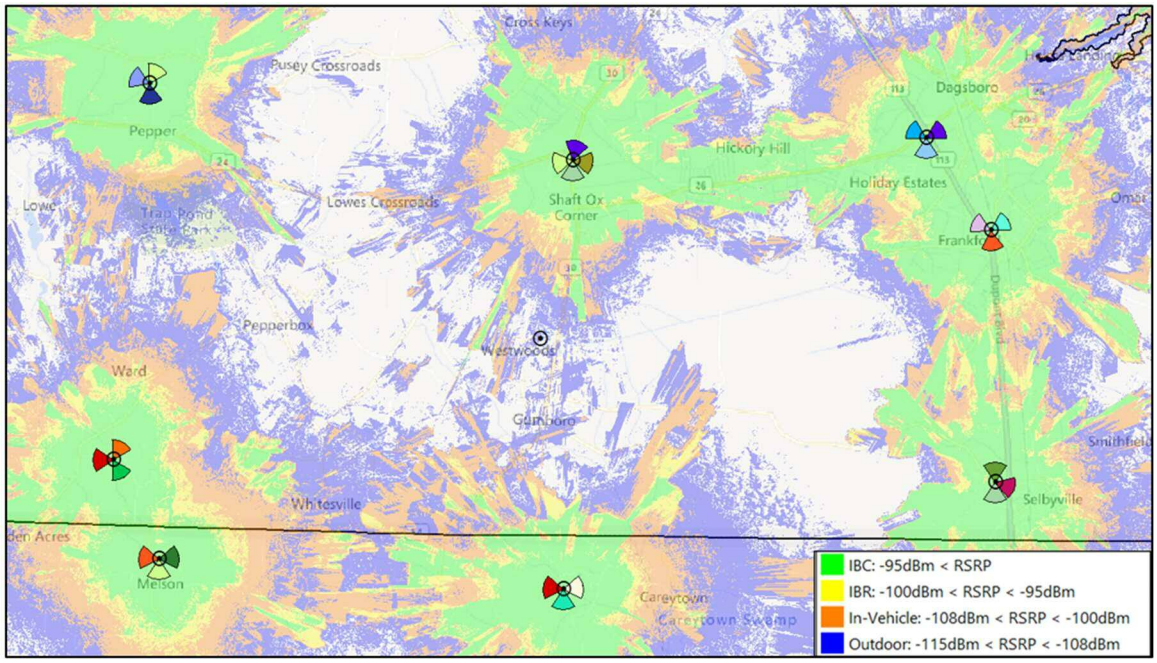

Figure 1 – Existing Coverage

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Proposed T-Mobile Coverage Improvement

Figure 2 below illustrates the T-Mobile in-building commercial (green), in-building residential (yellow), in-vehicle (orange), and on-street (blue) coverage footprints, at 2100 MHz, with the proposed facility activated. The proposed facility will clearly remedy the existing coverage issues in the aforementioned areas of need enabling reliable in-building and in-vehicle service for the T-Mobile subscribers residing, working or traveling in the area. Any decrease in the height of the proposed facility will significantly diminish the effectiveness of the proposed site.

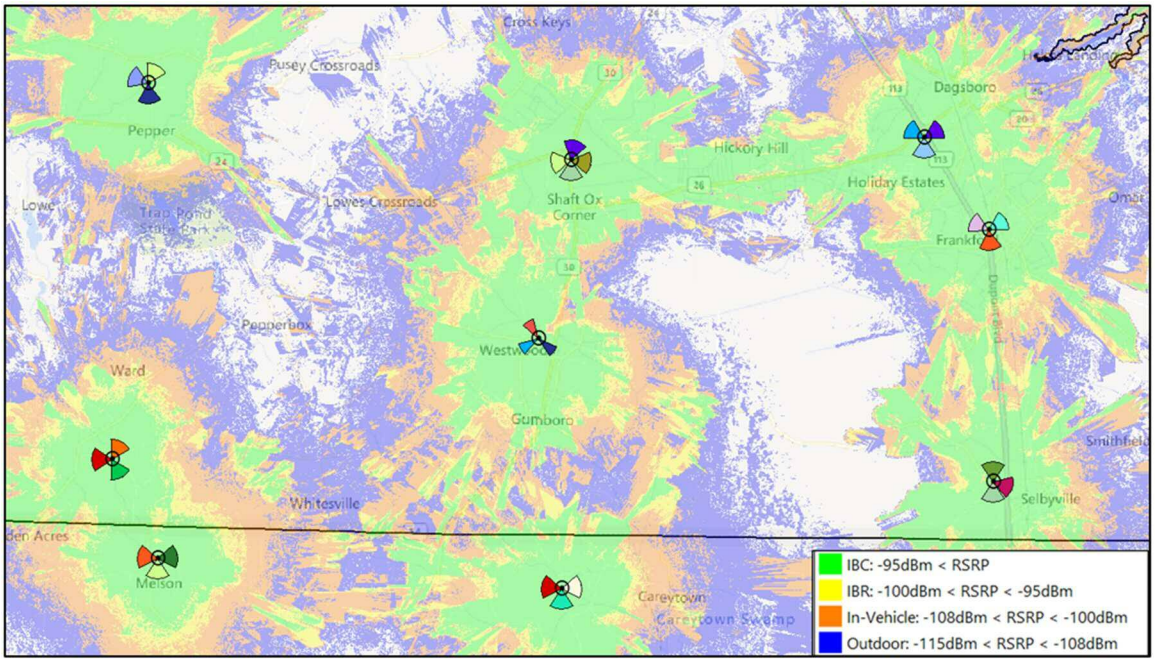

Figure 2 – Proposed Coverage

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Reliable Service

The term "reliable" is used to describe areas where a T-Mobile subscriber has the ability to place, receive, and maintain a phone call. Additionally, the concept of reliable service extends beyond just voice communication; access to the data network with a high probability of success and adequate throughput is now a pre-requisite to reliable service. Reliable service provided from a facility is affected by many factors including surrounding topography, clutter types, foliage, and subscriber loading during the site's hour of heaviest use, its "busy hour". Because the network must maintain reliability under all conditions, these factors are taken into consideration when designing a new facility.

Wireless Substitution

According to the CDC[1] 78.0% of adults and 86.9% of children lived in wireless-only households during the second half of 2024. The increase in the prevalence of adults living in wireless-only households is a continuation of the increasing trend that has been seen over time. Demographic subgroups with the highest percentages of wireless-only adults include adults aged 25–29 (88.9%) and 35-44 (88.3%), and adults renting their homes (88.1%) As wireless substitution continues to spread, availability of in-building wireless service, both data and voice, becomes increasingly important.

Emergency Services Implications

Wireless devices are widely used by municipal emergency services for voice and data services including those that impact public safety. Additionally enhanced 911 (E911) services, which allow a mobile caller to be located by the dispatch center, are dependent on an adequate service level to provide help in an emergency. It is estimated that approximately 80% of 911 calls originate from mobile devices[2]. In the service challenged areas, an unreliable level of wireless service could, in many cases, negatively affect the ability of an individual in need of emergency services who is dialing 911.

[1] https://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless202506.pdf
[2] https://www.nena.org/page/911Statistics

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Alternate Candidate Discussion

It is T-Mobile policy and overwhelming preference to utilize existing, tall structures as antenna support platforms when their location, available attachment height, and structural capacity are congruent with T-Mobile's network requirements. This is because the co-location process is almost always less expensive, faster to market, and less involved from a permitting perspective than the construction of a new tower structure. In this case, there were no other existing tall structures within the area of technical need that would satisfy the T-Mobile design objectives.

Technical Parameters of Consideration

The above calculations were based on the equipment configuration information furnished by representatives of Network Towers. Specifically, for this installation, T-Mobile plans to add up twelve (12) new panel-style antennas in three (3) arrays of four (4) antennas per array. The antenna centerline height will be 190' above grade with sector azimuths evenly spaced in the horizontal plane with respect to true north. Transmitting through these antennas will be four (4) LTE transmit paths in the 700 MHz band (per sector) at a cumulative maximum of 160 watts (per sector), up to four (4) LTE or 5GNR transmit paths in the 600 MHz band (per sector) at a cumulative maximum of 160 watts (per sector), up to sixty-four (64) LTE transmit paths in the 1900 MHz band (per sector) at a cumulative maximum of 120 watts (per sector), up to sixty-four (64) LTE transmit paths in the 2100 MHz band (per sector) at a cumulative maximum of 120 watts (per sector), and up to sixty-four (64) LTE and 5GNR transmit paths in the 2500 MHz band (per sector) at a cumulative maximum of 120 watts (per sector).

PO Box 165
Fairview Village, PA 19409
Phone: 610.304.2024
www.dBmEng.com

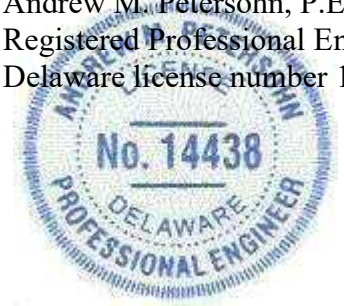
DECLARATION OF ENGINEER

Andrew M. Petersohn, P.E., hereby states that he is a graduate telecommunications consulting engineer possessing Master and Bachelor Degrees in Electrical Engineering from Lehigh University (2005 and 1999, respectively). His corporation, dBm Engineering, P.C., has been retained by representatives of Network Towers to perform a radio frequency design analysis for a proposed telecommunications facility.

Mr. Petersohn also asserts that the calculations and/or measurements described in this report were made personally and in a truthful and objective manner. Mr. Petersohn is a Registered Professional Engineer licensed in Pennsylvania, Delaware, Maryland, Virginia, New York, Florida and New Jersey. He has over two decades of engineering experience in the field of wireless communications. Mr. Petersohn is an active member of the National Society of Professional Engineers (NSPE) and the Pennsylvania Society of Professional Engineers (PSPE). Mr. Petersohn further states that all facts and statements contained in the foregoing document are true and accurate to the best of his knowledge. He believes, under penalty of perjury, the foregoing to be correct.



Andrew M. Petersohn, P.E.
Registered Professional Engineer
Delaware license number 14438



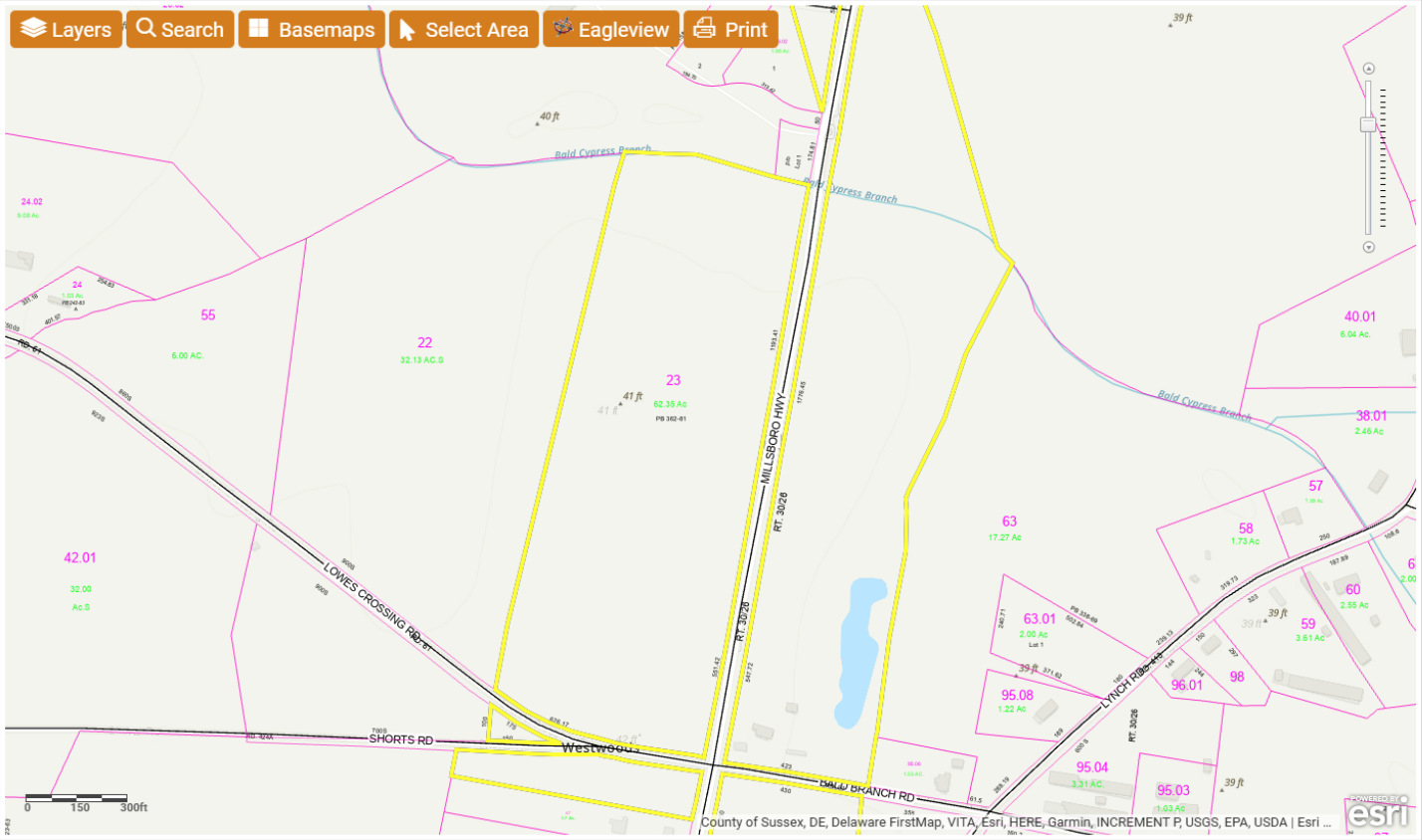
Executed this the 7th day of April, 2026.

PO Box 165
Fairview Village, PA 19409
Phone: 610.304.2024
www.dBmEng.com

SUSSEX COUNTY
DELAWARE

Help

Layers | Search | Basemaps | Select Area | Eagleview | Print



Eagleview | Search Results

Selected Features: Parcels (1)

1) 333-7.00-23.00 Zoom

BOOK	4206
PAGE	4
FULLNAME	S J GROWERS LLC
Second_Owner_Name	
MAILINGADDRESS	20512 CAREY'S CAMP ROAD
CITY	MILLSBORO
STATE	DE
a_account	
DESCRIPTION	HWY MILLSBORO TO
DESCRIPTION2	GUMBORO
DESCRIPTION3	T#41645
LUC	103
SCHOOL	1
MUNI	00
CAP	0
APRBLDG	87500
APRLAND	66000
PINWASSEMENTUNIT	333-7.00-23.00
PIN	333-7.00-23.00

Selected Features (1)

Clear Selected

SUSSEX COUNTY
DELAWARE

Help



Eagleview | Search Results

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MUNI	00
CAP	0
APRBLDG	87500
APRLAND	66000
PINWASSEMENTUNIT	333-7.00-23.00
PIN	333-7.00-23.00

Selected Features (1)

Clear Selected


CONNECTEXPLORER
Search
Search by SUSSEXPARCELS
333-7.00-23.00
Search results (1)
Options
333-7.00-23.00
Workspaces
© 2026 Microsoft Corporation © 2026 Maxar ©CNES (2026) Distribution Airbus DS
200 ft
50 m
map: Aerial
Mar 2025 - Mar 2025

Case # 13201
Hearing Date 6-15-2026
202605303

Board of Adjustment Application
Sussex County, Delaware

Sussex County Planning & Zoning Department
2 The Circle (P.O. Box 417) Georgetown, DE 19947
302-855-7878 ph. 302-854-5079 fax

Type of Application: (please check all applicable)

Variance ☑
Special Use Exception ☐
Administrative Variance ☐
Appeal ☐

Existing Condition ☐
Proposed ☐
Code Reference (office use only)

Site Address of Variance/Special Use Exception:

37468 1ST Street Rehoboth Beach De 19971

Variance/Special Use Exception/Appeal Requested: A 13.1' variance from 20' rear yard setback req. for Proposed structure
Need a (7') Seven Foot Variance For 12' Porch and Deck So We Can make Best use of Back Yard on All Levels.

Tax Map #: 3-34-19.16-24.03 **Property Zoning:** residential AR-1

Applicant Information

Applicant Name: TH White General Contractor, Inc.
Applicant Address: 31687 Messiah Lane
City Millsboro State De Zip: 19966
Applicant Phone #: 302 945 1829 Applicant e-mail: thwhite2@verizon.net

Owner Information

Owner Name: Pamela + Mitchell Rentz
Owner Address: 37468 1ST Street
City Rehoboth Beach State De Zip: 19971 Purchase Date:
Owner Phone #: 302-379-3318 Owner e-mail: mtrentz12@comcast.net

Agent/Attorney Information

Agent/Attorney Name: Chris Grady
Agent/Attorney Address: 31687 Messiah Lane
City Millsboro State De Zip: 19966
Agent/Attorney Phone #: 302-745-0671 Agent/Attorney e-mail: thwhite2@verizon.net

Signature of Owner/Agent/Attorney

Date:

Criteria for a Variance: (Please provide a written statement regarding each criteria).

*You shall demonstrate to the Board of Adjustment that the property meets **all** of the following criteria for a Variance to be granted.*

In granting any variance the Board may attach such reasonable conditions and safeguards as it may deem necessary to implement the purposes of the Zoning Ordinance or Code. The Board is empowered in no case, however, to grant a variance in the use of land or structures thereon.

1. Uniqueness of property:

That there are unique physical circumstances or conditions, including irregularity, narrowness, or shallowness of lot size or shape, or exceptional topographical or other physical conditions peculiar to the particular property and that the exceptional practical difficulty is due to such conditions and not to circumstances or conditions generally created by the provisions of the Zoning Ordinance or Code in the neighborhood or district in which the property is located.

This will still leave 8' To property Line.

2. Cannot otherwise be developed:

That because of such physical circumstances or conditions, there is no possibility that the property can be developed in strict conformity with the provisions of the Zoning Ordinance or Code and that the authorization of a variance is therefore necessary to enable the reasonable use of the property.

It's To only way To Get Screen porch And make Best use of Back Yard,

3. Not created by the applicant:

That such exceptional practical difficulty has not been created by the appellant.

It will Be over Existing Concrete pad

4. Will not alter the essential character of the neighborhood:

That the variance, if authorized, will not alter the essential character of the neighborhood or district in which the property is located and nor substantially or permanently impair the appropriate use of development of adjacent property, nor be detrimental to the public welfare.

Most of other homes have decks & Porches on Rear of Homes.

5. Minimum variance:

That the variance, if authorized, will represent the minimum variance that will afford relief and will represent the least modification possible of the regulation in issue.

(7') Seven Foot Variance is what we need To Get 12' Porch & Deck will Leave 8' To property Line.

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*You shall demonstrate to the Board of Adjustment that the property meets **all** of the following criteria for a Special Use Exception to be granted.*

1. Such exception will not substantially affect adversely the uses of adjacent and neighboring property.

No it will not. Neighboring Homes have Storage Sheds on property Line. only 2 Neighbores one in Back and one on Right Side

---

2. Any other requirements which apply to a specific type of special use exception as required by the Sussex County Code. (Ex. Time limitations – 5 year maximum)

Basis for Appeal: (Please provide a written statement regarding reason for appeal)

Check List for Applications

The following shall be submitted with the application

- [x] • **Completed Application**
- [ ] • **Provide a survey of the property** (Variance)
  - Survey shall show the location of building(s), building setbacks, stairs, deck, etc.
  - Survey shall show distances from property lines to buildings, stairs, deck, etc.
  - Survey shall be signed and sealed by a Licensed Surveyor.
- [ ] • **Provide a Site Plan or survey of the property** (Special Use Exception)
- [ ] • **Provide relevant Application Fee (please refer to fees effective July 1, 2022)**
- [ ] • **Provide written response to criteria for Variance or Special Use Exception** (may be on a separate document if not enough room on the form)
- [ ] • **Copy of Receipt (staff)**
- [ ] • **Optional - Additional information for the Board to consider** (ex. photos, letters from neighbors, etc.)
- [ ] • **Please be aware that Public Notice will be sent to property owners within 200 feet of the subject site and County staff will come out to the subject site, take photos and place a sign on the site stating the date and time of the Public Hearing for the application.**

Please be advised that the decision of the Board of Adjustment is only final when the written decision is filed with the Board's secretary. To determine whether the written decision has been filed, you may call the Planning & Zoning Department at 302-855-7878. The written decision is generally completed within thirty (30) to sixty (60) days following the Board's vote on the application or appeal. Please include the case number when calling about the decision.

Please be advised that any action taken in reliance of the Board's decision prior to the filing of the written decision and the expiration of any applicable appeal period is taken at the Property Owner's Risk.

The undersigned acknowledges that that he or she has read the application completely and that if the appellant / applicant is unable to convince the Board that the standards for granting relief have been met, the appeal / application will be denied.

Signature of Owner/Agent/Attorney

_____ Date: 4/28/26

For office use only:

Date Submitted: _____ Fee: Check #: _____

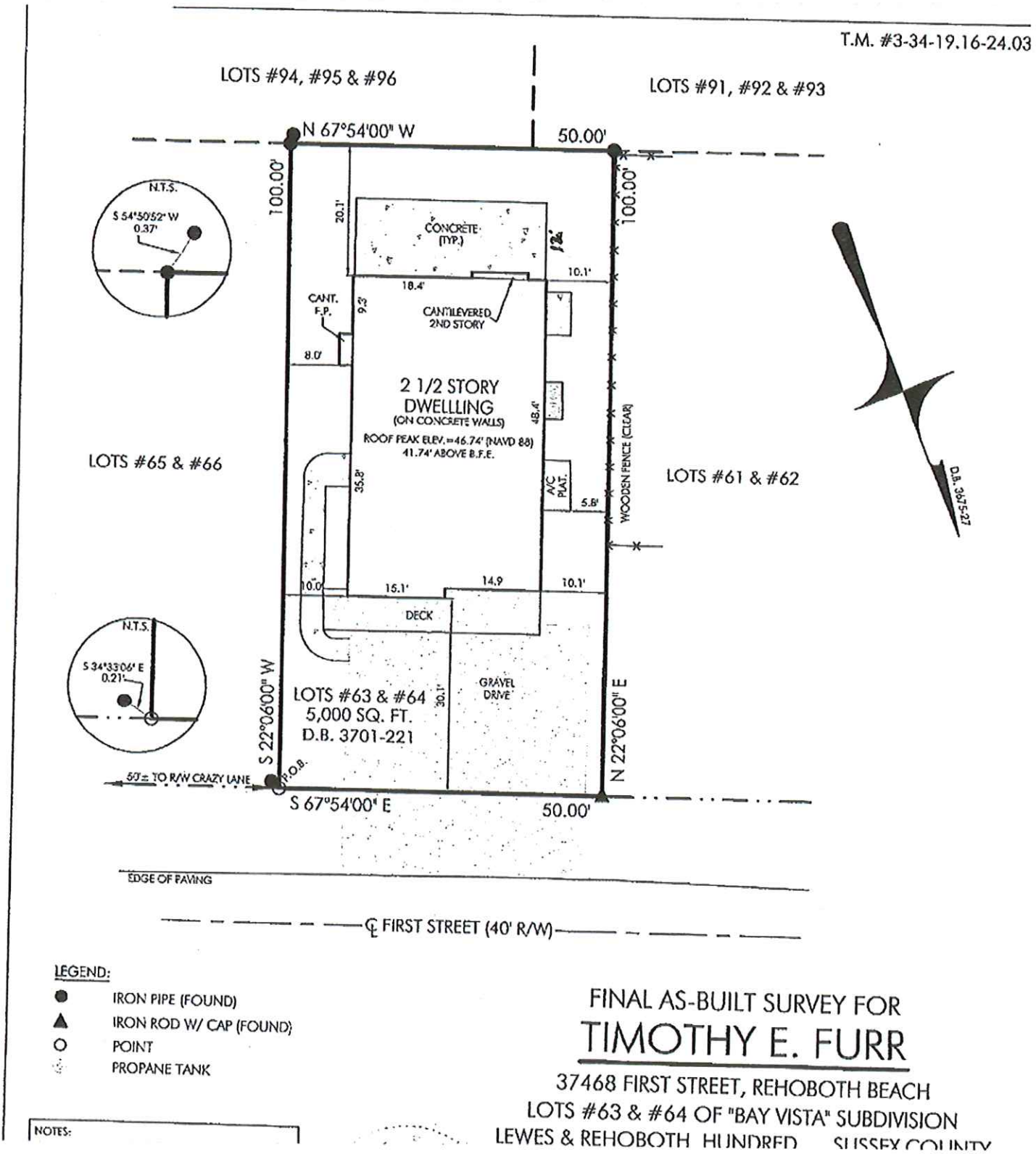
Staff accepting application: _____ Application & Case #: _____

Location of property: _____

_____

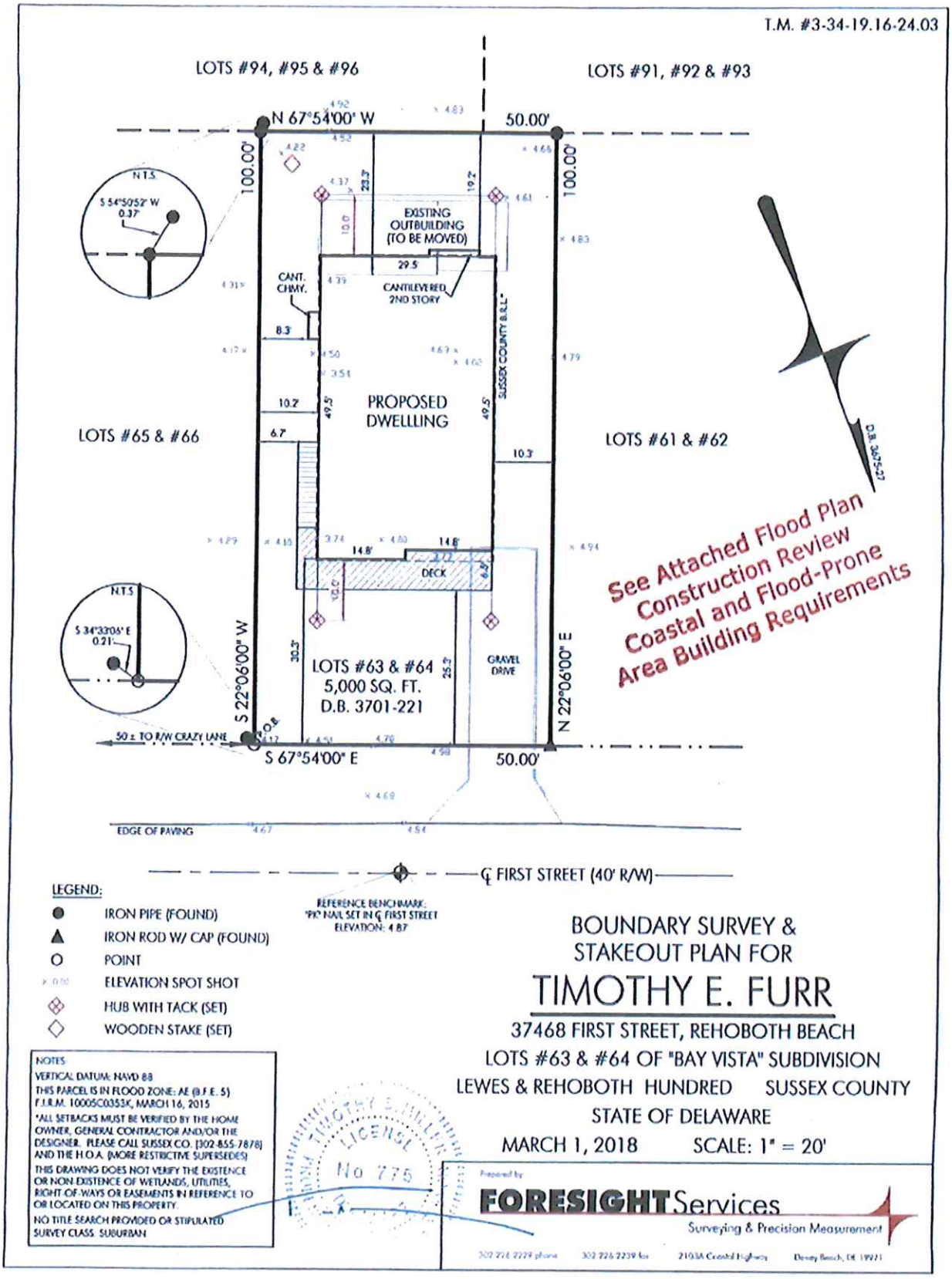
Subdivision: _____ Lot#: _____ Block#: _____

Date of Hearing: _____ Decision of Board: _____



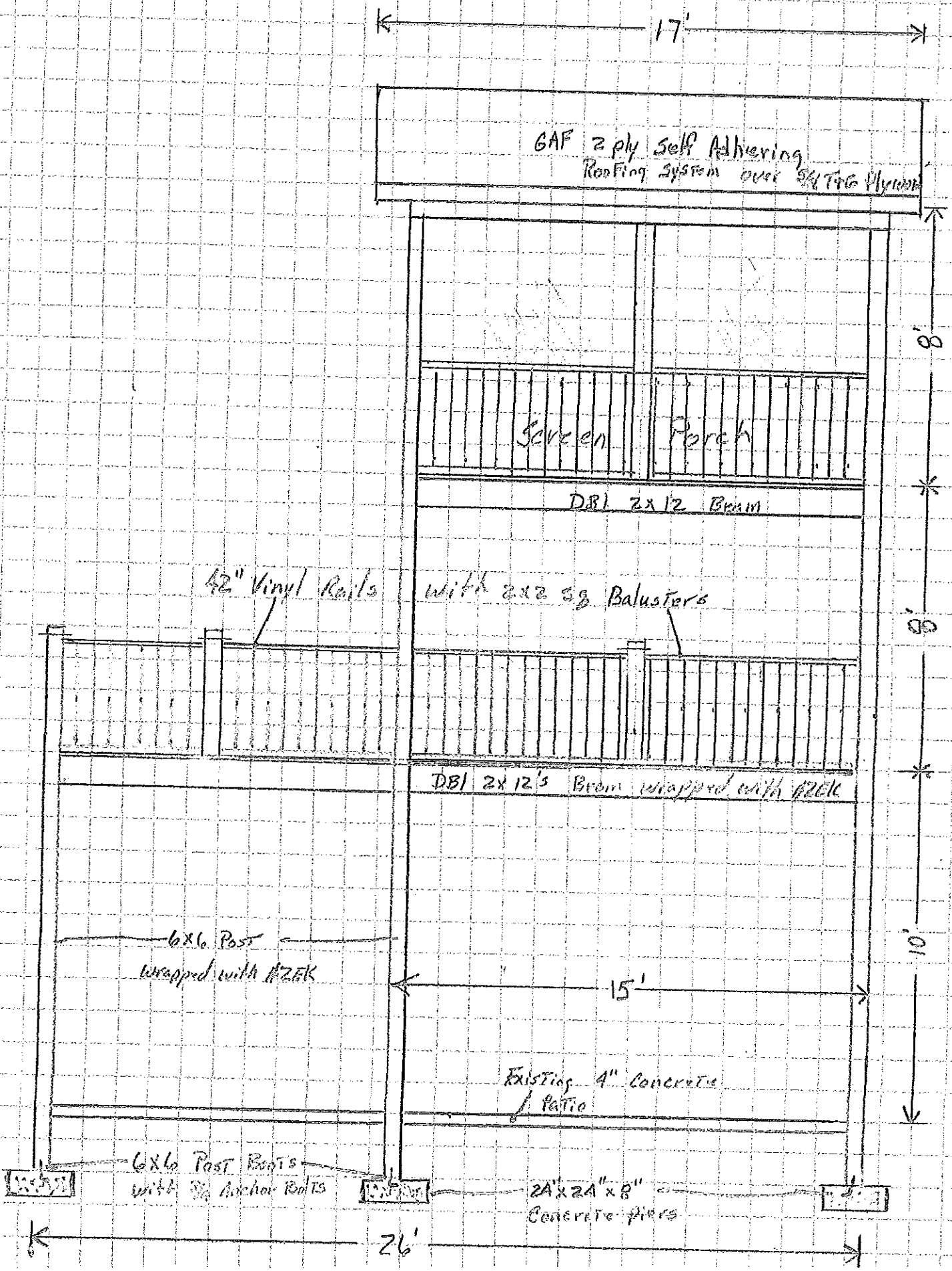
Thank you,

Amy Hollis
Planning Technician
Sussex County Planning and Zoning
2 The Circle,
Georgetown, DE 19947
302-855-7878
Amy.Hollis@sussexcountyde.gov


T.M. #3-34-19.16-24.03
LOTS #94, #95 & #96
LOTS #91, #92 & #93
N 67°54'00" W
50.00'
100.00'
EXISTING OUTBUILDING (TO BE MOVED)
29.5
CANTILEVERED 2ND STORY
CANT. CHMY.
8.3
PROPOSED DWELLLING
SUSSEX COUNTY B.U.L.*
49.5'
10.7
6.7
10.3
LOTS #65 & #66
LOTS #61 & #62
D.B. 3675-22
See Attached Flood Plan
Construction Review
Coastal and Flood-Prone
Area Building Requirements
14.8'
DECK
20.0'
6.3'
10.0'
30.3'
25.3'
LOTS #63 & #64
5,000 SQ. FT.
D.B. 3701-221
GRAVEL DRIVE
S 22°06'00" W
N 22°06'00" E
50 ± TO R/W CRAZY LANE
P.O.B.
S 67°54'00" E
50.00'
EDGE OF PAVING
℄ FIRST STREET (40' R/W)
N.T.S.
S 54°50'52" W
0.37'
N.T.S.
S 34°33'06" E
0.21'
REFERENCE BENCHMARK:
"PK" NAIL SET IN ℄ FIRST STREET
ELEVATION: 4.87
LEGEND:
IRON PIPE (FOUND)
IRON ROD W/ CAP (FOUND)
POINT
ELEVATION SPOT SHOT
HUB WITH TACK (SET)
WOODEN STAKE (SET)
NOTES:
VERTICAL DATUM: NAVD 88
THIS PARCEL IS IN FLOOD ZONE: AE (@ F.E. 5)
F.I.R.M. 10005C0353K, MARCH 16, 2015
*ALL SETBACKS MUST BE VERIFIED BY THE HOME OWNER, GENERAL CONTRACTOR AND/OR THE DESIGNER. PLEASE CALL SUSSEX CO. (302-855-7878) AND THE H.O.A. (MORE RESTRICTIVE SUPERSEDES)
THIS DRAWING DOES NOT VERIFY THE EXISTENCE OR NON-EXISTENCE OF WETLANDS, UTILITIES, RIGHT-OF-WAYS OR EASEMENTS IN REFERENCE TO OR LOCATED ON THIS PROPERTY.
NO TITLE SEARCH PROVIDED OR STIPULATED.
SURVEY CLASS: SUBURBAN
LICENSE No 775
BOUNDARY SURVEY &
STAKEOUT PLAN FOR
TIMOTHY E. FURR
37468 FIRST STREET, REHOBOTH BEACH
LOTS #63 & #64 OF "BAY VISTA" SUBDIVISION
LEWES & REHOBOTH HUNDRED SUSSEX COUNTY
STATE OF DELAWARE
MARCH 1, 2018 SCALE: 1" = 20'
Prepared by:
FORESIGHT Services
Surveying & Precision Measurement
302 226 2229 phone 302 226 2239 fax 21038 Coastal Highway Dewey Beach, DE 19971

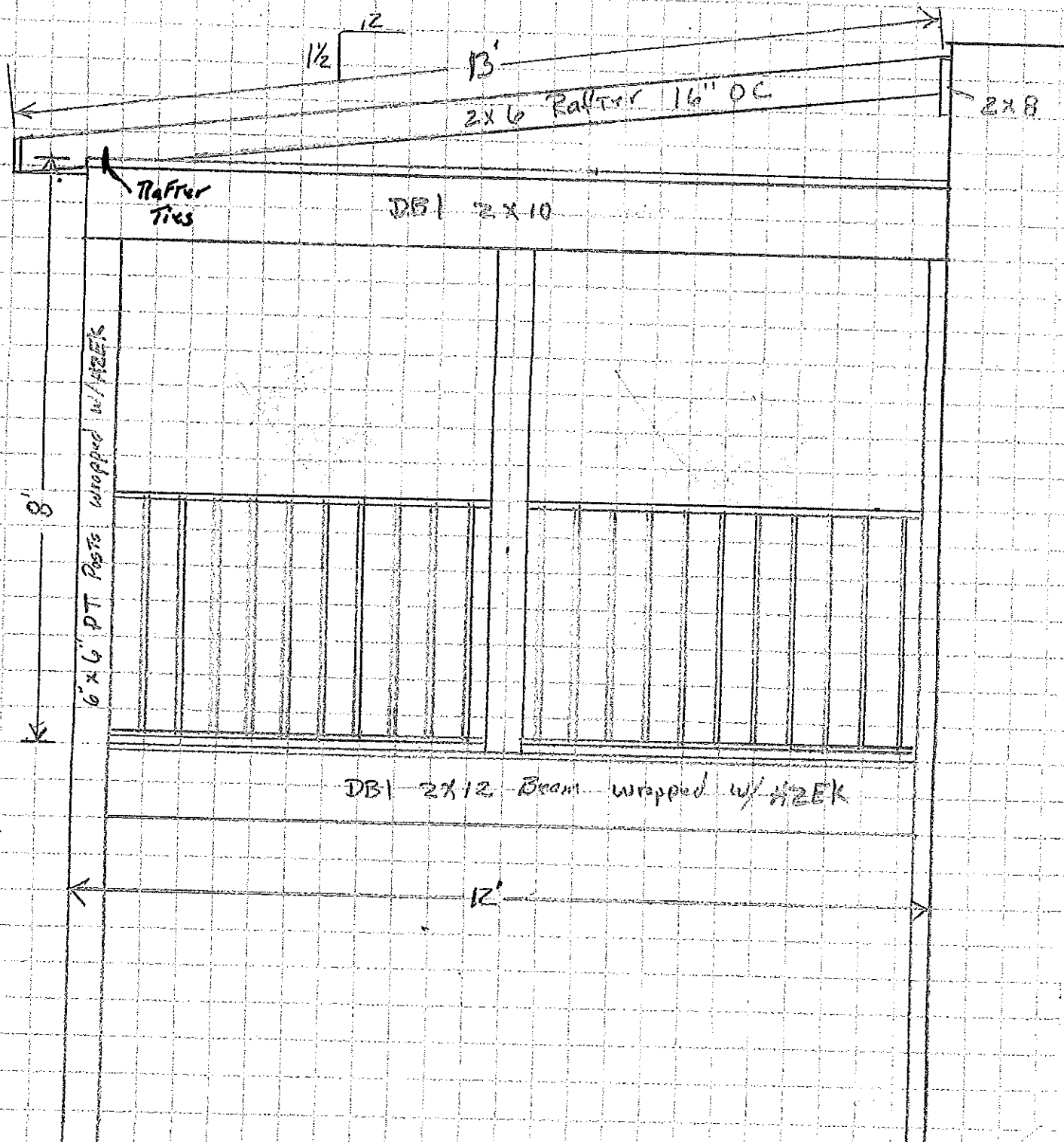
Job: Rentz
1/4 = 1'
Date: 1/8/26

Rear ELV



Job: Rent 2
1/2" = 1'
Date: 1/8/26

Screen Porch
Right Elv.



Sussex County Government
Treasury
2 The Circle, PO Box 601
Georgetown, DE 19947

04/28/2026 11:25AM Megan D.
Receipt Number: 001302462
33031333-0123

PERMITS / INSPECTIONS
2026 20260503|2020 $500.00

$500.00

Subtotal $500.00
TP CC SF $15.00
Total $515.00

Tenders
TYLER PAYMENTS CC
**********6688 $515.00
Ref=da41e600-48e5-4c41-8e15-dccb9dd4be7e
Auth=050114

Change due $0.00

Paid by: GRADY/CHRISTOPHER F

Signature: _____

Thank you for your payment.

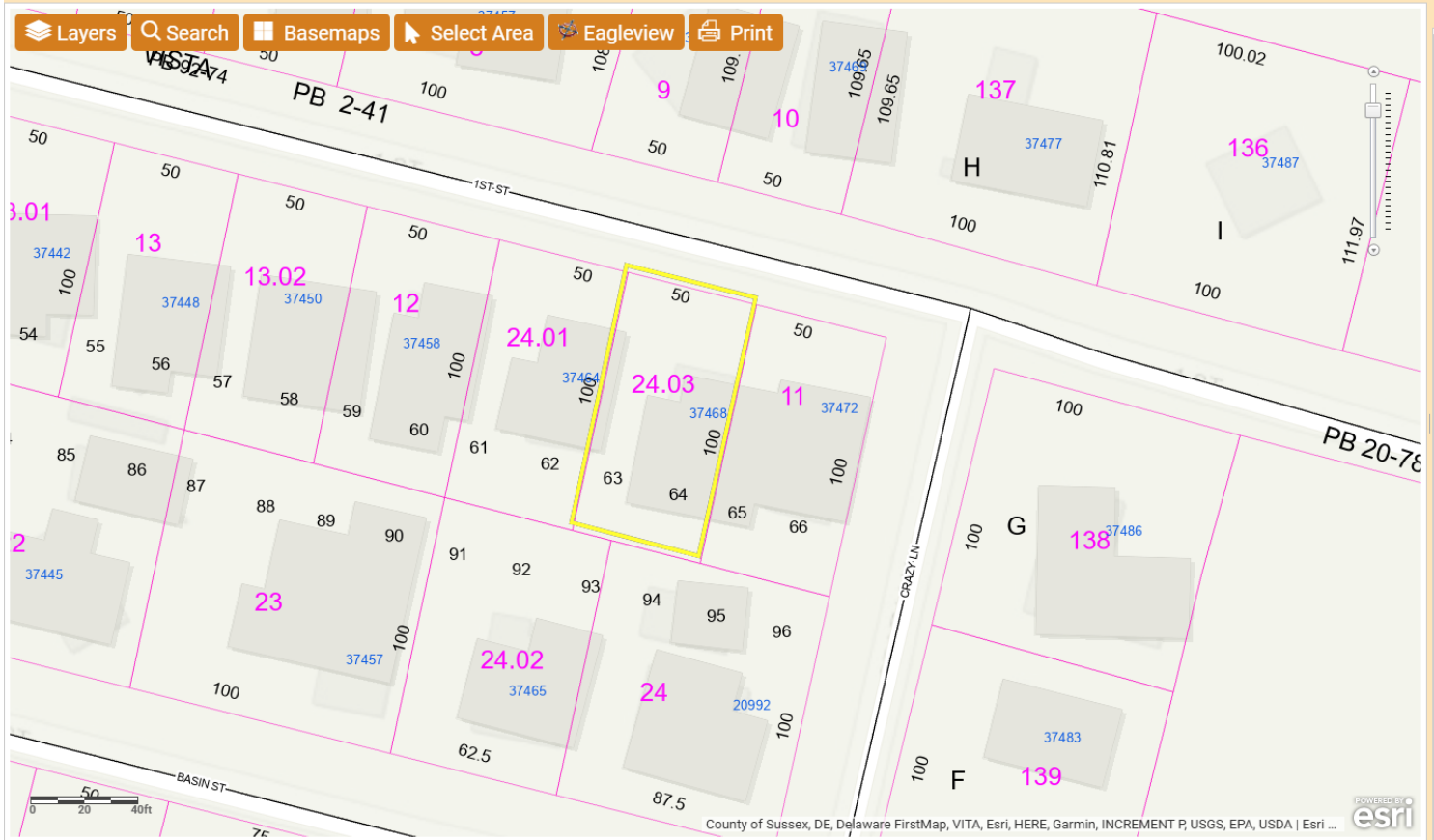
CUSTOMER COPY

service fee

TYLER PAYMENTS

SUSSEX COUNTY
DELAWARE

Help



Eagleview | Search Results

Selected Features: Parcels (1)

1) 334-19.16-24.03 Zoom

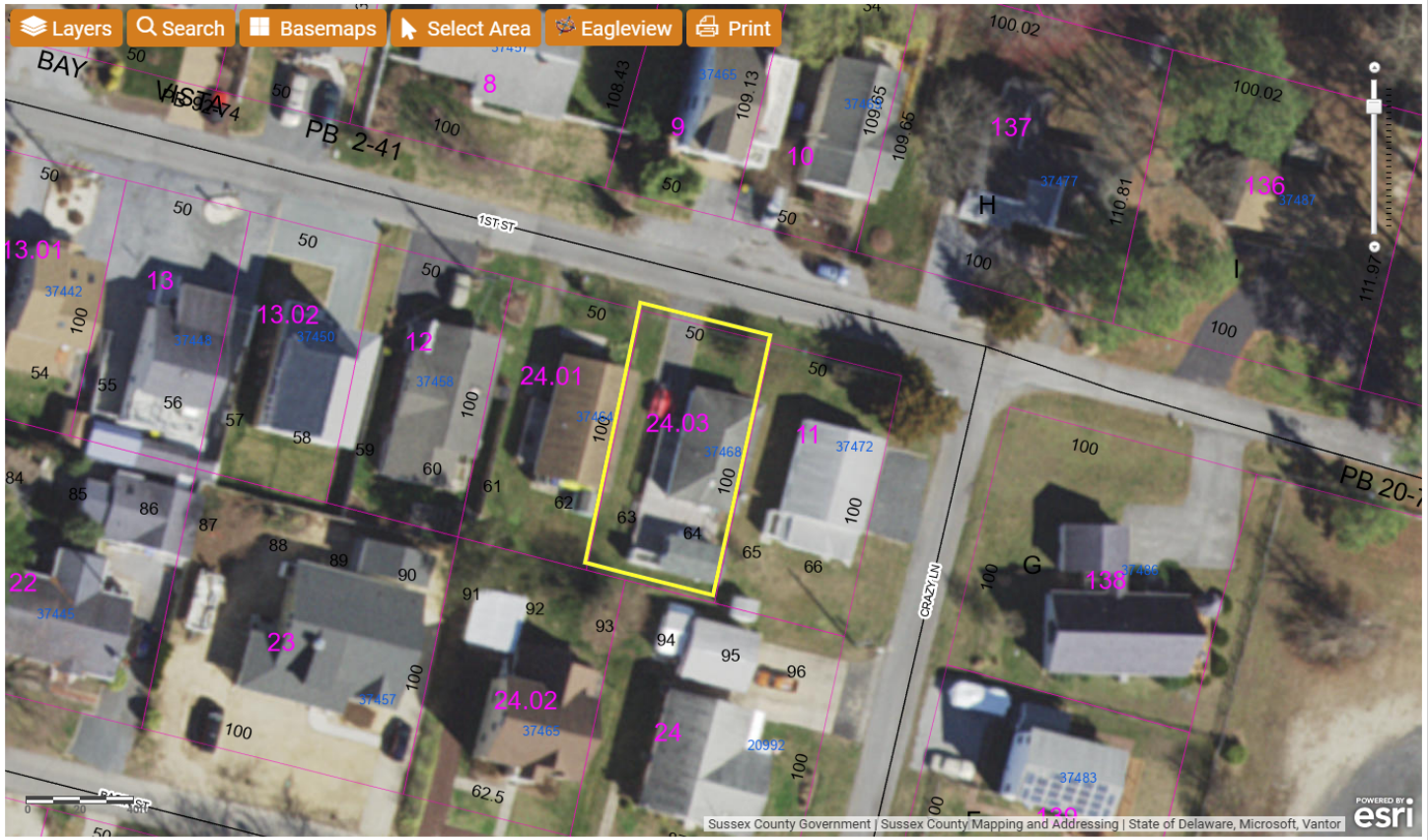
BOOK	6280
PAGE	95
FULLNAME	RENTZ PAMELA
Second_Owner_Name	MITCHELL RENTZ
MAILINGADDRESS	37468 FIRST ST
CITY	REHOBOTH BEACH
STATE	DE
a_account	10-23-024.3
DESCRIPTION	BAY VISTA
DESCRIPTION2	LOTS 63, 64
DESCRIPTION3	
LUC	101
SCHOOL	6
MUNI	00
CAP	2
APRBLDG	1.048e+006
APRLAND	196800
PINWASSEMENTUNIT	334-19.16-24.03
PIN	334-19.16-24.03

Selected Features (1)

Clear Selected

SUSSEX COUNTY
DELAWARE

Help



Eagleview | Search Results

Selected Features: Parcels (1)

1) 334-19.16-24.03 Zoom

BOOK	6280
PAGE	95
FULLNAME	RENTZ PAMELA
Second_Owner_Name	MITCHELL RENTZ
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DESCRIPTION	BAY VISTA
DESCRIPTION2	LOTS 63, 64
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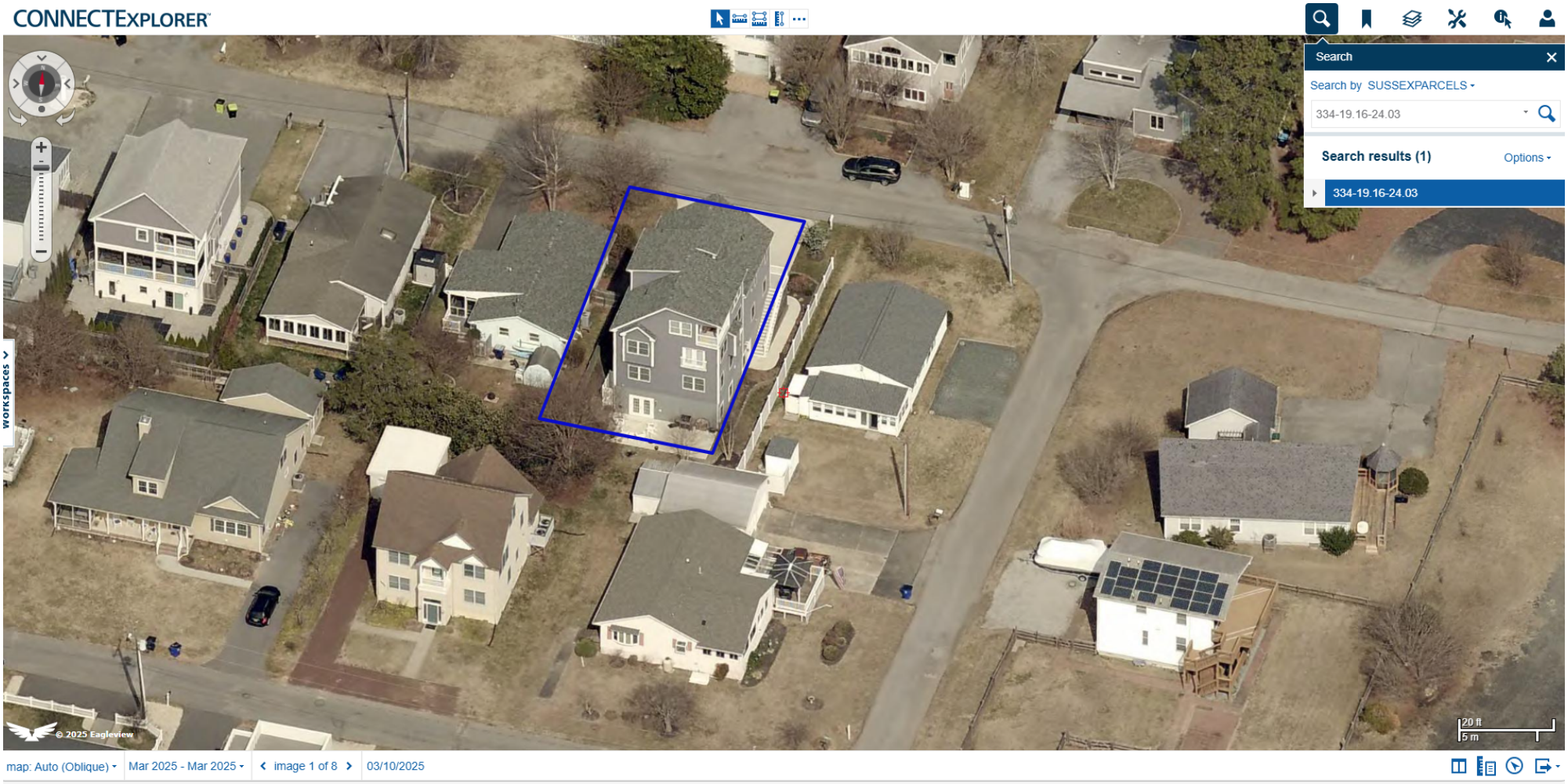
LUC	101
SCHOOL	6
MUNI	00
CAP	2
APRBLDG	1.048e+006
APRLAND	196800
PINWASSEMENTUNIT	334-19.16-24.03
PIN	334-19.16-24.03

Selected Features (1)

Clear Selected


CONNECTEXPLORER
Search
Search by SUSSEXPARCELS
334-19.16-24.03
Search results (1)
Options
334-19.16-24.03
workspaces
© 2025 Eagleview
20 ft
5 m
map: Auto (Oblique)
Mar 2025 - Mar 2025
image 1 of 8
03/10/2025

Criteria for a Variance: (Please provide a written statement regarding each criteria).

*You shall demonstrate to the Board of Adjustment that the property meets **all** of the following criteria for a Variance to be granted.*

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This will still leave 8' To property Line.

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It's To only way To Get Screen porch And make Best use of Back Yard,

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No it will not. Neighboring Homes have Storage Sheds on property Line. only 2 Neighbores one in Back and one on Right Side

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Basis for Appeal: (Please provide a written statement regarding reason for appeal)

Check List for Applications

The following shall be submitted with the application

- [x] • **Completed Application**
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The undersigned acknowledges that that he or she has read the application completely and that if the appellant / applicant is unable to convince the Board that the standards for granting relief have been met, the appeal / application will be denied.

Signature of Owner/Agent/Attorney

_____ Date: 4/28/26

For office use only:

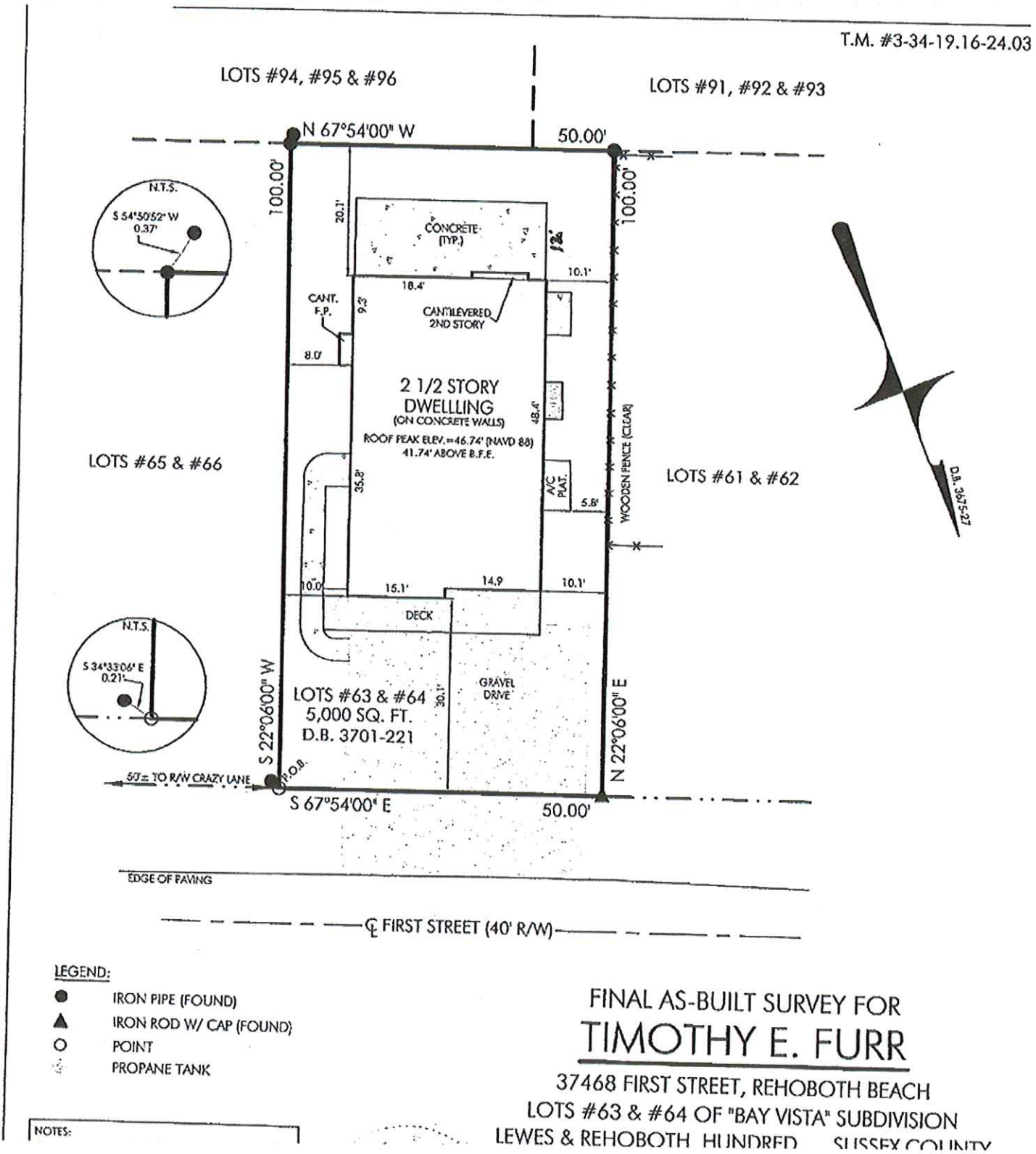
Date Submitted: _____ Fee: Check #: _____

Staff accepting application: _____ Application & Case #: _____

Location of property: _____

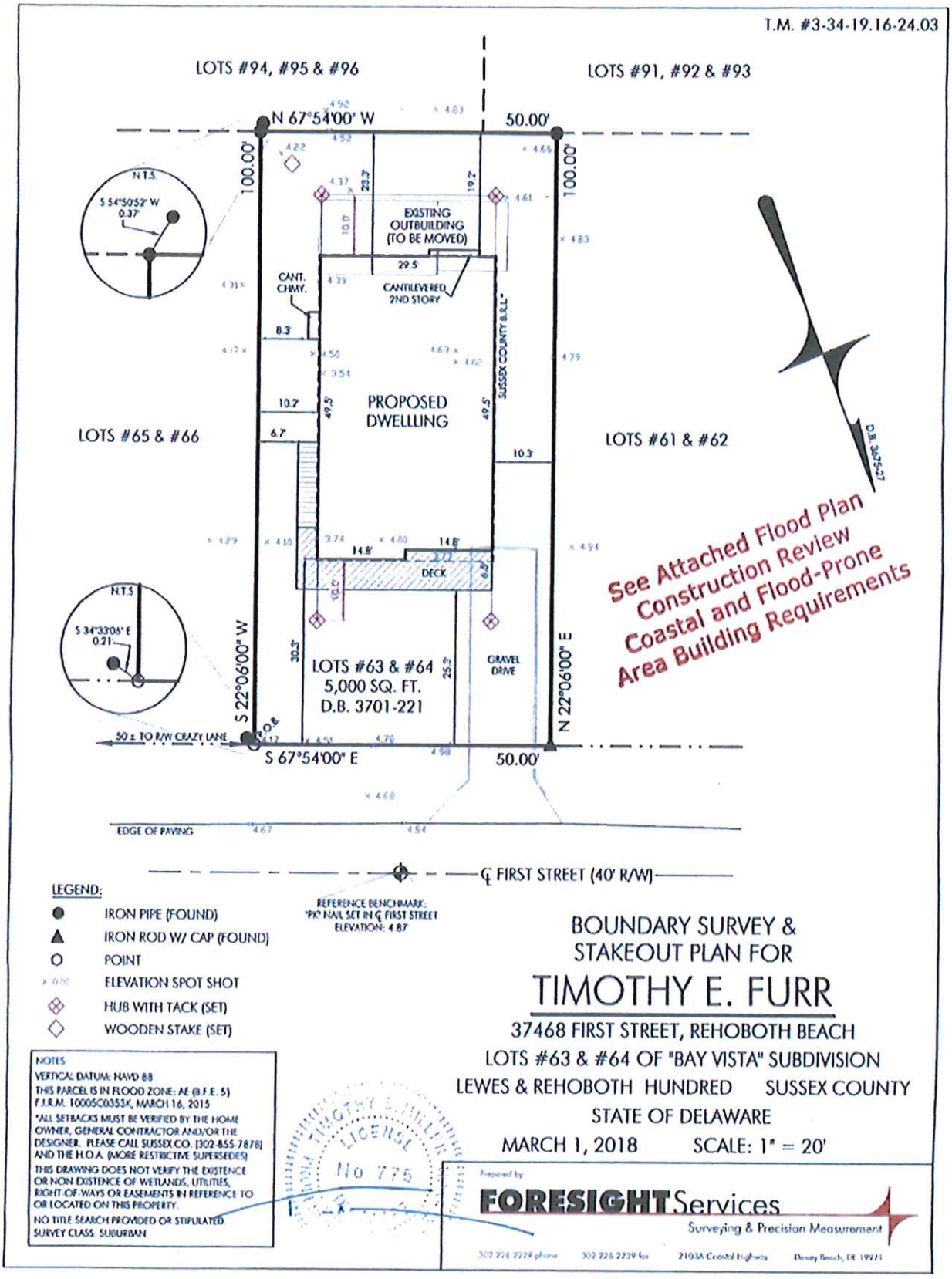
Subdivision: _____ Lot#: _____ Block#: _____

Date of Hearing: _____ Decision of Board: _____



Thank you,

Amy Hollis
Planning Technician
Sussex County Planning and Zoning
2 The Circle,
Georgetown, DE 19947
302-855-7878
Amy.Hollis@sussexcountyde.gov


T.M. #3-34-19.16-24.03
LOTS #94, #95 & #96
LOTS #91, #92 & #93
N 67°54'00" W
50.00'
100.00'
EXISTING OUTBUILDING (TO BE MOVED)
CANTILEVERED 2ND STORY
CANT. CHMY.
SUSSEX COUNTY B.U.L.*
PROPOSED DWELLLING
LOTS #65 & #66
LOTS #61 & #62
D.B. 3675-22
DECK
GRAVEL DRIVE
LOTS #63 & #64
5,000 SQ. FT.
D.B. 3701-221
S 22°06'00" W
N 22°06'00" E
S 67°54'00" E
50.00'
50 ± TO R/W CRAZY LANE
P.O.B.
N.T.S.
S 54°50'52" W 0.37'
N.T.S.
S 34°33'06" E 0.21'
See Attached Flood Plan Construction Review Coastal and Flood-Prone Area Building Requirements
EDGE OF PAVING
℄ FIRST STREET (40' R/W)
REFERENCE BENCHMARK: "PK" NAIL SET IN ℄ FIRST STREET ELEVATION: 4.87
LEGEND:
IRON PIPE (FOUND)
IRON ROD W/ CAP (FOUND)
POINT
ELEVATION SPOT SHOT
HUB WITH TACK (SET)
WOODEN STAKE (SET)
NOTES:
VERTICAL DATUM: NAVD 88
THIS PARCEL IS IN FLOOD ZONE: AE (@ E. 5)
F.I.R.M. 10005C0353K, MARCH 16, 2015
*ALL SETBACKS MUST BE VERIFIED BY THE HOME OWNER, GENERAL CONTRACTOR AND/OR THE DESIGNER. PLEASE CALL SUSSEX CO. (302-855-7878) AND THE H.O.A. (MORE RESTRICTIVE SUPERSEDES)
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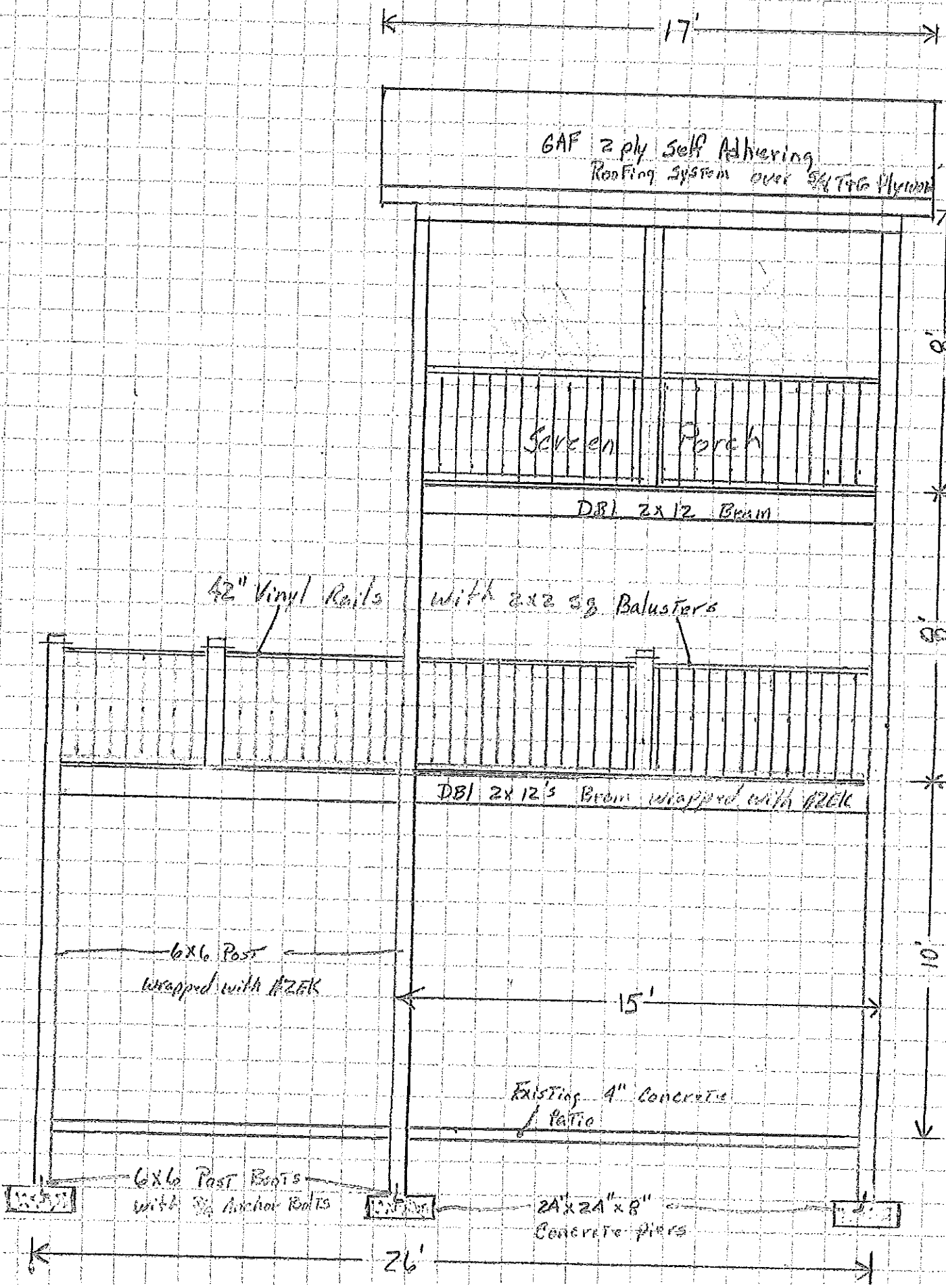
NO TITLE SEARCH PROVIDED OR STIPULATED.
SURVEY CLASS: SUBURBAN
LICENSE No 775
BOUNDARY SURVEY & STAKEOUT PLAN FOR
TIMOTHY E. FURR
37468 FIRST STREET, REHOBOTH BEACH
LOTS #63 & #64 OF "BAY VISTA" SUBDIVISION
LEWES & REHOBOTH HUNDRED SUSSEX COUNTY
STATE OF DELAWARE
MARCH 1, 2018 SCALE: 1" = 20'
Prepared by:
FORESIGHT Services
Surveying & Precision Measurement
302 226 2229 phone 302 226 2239 fax 21038 Coastal Highway Dewey Beach, DE 19971

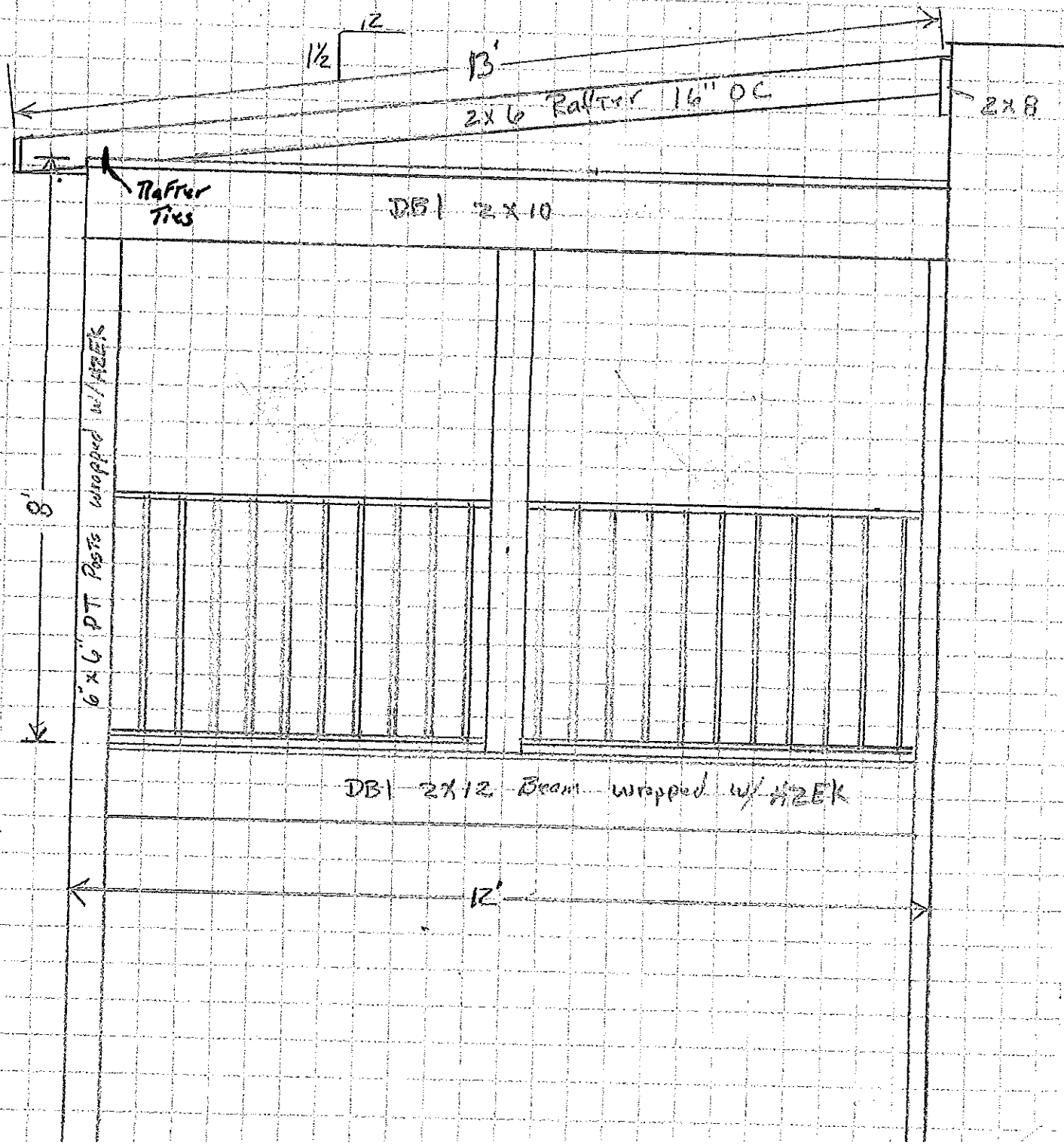
Job: Rentz
1/4 = 1'
Date: 1/8/26

Rear ELV



Job: Rent 2
1/2" = 1'
Date: 1/8/26

Screen Porch
Right Elv.



Sussex County Government
Treasury
2 The Circle, PO Box 601
Georgetown, DE 19947

04/28/2026 11:25AM Megan D.
Receipt Number: 001302462
33031333-0123

PERMITS / INSPECTIONS
2026 20260503|2020 $500.00

$500.00

Subtotal $500.00
TP CC SF $15.00
Total $515.00

Tenders
TYLER PAYMENTS CC
**********6688 $515.00
Ref=da41e600-48e5-4c41-8e15-dccb9dd4be7e
Auth=050114

Change due $0.00

Paid by: GRADY/CHRISTOPHER F

Signature: _____

Thank you for your payment.

CUSTOMER COPY

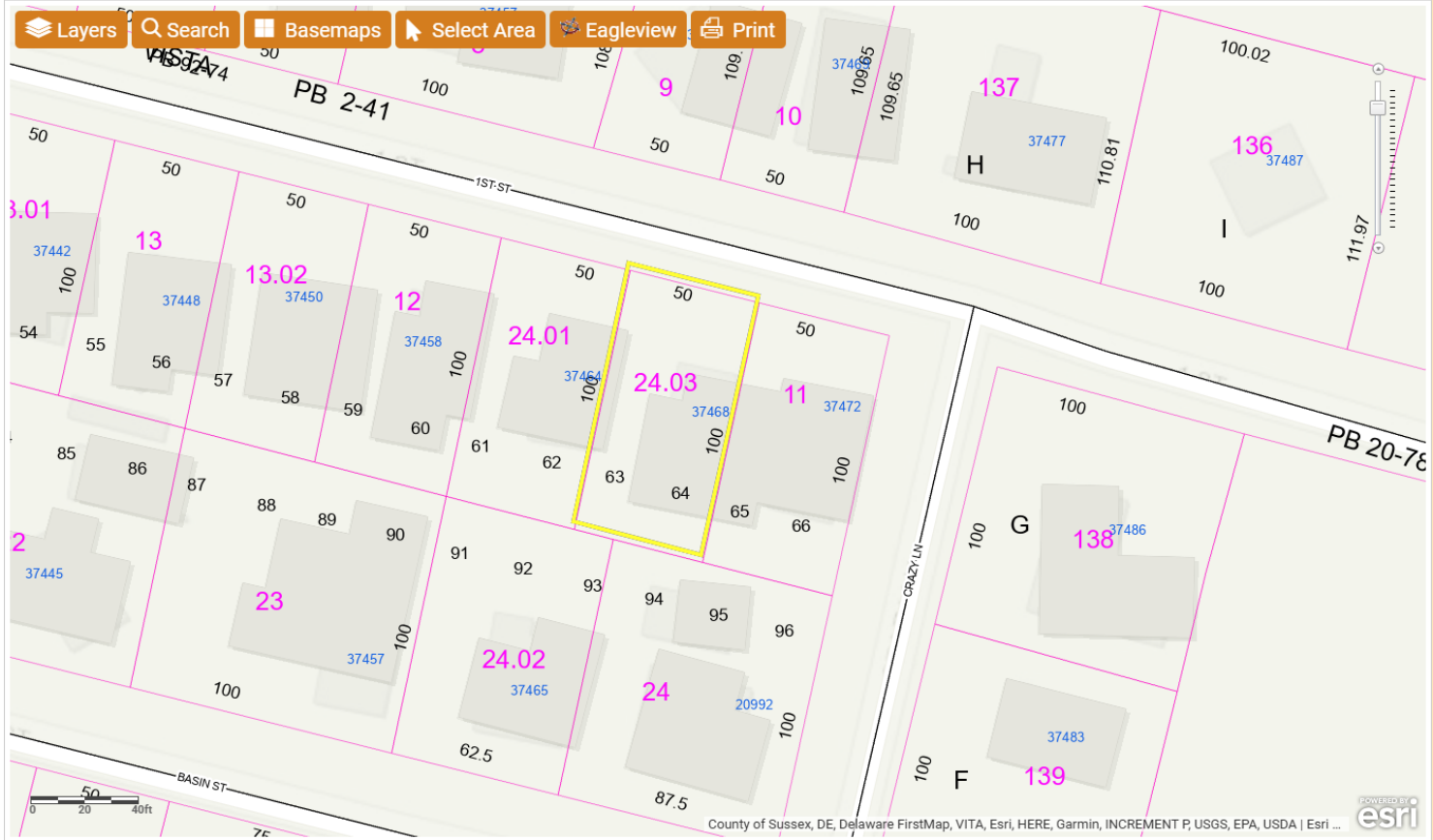
service fee

TYLER PAYMENTS

SUSSEX COUNTY
DELAWARE

Help

Layers | Search | Basemaps | Select Area | Eagleview | Print



Eagleview | Search Results

Selected Features: Parcels (1)

1) 334-19.16-24.03 Zoom

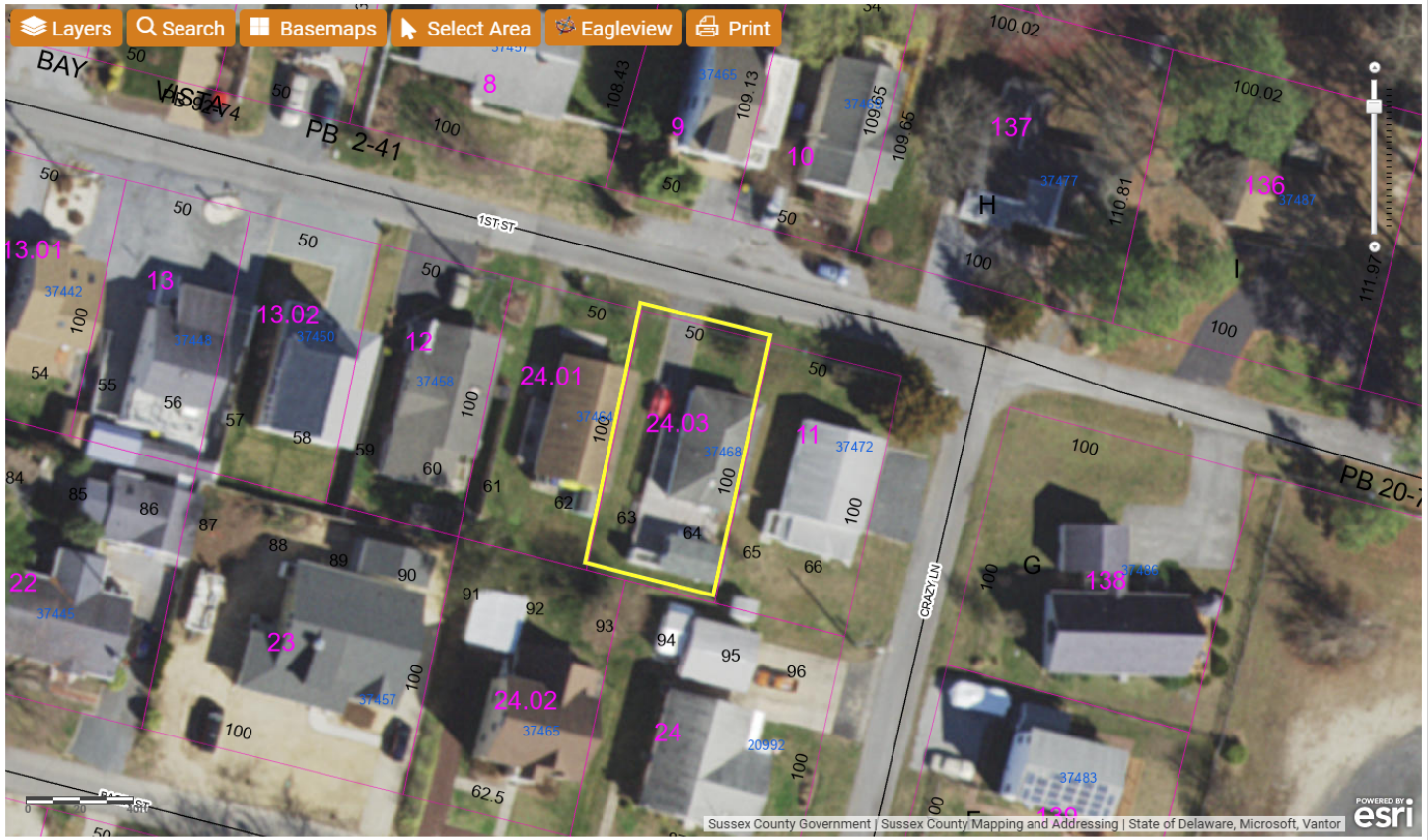
BOOK	6280
PAGE	95
FULLNAME	RENTZ PAMELA
Second_Owner_Name	MITCHELL RENTZ
MAILINGADDRESS	37468 FIRST ST
CITY	REHOBOTH BEACH
STATE	DE
a_account	10-23-024.3
DESCRIPTION	BAY VISTA
DESCRIPTION2	LOTS 63, 64
DESCRIPTION3	
LUC	101
SCHOOL	6
MUNI	00
CAP	2
APRBLDG	1.048e+006
APRLAND	196800
PINWASSEMENTUNIT	334-19.16-24.03
PIN	334-19.16-24.03

Selected Features (1)

Clear Selected

SUSSEX COUNTY
DELAWARE

Help



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PINWASSEMENTUNIT	334-19.16-24.03
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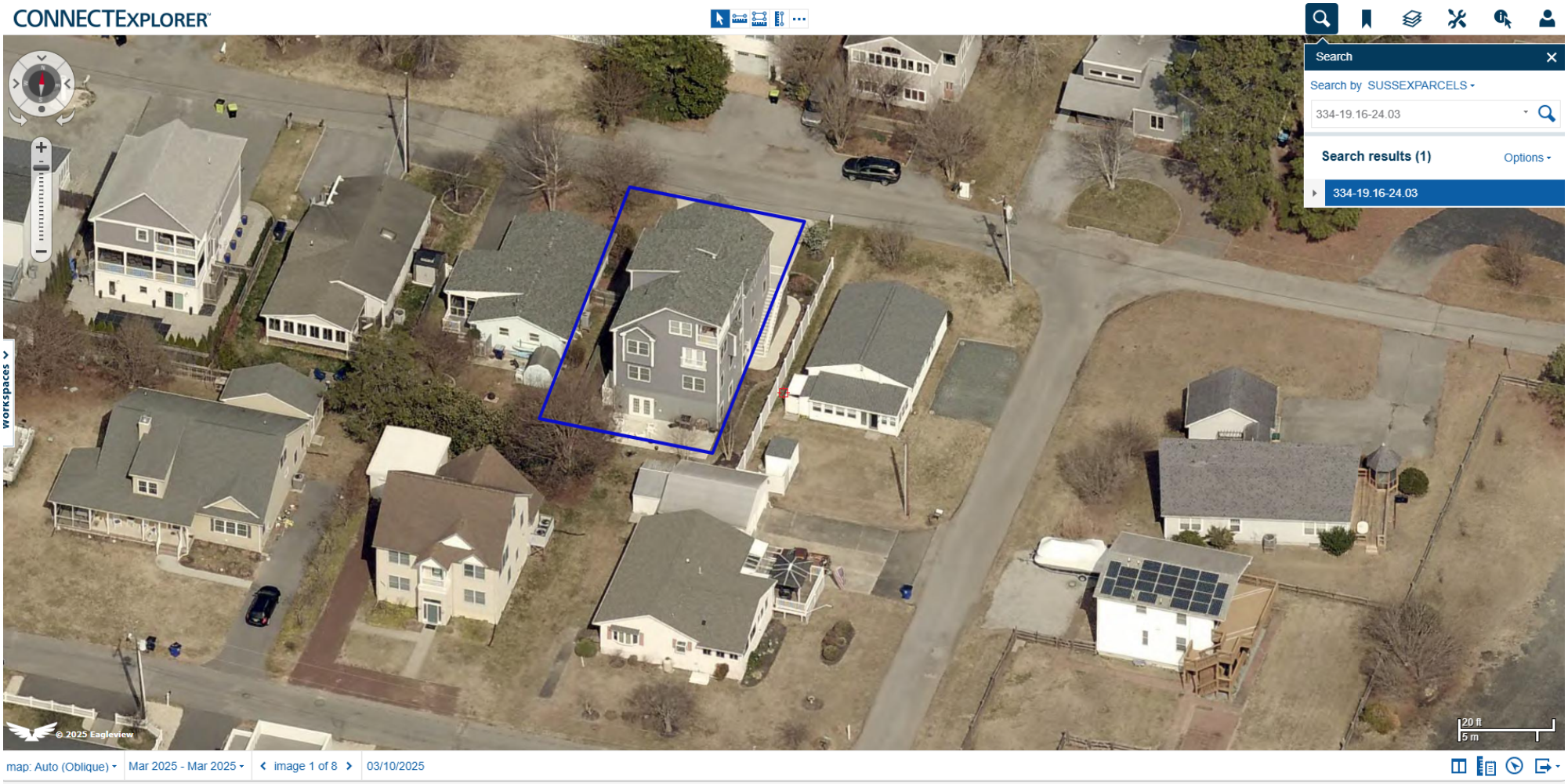
Selected Features (1)

Clear Selected


CONNECTEXPLORER
Search
Search by SUSSEXPARCELS
334-19.16-24.03
Search results (1)
Options
334-19.16-24.03
workspaces
© 2025 Eagleview
20 ft
5 m
map: Auto (Oblique)
Mar 2025 - Mar 2025
image 1 of 8
03/10/2025

Case # 13202
Hearing Date 06-15-2026
20260556?

Board of Adjustment Application
Sussex County, Delaware

Sussex County Planning & Zoning Department
2 The Circle (P.O. Box 417) Georgetown, DE 19947
302-855-7878 ph. 302-854-5079 fax

Type of Application: (please check all applicable)

Variance ☑
Special Use Exception ☐
Administrative Variance ☐
Appeal ☐

Existing Condition ☐
Proposed ☐
Code Reference (office use only)

Site Address of Variance/Special Use Exception:
20017 Delware Ave (J43) Rehoboth Beach, DE 19971

Variance/Special Use Exception/Appeal Requested:

On the right side of the proposed home where 1) the proposed home is 18.0' from the neighboring stairs on lot J45. Where the AC on the proposed home is (2)18.3' from the neighboring home on lot J45. At the rear of the proposed home where separation is (3)7.2' from the neighboring shed on lot J45, (4) 10.2' from neighboring home on lot A58. Where the proposed shed is (5) 13.3' from the neighboring home on lot A58 and (6) 8.4' from the neighboring shed #1 on lot J41. Where the proposed rear stairs are (7) 15.7' from the neighboring shed #1 and (8) 15.5' from the neighboring shed #2 on lot J41. Where the proposed home is (9) 19.4' from the neighboring shed #2 on lot J41. Where the proposed front stairs are (10) 15.0' from the neighboring home on lot J41. Where the proposed home is (11) 18.9' from the neighboring home on lot J41.

Tax Map #: 334-13.00-310.00-5446 **Property Zoning:** AR-2

Applicant Information

Applicant Name: Sea Air Village- Agent Aimee Bennett
Applicant Address: 19837 Sea Air Ave
City Rehoboth Beach State DE Zip: 19971
Applicant Phone #: (302) 227-8118 Applicant e-mail: abennett2@suncommunities.com

Owner Information

Owner Name: Sea Breeze LP DBA Sea Air Village
Owner Address: 19837 Sea Air Ave
City Rehoboth Beach State DE Zip: 19971 Purchase Date:
Owner Phone #: 3022278118 Owner e-mail: abennett2@suncommunities.com

Agent/Attorney Information

Agent/Attorney Name: Aimee Bennett
Agent/Attorney Address: 19837 Sea Air Ave
City Rehoboth Beach State DE Zip: 19971
Agent/Attorney Phone #: (302) 227-8118 Agent/Attorney e-mail: abennett2@suncommunities.com

Signature of Owner/Agent/Attorney

Aimee Bennett

Date: 5/1/26

Criteria for a Variance: (Please provide a written statement regarding each criteria).

*You shall demonstrate to the Board of Adjustment that the property meets **all** of the following criteria for a Variance to be granted.*

In granting any variance the Board may attach such reasonable conditions and safeguards as it may deem necessary to implement the purposes of the Zoning Ordinance or Code. The Board is empowered in no case, however, to grant a variance in the use of land or structures thereon.

1. Uniqueness of property:

That there are unique physical circumstances or conditions, including irregularity, narrowness, or shallowness of lot size or shape, or exceptional topographical or other physical conditions peculiar to the particular property and that the exceptional practical difficulty is due to such conditions and not to circumstances or conditions generally created by the provisions of the Zoning Ordinance or Code in the neighborhood or district in which the property is located.

See Attached

2. Cannot otherwise be developed:

That because of such physical circumstances or conditions, there is no possibility that the property can be developed in strict conformity with the provisions of the Zoning Ordinance or Code and that the authorization of a variance is therefore necessary to enable the reasonable use of the property.

See Attached

3. Not created by the applicant:

That such exceptional practical difficulty has not been created by the appellant.

See Attached

4. Will not alter the essential character of the neighborhood:

That the variance, if authorized, will not alter the essential character of the neighborhood or district in which the property is located and nor substantially or permanently impair the appropriate use of development of adjacent property, nor be detrimental to the public welfare.

See Attached

5. Minimum variance:

That the variance, if authorized, will represent the minimum variance that will afford relief and will represent the least modification possible of the regulation in issue.

See Attached

Criteria for a Special Use Exception: (Please provide a written statement regarding each criteria)

*You shall demonstrate to the Board of Adjustment that the property meets **all** of the following criteria for a Special Use Exception to be granted.*

1. Such exception will not substantially affect adversely the uses of adjacent and neighboring property.

2. Any other requirements which apply to a specific type of special use exception as required by the Sussex County Code. (Ex. Time limitations – 5 year maximum)

Basis for Appeal: (Please provide a written statement regarding reason for appeal)

Check List for Applications

The following shall be submitted with the application

- [x] **Completed Application**
- [x] **Provide a survey of the property** (Variance)
  - Survey shall show the location of building(s), building setbacks, stairs, deck, etc.
  - Survey shall show distances from property lines to buildings, stairs, deck, etc.
  - Survey shall be signed and sealed by a Licensed Surveyor.
- [x] **Provide a Site Plan or survey of the property** (Special Use Exception)
- [x] **Provide relevant Application Fee (please refer to fees effective July 1, 2022)**
- [x] **Provide written response to criteria for Variance or Special Use Exception** (may be on a separate document if not enough room on the form)
- [ ] **Copy of Receipt (staff)**
- [x] **Optional - Additional information for the Board to consider** (ex. photos, letters from neighbors, etc.)
- [x] **Please be aware that Public Notice will be sent to property owners within 200 feet of the subject site and County staff will come out to the subject site, take photos and place a sign on the site stating the date and time of the Public Hearing for the application.**

Please be advised that the decision of the Board of Adjustment is only final when the written decision is filed with the Board's secretary. To determine whether the written decision has been filed, you may call the Planning & Zoning Department at 302-855-7878. The written decision is generally completed within thirty (30) to sixty (60) days following the Board's vote on the application or appeal. Please include the case number when calling about the decision.

Please be advised that any action taken in reliance of the Board's decision prior to the filing of the written decision and the expiration of any applicable appeal period is taken at the Property Owner's Risk.

The undersigned acknowledges that that he or she has read the application completely and that if the appellant / applicant is unable to convince the Board that the standards for granting relief have been met, the appeal / application will be denied.

Signature of Owner/Agent/Attorney

Date: 5/1/26

For office use only:

Date Submitted: _____ Fee: Check #: _____

Staff accepting application: _____ Application & Case #: _____

Location of property: _____

Subdivision: _____ Lot#: _____ Block#: _____

Date of Hearing: _____ Decision of Board: _____

1. Uniqueness of the property:

- That there are unique physical circumstances or conditions, including irregularity, narrowness, or shallowness of lot size or shape, or exceptional topographical or other physical conditions peculiar to the particular property and that the exceptional practical difficulty is due to such conditions and not to the circumstances or conditions generally created by the provisions of the Zoning Ordinance or Code in the neighborhood or district in which the property is located.

- 1-11- The uniquely narrow dimensions of this lot create a challenge placing the manufactured home and maintaining minimum separation between homes and accessory structures. This lot was laid out with others in the community in the 1950's and 1960's prior to the current county requirements for separation distances. The lots sizes are small in comparison with the size of the modern manufactured home. I have selected a standard size floorplan for this home that is comparable to other new homes in the community, but I am still unable to place the lot with the required setbacks. The narrow width of the lot and the previous build out of the surrounding adjacent lots makes it difficult to place a new manufactured home on the property consistent with others in the neighborhood while maintaining compliance with Sussex County's current Zoning Code. Particularly, the neighbor to both the left and right have their homes and sheds placed within the 5' setback required.

2. Cannot otherwise be developed:

- That because of such physical circumstances or conditions, there is no possibility that the property can be developed in strict conformity with the provisions of the Zoning Ordinance or Code and that the authorization of a variance us therefore necessary to enable the reasonable use of the property.

- 1-11: Due to the uniqueness of the property, the property cannot be developed in strict conformity with the Sussex County Zoning Code. I propose to place a normal width sized manufactured home that is consistent with other new homes in the community and a standard size shed that is consistent with other new homes in the community but am unable to do so without violating the separation distance requirements between neighboring manufactured homes and accessory structures (ie, sheds). The variances are necessary to enable reasonable use of the property; without said variance, the property cannot be developed.

3. Not created by the applicant:

- That such exceptional practical difficulty has not been created by the appellant.

- 1-11: The exceptional practical difficulty was not created by the applicant. The property is quite narrow, which greatly limits the buildable area thereof. The neighboring lots are also narrow, causing development of nearby lots to be nearer to lot lines/neighboring homes. It appears impossible for a home to be placed on the property without violating the separation distance requirements. As noted previously, both homes on either side of the lot encroach on the set backs, which directly impacts the need for variance. The exceptional practical difficulty was created by the unique conditions of the property and the development of adjacent lots.

4. Will not alter the essential character of the neighborhood:

- That the variance, if authorized, will not alter the essential character of the neighborhood or district in which the property is located and nor substantially or permanently impair the appropriate use of development of adjacent property, nor be detrimental to the public welfare.

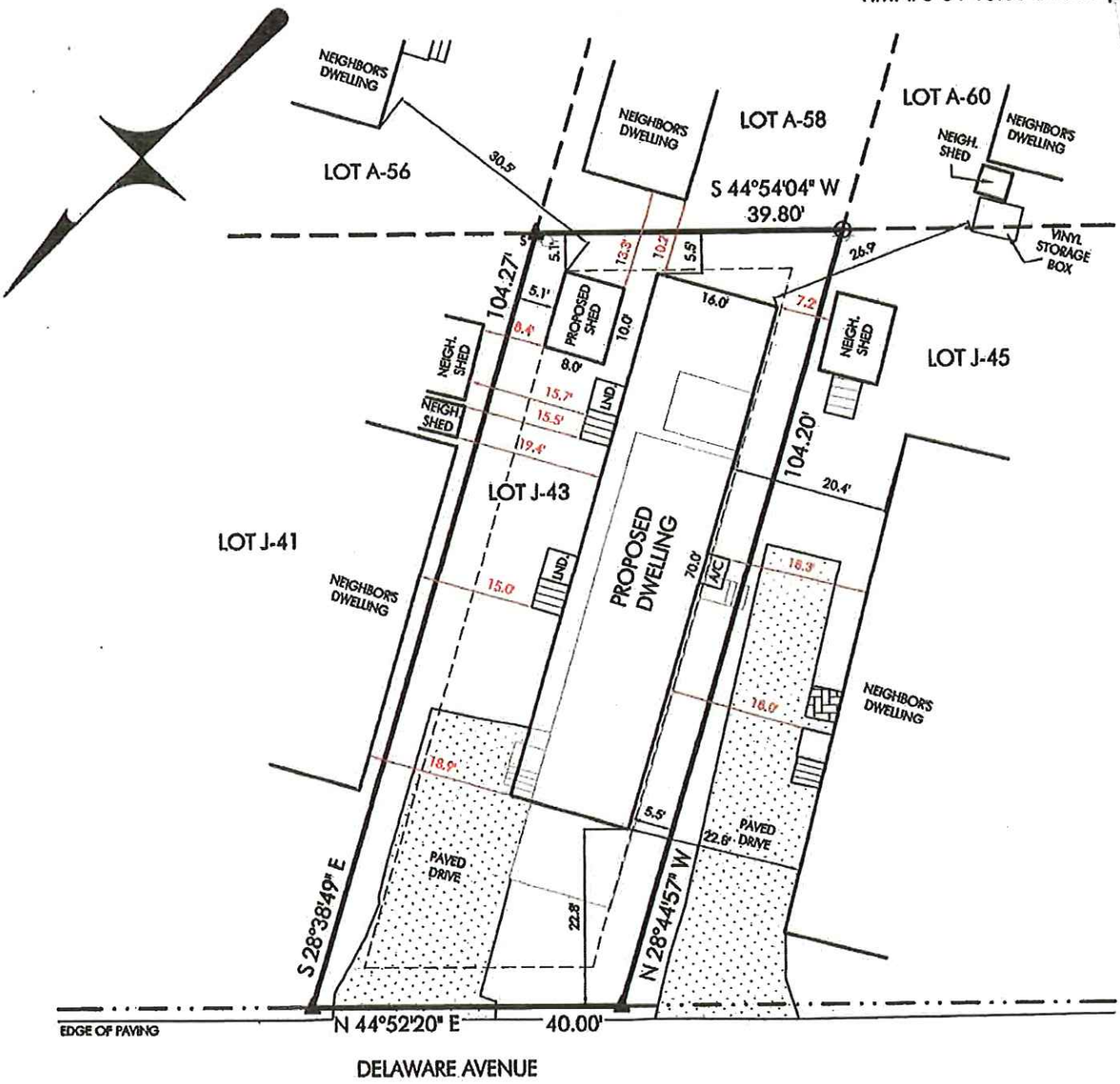
- 1-11: The variances will not alter the essential character of the neighborhood nor substantially or permanently impair the appropriate use or development of adjacent property, nor be detrimental to the public welfare thereof. I am seeking this variance to add to the conformity to the community & to modernize the homes within the community which will subsequently add value and improve the characteristics of the community/neighborhood.

5. Minimum Variance:

- That the variance, if authorized, will represent the minimum variance that will afford relief and will represent the least modification possible of the regulation in issue.

- 1-10: The variances sought are the minimum variances necessary to afford relief, and the variances requested represent the least modifications possible of the regulations at issue. The home is the narrowest currently available and minimizes the need for variance on the property.

T.M. #3-34-13.00-310.00 (54465)



PROPOSED CONDITIONS
LOCATION PLAN FOR

20017 DELAWARE AVENUE

TOTAL AREA: 3,990 SQ. FT., 0.0916 ACRES
LOT J-43 OF "SEA AIR VILLAGE" PARK
LEWES & REHOBOTH HUNDRED SUSSEX COUNTY
STATE OF DELAWARE
JULY 2, 2025 SCALE: 1" = 20'

LEGEND:

- ▲ IRON ROD (FOUND)
- $▲ IRON ROD (SET)
- ⊙ POINT

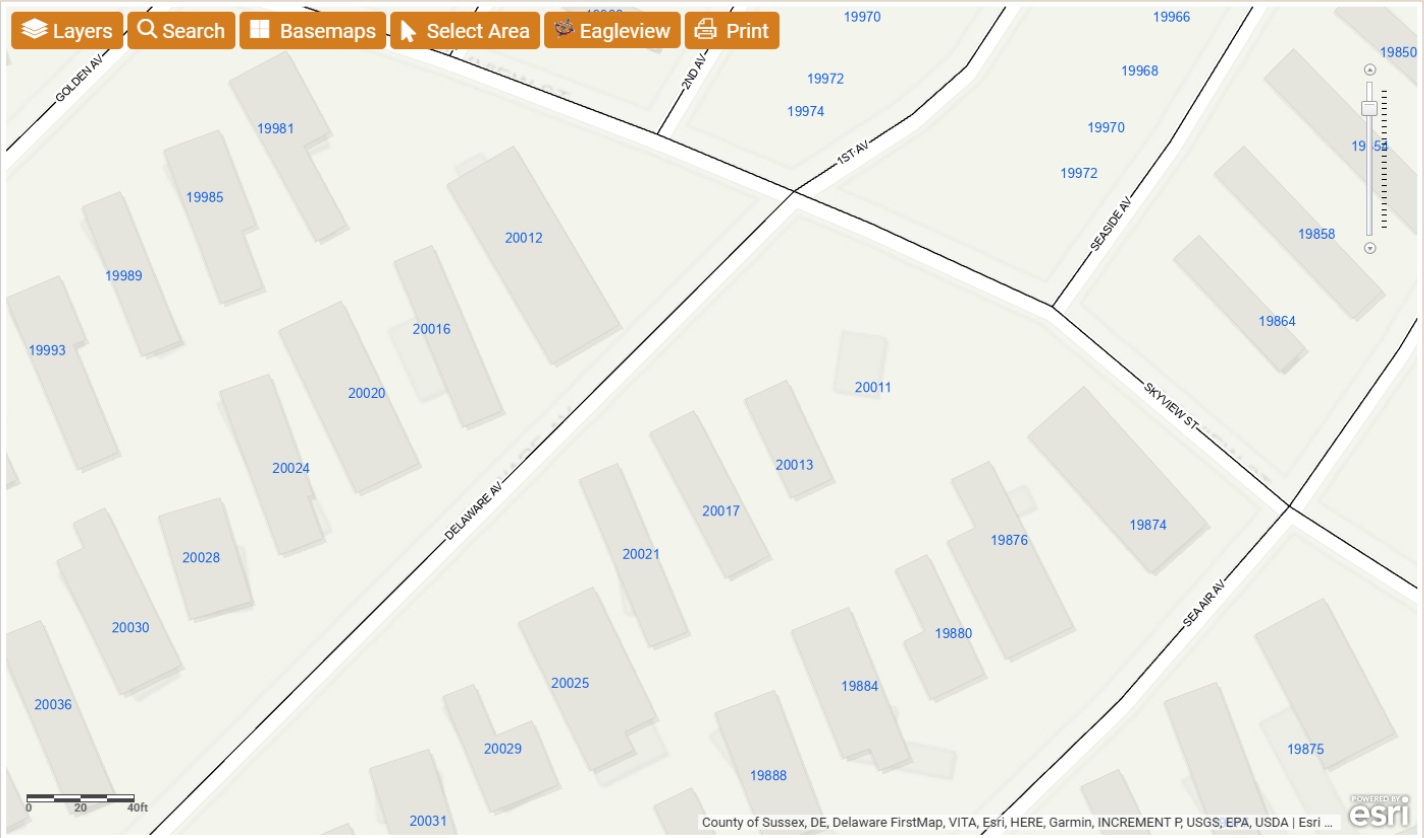
NOTES:
ALL SETBACKS MUST BE VERIFIED BY THE HOME OWNER AND/OR GENERAL CONTRACTOR.
THIS DRAWING DOES NOT VERIFY THE EXISTENCE OR NON-EXISTENCE OF WETLANDS, UTILITIES, RIGHT-OF-WAYS OR EASEMENTS IN REFERENCE TO OR LOCATED ON THIS PROPERTY.
NO TITLE SEARCH PROVIDED OR STIPULATED.

Prepared by:
FORESIGHT Services
Surveying & Precision Measurement
302 226 2229 phone 302 226 2239 fax 2103A Coastal Highway Dewey Beach, DE 19971

SUSSEX COUNTY
DELAWARE

Help

Layers | Search | Basemaps | Select Area | Eagleview | Print



Eagleview | Search Results

Selected Features: Parcels (388)

- 306) 334-13.00-310.00-54235 Zoom
- 307) 334-13.00-310.00-54290 Zoom
- 308) 334-13.00-310.00-54350 Zoom
- 309) 334-13.00-310.00-54374 Zoom
- **310) 334-13.00-310.00-54465 Zoom**

BOOK	0
PAGE	0
FULLNAME	BESSINGER CRAIG
Second_Owner_Name	
MAILINGADDRESS	267 CARTER RD
CITY	FRENCH CREEK
STATE	WV
a_account	10-10-310-J43
DESCRIPTION	SEA AIR
DESCRIPTION2	IMP ON LOT J43
DESCRIPTION3	
LUC	104
SCHOOL	6
MUNI	00
CAP	0

Selected Features (306 - 310 of 388)

Clear Selected

SUSSEX COUNTY
DELAWARE

Help



Eagleview | Search Results

Selected Features: Parcels (388)

- 306) 334-13.00-310.00-54235 Zoom
- 307) 334-13.00-310.00-54290 Zoom
- 308) 334-13.00-310.00-54350 Zoom
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BOOK	0
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FULLNAME	BESSINGER CRAIG
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DESCRIPTION2	IMP ON LOT J43
DESCRIPTION3	
LUC	104
SCHOOL	6
MUNI	00
CAP	0

Selected Features (306 - 310 of 388)

Clear Selected


CONNECTEXPLORER
Search
Search by SUSSEXPARCELS
334-13.00-310.00
Search results (1)
Options
334-13.00-310.00
Workspaces
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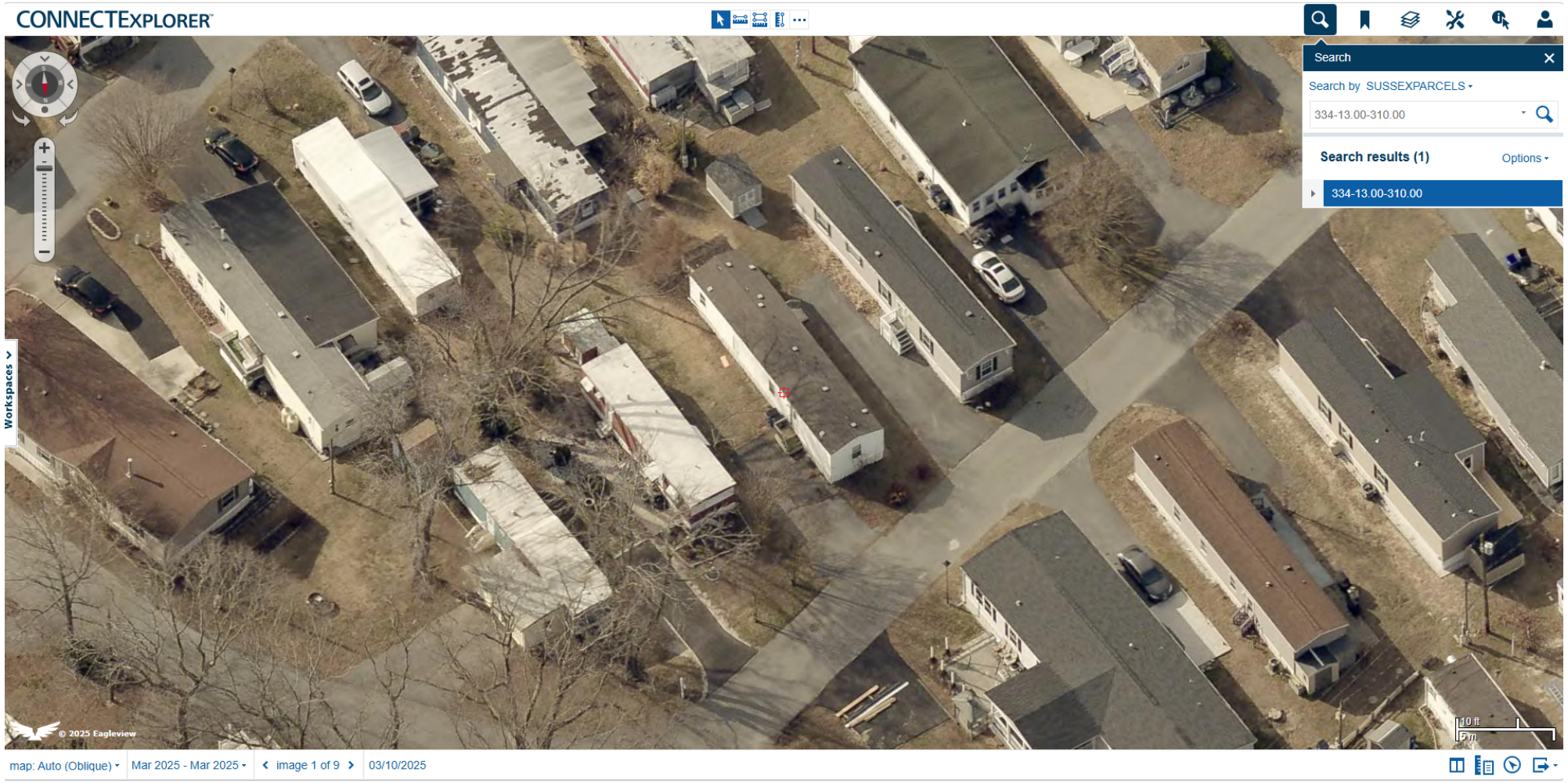
Mar 2025 - Mar 2025
image 1 of 12
03/10/2025


CONNECTEXPLORER
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Search by SUSSEXPARCELS
334-13.00-310.00
Search results (1)
Options
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Workspaces
© 2025 Eagleview
10 ft
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map: Auto (Oblique)
Mar 2025 - Mar 2025
image 1 of 9
03/10/2025

Criteria for a Variance: (Please provide a written statement regarding each criteria).

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See Attached

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See Attached

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Check List for Applications

The following shall be submitted with the application

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Signature of Owner/Agent/Attorney

Date: 5/1/26

For office use only:

Date Submitted: _____ Fee: Check #: _____

Staff accepting application: _____ Application & Case #: _____

Location of property: _____

Subdivision: _____ Lot#: _____ Block#: _____

Date of Hearing: _____ Decision of Board: _____

1. Uniqueness of the property:

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Private

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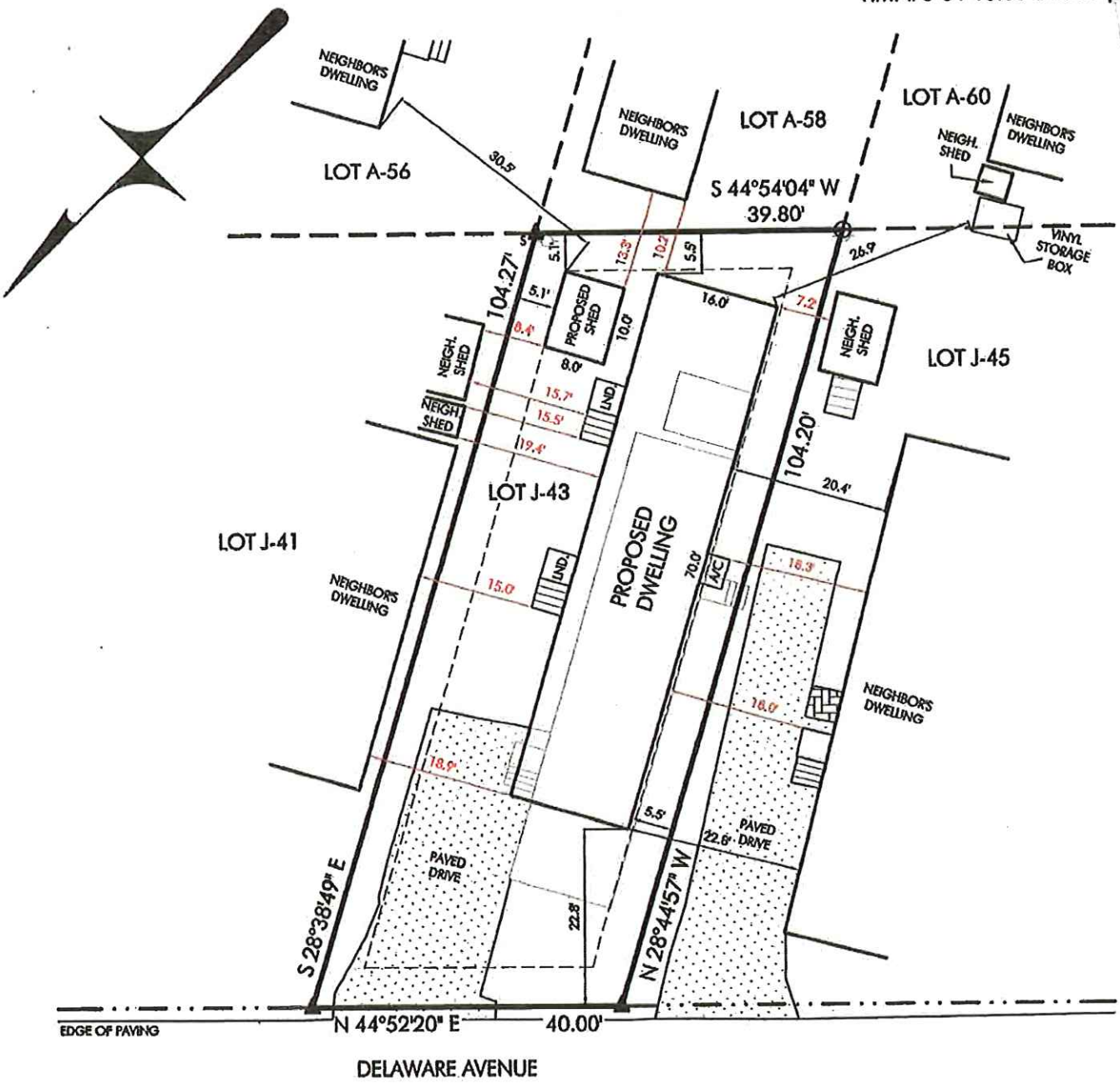

LEGEND:

- ▲ IRON ROD (FOUND)
- $▲ IRON ROD (SET)
- ⊙ POINT

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TOTAL AREA: 3,990 SQ. FT., 0.0916 ACRES
LOT J-43 OF "SEA AIR VILLAGE" PARK
LEWES & REHOBOTH HUNDRED SUSSEX COUNTY
STATE OF DELAWARE
JULY 2, 2025 SCALE: 1" = 20'

Prepared by:
FORESIGHT Services
Surveying & Precision Measurement
302 226 2229 phone 302 226 2239 fax 2103A Coastal Highway Dewey Beach, DE 19971

SUSSEX COUNTY
DELAWARE

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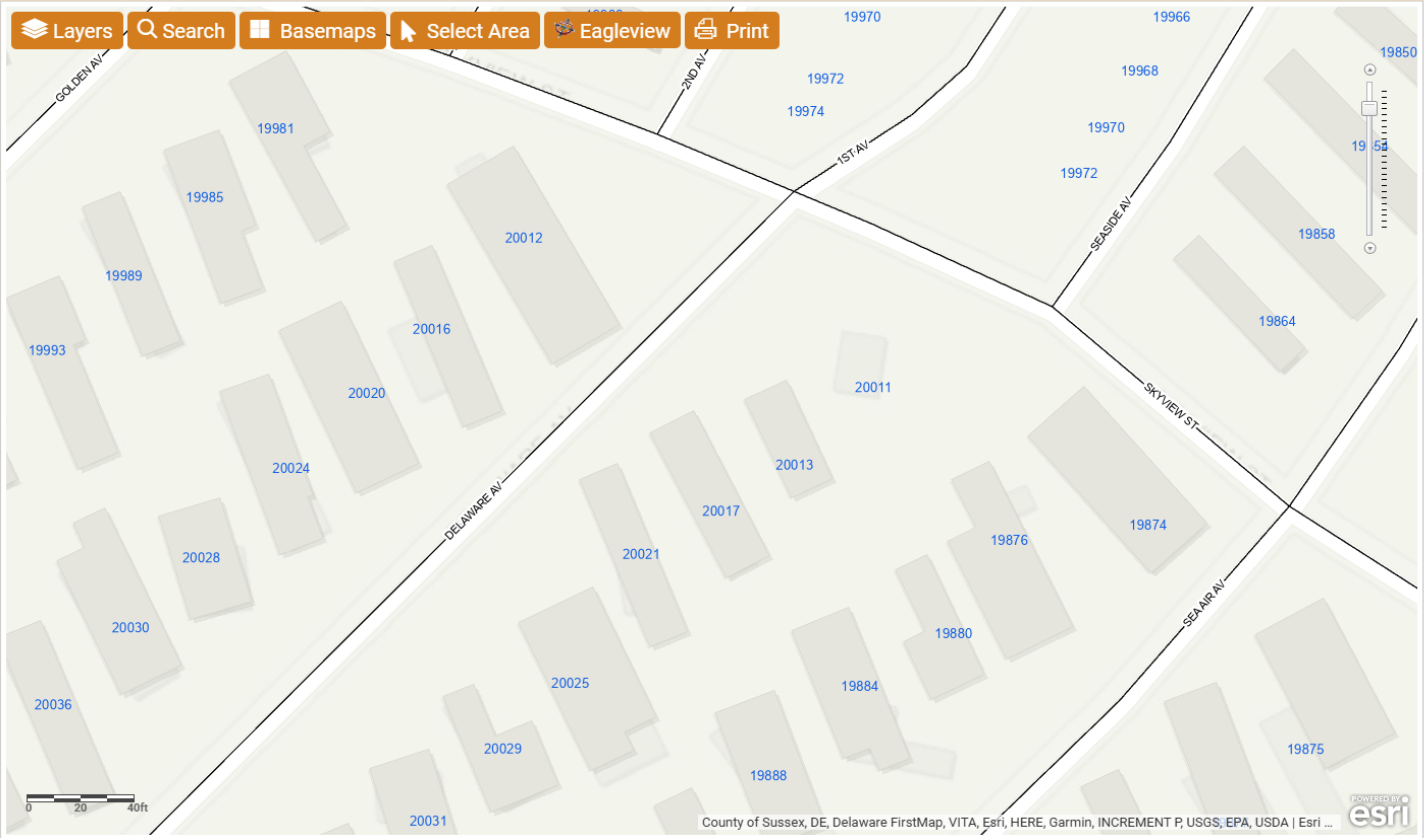
Layers | Search | Basemaps | Select Area | Eagleview | Print



Eagleview | Search Results

Selected Features: Parcels (388)

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- 307) 334-13.00-310.00-54290 Zoom
- 308) 334-13.00-310.00-54350 Zoom
- 309) 334-13.00-310.00-54374 Zoom
- **310) 334-13.00-310.00-54465 Zoom**

BOOK	0
PAGE	0
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Second_Owner_Name	
MAILINGADDRESS	267 CARTER RD
CITY	FRENCH CREEK
STATE	WV
a_account	10-10-310-J43
DESCRIPTION	SEA AIR
DESCRIPTION2	IMP ON LOT J43
DESCRIPTION3	
LUC	104
SCHOOL	6
MUNI	00
CAP	0

Selected Features (306 - 310 of 388)

Clear Selected

SUSSEX COUNTY
DELAWARE

Help



Eagleview | Search Results

Selected Features: Parcels (388)

- 306) 334-13.00-310.00-54235 Zoom
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Selected Features (306 - 310 of 388)

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CONNECTEXPLORER
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Search results (1)
Options
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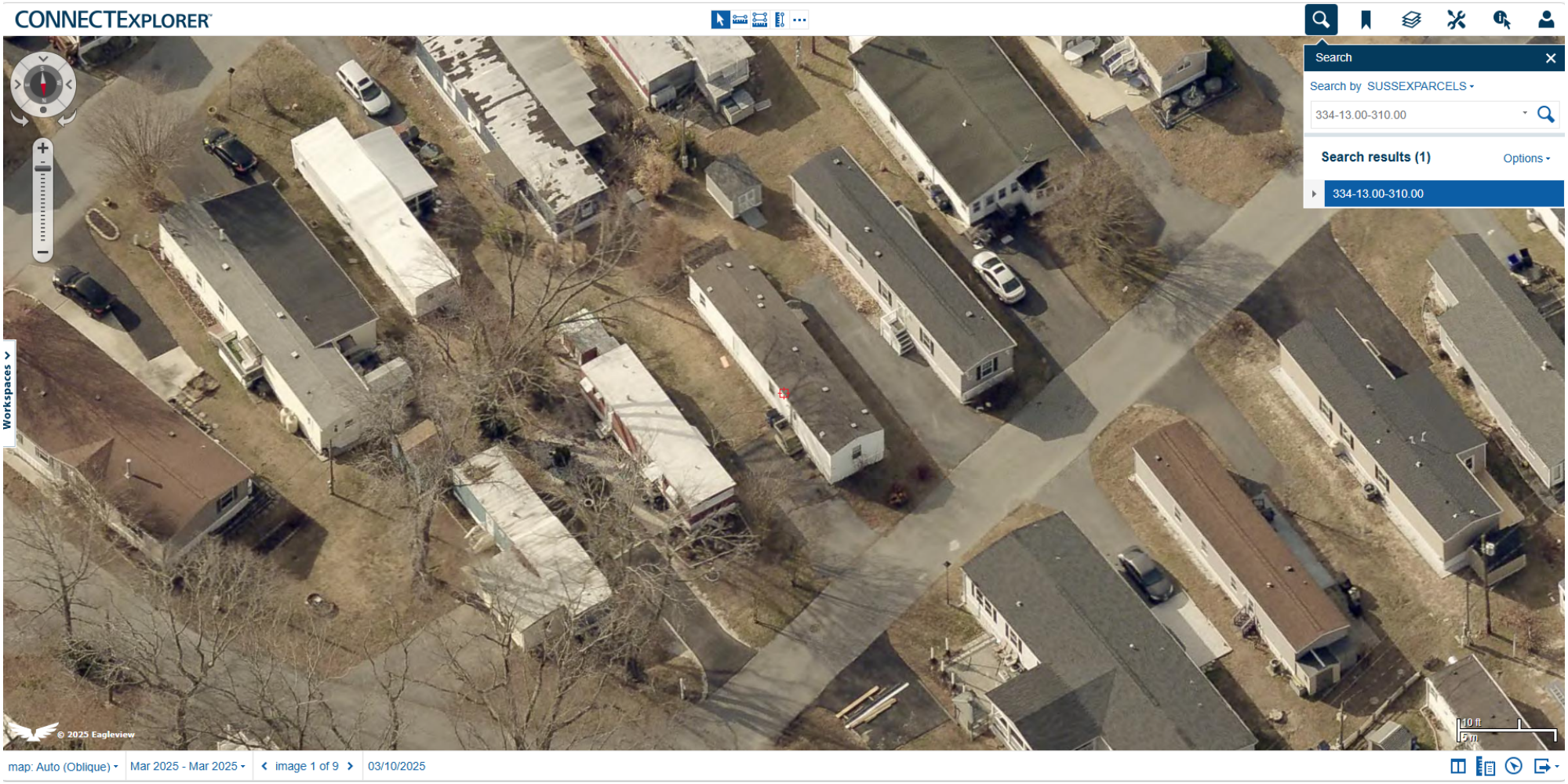
Mar 2025 - Mar 2025
image 1 of 12
03/10/2025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334-13.00-310.00
Search results (1)
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334-13.00-310.00
Workspaces
© 2025 Eagleview
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5 m
map: Auto (Oblique)
Mar 2025 - Mar 2025
image 1 of 9
03/10/2025

BEFORE THE BOARD OF ADJUSTMENT OF SUSSEX COUNTY

IN RE: SUN HOMES

(Case No. 12134)

A hearing was held after due notice on May 7, 2018. The Board members present were: Mr. Dale Callaway, Mr. Bruce Mears, Ms. Ellen Magee, Mr. John Mills, and Mr. Brent Workman.

Nature of the Proceedings

This is an application for Variances from the separation distance between units (home to home) (Section 115-172 of the Sussex County Zoning Ordinance).

Findings of Fact

The Board found that the Applicant is seeking a variance of 4.9 feet from the twenty (20) feet separation distance requirement from the existing manufactured home on Lot #47 for a proposed manufactured home on Lot #45, a variance of 8.9 feet from the twenty (20) feet separation distance requirement from the existing manufactured home on Lot #47 for a proposed set of steps on Lot #45, and a variance of 4.0 feet from the twenty (20) feet separation distance requirement from the existing manufactured home on Lot #47 for a proposed HVAC system on Lot #45. The Property is located in a manufactured home park on a parcel of land zoned AR-1 Agricultural Residential. The property is identified as Sussex County Tax Map and Parcel Number 3-34-13.00-310.00 - 3425, with a 911 address of 20021 Delaware Avenue, Rehoboth Beach, Delaware.

After the hearing, the Board made the following finding of fact:

1. The Board was given copies of the Application, a survey of the lot, a copy of the Sea Air Village plot, photographs of the lot, construction details of the proposed home, and photographs of similar homes, and a portion of the tax map of the area.
2. Jennifer Walls, of Sussex County, described the case and stated that the Office of Planning and Zoning has not received any correspondence concerning the Application.
3. The Board found that Rick Shipley was sworn in and testified that he is seeking a variance from the separation distance between homes in a manufactured home park.
4. The Board found that Rick Shipley testified that he is seeking a variance of 3.4 feet from the 20 foot separation distance between homes in a manufactured home park.
5. The Board found that Rick Shipley testified that he is the manager of Sea Air Villages.
6. The Board found that Rick Shipley testified that when Sea Air Village was originally plotted, 12 foot wide homes were available and the lots in the park were laid out in anticipation of the placement of smaller, 12 foot wide homes on the lots.
7. The Board found that Rick Shipley testified that there previously was a 12 foot wide home built 1967 on the property. That home has been removed due to its age and condition
8. The Board found that Rick Shipley testified that the manufactured home building industry no longer builds homes that are 12 feet wide.
9. The Board found that Rick Shipley testified that 14 feet is the smallest home that is currently constructed.
10. The Board found that with a 14 foot wide home, a separation distance variance is needed for the steps and HVAC unit for the new home.
11. The Board found that Rick Shipley testified that with the 14 foot wide homes, separation distances are often required, as is the case here.
12. The Board found that Rick Shipley testified that the operator of Sea Air Villages will not permit a deck or further encroachments to be installed on the lot.
13. The Board found that Rick Shipley testified that the need for the variance and the exceptional practical difficulty was not created by the Applicants.
14. The Board found that Rick Shipley testified that the variances will not alter the character of the neighborhood.
15. The Board found that Rick Shipley testified that the variances are the minimum necessary to afford relief.
16. The Board found that Rick Shipley testified that the existing development and use of the property cannot occur without the separation variance.
17. The Board found that no parties appeared in support of or in opposition to the Application.
18. Based on the findings above and the testimony and evidence presented during the Public Hearing and contained in the Public Record, the Board determined that the Variances from

the separation distance between structures in a manufactured home community should be granted. The findings below further support the Board's decision to grant the Variance Application:

a. The proposed variances are necessary because current manufactured homes are no longer built with a width of 12 feet; the industry standard is a minimum of 14 feet. Sea Air Village lots now require variances due to the changes in the construction of manufactured homes. Sea Air Village was laid out in 1939.
b. The Applicant did not create the unique characteristics of lot.
c. Due to the uniqueness of this situation and the Property, the Property cannot be developed in strict conformity with the Sussex Zoning Code. New homes are now wider than when Sea Air Village was developed in 1939, and, as a result, homes cannot be placed in strict conformity with the separation distances in the Sussex Zoning Code if the requested variances are not granted.
d. The variances are necessary to enable the reasonable use of the Property and will allow new manufactured homes to replace older ones within Sea Air Village.
e. The exceptional practical difficulty was not created by the Applicant. The variances are necessary due to the age of Sea Air Village (1939) and the current minimum width of manufactured homes (14 feet).
f. The variances are the minimum necessary to afford relief and they represent the least modifications possible of the regulations at issue.
g. The variances will not alter the essential character of the neighborhood.

Based on the foregoing, the Board approved the variances from the separation distance between manufactured homes requirement pursuant to Section 115-172 of the Sussex County Zoning Code.

Decision of the Board

Upon motion duly made and seconded, the variances from the separation distance between manufactured homes requirement pursuant to Section 115-172 of the Sussex County Zoning Code were approved. The Board Members in favor of the approval were Mr. Dale Callaway, Mr. Bruce Mears, Ms. Ellen Magee, Mr. John Mills and Mr. Brent Workman.

BOARD OF ADJUSTMENT
OF SUSSEX COUNTY

Dale Callaway
Chairman

If the use is not established within two (2) years from the date below the application becomes void.

Date July 10, 2018.

Case # 13203
Hearing Date 06-15-2026
2026055G9

Board of Adjustment Application
Sussex County, Delaware

Sussex County Planning & Zoning Department
2 The Circle (P.O. Box 417) Georgetown, DE 19947
302-855-7878 ph. 302-854-5079 fax

Type of Application: (please check all applicable)

Variance ☑
Special Use Exception ☐
Administrative Variance ☐
Appeal ☐

Existing Condition ☐
Proposed ☐
Code Reference (office use only)

Site Address of Variance/Special Use Exception:
19989 Golden Ave (L49), Rehoboth Beach, DE 19971

Variance/Special Use Exception/Appeal Requested:

On the right side of the proposed home where the 1) proposed AC is 18.2' from the neighboring home on lot L51. At the rear of the proposed home where the separation is (2) 12.3' from the neighboring shed on lot L51, (3) 16.2' from the neighboring shed #2 on Lot K50, (4) 9.1' from the neighboring shed #1 on lot K50, and (5) 16.6' from neighboring home on K50. Where the proposed shed is (6) 12.8' from Shed #1 on Lot K50 and (7) 7.9' from the neighboring home on lot L47. Where the proposed stairs are (8) 15.3' and (9) 15.2' from neighboring home on lot L47. Where the proposed home is (10) 19.2' from the neighboring home on lot L47.

Tax Map #: 334-13.00-310.00-545 \8 **Property Zoning:** AR-2

Applicant Information

Applicant Name: Sea Air Village
Applicant Address: 19837 Sea Air Ave
City Rehoboth Beach State DE Zip: 19971
Applicant Phone #: (302) 227-8118 Applicant e-mail: abennett2@suncommunities.com

Owner Information

Owner Name: Sea Breeze LP DBA Sea Air Village
Owner Address: 19837 Sea Air Ave
City Rehoboth Beach State DE Zip: 19971 Purchase Date:
Owner Phone #: (302) 227-8118 Owner e-mail: abennett2@suncommunities.com

Agent/Attorney Information

Agent/Attorney Name: Aimee Bennett (Agent)
Agent/Attorney Address: 19837 Sea Air Ave
City Rehoboth Beach State DE Zip: 19971
Agent/Attorney Phone #: (302) 227-8118 Agent/Attorney e-mail: abennett2@suncommunities.com

Signature of Owner/Agent/Attorney

Aimee Bennett

Date: 5/1/26

Criteria for a Variance: (Please provide a written statement regarding each criteria).

*You shall demonstrate to the Board of Adjustment that the property meets **all** of the following criteria for a Variance to be granted.*

In granting any variance the Board may attach such reasonable conditions and safeguards as it may deem necessary to implement the purposes of the Zoning Ordinance or Code. The Board is empowered in no case, however, to grant a variance in the use of land or structures thereon.

1. Uniqueness of property:

That there are unique physical circumstances or conditions, including irregularity, narrowness, or shallowness of lot size or shape, or exceptional topographical or other physical conditions peculiar to the particular property and that the exceptional practical difficulty is due to such conditions and not to circumstances or conditions generally created by the provisions of the Zoning Ordinance or Code in the neighborhood or district in which the property is located.

See Attached

2. Cannot otherwise be developed:

That because of such physical circumstances or conditions, there is no possibility that the property can be developed in strict conformity with the provisions of the Zoning Ordinance or Code and that the authorization of a variance is therefore necessary to enable the reasonable use of the property.

See Attached

3. Not created by the applicant:

That such exceptional practical difficulty has not been created by the appellant.

See Attached

4. Will not alter the essential character of the neighborhood:

That the variance, if authorized, will not alter the essential character of the neighborhood or district in which the property is located and nor substantially or permanently impair the appropriate use of development of adjacent property, nor be detrimental to the public welfare.

See Attached

5. Minimum variance:

That the variance, if authorized, will represent the minimum variance that will afford relief and will represent the least modification possible of the regulation in issue.

See Attached

Criteria for a Special Use Exception: (Please provide a written statement regarding each criteria)

*You shall demonstrate to the Board of Adjustment that the property meets **all** of the following criteria for a Special Use Exception to be granted.*

1. Such exception will not substantially affect adversely the uses of adjacent and neighboring property.

n/a

---

2. Any other requirements which apply to a specific type of special use exception as required by the Sussex County Code. (Ex. Time limitations – 5 year maximum)

n/a

Basis for Appeal: (Please provide a written statement regarding reason for appeal)

n/a

Check List for Applications

The following shall be submitted with the application

- [x] • **Completed Application**
- [x] • **Provide a survey of the property** (Variance)
  - Survey shall show the location of building(s), building setbacks, stairs, deck, etc.
  - Survey shall show distances from property lines to buildings, stairs, deck, etc.
  - Survey shall be signed and sealed by a Licensed Surveyor.
- [x] • **Provide a Site Plan or survey of the property** (Special Use Exception)
- [x] • **Provide relevant Application Fee (please refer to fees effective July 1, 2022)**
- [x] • **Provide written response to criteria for Variance or Special Use Exception** (may be on a separate document if not enough room on the form)
- [ ] • **Copy of Receipt (staff)**
- [ ] • **Optional - Additional information for the Board to consider** (ex. photos, letters from neighbors, etc.)
- [x] • **Please be aware that Public Notice will be sent to property owners within 200 feet of the subject site and County staff will come out to the subject site, take photos and place a sign on the site stating the date and time of the Public Hearing for the application.**

Please be advised that the decision of the Board of Adjustment is only final when the written decision is filed with the Board's secretary. To determine whether the written decision has been filed, you may call the Planning & Zoning Department at 302-855-7878. The written decision is generally completed within thirty (30) to sixty (60) days following the Board's vote on the application or appeal. Please include the case number when calling about the decision.

Please be advised that any action taken in reliance of the Board's decision prior to the filing of the written decision and the expiration of any applicable appeal period is taken at the Property Owner's Risk.

The undersigned acknowledges that that he or she has read the application completely and that if the appellant / applicant is unable to convince the Board that the standards for granting relief have been met, the appeal / application will be denied.

Signature of Owner/Agent/Attorney

Date: 5/1/26

For office use only:

Date Submitted: _____ Fee: Check #: _____

Staff accepting application: _____ Application & Case #: _____

Location of property: _____

_____

Subdivision: _____ Lot#: _____ Block#: _____

Date of Hearing: _____ Decision of Board: _____

1. Uniqueness of the property:

- That there are unique physical circumstances or conditions, including irregularity, narrowness, or shallowness of lot size or shape, or exceptional topographical or other physical conditions peculiar to the particular property and that the exceptional practical difficulty is due to such conditions and not to the circumstances or conditions generally created by the provisions of the Zoning Ordinance or Code in the neighborhood or district in which the property is located.

- 1-10- The uniquely narrow dimensions of this lot create a challenge placing the manufactured home and maintaining minimum separation between homes and accessory structures. This lot was laid out with others in the community in the 1950's and 1960's prior to the current county requirements for separation distances. The lots sizes are small in comparison with the size of the modern manufactured home. I have selected a standard size floorplan for this home that is comparable to other new homes in the community, but I am still unable to place the lot with the required setbacks. The narrow width of the lot and the previous build out of the surrounding adjacent lots makes it difficult to place a new manufactured home on the property consistent with others in the neighborhood while maintaining compliance with Sussex County's current Zoning Code. Particularly, the neighbor to the left has their home and sheds placed within the 5' setback required.

2. Cannot otherwise be developed:

- That because of such physical circumstances or conditions, there is no possibility that the property can be developed in strict conformity with the provisions of the Zoning Ordinance or Code and that the authorization of a variance us therefore necessary to enable the reasonable use of the property.

- 1-10: Due to the uniqueness of the property, the property cannot be developed in strict conformity with the Sussex County Zoning Code. I propose to place a normal width sized manufactured home that is consistent with other new homes in the community and a standard size shed that is consistent with other new homes in the community but am unable to do so without violating the separation distance requirements between neighboring manufactured homes and accessory structures (ie, sheds). The variances are necessary to enable reasonable use of the property; without said variance, the property cannot be developed.

3. Not created by the applicant:

- That such exceptional practical difficulty has not been created by the appellant.

- 1-10: The exceptional practical difficulty was not created by the applicant. The property is quite narrow, which greatly limits the buildable area thereof. The neighboring lots are also narrow, causing development of nearby lots to be nearer to lot lines/neighboring homes. It appears impossible for a home to be placed on the property without violating the separation distance requirements. As noted previously, the new "replacement home" will correct some of the previous separation distance issues, yet a variance is still needed for placement. Also, the home to the left encroaches the setback which impacts the need directly for a variance. The

exceptional practical difficulty was created by the unique conditions of the property and the development of adjacent lots.

4. Will not alter the essential character of the neighborhood:

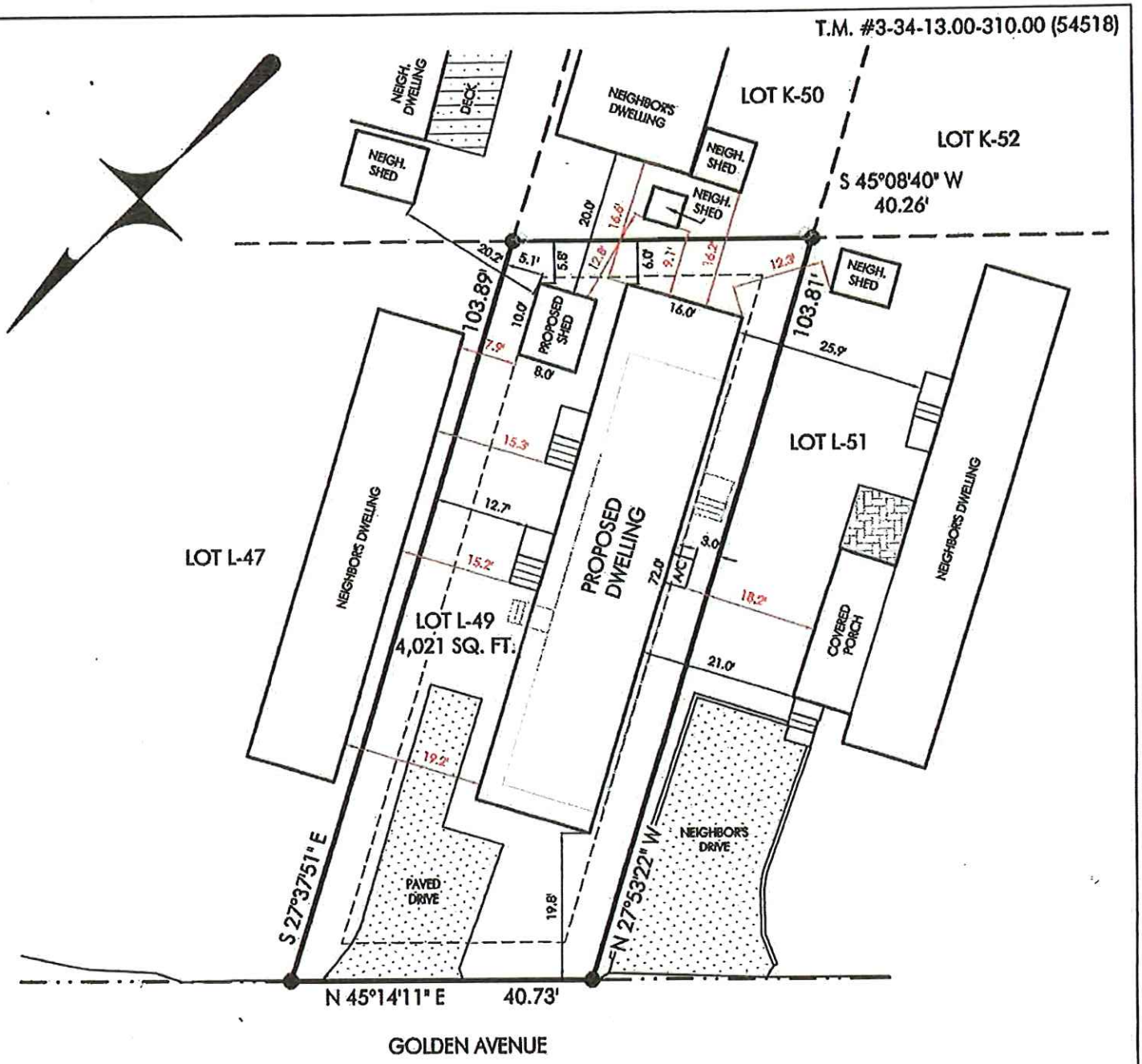
- That the variance, if authorized, will not alter the essential character of the neighborhood or district in which the property is located and nor substantially or permanently impair the appropriate use of development of adjacent property, nor be detrimental to the public welfare.

- 1-10: The variances will not alter the essential character of the neighborhood nor substantially or permanently impair the appropriate use or development of adjacent property, nor be detrimental to the public welfare thereof. I am seeking this variance to add to the conformity to the community & to modernize the homes within the community which will subsequently add value and improve the characteristics of the community/neighborhood.

5. Minimum Variance:

- That the variance, if authorized, will represent the minimum variance that will afford relief and will represent the least modification possible of the regulation in issue.

- 1-10: The variances sought are the minimum variances necessary to afford relief and the variances requested represent the least modifications possible of the regulations at issue. The home is the narrowest currently available and minimizes the need for variance on the property.



LEGEND:

● IRON PIPE (FOUND)

UTILITY POLE

NOTES:

ALL SETBACKS MUST BE VERIFIED BY THE OWNER, GENERAL CONTRACTOR AND/OR THE DESIGNER. PLEASE CONTACT SUSSEX COUNTY (302-855-7720) AND THE PARK MANAGER.

THIS DRAWING DOES NOT VERIFY THE EXISTENCE OR NON-EXISTENCE OF WETLANDS, UTILITIES, RIGHT-OF-WAYS OR EASEMENTS IN REFERENCE TO OR LOCATED ON THIS PROPERTY.

NO TITLE SEARCH PROVIDED OR STIPULATED.

SURVEY CLASS: SUBURBAN

PROPOSED CONDITIONS LOCATION PLAN FOR

19989 GOLDEN AVENUE

LOT L-49 OF "SEA AIR VILLAGE" PARK

LEWES & REHOBOTH HUNDRED SUSSEX COUNTY

STATE OF DELAWARE

JULY 1, 2025 SCALE: 1" = 20'

Prepared by:

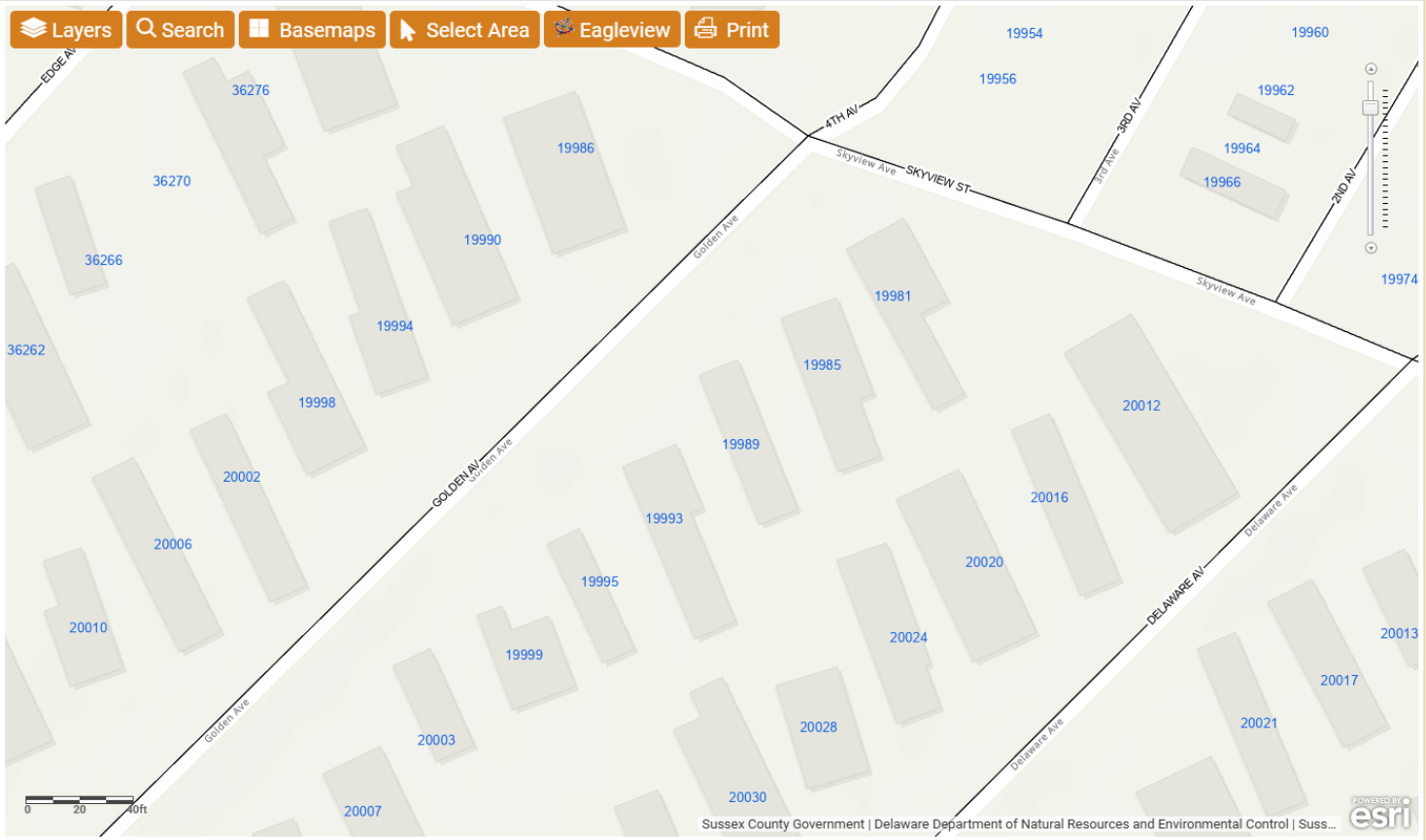
FORESIGHT Services

Surveying & Precision Measurement

302 226 2229 phone 302 226 2239 fax 2103A Coastal Highway Dewey Beach, DE 19971

SUSSEX COUNTY
DELAWARE

Help



Eagleview | Search Results

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- **312) 334-13.00-310.00-54518 Zoom**

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MAILINGADDRESS	267 CARTER RD
CITY	FRENCH CREEK
STATE	WV
a_account	10-10-310-L49
DESCRIPTION	SEA AIR
DESCRIPTION2	IMP ON LOT L49
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APRLAND	0

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- 314) 334-13.00-310.00-54578 Zoom
- 315) 334-13.00-310.00-54582 Zoom

Selected Features (311 - 315 of 388)

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SUSSEX COUNTY
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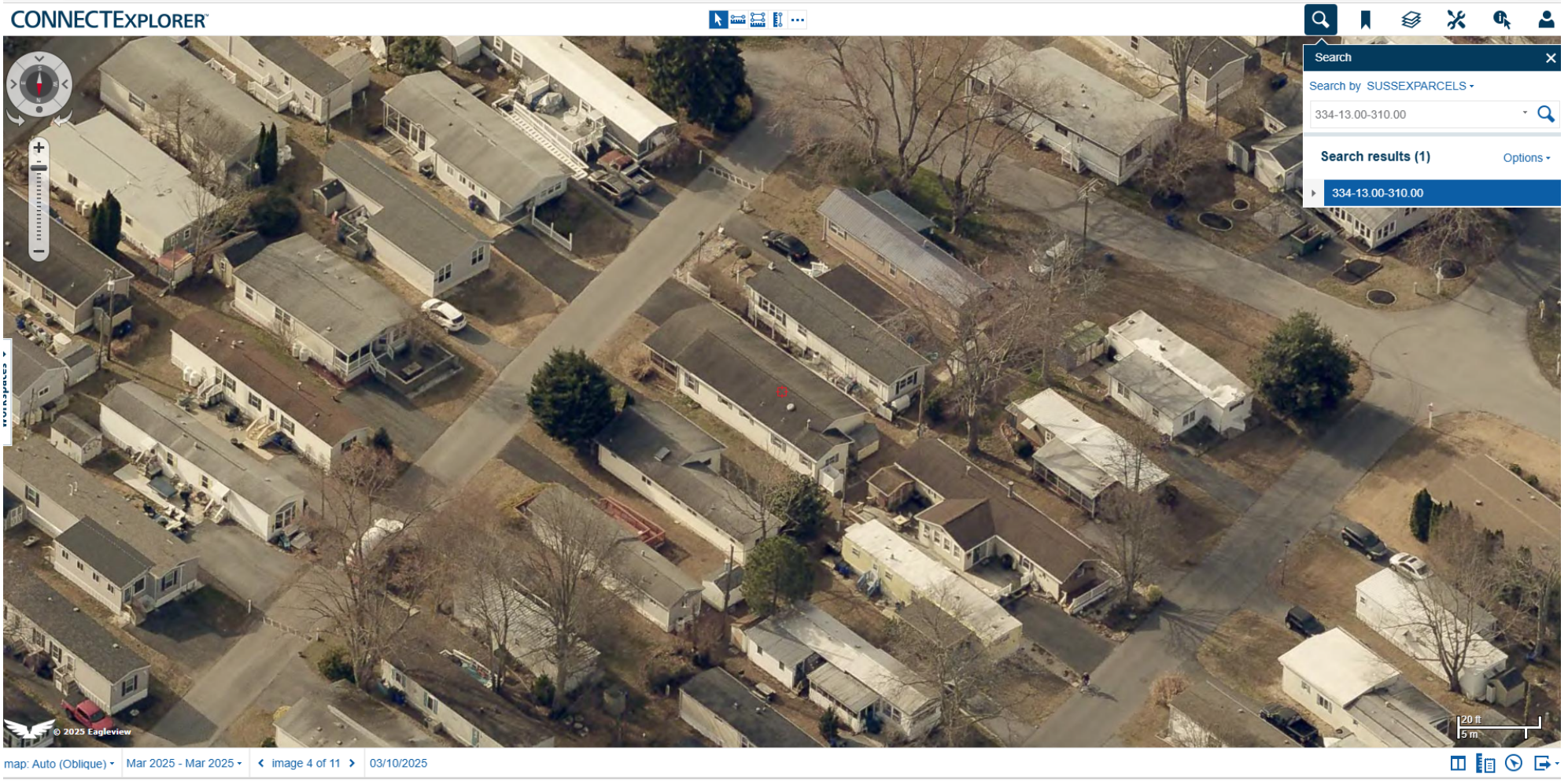
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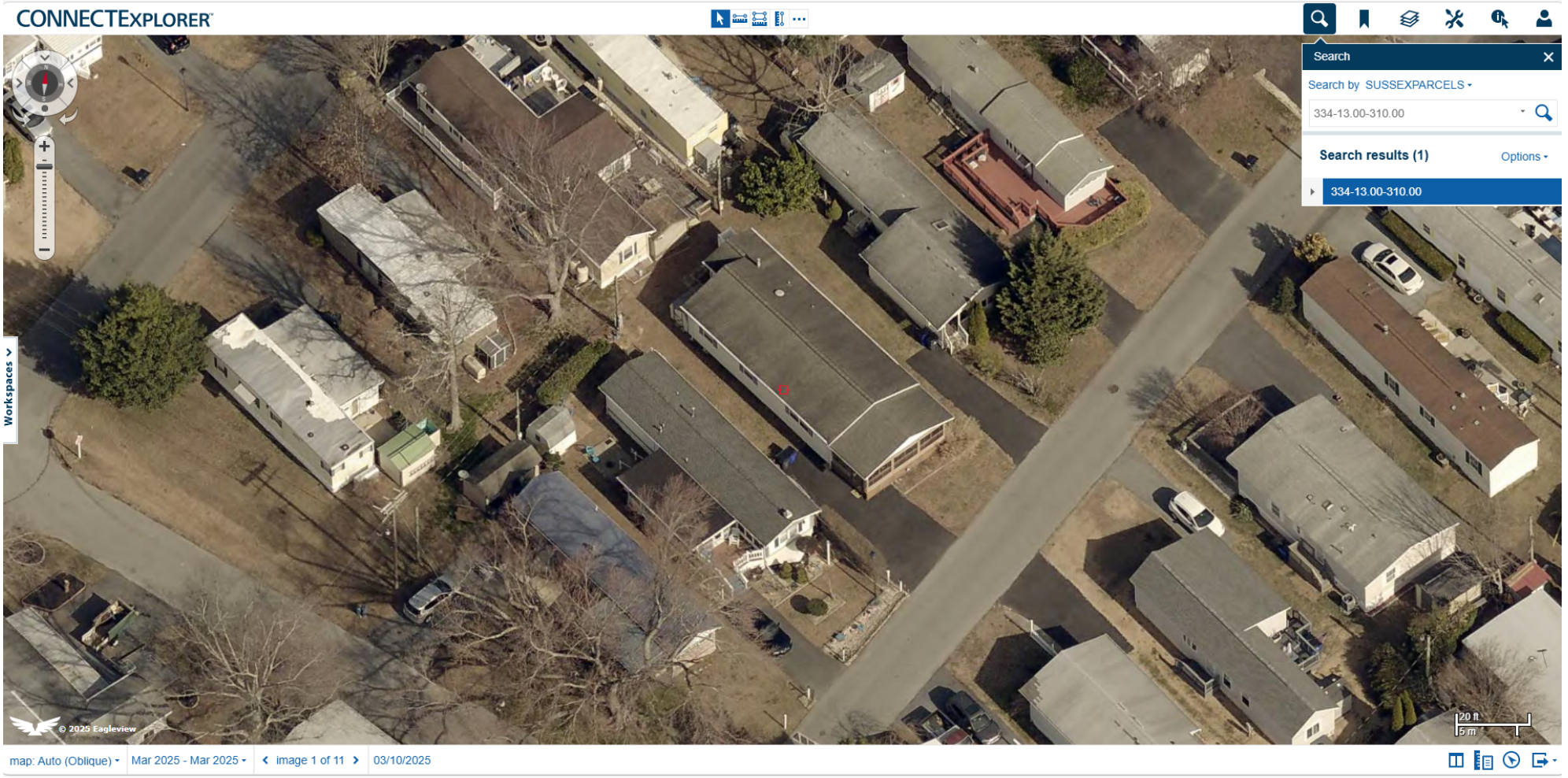
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Workspaces
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20 ft
5 m
map: Auto (Oblique)
Mar 2025 - Mar 2025
image 1 of 11
03/10/2025

Criteria for a Variance: (Please provide a written statement regarding each criteria).

*You shall demonstrate to the Board of Adjustment that the property meets **all** of the following criteria for a Variance to be granted.*

In granting any variance the Board may attach such reasonable conditions and safeguards as it may deem necessary to implement the purposes of the Zoning Ordinance or Code. The Board is empowered in no case, however, to grant a variance in the use of land or structures thereon.

1. Uniqueness of property:

That there are unique physical circumstances or conditions, including irregularity, narrowness, or shallowness of lot size or shape, or exceptional topographical or other physical conditions peculiar to the particular property and that the exceptional practical difficulty is due to such conditions and not to circumstances or conditions generally created by the provisions of the Zoning Ordinance or Code in the neighborhood or district in which the property is located.

See Attached

2. Cannot otherwise be developed:

That because of such physical circumstances or conditions, there is no possibility that the property can be developed in strict conformity with the provisions of the Zoning Ordinance or Code and that the authorization of a variance is therefore necessary to enable the reasonable use of the property.

See Attached

3. Not created by the applicant:

That such exceptional practical difficulty has not been created by the appellant.

See Attached

4. Will not alter the essential character of the neighborhood:

That the variance, if authorized, will not alter the essential character of the neighborhood or district in which the property is located and nor substantially or permanently impair the appropriate use of development of adjacent property, nor be detrimental to the public welfare.

See Attached

5. Minimum variance:

That the variance, if authorized, will represent the minimum variance that will afford relief and will represent the least modification possible of the regulation in issue.

See Attached

Criteria for a Special Use Exception: (Please provide a written statement regarding each criteria)

*You shall demonstrate to the Board of Adjustment that the property meets **all** of the following criteria for a Special Use Exception to be granted.*

1. Such exception will not substantially affect adversely the uses of adjacent and neighboring property.

n/a

---

2. Any other requirements which apply to a specific type of special use exception as required by the Sussex County Code. (Ex. Time limitations – 5 year maximum)

n/a

Basis for Appeal: (Please provide a written statement regarding reason for appeal)

n/a

Check List for Applications

The following shall be submitted with the application

- [x] • **Completed Application**
- [x] • **Provide a survey of the property** (Variance)
  - Survey shall show the location of building(s), building setbacks, stairs, deck, etc.
  - Survey shall show distances from property lines to buildings, stairs, deck, etc.
  - Survey shall be signed and sealed by a Licensed Surveyor.
- [x] • **Provide a Site Plan or survey of the property** (Special Use Exception)
- [x] • **Provide relevant Application Fee (please refer to fees effective July 1, 2022)**
- [x] • **Provide written response to criteria for Variance or Special Use Exception** (may be on a separate document if not enough room on the form)
- [ ] • **Copy of Receipt (staff)**
- [ ] • **Optional - Additional information for the Board to consider** (ex. photos, letters from neighbors, etc.)
- [x] • **Please be aware that Public Notice will be sent to property owners within 200 feet of the subject site and County staff will come out to the subject site, take photos and place a sign on the site stating the date and time of the Public Hearing for the application.**

Please be advised that the decision of the Board of Adjustment is only final when the written decision is filed with the Board's secretary. To determine whether the written decision has been filed, you may call the Planning & Zoning Department at 302-855-7878. The written decision is generally completed within thirty (30) to sixty (60) days following the Board's vote on the application or appeal. Please include the case number when calling about the decision.

Please be advised that any action taken in reliance of the Board's decision prior to the filing of the written decision and the expiration of any applicable appeal period is taken at the Property Owner's Risk.

The undersigned acknowledges that that he or she has read the application completely and that if the appellant / applicant is unable to convince the Board that the standards for granting relief have been met, the appeal / application will be denied.

Signature of Owner/Agent/Attorney

Signature _____ Date: 5/1/26

For office use only:

Date Submitted: _____ Fee: Check #: _____

Staff accepting application: _____ Application & Case #: _____

Location of property: _____

_____

Subdivision: _____ Lot#: _____ Block#: _____

Date of Hearing: _____ Decision of Board: _____

1. Uniqueness of the property:

- That there are unique physical circumstances or conditions, including irregularity, narrowness, or shallowness of lot size or shape, or exceptional topographical or other physical conditions peculiar to the particular property and that the exceptional practical difficulty is due to such conditions and not to the circumstances or conditions generally created by the provisions of the Zoning Ordinance or Code in the neighborhood or district in which the property is located.

- 1-10- The uniquely narrow dimensions of this lot create a challenge placing the manufactured home and maintaining minimum separation between homes and accessory structures. This lot was laid out with others in the community in the 1950's and 1960's prior to the current county requirements for separation distances. The lots sizes are small in comparison with the size of the modern manufactured home. I have selected a standard size floorplan for this home that is comparable to other new homes in the community, but I am still unable to place the lot with the required setbacks. The narrow width of the lot and the previous build out of the surrounding adjacent lots makes it difficult to place a new manufactured home on the property consistent with others in the neighborhood while maintaining compliance with Sussex County's current Zoning Code. Particularly, the neighbor to the left has their home and sheds placed within the 5' setback required.

2. Cannot otherwise be developed:

- That because of such physical circumstances or conditions, there is no possibility that the property can be developed in strict conformity with the provisions of the Zoning Ordinance or Code and that the authorization of a variance us therefore necessary to enable the reasonable use of the property.

- 1-10: Due to the uniqueness of the property, the property cannot be developed in strict conformity with the Sussex County Zoning Code. I propose to place a normal width sized manufactured home that is consistent with other new homes in the community and a standard size shed that is consistent with other new homes in the community but am unable to do so without violating the separation distance requirements between neighboring manufactured homes and accessory structures (ie, sheds). The variances are necessary to enable reasonable use of the property; without said variance, the property cannot be developed.

3. Not created by the applicant:

- That such exceptional practical difficulty has not been created by the appellant.

- 1-10: The exceptional practical difficulty was not created by the applicant. The property is quite narrow, which greatly limits the buildable area thereof. The neighboring lots are also narrow, causing development of nearby lots to be nearer to lot lines/neighboring homes. It appears impossible for a home to be placed on the property without violating the separation distance requirements. As noted previously, the new "replacement home" will correct some of the previous separation distance issues, yet a variance is still needed for placement. Also, the home to the left encroaches the setback which impacts the need directly for a variance. The

exceptional practical difficulty was created by the unique conditions of the property and the development of adjacent lots.

4. Will not alter the essential character of the neighborhood:

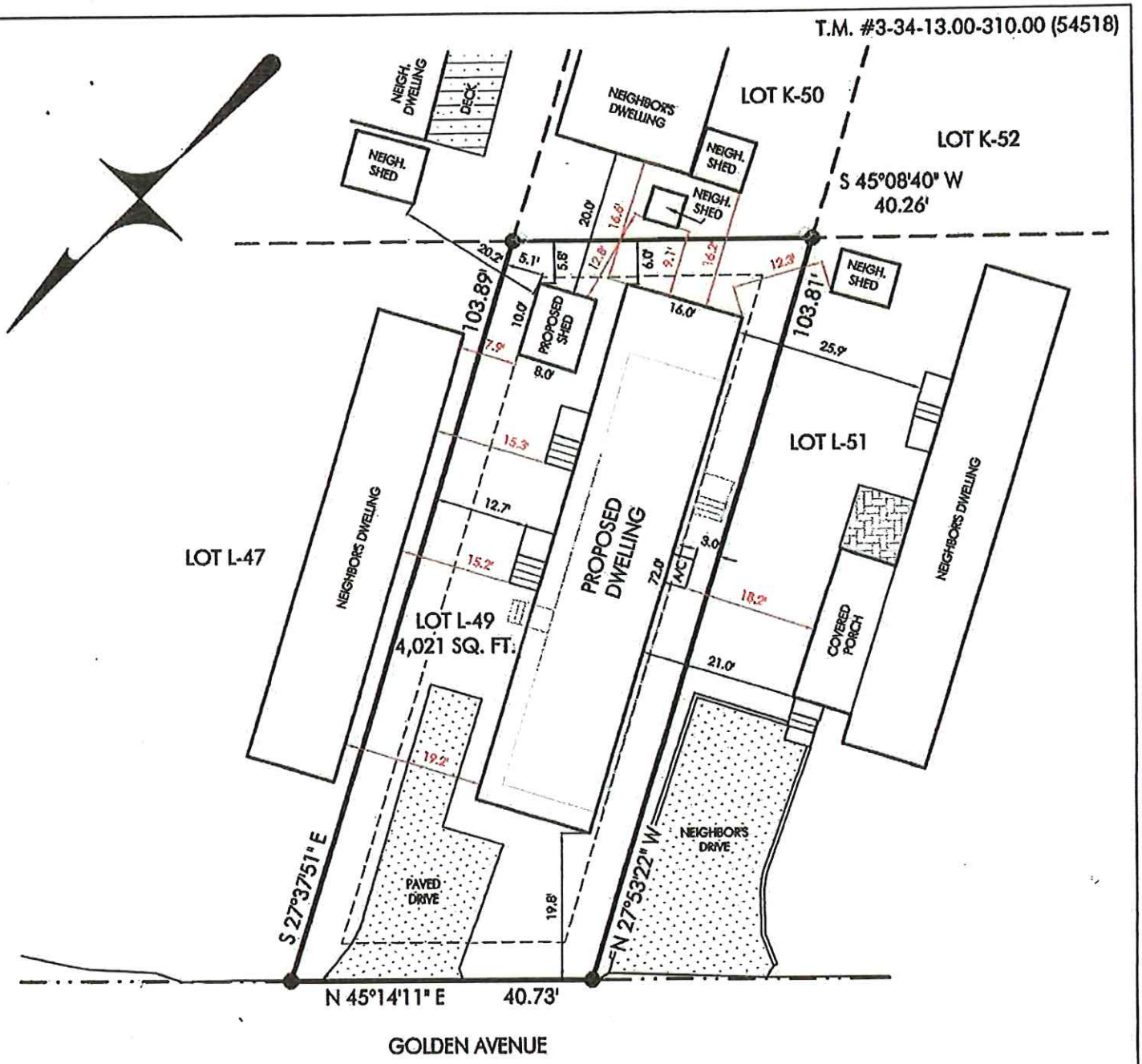
- That the variance, if authorized, will not alter the essential character of the neighborhood or district in which the property is located and nor substantially or permanently impair the appropriate use of development of adjacent property, nor be detrimental to the public welfare.

- 1-10: The variances will not alter the essential character of the neighborhood nor substantially or permanently impair the appropriate use or development of adjacent property, nor be detrimental to the public welfare thereof. I am seeking this variance to add to the conformity to the community & to modernize the homes within the community which will subsequently add value and improve the characteristics of the community/neighborhood.

5. Minimum Variance:

- That the variance, if authorized, will represent the minimum variance that will afford relief and will represent the least modification possible of the regulation in issue.

- 1-10: The variances sought are the minimum variances necessary to afford relief and the variances requested represent the least modifications possible of the regulations at issue. The home is the narrowest currently available and minimizes the need for variance on the property.



LEGEND:

● IRON PIPE (FOUND)

UTILITY POLE

NOTES:

ALL SETBACKS MUST BE VERIFIED BY THE OWNER, GENERAL CONTRACTOR AND/OR THE DESIGNER. PLEASE CONTACT SUSSEX COUNTY (302-855-7720) AND THE PARK MANAGER.

THIS DRAWING DOES NOT VERIFY THE EXISTENCE OR NON-EXISTENCE OF WETLANDS, UTILITIES, RIGHT-OF-WAYS OR EASEMENTS IN REFERENCE TO OR LOCATED ON THIS PROPERTY.

NO TITLE SEARCH PROVIDED OR STIPULATED.

SURVEY CLASS: SUBURBAN

PROPOSED CONDITIONS LOCATION PLAN FOR

19989 GOLDEN AVENUE

LOT L-49 OF "SEA AIR VILLAGE" PARK

LEWES & REHOBOTH HUNDRED SUSSEX COUNTY

STATE OF DELAWARE

JULY 1, 2025 SCALE: 1" = 20'

Prepared by:

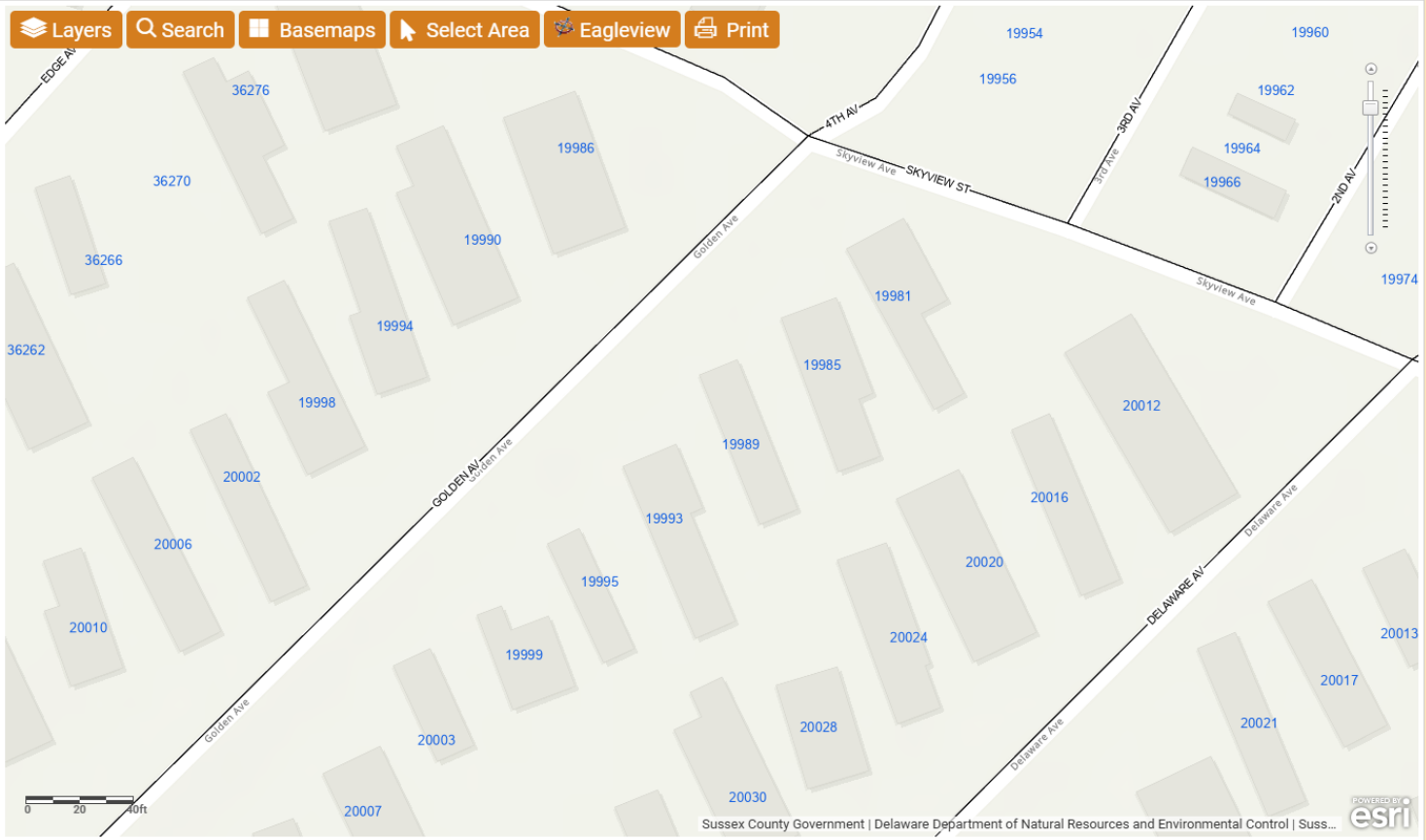
FORESIGHT Services

Surveying & Precision Measurement

302 226 2229 phone 302 226 2239 fax 2103A Coastal Highway Dewey Beach, DE 19971

SUSSEX COUNTY
DELAWARE

Help



Eagleview | Search Results

Selected Features: Parcels (388)

311) 334-13.00-310.00-54517 Zoom

312) 334-13.00-310.00-54518 Zoom

BOOK	0
PAGE	0
FULLNAME	BESSINGER CRAIG
MAILINGADDRESS	267 CARTER RD
CITY	FRENCH CREEK
STATE	WV
a_account	10-10-310-L49
DESCRIPTION	SEA AIR
DESCRIPTION2	IMP ON LOT L49
LUC	104
SCHOOL	6
MUNI	00
CAP	0
APRBLDG	69700
APRLAND	0

313) 334-13.00-310.00-54536 Zoom
314) 334-13.00-310.00-54578 Zoom
315) 334-13.00-310.00-54582 Zoom

Selected Features (311 - 315 of 388)

Clear Selected

SUSSEX COUNTY
DELAWARE

Help



Eagleview | Search Results

Selected Features: Parcels (388)

311) 334-13.00-310.00-54517 Zoom

312) 334-13.00-310.00-54518 Zoom

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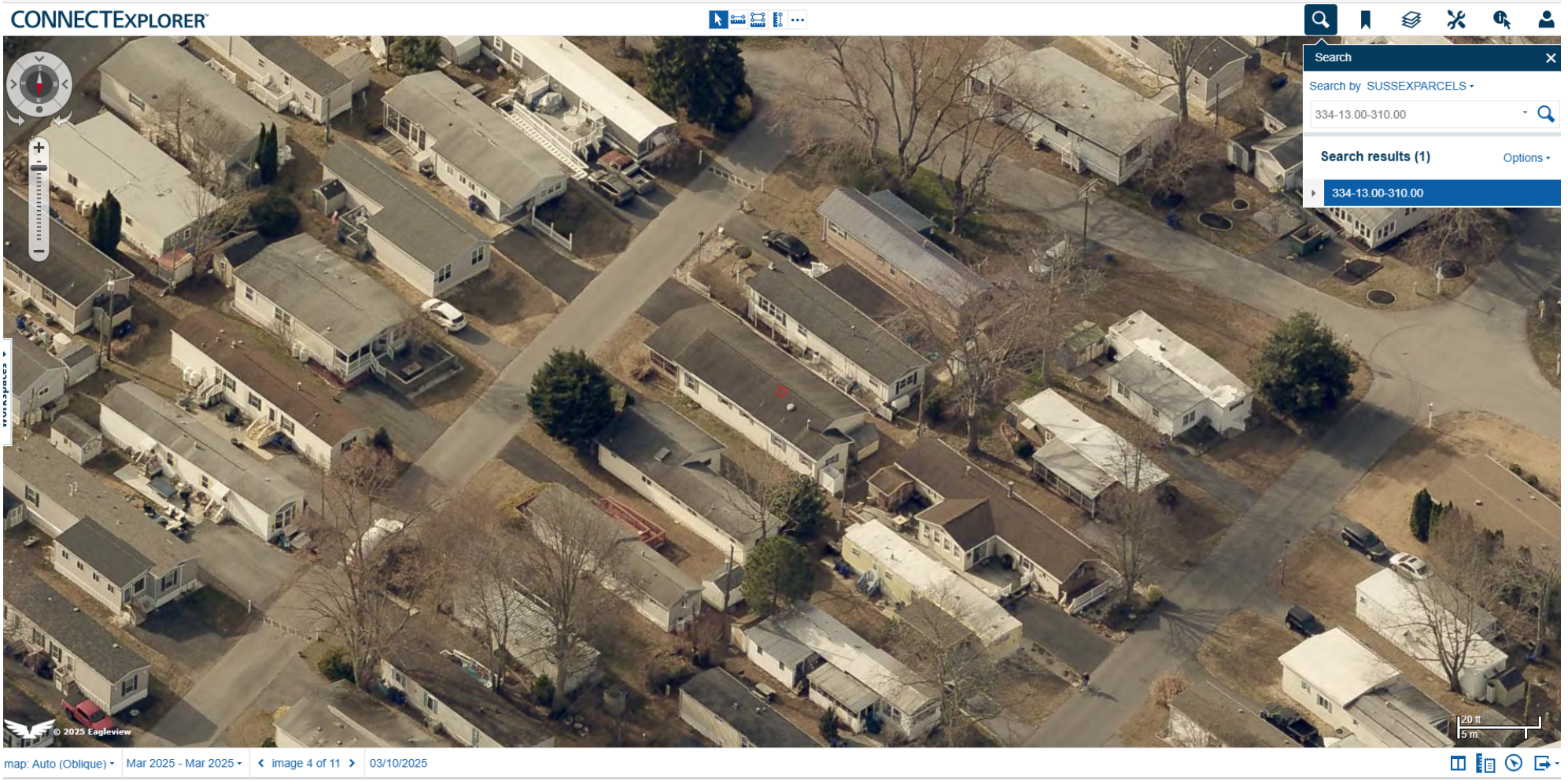
Selected Features (311 - 315 of 388)

Clear Selected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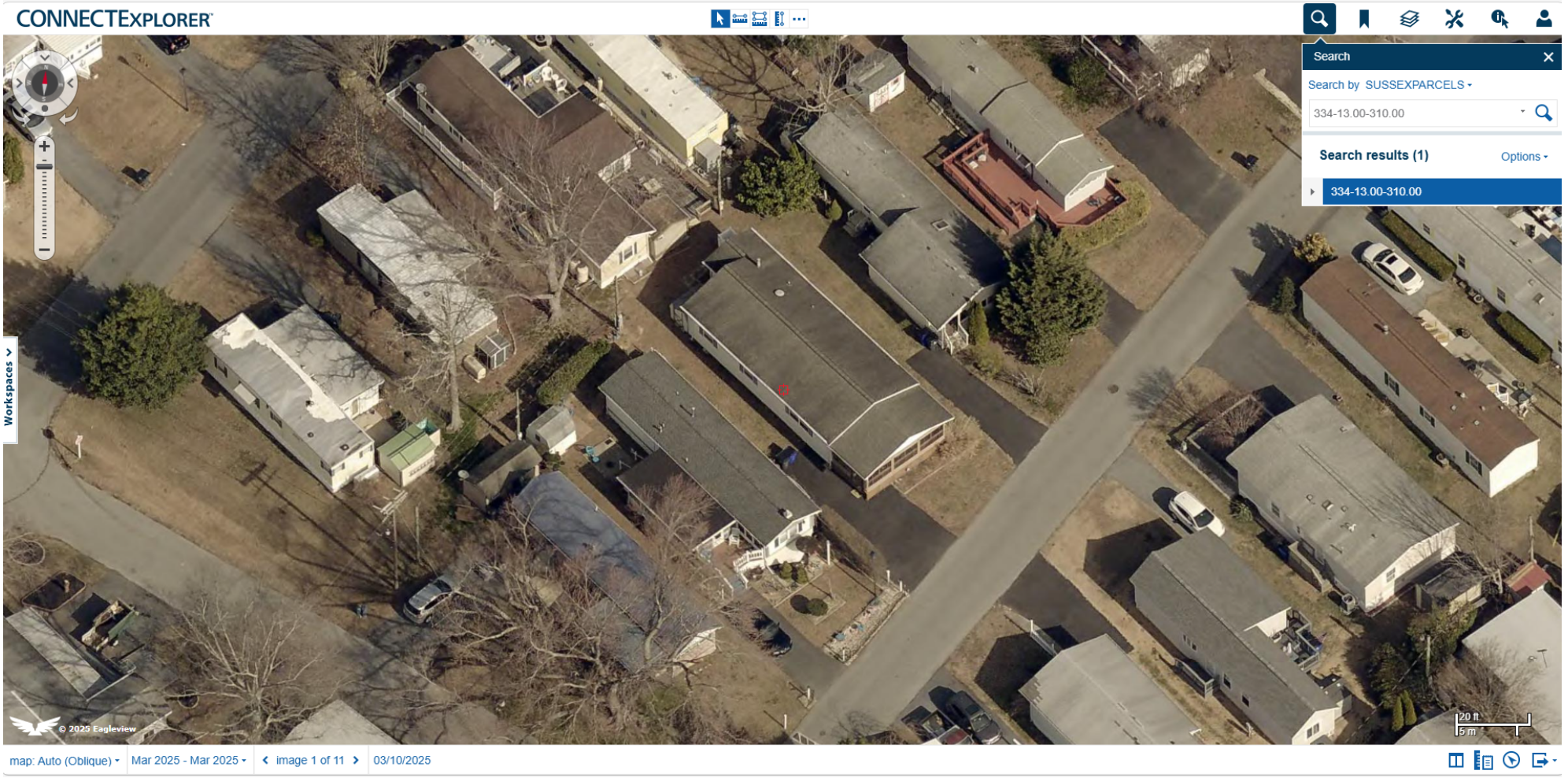
Mar 2025 - Mar 2025
image 4 of 11
03/10/2025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Workspaces
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Mar 2025 - Mar 2025
image 1 of 11
03/10/2025

Case # 13205
Hearing Date 06-15-2026
2026050633

Board of Adjustment Application
Sussex County, Delaware

Sussex County Planning & Zoning Department
2 The Circle (P.O. Box 417) Georgetown, DE 19947
302-855-7878 ph. 302-854-5079 fax

Type of Application: (please check all applicable)

Variance ☐
Special Use Exception ☑
Administrative Variance ☐
Appeal ☐

Existing Condition ☐
Proposed ☐
Code Reference (office use only)

Site Address of Variance/Special Use Exception:
22518 Lewes Georgetown Highway, Georgetown De, 19947

Variance/Special Use Exception/Appeal Requested:
To have Halloween Haunted House events on the weekends in the month of October, as well as Christmas events a couple weekends in the month of December. Hours of operation would be 7:00 pm - 11:00 pm, with no tickets sold past 10:00 pm. I would like for a 5 year approval period

Tax Map #: 1-35-15.00-82-00 **Property Zoning:** CR-1 / AR-1

Applicant Information

Applicant Name: Brock Rogers
Applicant Address: 23266 Neptune Rd
City Milton State De Zip: 19968
Applicant Phone #: 3023442138 Applicant e-mail: DadBodCreations@gmail.com

Owner Information

Owner Name: Softball World LLC
Owner Address: 22518 Lewes Georgetown Hwy
City Georgetown State De Zip: 19947 Purchase Date:
Owner Phone #: Owner e-mail:

Agent/Attorney Information

Agent/Attorney Name:
Agent/Attorney Address:
City State Zip:
Agent/Attorney Phone #: Agent/Attorney e-mail:

Signature of Owner/Agent/Attorney

Date: 5.5.2026

Criteria for a Variance: (Please provide a written statement regarding each criteria).

You shall demonstrate to the Board of Adjustment that the property meets all of the following criteria for a Variance to be granted.

In granting any variance the Board may attach such reasonable conditions and safeguards as it may deem necessary to implement the purposes of the Zoning Ordinance or Code. The Board is empowered in no case, however, to grant a variance in the use of land or structures thereon.

1. Uniqueness of property:

That there are unique physical circumstances or conditions, including irregularity, narrowness, or shallowness of lot size or shape, or exceptional topographical or other physical conditions peculiar to the particular property and that the exceptional practical difficulty is due to such conditions and not to circumstances or conditions generally created by the provisions of the Zoning Ordinance or Code in the neighborhood or district in which the property is located.

2. Cannot otherwise be developed:

That because of such physical circumstances or conditions, there is no possibility that the property can be developed in strict conformity with the provisions of the Zoning Ordinance or Code and that the authorization of a variance is therefore necessary to enable the reasonable use of the property.

3. Not created by the applicant:

That such exceptional practical difficulty has not been created by the appellant.

4. Will not alter the essential character of the neighborhood:

That the variance, if authorized, will not alter the essential character of the neighborhood or district in which the property is located and nor substantially or permanently impair the appropriate use of development of adjacent property, nor be detrimental to the public welfare.

5. Minimum variance:

That the variance, if authorized, will represent the minimum variance that will afford relief and will represent the least modification possible of the regulation in issue.

Criteria for a Special Use Exception: (Please provide a written statement regarding each criteria)

*You shall demonstrate to the Board of Adjustment that the property meets **all** of the following criteria for a Special Use Exception to be granted.*

1. Such exception will not substantially affect adversely the uses of adjacent and neighboring property.

The events would be located in the back of the property in the woods, where as the main portions of the porperty is used for baseball fields. There is plenty of parking on the property, and closest residential building is about 1/4 mile away and separated by woods

2. Any other requirements which apply to a specific type of special use exception as required by the Sussex County Code. (Ex. Time limitations – 5 year maximum)

Hours of event operations would be 7:00pm - 10:00pm on weeknds in the month of October, with some weekend events for the Christmas season. I would like for a 5 year approval period.

Basis for Appeal: (Please provide a written statement regarding reason for appeal)

Check List for Applications

The following shall be submitted with the application

- ☐ • **Completed Application**
- ☐ • **Provide a survey of the property** (Variance)
  - o Survey shall show the location of building(s), building setbacks, stairs, deck, etc.
  - o Survey shall show distances from property lines to buildings, stairs, deck, etc.
  - o Survey shall be signed and sealed by a Licensed Surveyor.
- ☐ • **Provide a Site Plan or survey of the property** (Special Use Exception)
- ☐ • **Provide relevant Application Fee (please refer to fees effective July 1, 2022)**
- ☐ • **Provide written response to criteria for Variance or Special Use Exception** (may be on a separate document if not enough room on the form)
- ☐ • **Copy of Receipt (staff)**
- ☐ • **Optional - Additional information for the Board to consider** (ex. photos, letters from neighbors, etc.)
- ☐ • **Please be aware that Public Notice will be sent to property owners within 200 feet of the subject site and County staff will come out to the subject site, take photos and place a sign on the site stating the date and time of the Public Hearing for the application.**

Please be advised that the decision of the Board of Adjustment is only final when the written decision is filed with the Board's secretary. To determine whether the written decision has been filed, you may call the Planning & Zoning Department at 302-855-7878. The written decision is generally completed within thirty (30) to sixty (60) days following the Board's vote on the application or appeal. Please include the case number when calling about the decision.

Please be advised that any action taken in reliance of the Board's decision prior to the filing of the written decision and the expiration of any applicable appeal period is taken at the Property Owner's Risk.

The undersigned acknowledges that that he or she has read the application completely and that if the appellant / applicant is unable to convince the Board that the standards for granting relief have been met, the appeal / application will be denied.

Signature of Owner/Agent/Attorney

_____ Date: 5-5-2026

For office use only:

Date Submitted: _____ Fee: Check #: _____

Staff accepting application: _____ Application & Case #: _____

Location of property: _____

_____

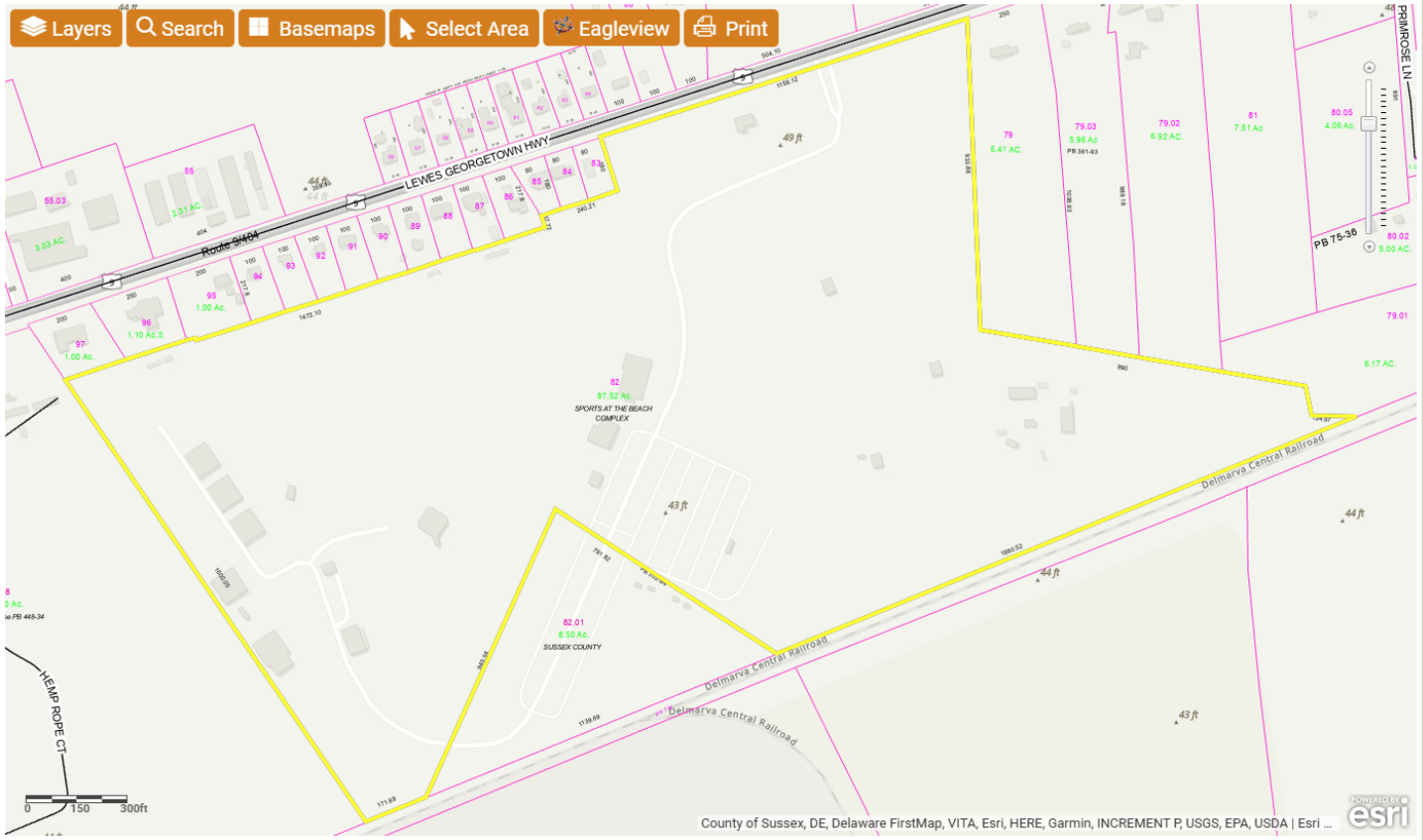
Subdivision: _____ Lot#: _____ Block#: _____

Date of Hearing: _____ Decision of Board: _____

SUSSEX COUNTY
DELAWARE

Help

Layers | Search | Basemaps | Select Area | Eagleview | Print



Eagleview | Search Results

Selected Features: Parcels (1)

1) 135-15.00-82.00 Zoom

BOOK	4939
PAGE	117
FULLNAME	SOFTBALL WORLD LLC
Second_Owner_Name	
MAILINGADDRESS	22518 LEWES GEORGETOWN HWY
CITY	GEORGETOWN
STATE	DE
a_account	
DESCRIPTION	RD GEO TO LEWES
DESCRIPTION2	S/RT 18 2300'
DESCRIPTION3	W/RT 321FX
LUC	611
SCHOOL	1
MUNI	00
CAP	0
APRBLDG	5.0152e+006
APRLAND	1.6474e+006
PINWASSEMENTUNIT	135-15.00-82.00
PIN	135-15.00-82.00

Selected Features (1)

Clear Selected

SUSSEX COUNTY
DELAWARE

Help



Eagleview | Search Results

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1) 135-15.00-82.00 Zoom

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MUNI	00
CAP	0
APRBLDG	5.0152e+006
APRLAND	1.6474e+006
PINWASSEMENTUNIT	135-15.00-82.00
PIN	135-15.00-82.00

Selected Features (1)

Clear Selected


CONNECTEXPLORER
Search
Search by SUSSEXPARCELS
135-15.00-82.00
Search results (1)
Options
135-15.00-82.00
workspaces
© 2025 Eagleview
100 ft
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map: Auto (Oblique)
Mar 2025 - Mar 2025
image 1 of 4
03/10/2025

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

N

W E

S

LOCATION MAP
1" = 1 MILE

SEE INSERT INDEX SHEET 2
GEORGETOWN
SITE

LEGEND

= PROPERTY LINE
= ADJOINING PROPERTY LINE
= BUILDING RESTRICTION LINE
= EXISTING BUILDING
= EX. EDGE OF PAVEMENT
= PROPOSED EDGE OF PAVEMENT
= EX. CENTERLINE OF ROAD
= PROPOSED BUILDING
= EXISTING LIGHT POLE
= PROPOSED SIGN
= EXISTING WOODS

SITE DATA:

TOTAL SITE AREA	87.52± Ac.
TAX MAP NUMBER	135-15.00, PARCEL 82.00
CURRENT ZONING	AR-1, CONDITIONAL USE
EXISTING USE	SPORTS FACILITY
BUILDING HEIGHT	42' MAXIMUM
BUILDING SETBACKS	FRONT = 40' (30')
	SIDE = 15'
	REAR = 20'
PARKING SPACES PROVIDED	520
WATER SUPPLY	PRIVATE WELL
SEWAGE DISPOSAL	TOWN OF GEORGETOWN
MANAGER'S QUARTERS	2,500 SQUARE FEET
STORAGE SHED	520 SQUARE FEET
GAZEBO'S (ARCHERY)	300 SQUARE FEET EACH

OWNER CERTIFICATION:
I HEREBY CERTIFY THAT I AM THE OWNER OF THE PROPERTY DESCRIBED AND SHOWN ON THIS PLAN, THAT THE PLAN WAS MADE AT MY DIRECTION, THAT I ACKNOWLEDGE THE SAME TO BE MY ACT, AND DESIRE THE PLAN TO BE DEVELOPED AS SHOWN IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

5-4-16
DATE

SOFTBALL WORLD, LLC
C/O PETE TOWNSEND
20 WILLOW LANE
LEWES, DELAWARE 19958
(302) 945-6847

PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE COMPLIES WITH THE APPLICABLE ORDINANCES OF SUSSEX COUNTY AND LAWS OF THE STATE OF DELAWARE.

No. 18457 — CERTIFICATE OF AUTHORIZATION — PROFESSIONAL ENGINEER

5-4-16
DATE

PENNONI ASSOCIATES INC.
18072 DAVIDSON DRIVE - MILTON, DE 19968 - (302) 684-8030

(PAI ONLY...DRAWING REFERENCE 071101 & 010919)

NO.	REVISIONS	DATE
5	RELOCATED PROPOSED BUILDING TO WITHIN 50-FEET OF FIRE LANE PER SFMO COMMENTS - MHD	NOV. 25, 2013
6	ADDED 100 TO 1 RUNWAY 22 LANDING AREA - MHD	AUGUST 15, 2014
7	OUTDOOR SUPPLEMENTAL USES WITH MANAGER' QUARTERS	JANUARY 14, 2016
8	ADDED STORAGE BUILDING	MARCH 17, 2016
9	UPDATED SITE PLAN PER P&Z COMMENTS DATED MARCH 2, 2016	MAY 4, 2016

Pennoni
PENNONI ASSOCIATES, INC.
18072 Davidson Dr. (302) 684-8030 Fax: (302) 684-8054
Milton, DE 19968 www.pennoni.com
CONSULTING ENGINEERS

TITLE:
SITE PLAN

PROJECT:
SPORTS AT THE BEACH
GEORGETOWN HUNDRED, SUSSEX COUNTY DELAWARE

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DESIGNED BY: MHDAVIDSON
SURVEYED BY: PENNONI/DCG
DRAWN BY: MHD
CHECKED BY: CS
JOB #: SOFT1101
SCALE: 1" = 100'
TAX MAP: 135-15.00 PARCEL 82.00
DATE: AUGUST 24, 2011

SHEET NO: S1

Case # 12479
Hearing Date 9/21
20200924

Board of Adjustment Application
Sussex County, Delaware

Sussex County Planning & Zoning Department
2 The Circle (P.O. Box 417) Georgetown, DE 19947
302-855-7878 ph. 302-854-5079 fax

Type of Application: (please check all applicable)

Variance ☐
Special Use Exception ☑
Administrative Variance ☐
Appeal ☐

Existing Condition ☑
Proposed ☐
Code Reference (office use only)
115-23 & 115-210

Site Address of Variance/Special Use Exception:

22518 Lewes Georgetown Hwy Georgetown, DE 19947

Variance/Special Use Exception/Appeal Requested:

Requesting a special use exception for an outdoor display and promotional activity

Tax Map #: 135 15.00 82.00 **Property Zoning:** AR 1

Applicant Information

Applicant Name: Sports at the Beach
Applicant Address: 22518 Lewes Georgetown Hwy
City Georgetown State DE Zip: 19947
Applicant Phone #: 302-856-7400 Applicant e-mail: info@sportsatthebeach.com

Owner Information

Owner Name: Pete Townsend
Owner Address: 22518 Lewes Georgetown Hwy
City Georgetown State DE Zip: 19947 Purchase Date: 2001
Owner Phone #: 302-245-6676 Owner e-mail: titanteam99@aol.com

Agent/Attorney Information

Agent/Attorney Name: The Smith Firm-Chad Ligenfelder
Agent/Attorney Address: 8866 Riverside
City Seaford State De Zip: 19947
Agent/Attorney Phone #: 302 875 5595 Agent/Attorney e-mail:

Signature of Owner/Agent/Attorney

Date: 8-14-20

EQUAL HOUSING OPPORTUNITY

Criteria for a Special Use Exception: (Please provide a written statement regarding each criteria)

*You shall demonstrate to the Board of Adjustment that the property meets **all** of the following criteria for a Special Use Exception to be granted.*

1. Such exception will not substantially affect adversely the uses of adjacent and neighboring property.

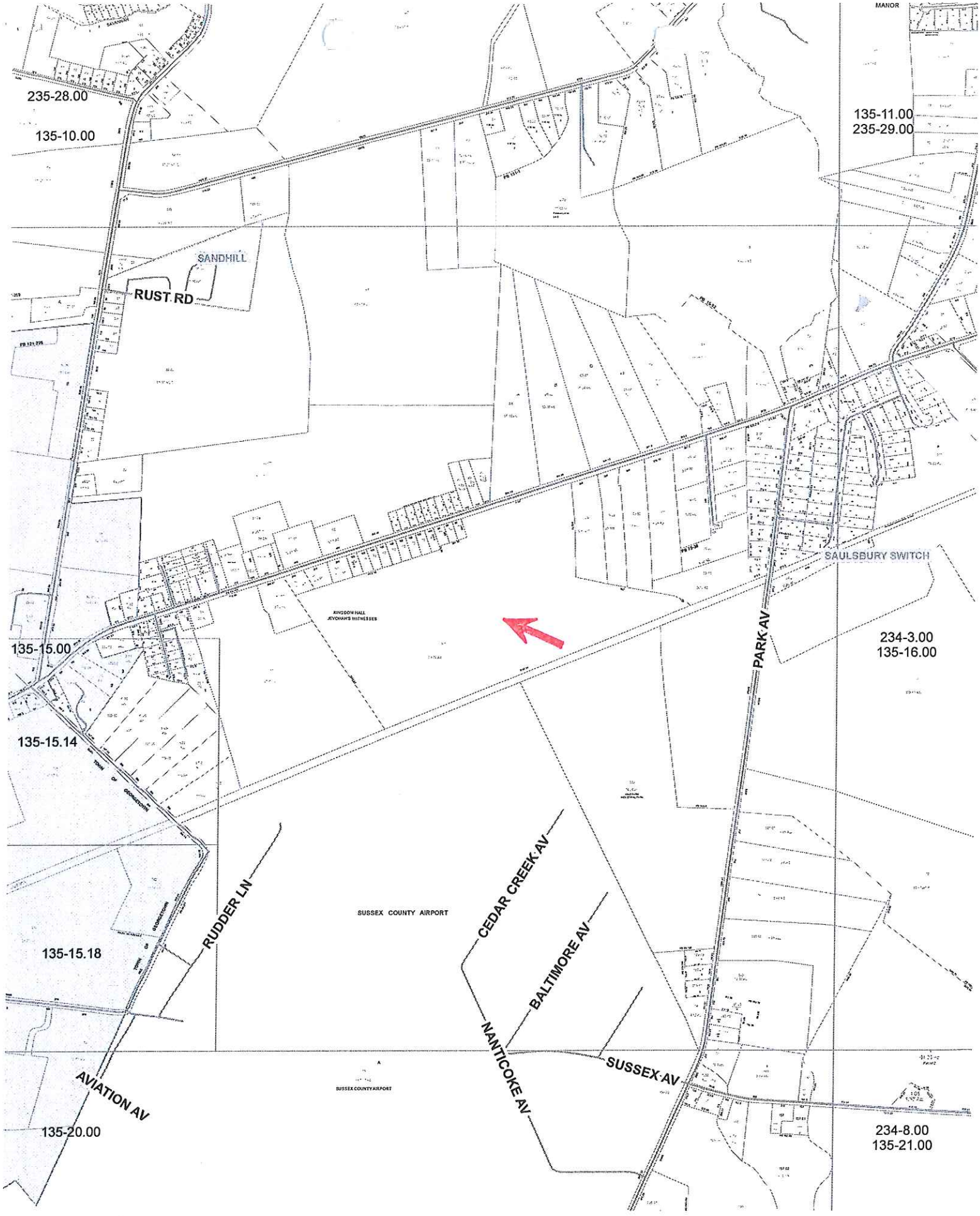
The history of use for the past 8-9 years on this location is a good indicator that this location is appropriate for the Special Use Exception.

2. Any other requirements which apply to a specific type of special use exception as required by the Sussex County Code. (Ex. Time limitations – 5 year maximum)

I do not have other requirements at this time.

Basis for Appeal: (Please provide a written statement regarding reason for appeal)

This has been a good source of entertainment in the past for the community and everyone involved.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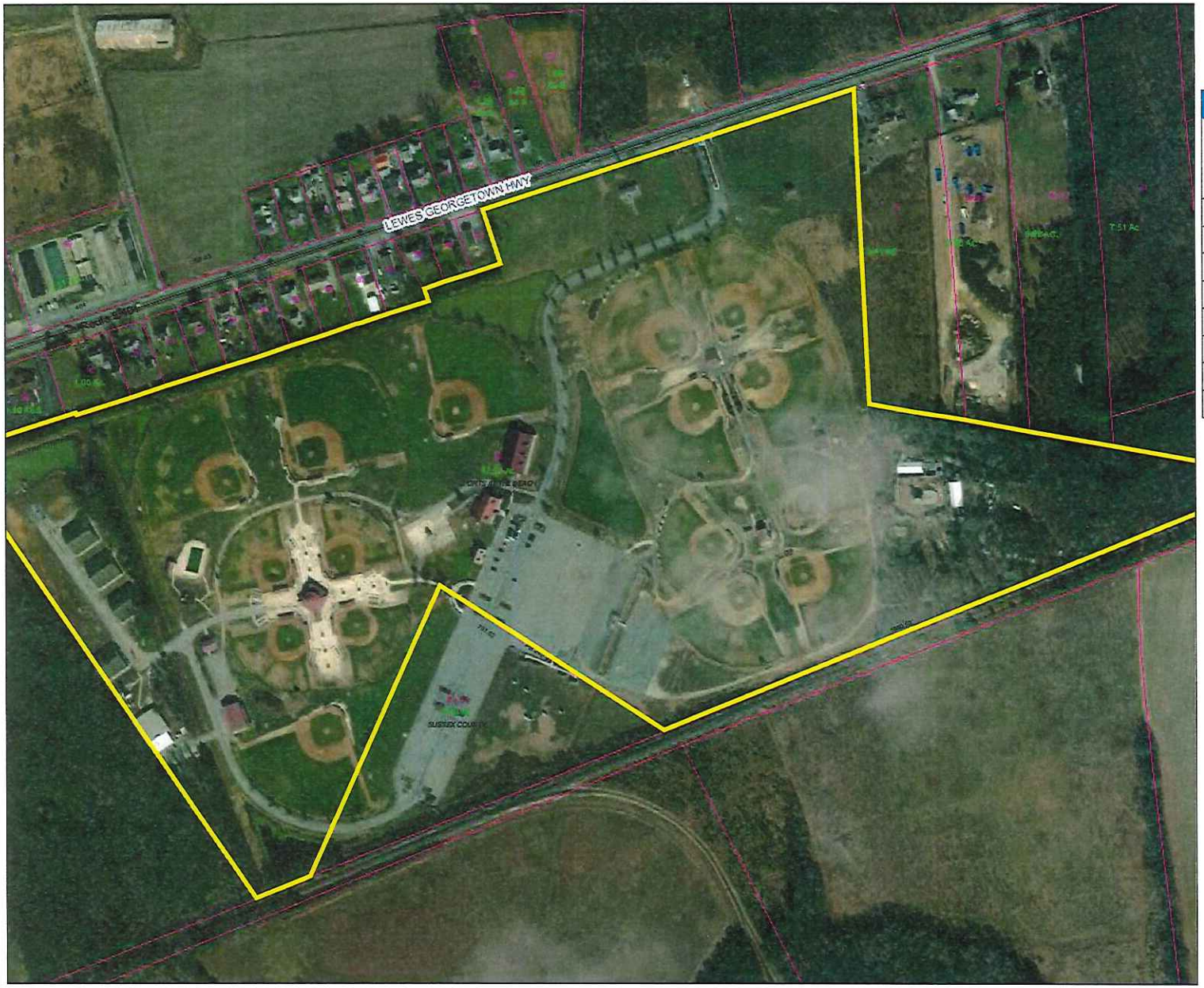
135-11.00
235-29.00
SANDHILL
RUST RD
SAULSBURY SWITCH
PARK AV
234-3.00
135-16.00
135-15.00
135-15.14
RUDDER LN
SUSSEX COUNTY AIRPORT
CEDAR CREEK AV
BALTIMORE AV
NANTICOKE AV
SUSSEX AV
AVIATION AV
135-15.18
135-20.00
234-8.00
135-21.00

Sussex County



PIN:	135-15.00-82.00
Owner Name	SOFTBALL WORLD LLC
Book	4939
Mailing Address	22518 LEWES GEORGETO
City	GEORGETOWN
State	DE
Description	RD GEO TO LEWES
Description 2	S/RT 18 2300'
Description 3	W/RT 321FX
Land Code	

polygonLayer

Override 1

polygonLayer

Override 1

Tax Parcels

Streets

County Boundaries

1:4,514

0 0.05 0.1 0.2 mi

0 0.075 0.15 0.3 km

August 27, 2020

BEFORE THE BOARD OF ADJUSTMENT OF SUSSEX COUNTY

IN RE: SPORTS AT THE BEACH

(Case No. 11567)

A hearing was held after due notice on May 4, 2015. The Board members present were: Mr. Dale Callaway, Mr. Jeff Hudson, Mr. John Mills, Mr. Norman Rickard and Mr. Brent Workman.

Nature of the Proceedings

This is an application for a special use exception for an outdoor display or promotional activity.

Findings of Fact

The Board found that the Applicant is requesting a special use exception for an outdoor display or promotional activity. This application pertains to certain real property located south of Route 18 (Lewes Georgetown Highway), approximately 2,300 feet west of Route 321 (Park Avenue) (911 Address: 22518 Lewes Georgetown Highway, Georgetown); said property being identified as Sussex County Tax Map Parcel Number 1-35-15.00-82.00. After a hearing, the Board made the following findings of fact:

1. The Board was given copies of the Application, a letter dated March 2, 2015, from Lawrence Lank to the Applicant, a portion of the tax map of the area, and a portion of the Sussex County Zoning Code.
2. The Board found that the Office of Planning and Zoning received no letters in support of or in opposition to the Application.
3. The Board found that Pete Townsend was sworn in and testified regarding the Application.
4. The Board found that Mr. Townsend testified that he is seeking a renewal of the original special use exception that was approved five (5) years ago.
5. The Board found that Mr. Townsend testified that an annual Halloween event is held on this property and he seeks approval to continue this use. The original special use exception included a Christmas light display but the Christmas light display was never executed and will not be included in this request.
6. The Board found that Mr. Townsend testified that he has received no complaints about the Halloween event.
7. The Board found that Mr. Townsend testified that the annual Halloween event is held for fifteen (15) days during the Halloween season as approved by the State on weekends.
8. The Board found that Mr. Townsend testified that the existing village is used during baseball season from March to November.
9. The Board found that Mr. Townsend testified that the use has not adversely affected the surrounding and adjacent properties.
10. The Board found that Mr. Townsend testified that he is seeking approval for five (5) years.
11. The Board found that Margaret Alves was sworn in and testified that the Property is well-kept and that children play baseball there. She has no objection to the Application.
12. The Board found that no parties appeared in support of or in opposition to the Application.
13. Based on the findings above and the testimony and evidence presented at the public hearing and the public record, which the Board found credible, persuasive and unrebutted, the Board determined that the application met the standards for granting a special use exception because the proposed outdoor display or

promotional activity will not substantially affect adversely the uses of neighboring and adjacent properties. The findings below further support the Board's decision to approve the Application.

a. The Property is located outside of Georgetown along Georgetown-Lewes Highway and is used for baseball fields during the months of March through November. The Applicant maintains a village on the Property for use by baseball teams. The tax map provided to the Board demonstrates that the Property is very large.
b. In 2010, the Applicant received approval for a special use exception to use the Property for an annual Halloween event and Christmas light display which use the village area. The Halloween event has been used for approximately 15 days per Halloween season; primarily on weekends. The Christmas display was never used.
c. The Applicant has demonstrated that the Halloween event has not substantially affected adversely the uses of neighboring and adjacent properties. The Applicant testified that he has not received any complaints about the event and no evidence was presented which would demonstrate that the event has had a substantial adverse effect on neighboring and adjacent properties. Ms. Alves testified that the Property is well-kept and that she does not object to the Application.
d. Per the Applicant's request, the Board approved the special use exception for a period of five (5) years.

The Board granted the special use exception application for a period of five (5) years finding that it met the standards for granting a special use exception.

Decision of the Board

Upon motion duly made and seconded, the special use exception application was approved for a period of five (5) years. The Board Members in favor were Mr. Dale Callaway, Mr. Jeff Hudson, Mr. John Mills, Mr. Norman Rickard, and Mr. Brent Workman. No Board Members voted against the Motion to approve the special use exception application.

BOARD OF ADJUSTMENT
OF SUSSEX COUNTY

Dale Callaway

Dale Callaway
Chairman

If the use is not established within one (1) year from the date below the application becomes void.

Date June 9, 2014.

Criteria for a Variance: (Please provide a written statement regarding each criteria).

You shall demonstrate to the Board of Adjustment that the property meets all of the following criteria for a Variance to be granted.

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1. Uniqueness of property:

That there are unique physical circumstances or conditions, including irregularity, narrowness, or shallowness of lot size or shape, or exceptional topographical or other physical conditions peculiar to the particular property and that the exceptional practical difficulty is due to such conditions and not to circumstances or conditions generally created by the provisions of the Zoning Ordinance or Code in the neighborhood or district in which the property is located.

2. Cannot otherwise be developed:

That because of such physical circumstances or conditions, there is no possibility that the property can be developed in strict conformity with the provisions of the Zoning Ordinance or Code and that the authorization of a variance is therefore necessary to enable the reasonable use of the property.

3. Not created by the applicant:

That such exceptional practical difficulty has not been created by the appellant.

4. Will not alter the essential character of the neighborhood:

That the variance, if authorized, will not alter the essential character of the neighborhood or district in which the property is located and nor substantially or permanently impair the appropriate use of development of adjacent property, nor be detrimental to the public welfare.

5. Minimum variance:

That the variance, if authorized, will represent the minimum variance that will afford relief and will represent the least modification possible of the regulation in issue.

Criteria for a Special Use Exception: (Please provide a written statement regarding each criteria)

*You shall demonstrate to the Board of Adjustment that the property meets **all** of the following criteria for a Special Use Exception to be granted.*

1. Such exception will not substantially affect adversely the uses of adjacent and neighboring property.

The events would be located in the back of the property in the woods, where as the main portions of the porperty is used for baseball fields. There is plenty of parking on the property, and closest residential building is about 1/4 mile away and separated by woods

2. Any other requirements which apply to a specific type of special use exception as required by the Sussex County Code. (Ex. Time limitations – 5 year maximum)

Hours of event operations would be 7:00pm - 10:00pm on weeknds in the month of October, with some weekend events for the Christmas season. I would like for a 5 year approval period.

Basis for Appeal: (Please provide a written statement regarding reason for appeal)

Check List for Applications

The following shall be submitted with the application

- ☐ • **Completed Application**
- ☐ • **Provide a survey of the property** (Variance)
  - o Survey shall show the location of building(s), building setbacks, stairs, deck, etc.
  - o Survey shall show distances from property lines to buildings, stairs, deck, etc.
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- ☐ • **Provide a Site Plan or survey of the property** (Special Use Exception)
- ☐ • **Provide relevant Application Fee (please refer to fees effective July 1, 2022)**
- ☐ • **Provide written response to criteria for Variance or Special Use Exception** (may be on a separate document if not enough room on the form)
- ☐ • **Copy of Receipt (staff)**
- ☐ • **Optional - Additional information for the Board to consider** (ex. photos, letters from neighbors, etc.)
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Please be advised that any action taken in reliance of the Board's decision prior to the filing of the written decision and the expiration of any applicable appeal period is taken at the Property Owner's Risk.

The undersigned acknowledges that that he or she has read the application completely and that if the appellant / applicant is unable to convince the Board that the standards for granting relief have been met, the appeal / application will be denied.

Signature of Owner/Agent/Attorney

_____ Date: 5-5-2026

For office use only:

Date Submitted: _____ Fee: Check #: _____

Staff accepting application: _____ Application & Case #: _____

Location of property: _____

_____

Subdivision: _____ Lot#: _____ Block#: _____

Date of Hearing: _____ Decision of Board: _____

SUSSEX COUNTY
DELAWARE

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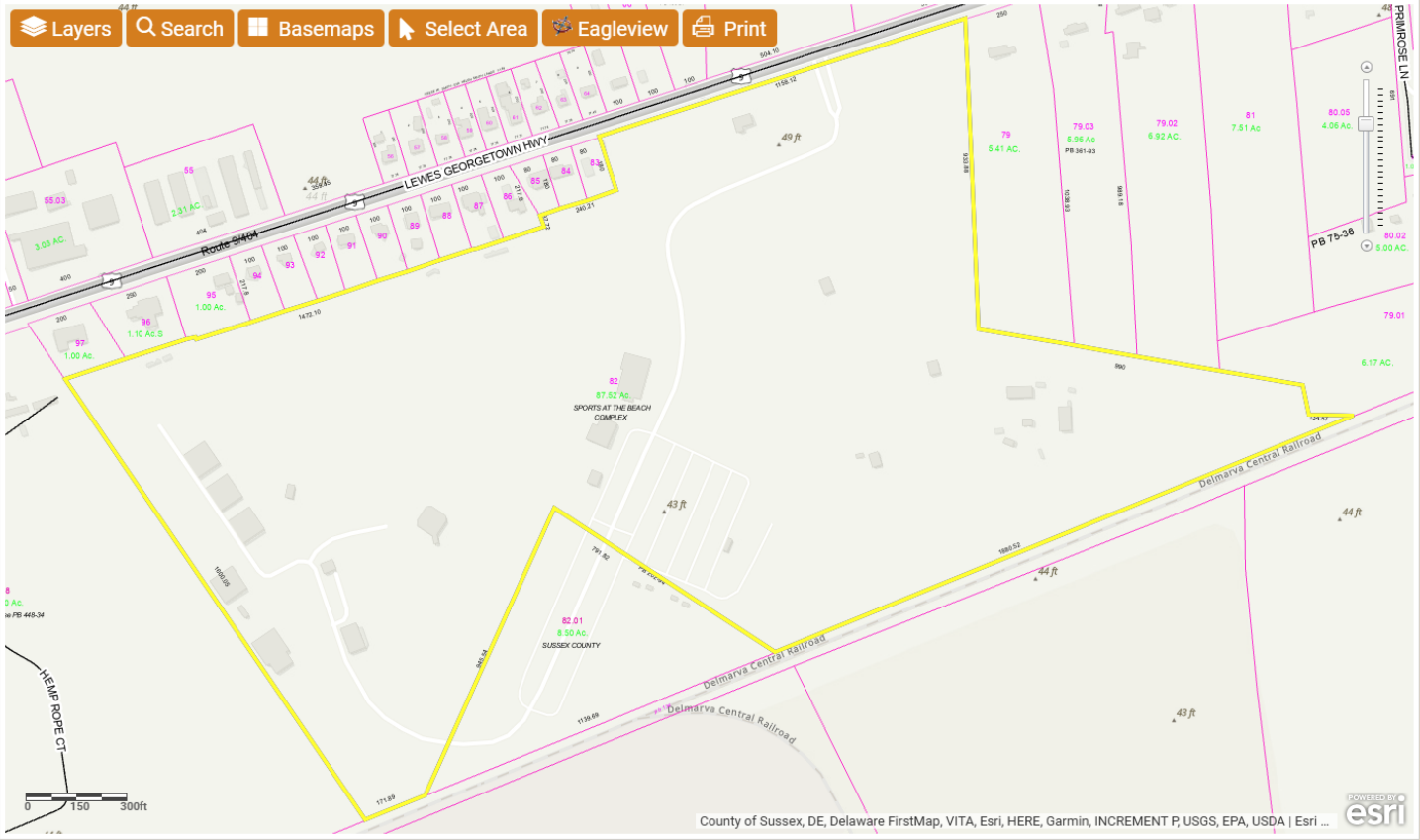
Layers | Search | Basemaps | Select Area | Eagleview | Print



Eagleview | Search Results

Selected Features: Parcels (1)

1) 135-15.00-82.00 Zoom

BOOK	4939
PAGE	117
FULLNAME	SOFTBALL WORLD LLC
Second_Owner_Name	
MAILINGADDRESS	22518 LEWES GEORGETOWN HWY
CITY	GEORGETOWN
STATE	DE
a_account	
DESCRIPTION	RD GEO TO LEWES
DESCRIPTION2	S/RT 18 2300'
DESCRIPTION3	W/RT 321FX
LUC	611
SCHOOL	1
MUNI	00
CAP	0
APRBLDG	5.0152e+006
APRLAND	1.6474e+006
PINWASSEMENTUNIT	135-15.00-82.00
PIN	135-15.00-82.00

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Clear Selected

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Clear Selected


CONNECTEXPLORER
Search
Search by SUSSEXPARCELS
135-15.00-82.00
Search results (1)
Options
135-15.00-82.00
workspaces
© 2025 Eagleview
100 ft
20 m
map: Auto (Oblique)
Mar 2025 - Mar 2025
image 1 of 4
03/10/2025

Case # 13206
Hearing Date 06-15-2026
20260568 6

Board of Adjustment Application
Sussex County, Delaware

Sussex County Planning & Zoning Department
2 The Circle (P.O. Box 417) Georgetown, DE 19947
302-855-7878 ph. 302-854-5079 fax

Type of Application: (please check all applicable)

Variance ☑
Special Use Exception ☐
Administrative Variance ☐
Appeal ☐

Existing Condition ☐
Proposed ☐
Code Reference (office use only)

Site Address of Variance/Special Use Exception:
31811 DUANE DR. FRANKFORD DE 19945

Variance/Special Use Exception/Appeal Requested: I'm applying for a variance for a 5 FOOT SETBACK ON THE REAR OF my POLEBARN AND A 5 FOOT SETBACK ON THE RIGHT SIDE OF MY POLEBARN. It's necessary TO LEAVE ENOUGH room FOR MY SEPTIC DRAINFIELD AND A DRIVEWAY INTO THE POLEBARN.
10' variance from 15' side yard requirement & 15' variance from 20' rear yard requirement

Tax Map #: 134-10.00-272.00 **Property Zoning:** AR-1

Applicant Information

Applicant Name: GARY LEE
Applicant Address: 31811 DUANE DR.
City FRANKFORD State DE Zip: 19945
Applicant Phone #: (240) 372-4485 Applicant e-mail: ratical@comcast.net

Owner Information

Owner Name: GARY LEE
Owner Address: 31811 DUANE DR.
City FRANKFORD State DE Zip: 19945 Purchase Date: 7-7-25
Owner Phone #: (240) 372-4485 Owner e-mail: ratical@comcast.net

Agent/Attorney Information

Agent/Attorney Name: I WILL BE REPRESENTING MYSELF
Agent/Attorney Address:
City State Zip:
Agent/Attorney Phone #: Agent/Attorney e-mail:

Signature of Owner/Agent/Attorney

Gary Lee Date: 5-6-26

Criteria for a Variance: (Please provide a written statement regarding each criteria).

You shall demonstrate to the Board of Adjustment that the property meets all of the following criteria for a Variance to be granted.

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1. Uniqueness of property:

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MY PROPERTY HAS A LARGE SEPTIC DRAINFIELD BEHIND THE HOUSE NEAR THE PROPOSED SITE OF THE POLEBARN. I WILL BE UPGRADING THE SEPTIC SYSTEM TO MEET CURRENT DE STANDARDS BUT STILL NEED A VARIAN FOR 5 FOOT REAR SETBACK AND 5 FOOT RIGHT SIDE SETBACK TO ACCESS THE BUILDIN (DRIVEWAY).

2. Cannot otherwise be developed:

That because of such physical circumstances or conditions, there is no possibility that the property can be developed in strict conformity with the provisions of the Zoning Ordinance or Code and that the authorization of a variance is therefore necessary to enable the reasonable use of the property. I WOULDN'T BE ABLE TO ACCESS MY POLEBARN WITH THE CURRENT SETBACK REQUIREMENTS.

---

3. Not created by the applicant:

That such exceptional practical difficulty has not been created by the appellant.

THE CURRENT LAWS FOR BUILDING NEAR A SEPTIC SYSTEM.

---

4. Will not alter the essential character of the neighborhood:

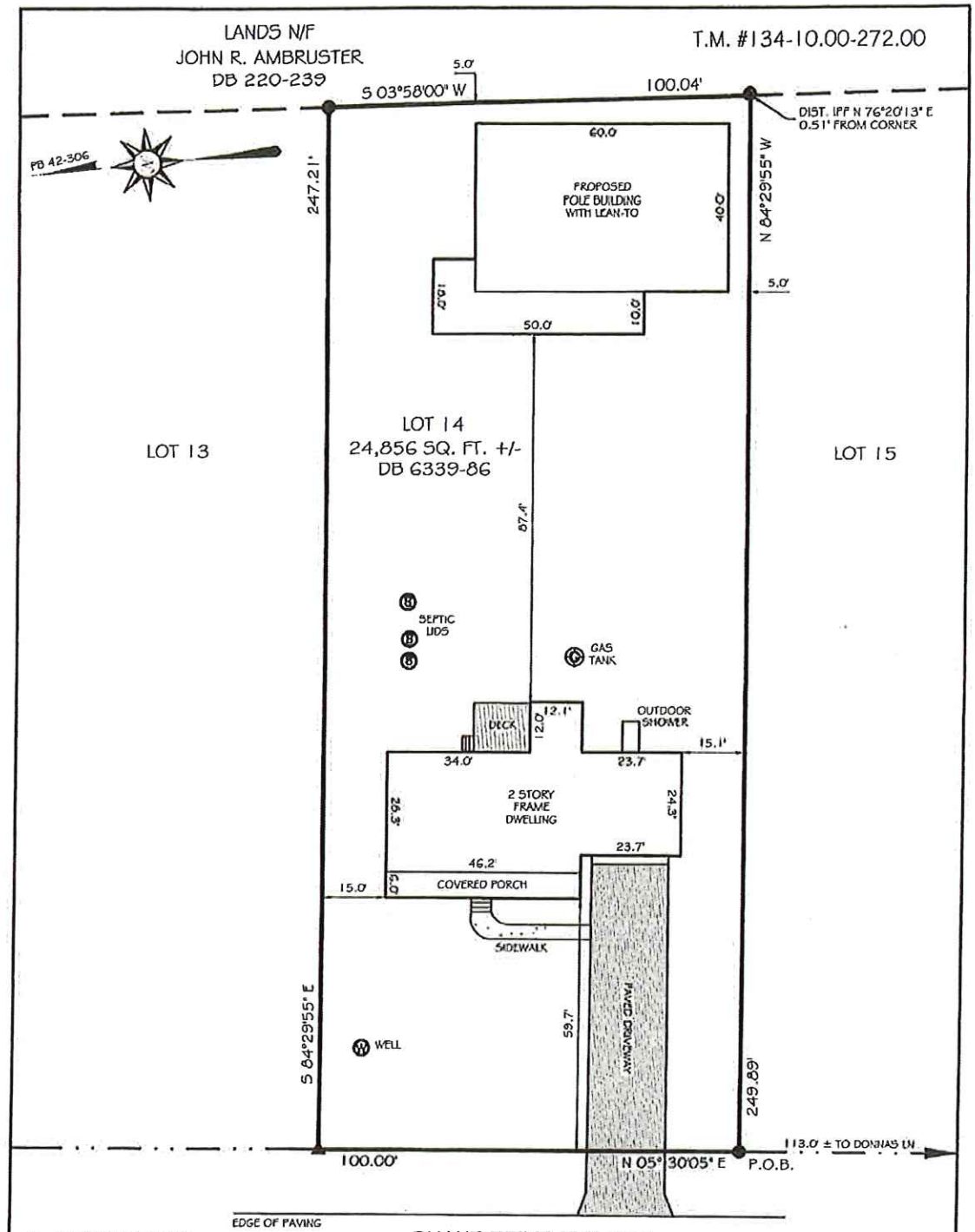
That the variance, if authorized, will not alter the essential character of the neighborhood or district in which the property is located and nor substantially or permanently impair the appropriate use of development of adjacent property, nor be detrimental to the public welfare.

My neighbors ON EACH SIDE OF MY PROPERTY BOTH HAVE STRUCTURES WITH ELECTRICITY AND HEAT & AIR CONDITIONING BUILT ON A 5 FOOT SETBACK (PROBABLY BECAUSE OF THE SAME SEPTIC DRAINFIELD PROBLEM).

---

5. Minimum variance:

That the variance, if authorized, will represent the minimum variance that will afford relief and will represent the least modification possible of the regulation in issue. YES. 5 FOOT REAR SETBACK AND 5 FOOT RIGHT SIDE SETBACK.



SEE PLOT BOOK 42 PAGE 306 FOR EASEMENT RESERVATIONS, THIS SURVEY AND PLAT DOES NOT VERIFY THE EXISTENCE OR NON-EXISTENCE OF RIGHTS-OF-WAY OR EASEMENTS CROSSING THIS PROPERTY OTHER THAN THOSE SHOWN, NO TITLE SEARCH PROVIDED OR STIPULATED.

I, DONALD K. MILLER REGISTERED AS A PROFESSIONAL LAND SURVEYOR IN THE STATE OF DELAWARE, HEREBY STATE THAT THE INFORMATION SHOWN ON THIS PLAN HAS BEEN PREPARED UNDER MY SUPERVISION AND MEETS THE STANDARDS OF PRACTICE AS ESTABLISHED BY THE STATE OF DELAWARE BOARD OF PROFESSIONAL LAND SURVEYORS. ANY CHANGES TO THE PROPERTY CONDITIONS, IMPROVEMENTS, BOUNDARY OR PROPERTY CORNERS AFTER THE DATE SHOWN HEREON SHALL NECESSITATE A NEW REVIEW AND CERTIFICATION FOR ANY OFFICIAL OR LEGAL USE.

DONALD K. MILLER, PLS 407 — DATE 1/16/26

SURVEY CLASS: SUBURBAN

BOUNDARY SURVEY & CONCEPT PLAN FOR

GARY & PATRICIA LEE

31811 DUANE DRIVE, FRANKFORD, DE 19945
LOT #14 OF "HARMONY HEIGHTS" SUBDIV.
BALTIMORE HUNDRED SUSSEX COUNTY
STATE OF DELAWARE
SCALE 1" =30' JANUARY 6, 2026

PREPARED BY:
MILLER LEWIS, INC.
LAND SURVEYING
PH: 302-629-9895
FAX: 302-629-2391
1560 MIDDLEFORD RD. • SEAFORD, DE. 19973

SIGNED
ENDORSEMENT LETTERS FROM AFFECTED
NEIGHBORS WILL BE FORTHCOMING.

Check List for Applications

The following shall be submitted with the application

- ☐ • **Completed Application**
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Signature of Owner/Agent/Attorney

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For office use only:

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Staff accepting application: _____ Application & Case #: _____

Location of property: _____

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Subdivision: _____ Lot#: _____ Block#: _____

Date of Hearing: _____ Decision of Board: _____

SUSSEX COUNTY
DELAWARE

Help

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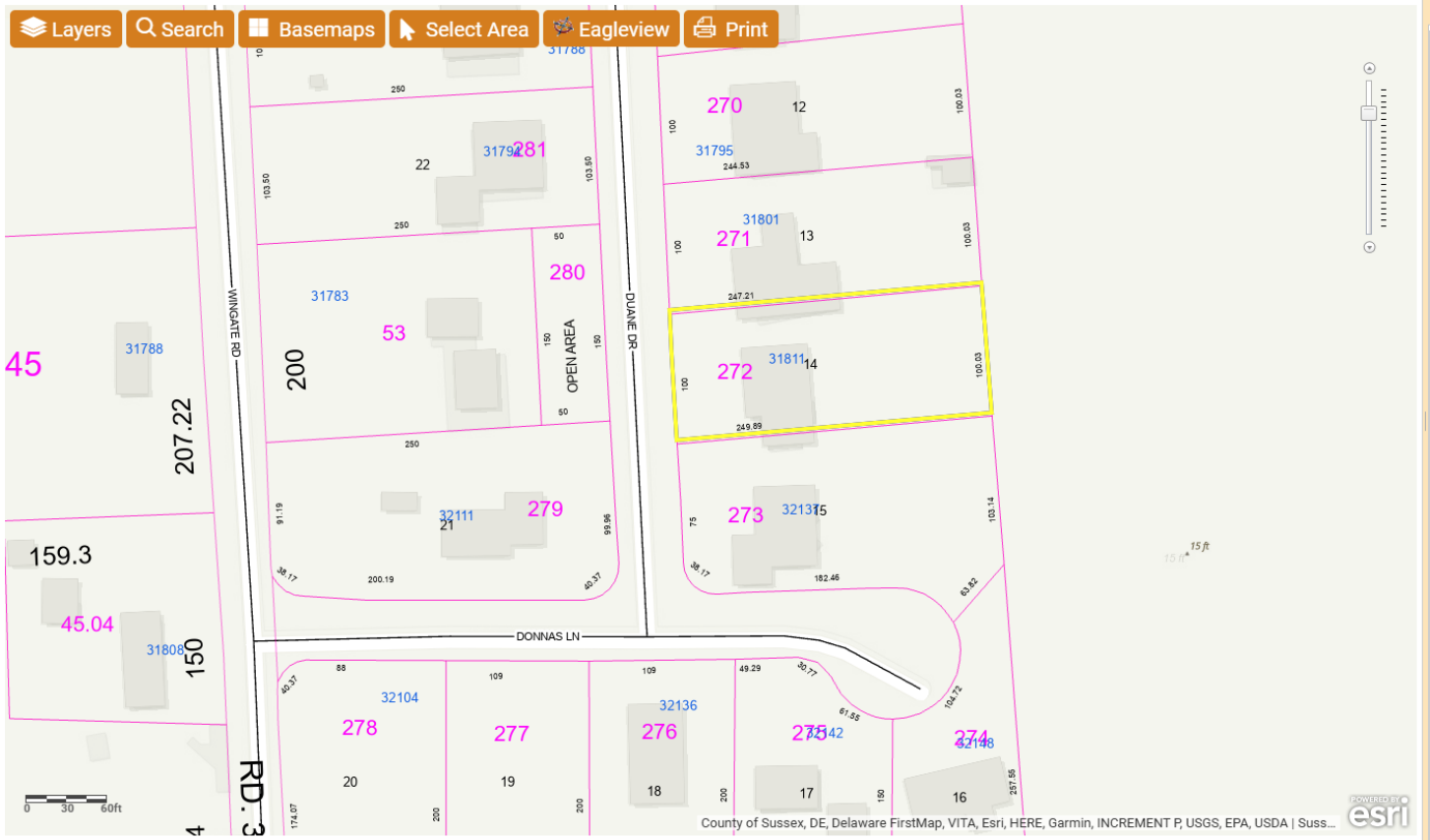

Eagleview | Search Results

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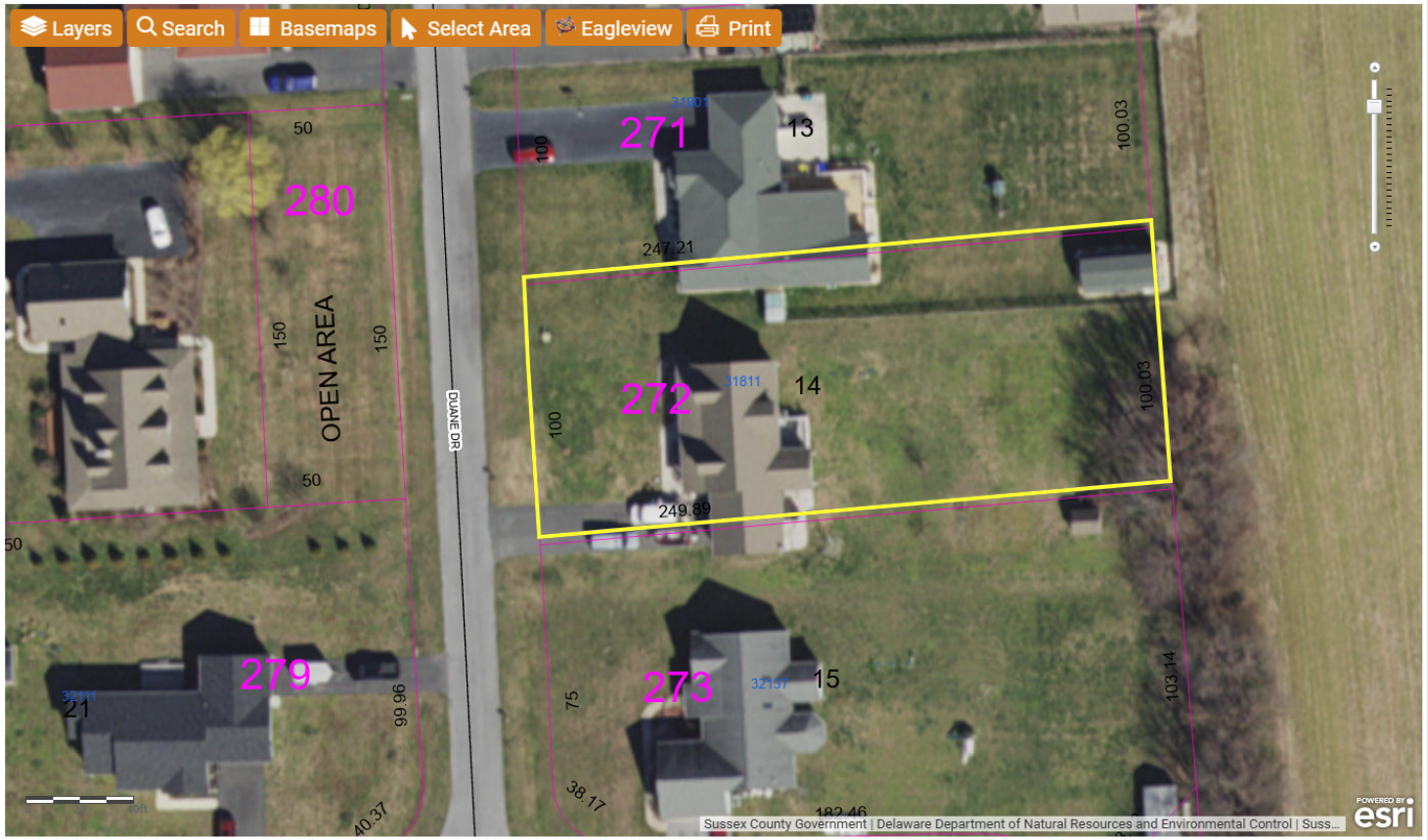
Selected Features (1)

Clear Selected

SUSSEX COUNTY
DELAWARE

Help



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CONNECTEXPLORER
Search
Search by SUSSEXPARCELS
134-10.00-272.00
Search results (1)
Options
134-10.00-272.00
© 2025 Eagleview
50 ft
10 m
map: Auto (Oblique)
Mar 2025 - Mar 2025
image 1 of 7
03/11/2025

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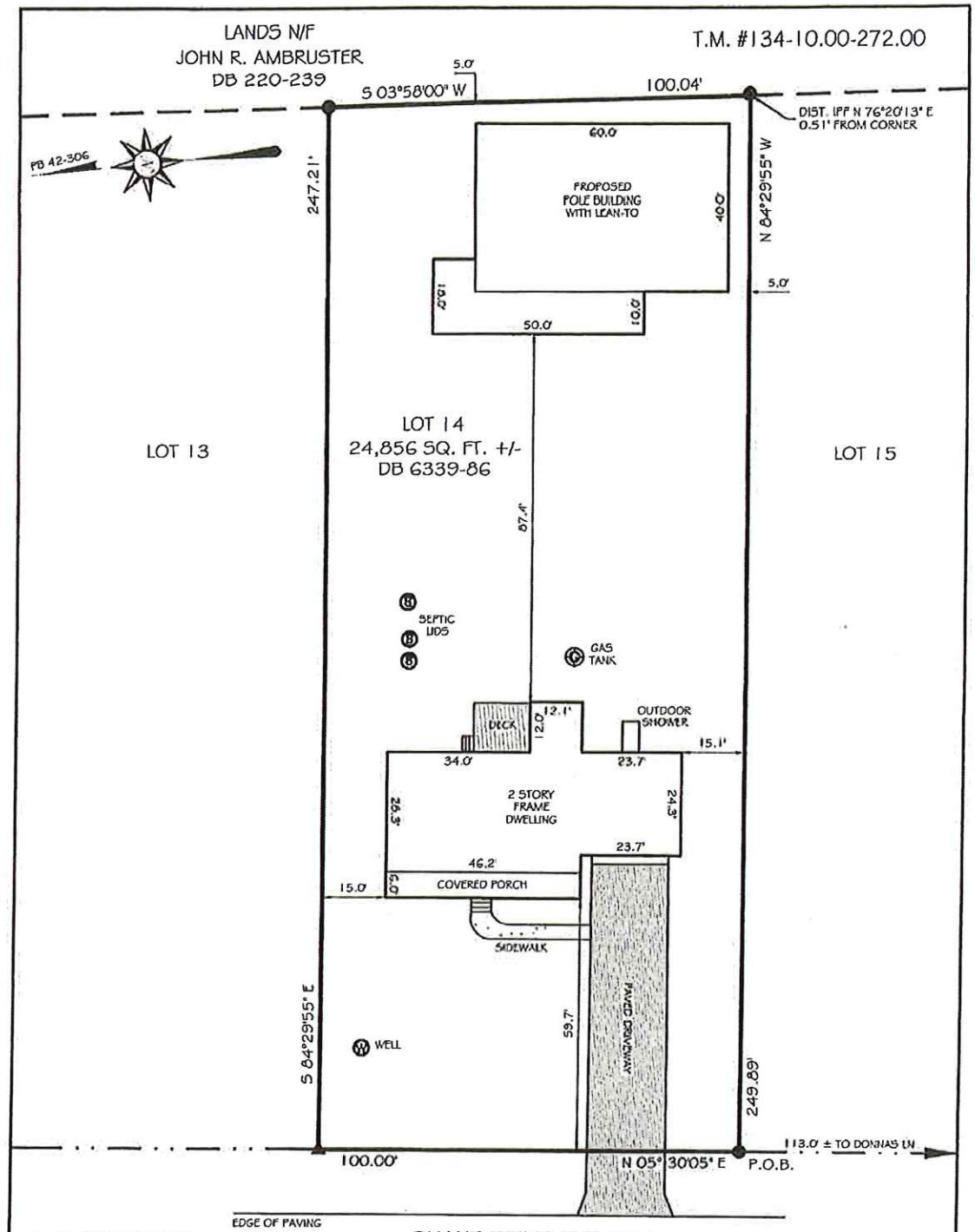

▲ IRON ROD (FOUND)

● IRON PIPE (FOUND)

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SUSSEX COUNTY
DELAWARE

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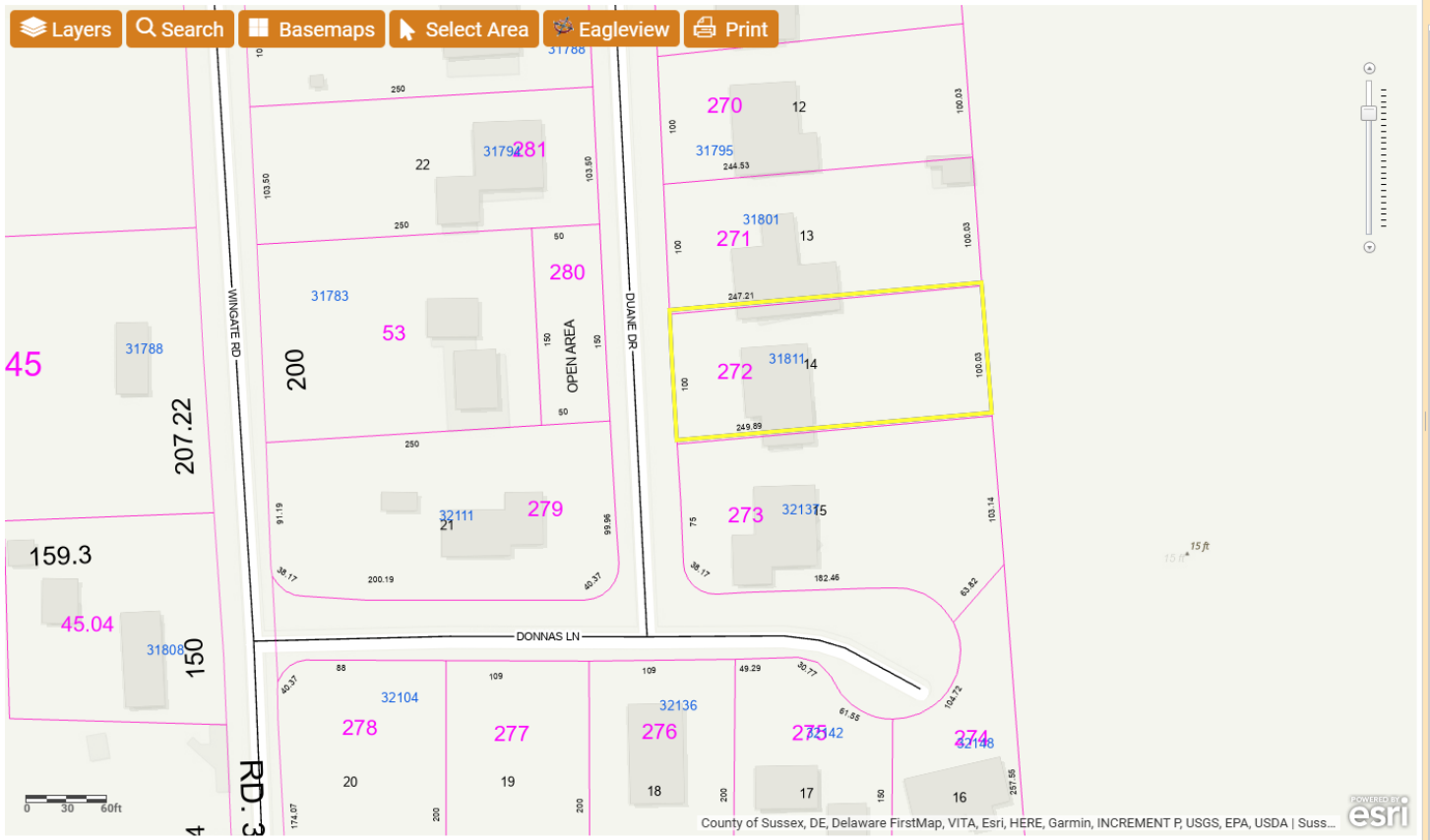

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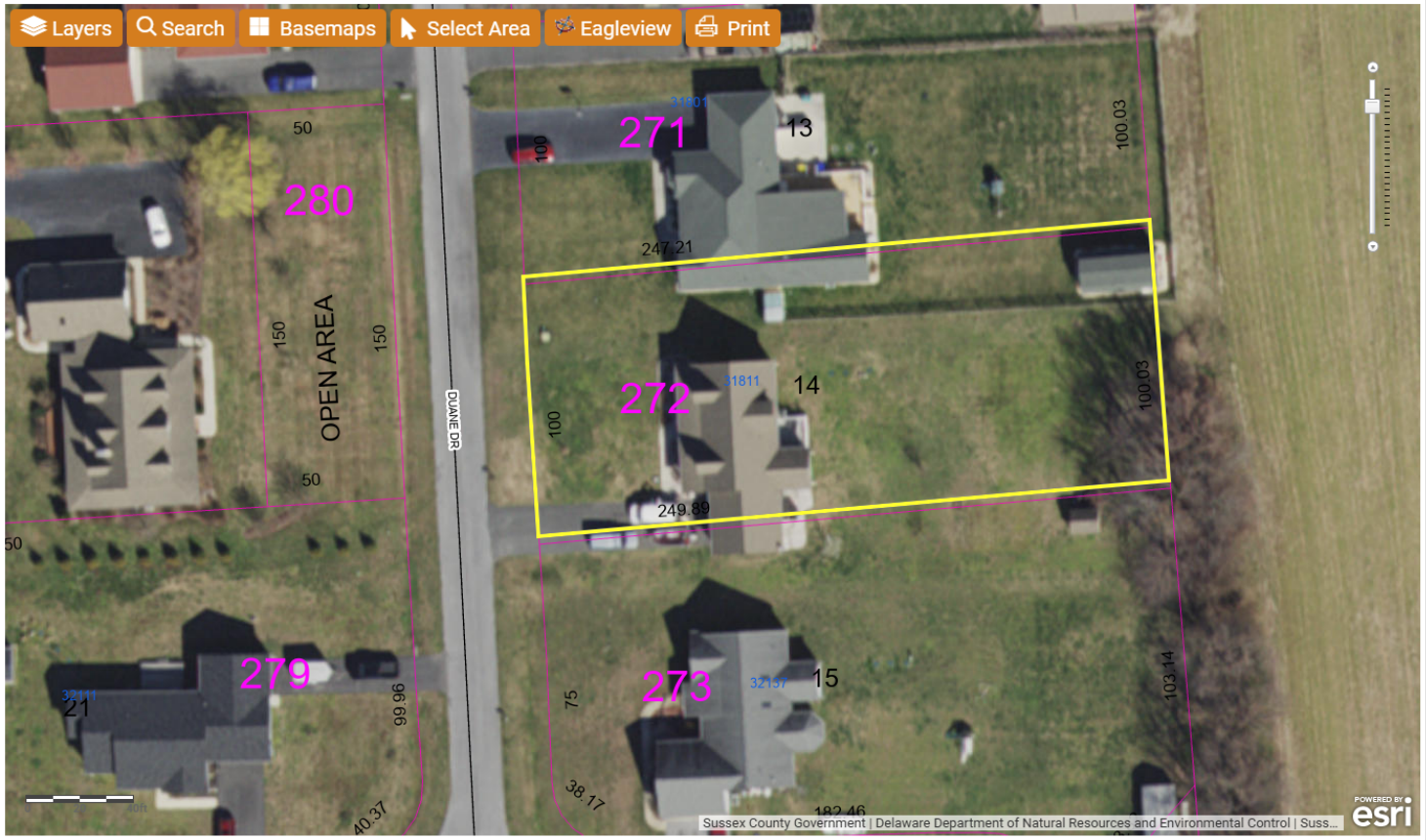

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Search by SUSSEXPARCELS
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50 ft
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map: Auto (Oblique)
Mar 2025 - Mar 2025
image 1 of 7
03/11/2025