#2026-146 Verizon Wireless Tower
Special Use Permit
Project Review for Planning and Zoning Commission

Meeting Date:	September 16, 2026	
Request:	A Special Use Permit for a wireless communication tower	
Location:	NWC Route 176 and Mt. Thabor Road	
Acreage:	Approximately 17.5 acres	
Existing Zoning:	E Estate Residential	
Surrounding Properties:	North:	A-1 Agriculture (McHenry County)
	South:	E Estate
	East:	E Estate
	West:	RE PUD Residential Estate and O PUD Office
Staff Contact:	Elizabeth Maxwell (815.356.3738)	

Background:

- Existing Use: The property is currently unimproved open/farm space. It is adjacent to a parcel, owned by the same owner, that is the Crystal Lake Union Cemetery Association and is an active cemetery.
- The petitioner explored where the service has a gap when locating the wireless communication facilities on existing private towers and public utilities. According to the petitioner, there are currently no existing structures that could accommodate the communications facility within the petitioner's targeted area.
- The proposed tower is 125-foot monopole designed to blend into the sky as the as a natural grey of galvanized steel.
- At the base of the site will be the fenced yard with electrical equipment and generator. The fenced area will be screened with staggered row of evergreen trees.
- UDO Requirements: A special use permit is required for wireless communication towers.
- Land Use: The land use map shows the area as Public / Semi-Public as the property is owned by the Union Cemetery Association. This land use designation is appropriate for this use.
- Zoning: The site is zoned E Estate Residential. Wireless communication facilities are allowed in the Estate zoning with a Special Use Permit.

2030 Comprehensive Land Use Plan Review:

The Comprehensive Plan designates the subject property as Public / Semi-Public, which allows for existing and future public and private service providers. The proposed wireless communication tower falls under Community Facilities. This project meets the following goal:

Land Use – Public / Semi-Public

Goal: Provide areas for high-quality public and semi-public facilities, such as schools, libraries, municipal facilities and private service providers, throughout the City to support the diverse and evolving needs of people in the City.

This can be accomplished with the following supporting action:

Supporting Action: The City shall support the school districts, library, park district, neighboring municipalities, private service providers and other public and semi-public agencies.

Success Indicator: The number of zoning approvals for public / semi-public projects.

Community Facilities – Public Facilities

Goal: Support the specific needs and goals of public facilities to ensure cooperation between public and city facilities for the health, safety, and needs of the community.

This can be accomplished with the following supporting action:

Supporting Action: Carefully plan for utility service extensions to ensure compatibility with existing infrastructure and land uses.

Findings of Fact:

SPECIAL USE PERMIT

Special Uses require a separate review because of their potential to impact surrounding properties and the orderly development of the City. Section 2-400 of the Unified Development Ordinance establishes standard for all Special Uses in Crystal Lake. The criteria are as follows:

1. That the proposed use is necessary or desirable, at the location involved, to provide a service or facility which will further the public convenience and contribute to the general welfare of the neighborhood or community.

   ☐ *Meets* ☐ *Does not meet*

2. That the proposed use will not be detrimental to the value of other properties or improvements in the vicinity.

   ☐ *Meets* ☐ *Does not meet*

3. That the proposed use will comply with the regulations of the zoning district in which it is located and this Ordinance generally, including, but not limited to, all applicable yard and bulk regulations, parking and loading regulations, sign control regulations, watershed, wetlands, and flood plain regulations, Building and Fire Codes and all other applicable City Ordinances.

   ☐ *Meets* ☐ *Does not meet*

4. That the proposed use will not negatively impact the existing off-site traffic circulation; will adequately address on-site traffic circulation; will provide adequate on-site parking facilities; and, if required, will contribute financially, in proportion to its impact, to upgrading roadway and parking systems.

   ☐ *Meets* ☐ *Does not meet*

5. That the proposed use will not negatively impact existing public utilities and municipal service delivery systems and, if required, will contribute financially, in proportion to its impact, to the upgrading of public utility systems and municipal service delivery systems.

   ☐ *Meets* ☐ *Does not meet*

6. That the proposed use will not impact negatively on the environment by creating air, noise, or water pollution; ground contamination; or unsightly views.

   ☐ *Meets* ☐ *Does not meet*

7. That the proposed use will maintain, where possible, existing mature vegetation; provide adequate screening to residential properties; provide landscaping in forms of ground covers, trees and shrubs; and provide architecture, which is aesthetically appealing, compatible or complementary to surrounding properties and acceptable by community standards, as further detailed in Article 4, Development and Design Standards.

   ☐ *Meets* ☐ *Does not meet*

8. That the proposed use will meet standards and requirements established by jurisdictions other than the City such as Federal, State or County statutes requiring licensing procedures or health/safety inspections, and submit written evidence thereof.

   ☐ *Meets* ☐ *Does not meet*

9. That the proposed use shall conform to any stipulations or conditions approved as part of a Special Use Permit issued for such use.

   ☐ *Meets* ☐ *Does not meet*

10. That the proposed use shall conform to the standards established for specific special uses as provided in this section.

    ☐ *Meets* ☐ *Does not meet*

Radio transmission towers, wireless communication facilities. All radio transmission towers and wireless communication facilities must comply with the following standards:
The petitioner has submitted documents that they are compiling with all SUP standards.

1. Towers shall be designed to meet the wind loading requirements specified in the American National Standards Institute TIA-222-F Report, as amended.

   ☐ *Meets* ☐ *Does not meet*

2. The owner/applicant shall provide documentation to the City demonstrating that the structural integrity of the towers and antenna will continue to comply with state and federal

standards, local building codes, and the applicable standards for towers published by the American National Standards Institute (ANSI), as amended. If, upon inspection, it is determined a tower fails to comply with such standards and constitutes a danger to persons or property, the owner shall be notified that he/she has 30 days to bring the tower into compliance. Failure to bring the tower into compliance within 30 days shall constitute grounds for the removal of the tower at the owner's expense.

☐ *Meets* ☐ *Does not meet*

3. Self-supporting and monopole towers shall be designed to collapse at a failure point no more than 50 feet from the top of the tower so that this upper section folds over onto the lower intact section.

   ☐ *Meets* ☐ *Does not meet*

4. Freestanding wireless communication or radio transmission towers shall not exceed 200 feet in height as measured from the tower base to the highest point of the tower and any attached receiving or transmitting device.

   ☐ *Meets* ☐ *Does not meet*

5. Franchises and licenses: The operator shall provide documentation to the City to demonstrate that all franchises and licenses required by law for the construction and/or operation of a tower or antenna have been obtained.

   ☐ *Meets* ☐ *Does not meet*

6. Towers shall either maintain a galvanized steel finish or, subject to any applicable standards of the FAA, be painted a neutral color (i.e., light grey), or be designed to mimic the appearance of a tree in order to reduce visual obtrusiveness or painted a sky-tone above the top of surrounding trees and in an earth-tone below the tree-top level.

   ☐ *Meets* ☐ *Does not meet*

7. At a tower site, the design of buildings and related structures shall, to the maximum extent practicable, use materials, colors and architectural styles that blend into the natural setting and surrounding buildings.

   ☐ *Meets* ☐ *Does not meet*

8. Storage: No outside storage shall be allowed on any facility site.

   ☐ *Meets* ☐ *Does not meet*

9. Lighting: Towers shall not be artificially lighted, unless required by the FAA or other applicable authority.

   ☐ *Meets* ☐ *Does not meet*

10. A single sign measuring no more than two square feet in size shall be located on or near the tower, and shall identify the tower owner, the street address of the tower, the owner's identification code for the tower, and a twenty-four-hour emergency contact telephone number.

☐ *Meets* ☐ *Does not meet*

11. No commercial advertising shall be allowed on the tower or its related facilities.

☐ *Meets* ☐ *Does not meet*

12. Single lot: Towers, guy anchors, equipment buildings, and any other appurtenances related to the tower shall be considered as being located on one zoning lot.

☐ *Meets* ☐ *Does not meet*

13. Setbacks: Wireless communications facilities shall comply with the following setback standards. Self supporting and monopole towers shall be setback a minimum of 50 feet from all property lines.

☐ *Meets* ☐ *Does not meet*

14. Equipment buildings associated with a wireless communication facility shall meet the minimum setback requirements for the zoning district where located.

☐ *Meets* ☐ *Does not meet*

15. Separation: If an applicant proposes a new wireless communications tower or radio transmission tower within 1,200 feet of an existing tower, the applicant shall submit a statement indicating the reasons why the existing tower(s) was inadequate or unavailable. The Zoning Administrator shall allow the owner of such existing tower an opportunity to comment prior to making a decision.

☐ *Meets* ☐ *Does not meet*

16. Collocation: New wireless communication or radio transmission towers shall provide evidence that the tower is structurally designed to support at least three additional users, and provide a written statement that the owner of the tower is willing to permit other user(s) to attach communication facilities, on a commercially reasonable basis, which do not interfere with the primary purpose of the tower. The site plan shall indicate a location for at least one equipment building in addition to that proposed for use by the applicant. A tower which is modified or reconstructed to accommodate the collocation of an additional antenna shall be of the same tower type as the existing tower, unless a monopole is determined more appropriate at the specific location. If an existing tower is increased in height or reconstructed to accommodate the collocation of additional antenna it shall meet the height restrictions outlined within this section of the Ordinance.

☐ *Meets* ☐ *Does not meet*

17. Landscaping: Unless existing vegetation provides a buffer strip, all property lines along roadways or visible to existing abutting or nearby buildings (within 1/4 mile radius), for all facilities shall be landscaped as follows:

    a. With six-foot to eight-foot evergreen shrubs planted in an alternate pattern, five feet on center and within 15 feet of the site boundary; or

b. With at least one row of deciduous trees, not less than 2 1/2 inch to three inches caliper measured three feet above grade, and spaced not more than 30 feet apart and within 25 feet of the site boundary; or

c. With at least one row of evergreen trees at least four to five feet in height when planted, and spaced not more than 15 feet apart within 40 feet of the site boundary.

d. In lieu of the foregoing, the Planning and Zoning Commission may determine that the existing vegetation must be supplemented to meet an equivalent means of achieving the desired goal of minimizing the visual impact.

☐ *Meets* ☐ *Does not meet*

18. Security fencing: Towers, guy anchor supports, and ground-based equipment buildings shall be enclosed by security fencing not less than eight feet in height and equipped with an appropriate anti-climbing device.

☐ *Meets* ☐ *Does not meet*

19. Radiation reporting: It shall be demonstrated that the proposed tower, antenna, and supporting equipment complies with FCC nonionizing radiation requirements for individual and combined facilities.

☐ *Meets* ☐ *Does not meet*

20. Interference: No wireless communications tower, antenna, or supporting equipment shall interfere with equipment operated by the City of Crystal Lake.

☐ *Meets* ☐ *Does not meet*

Recommended Conditions:

If a motion to recommend approval of the petitioner's request is made, it should be with the following conditions:

1. Approved plans, reflecting staff and advisory board recommendations, as approved by the City Council:
   A. Application (Koch, received 07/28/22)
   B. Narrative Letter (Colliers Engineering & Design, dated 07/29/26, received 07/30/26)
   C. Plans (TowerNorth, dated 07/29/26, received 07/30/26)

2. No outside storage shall be allowed on any facility site.

3. Towers shall not be artificially lighted, unless required by the FAA or other applicable authority.

4. A single sign measuring no more than two square feet in size can be located on or near the tower, and shall identify the tower owner, the street address of the tower, the owner's identification code for the tower, and a twenty-four-hour emergency contact telephone number.

5. No commercial advertising shall be allowed on the tower or its related facilities.

6. All ground mounted equipment including equipment storage building shall be screened with landscape from adjacent properties and the right-of-way. Work with staff to add more landscape if necessary.

7. The driveway leading to the new cell tower will need to be paved per City standards.

8. Increase the height of the security fencing to eight (8) feet in height.

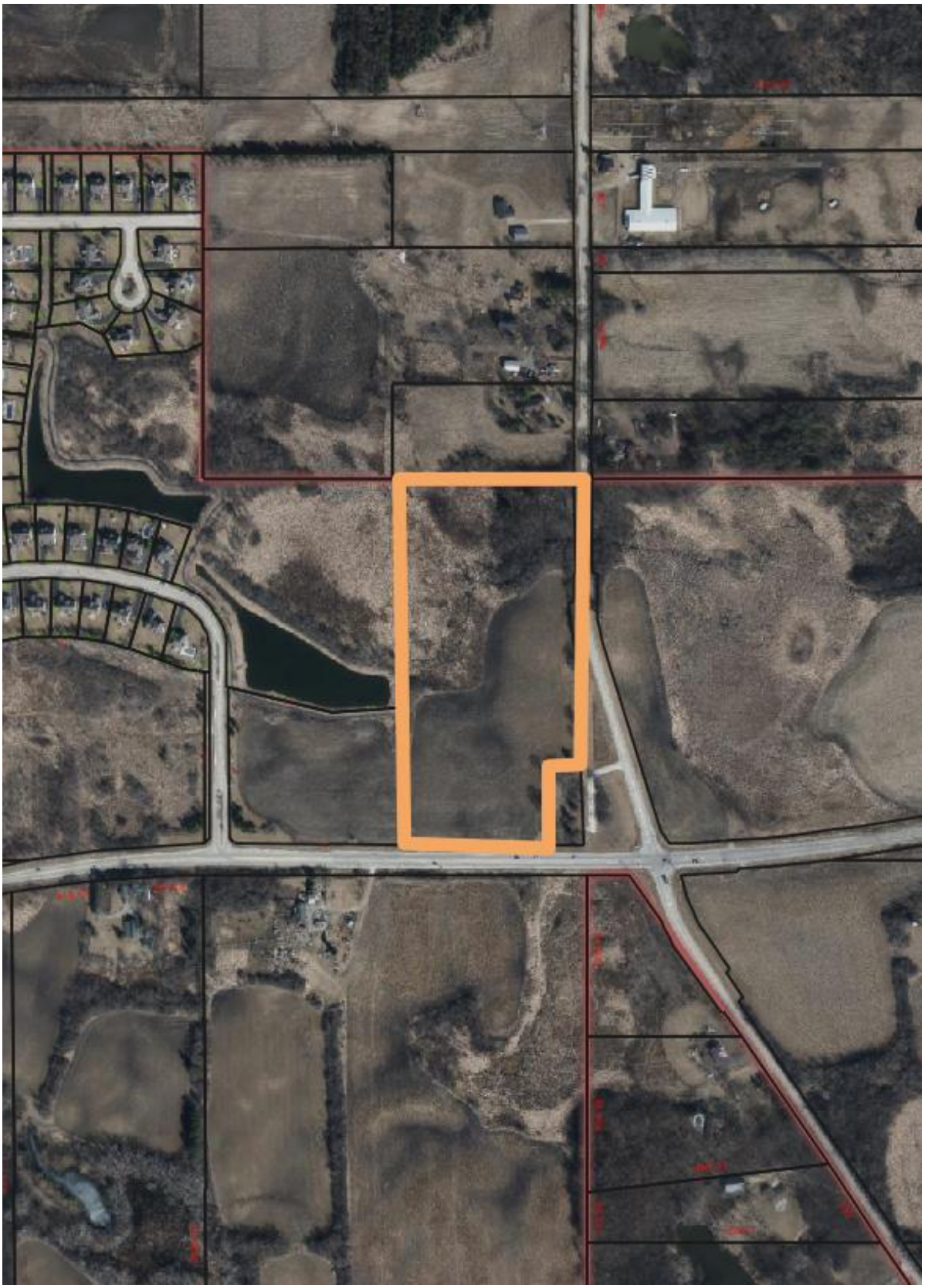
9. The structural integrity of the tower and antenna will continue to comply with state and federal standards, local building codes, and the applicable standards for towers published by the American National Standards Institute (ANSI), as amended. If, upon inspection, it is determined a tower fails to comply with such standards and constitutes a danger to persons or property, the owner shall be notified that he/she has 30 days to bring the tower into compliance. Failure to bring the tower into compliance within 30 days shall constitute grounds for the removal of the tower at the owner's expense.

10. The tower and antennas shall meet or exceed current standards and regulations of the FAA, the FCC, and any other agency of the state or federal government that regulates towers and antennas. If such standards and regulations change, owners shall be responsible for bringing the towers and antennas into compliance with the changed standards and regulations within six months of their effective date, unless a different compliance schedule is mandated by the controlling regulations (Failure to bring towers and antennas into compliance shall constitute grounds for removal of the tower or antenna, at the owner's expense.).

11. The petitioner shall address all of the review comments and requirements of the Community Development, Public Works and Engineering, Fire and Police Departments.

PIQ Map

NWC Route 176 and Mt. Thabor Road



BEFORE THE PLANNING AND ZONING COMMISSION OF THE CITY OF CRYSTAL LAKE, MCHENRY COUNTY, ILLINOIS

IN THE MATTER OF THE APPLICATION OF Colliers Engineering & Design LEGAL NOTICE Notice is hereby given in compliance with the Unified Development Ordinance (UDO) of the City of Crystal Lake, Illinois, that a public hearing will be held before the Planning and Zoning Commission upon the application by Peter Schau with Colliers Engineering & Design, representing Tower-North Development LLC and Verizon Wireless, on behalf of Randy Funk, Crystal Lake Union Cemetery President for approval of a Special Use Permit to allow a Wireless Communication Tower at the following real estate at the Northwest Corner of Mt. Thabor Road and Illinois Route 176, Crystal Lake, Illinois 60014, PIN: 13-34-100-024.

This application is filed for the purpose of seeking a Special Use Permit to allow a new 125-foot Wireless Communication Tower pursuant to Unified Development Ordinance Article 2, Article 4, and Article 9.

Plans for this project can be viewed at the City of Crystal Lake Planning and Economic Development Department at City Hall. A public hearing before the Planning and Zoning Commission on the request will be held at 7:00 p.m. on Wednesday, September 16, 2026, at the Crystal Lake City Hall, 100 West Woodstock Street, at which time and place any person determining to be heard may be present.

Jeff Greenman, Chairperson
Planning and Zoning Commission,
City of Crystal Lake

(Published Northwest Herald Aug. 27, 2026) 2346586

Certificate of the Publication

Northwest Herald

Description:CRYSTAL-TN 176 & HALIGUS
2346586
224-766-0328 CALLED

MCHENRY COUNTY PREPAID LEGALS
PO BOX 250
CRYSTAL LAKE IL 60014

Shaw Media certifies that it is the publisher of the Northwest Herald. The Northwest Herald is a secular newspaper, has been continuously published daily for more than fifty (50) weeks prior to the first publication of the attached notice, is published in the City of Crystal Lake, County of McHenry, State of Illinois, is of general circulation throughout that county and surrounding area, and is a newspaper as defined by 715 ILCS 5/5.

A notice, a true copy of which is attached, was published one time(s) in the Northwest Herald, namely one time per week for one successive week(s). Publication of the notice was made in the newspaper, dated and published on
08/27/2026

This notice was also placed on a statewide public notice website as required by 715 ILCS 5/2.1.
In witness, Shaw Media has signed this certificate by Jennifer Heintzelman, its Director of Public Notices, at Crystal Lake, Illinois, on
27th day of August, A.D. 2026

Shaw Media By:

Shaw Media, Director of Public Notices

By: /Jennifer Heintzelman/
its Director of Public Notices

Account Number 10069745 Amount $124.84

Ad Number: 2346586

BEFORE THE PLANNING AND ZONING COMMISSION OF THE CITY OF CRYSTAL LAKE, MCHENRY COUNTY, ILLINOIS

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Jeff Greenman, Chairperson
Planning and Zoning Commission, City of Crystal Lake
(Published Northwest Herald Aug. 27, 2026) 2346586

STATE OF ILLINOIS

COUNTY OF MCHENRY

IN THE MATTER OF THE APPLICATION OF
Colliers Engineering & Design;

AFFIDAVIT

Peter E. Schau, being first duly sworn on oath deposes and states as follows:

A. That a copy of the legal notice, concerning the hearing date for the above mentioned Petitioner, was sent to each of the persons named on the attached list by regular mail notifying them of the hearing before the Planning and Zoning Commission on September 16, 2026, at 7:00 p.m., at the City of Crystal Lake City Hall, 100 West Woodstock Street in Crystal Lake, Illinois. Said notice was mailed to each of the below mentioned persons by regular mail on August 25, 2026.

B. That the posting requirements of the Unified Development Ordinance have been complied with by placing the customary public notice sign on the subject property on August 26, 2026.

Peter E. Schau
(SIGN NAME IN PRESEANCE OF A NOTARY)

Subscribed and Sworn to me before
This 31st day of August, 2026

Cindi Sievertson
Notary Public

OFFICIAL SEAL
CINDI ANN SIEVERTSON
Notary Public, State of Illinois
Commission No. 1028761
My Commission Expires
March 30, 2030

City of Crystal Lake
Development Application

Office Use Only
File # _____

Project Title: 176 & Haligus

Action Requested

___	**Annexation**	___	**Preliminary PUD**
___	**Comprehensive Plan Amendment**	___	**Preliminary Plat of Subdivision**
___	**Conceptual PUD Review**	___	**Rezoning**
___	**Final PUD**	X	**Special Use Permit**
___	**Final PUD Amendment**	___	**Variation**
___	**Final Plat of Subdivision**	___	**Other**

Petitioner Information

Name: TowerNorth Development, LLC & Verizon Wireless

Address: [redacted]

Phone: [redacted]

Fax: N/A

E-mail: [redacted]

Owner Information (if different)

Name: Crystal Lake Union Cemetery Association

Address: [redacted]

Phone: [redacted]

Fax: N/A

E-mail: [redacted]

Property Information

Project Description: Construction, Installation, and operation of an unmanned wireless communications tower facility including a new 125' tall (129' overall height w/lightning rod) monopole tower, antennas and equipment mounted at the 120' centerline, BTS equipment cabinet cluster and emergency backup power generator installed at grade within a 50' x 50' fenced compound and new access drive from Mt. Thabor Road.

Project Address/Location: 16.95 acre parcel located at the Northwest corner of Mt. Thabor Road and Illinois Route 176, Crystal Lake, Illinois 60014

PIN Number(s): 13-34-100-024

Development Team

Please include address, phone, fax and e-mail

Developer: TowerNorth Development, LLC, 2400 Ansys Drive, PA 15317 c/o; Mary Caulfield, Site Development Manager [redacted]

(Tower/Foundation Design) **Architect:** Ehresmann Engineering, 4400 West 31st Street, Yankton, SD [redacted]

Attorney: N/A

Engineer: Terra Consulting Group / Colliers Engineering & Design, 600 Busse Hwy, Park Ridge, IL 60068 c/o: [redacted]

Landscape Architect: Terra Consulting Group / Colliers Engineering & Design, 600 Busse Hwy, Park Ridge, IL 60068 c/o: John J. Zimmerman [redacted]

Planner: N/A

Surveyor: XCel Consultants, 120 10th Avenue East, Suite 3, Milan, IL 61264 [redacted]

Other:

Signatures

[redacted] Peter Schau, agent for Petitioner 7/29/26

PETITIONER: Print and Sign name (*if different from owner*) **Date**

As owner of the property in question, I hereby authorize the seeking of the above requested action.

See Attached Authorization Letter

OWNER: Print and Sign name **Date**

NOTE: If the property is held in trust, the trust officer must sign this petition as owner. In addition, the trust officer must provide a letter that names all beneficiaries of the trust.

Colliers
Engineering & Design

Via: Electronic Submittal-ezApp Portal

July 29, 2026

Kathryn Cowlin
Director of Community Development
City of Crystal Lake
100 W. Woodstock Street
Crystal Lake, IL 60014

Re: City of Crystal Lake Special Use Permit Application- TowerNorth Development, LLC & Verizon Wireless-New Wireless Communications Tower Facility-Crystal Lake Union Cemetery Association Property-Mt. Thabor Road, Crystal Lake, IL 60014. Parcel ID #: 13-34-100-024

Dear Ms. Cowlin,

On behalf of our client(s) TowerNorth Development, LLC ("TowerNorth") and Verizon Wireless ("Verizon"), enclosed please find the following project information for a Special Use Permit Application request for a new Wireless Communications Tower Facility at the above referenced location:

1. City of Crystal Lake Special Use Permit Application Information has been completed in the ezApp portal.
2. TowerNorth and Verizon project construction drawings.
3. Site Survey including FAA 1A Certification information from a licensed land surveyor.
4. Stamped tower design letter from Ershmann Engineering including tower "failure point" and "fall zone" design radius.
5. Stamped tower design report from Ershmann Engineering certifying the tower design standards for this project including the monopole structures capacity for a minimum of four (4) separate tower mounted antenna/equipment installations including the one contemplated by Verizon.
6. FAA Determination of No Hazard to Air Navigation for proposed wireless communications tower facility.
7. FCC Antenna Structure Registration for proposed wireless communications tower facility.
8. Copies of the applicable Verizon FCC license information for the services it will operate at the wireless communications tower facility.
9. Verizon RF Propagation Map/Summary Report demonstrating its locational and height needs for the proposed facility.
10. Verizon Radio Frequency Exposure / FCC Compliance Assessment demonstrating compliance with FCC nonionizing radiation requirements.

This is a joint application for a proposed new communications tower facility which will be owned by TowerNorth, a national owner and operator of wireless communications infrastructure, and an antenna and equipment installation upon this new communications tower facility by its proposed tenant, Verizon.

Verizon needs a new facility in this location to bridge a gap in its service coverage in the Crystal Lake area near the intersection of State Route 176 and Haligus/Mt Thabor Rd including the surrounding resident and visitor populations in the Town of Germfask. The application and its corresponding submittal

information have been prepared in accordance with *City of Crystal Lake Unified Development Ordinance Section 2-400, Limited and special use criteria, Sub B. General Standards for all special uses;* and *Section 2-400, Limited and special use criteria, Sub. C. Review criteria for specific uses, (48) Radio transmission towers, wireless communication facilities*.

It is not uncommon for wireless telecommunications service providers such as Verizon to engage the services of a tower company like TowerNorth to construct, own, and operate the infrastructure upon which they desire to locate their equipment. In this case, Verizon needs the site to meet its network engineering requirements for the defined search area and has engaged TowerNorth to participate as the tower developer/owner for the project.

The proposed project is for the construction, installation, and operation of an unmanned wireless communications tower facility upon the above referenced property owned by the Crystal Lake Union Cemetery Association. This facility will consist of Verizon antennas and equipment to be mounted at the 120' centerline of a newly constructed TowerNorth owned 125' monopole tower (129' overall height with lightning rod), associated coaxial/hybrid cable runs down the interior of the tower, and a 7' 6"' x 11' 6" Verizon equipment cabinet cluster and emergency backup power generator (4' x 9' 6") which will be housed upon new concrete pads/foundations near the base of the tower all within an initial 50' x 50' fenced TowerNorth compound area as shown in the enclosed plans. The fenced compound area will be surrounded by evergreen shrubs to minimize any potential visual impact at ground level to the surrounding area viewsheds. Also, a 30' foot wide access and utility easement will be utilized to serve the site, entering the property from the public way via creation of a new access drive from Mt Thabor Road to the east.

This Special Use Permit will result in great benefit for the community, in that it will provide additional wireless communication services to an area that currently features inconsistent coverage/service options. Besides the services which will be provided by Verizon, the tower facility has been designed so it will be available for at least three (3) other comparable antenna and equipment installations and shall conform to all applicable ANSI/TIA 222-I, FCC, and FAA regulations and standards governing such facilities. Multiple company collocations on its infrastructure are the core of TowerNorth's business, and TowerNorth actively markets its portfolio of tower sites for collocation to all communication users nationwide, on a commercially reasonable basis, and will do so for this site as well.

The proposed facility will not require any public participation or result in any public cost for public facilities and services which would be detrimental to the economic welfare of the community. In fact, the wireless communication services offered by Verizon are desired by both businesses and individuals alike and will be an economic asset to the community. The enhanced E-911 services provided by facilities such as these will also assist in the protection of the public health, safety, and welfare of the community.

This site is in the Estate Zoning District (E) and meets all applicable district and highway setbacks. The location for the proposed 125' tower structure is setback from the nearest property line by approximately 82', a distance that exceeds the 50' minimum yard setback requirement for monopole type towers. Even though the tower meets all applicable setback requirements, enclosed please find a stamped engineering letter from Ershmann Engineering, TowerNorth's tower manufacturer for the project, ensuring that the tower will be designed to include a 'failure point' at the 84.5' elevation, less than 50' from the top of the 125' tall tower, to ensure that the upper section of the tower will fold over on itself in the event of structural failure.

Colliers
Engineering & Design

The placement of the proposed tower structure and facilities was carefully chosen with the property owner to best conform with the current and potential future use(s) of the underlying property, and to best buffer the facility to all nearby residential properties. The site is located at the north end of a 16.95-acre parent parcel +/-525' north of Route 176, within an agricultural field immediately adjacent to the wooded and wetland natural areas of the Bryn Mawr residential subdivision to the west. The proposed location will be naturally buffered from the nearby pedestrian, vehicular, and residential view sheds by the existing tree cover in and around the subject parcel and throughout the surrounding area. These natural wooded features and the seasonal crops grown on the parent parcel around the proposed site will eliminate the visibility of the base of the facility from the majority of the surrounding external view sheds. Furthermore, permanent landscape screening will be installed around the base of the compound to further obscure it from view. In this location, the proposed wireless communications tower facility will not adversely impact or inhibit the use of other lands in vicinity of the subject parcel.

Besides this overview of the core elements of the proposed project and zoning application, below is a summary of responses to the general standards specified in *Section 2-400, Limited and special use criteria, Sub B. General Standards for all special uses* of the City of Crystal Lake Unified Development Ordinance:

1. **The proposed use is necessary or desirable, at the location involved, to provide a service or facility which will further the public convenience and contribute to the general welfare of the neighborhood or community:** Verizon Wireless' RF engineering group has provided the enclosed propagation maps depicting the anticipated coverage that this site will provide from this location. As the map depicts, the facility closes the service gap between the two neighboring Verizon facilities which will result in less service interruptions and failed or dropped calls as customers move through those areas. There are no existing viable structures which can provide the service improvements needed by Verizon to eliminate the service gap. The nearest tower structure is a cluster of four (4) small AM Antenna Towers located .45 miles northeast of the proposed tower site. We estimate these towers to be no more than 75' in height and they were not designed to support wireless providers' equipment like Verizon's. The proposed facility will provide a great benefit for the community by allowing Verizon, and other similar providers, to improve wireless communication services to the area.

2. **The proposed use will not be detrimental to the value of other properties or improvements in the vicinity:** The proposed unmanned facility will provide highly desired wireless communications services to the surrounding area and be an economic asset to the community. The most recent CDC-Early Release Reports on Wireless Substitution statistics for July-December of 2024 concluded that 78% of American Adults (18 and older) and 86% of American Children (under 18) live in homes with only wireless telephones. High internet speeds and fast, dependable mobile phone connections are increasingly in demand for both professional and personal use, and a must have for most home buyers and will work to support or enhance the value of properties or improvements in the vicinity.

3. **The proposed use will comply with the regulations of the zoning district in which it is located and this Ordinance generally, including, but not limited to, all applicable yard and bulk regulations, parking and loading regulations, sign control regulations, watershed, wetlands, and floodplain regulations, Building and Fire Codes and all other applicable City**

Ordinances: The proposed facility is located within the Estate (E) District and meets all applicable district and highway setbacks. The Estate (E) District, which is one of the few districts designated by the City of Crystal Lake Unified Development Ordinance to be eligible for permit of a wireless communications tower facility by a special use process. The facility has been designed in accordance with all applicable codes including the 2024 Illinois Building Code, TIA/EIA-222-Rev G-I Structural Code, 2024 Illinois Mechanical Code, 2014 Illinois Plumbing Code, 2023 Illinois Electrical Code, 2015 NFPA 101 Fire/Life Safety Code, 2014 Illinois Energy Code, and the 2015 International Fuel Gas Code. In addition, TowerNorth and Verizon intend to comply with all applicable regulations of the City of Crystal Lake Code of Ordinances as they may apply to its use of the site.

4. **The proposed use will not negatively impact the existing off-site traffic circulation; will adequately address on-site traffic circulation; will provide adequate on-site parking facilities; and, if required, will contribute financially, in proportion to its impact, to upgrading roadway and parking systems:** The proposed use will not negatively impact on the existing off site traffic circulation as it is not intended for regular occupation. The communications equipment will operate continuously at this unmanned facility and will require no additional parking or facilities for employees. Once constructed, the Verizon Wireless cell site technicians will visit the site periodically, typically a couple hours once per month, for the testing and monitoring of the maintenance and security of its equipment. TowerNorth personnel will also visit the site periodically to monitor the maintenance and security of the facility, otherwise, the day-to-day operations do not generate any other traffic.

5. **The proposed use will not negatively impact existing public utilities and municipal service delivery systems and, if required, will contribute financially, in proportion to its impact, to the upgrading of public utility systems and municipal service delivery systems:** The facility only requires a single 800 Amp electric service and dedicated fiber optic connections that will have no negative impact to existing public utilities or municipal service delivery systems. TowerNorth and Verizon will procure these services directly from the providers, at no cost to the public. Municipal services such as water and sewer are not required for the proposed use.

6. **The proposed use will not impact negatively on the environment by creating air, noise, or water pollution; ground contamination; or unsightly views:** The unmanned facility does not create any waste that could result in air, noise, or water pollution; sedimentation or ground contamination, or unsightly views. Verizon's emergency power backup generator will only run during periods of loss of commercial power to the area, and once a week for regular scheduled testing. It also contains sound attenuating hoods to mitigate audible sounds to offsite areas.

7. **The proposed use will maintain, where possible, existing mature vegetation; provide adequate screening to residential properties; provide landscaping in forms of ground covers, trees and shrubs; and provide architecture, which is aesthetically appealing, compatible or complementary to surrounding properties and acceptable by community standards, as further detailed in Article 4, Development and Design Standards:** There already are mature trees and vegetation around the parent parcel on which the tower facility is proposed which will assist in screening it from surrounding viewsheds. The proposed plan includes the installation of evergreen shrubs planted around the entire facility in an alternative pattern and five feet on center in compliance with the landscaping requirements of the City of

Crystal Lake ordinance provisions regulating communication tower facilities to further assist in this effort. The tower will be a sleek monopole design with a brushed non-reflective galvanized finish, and only 125' tall (129' with lighting rod) avoiding the need for FAA tower lighting or marking of any kind. For all these reasons, we feel the proposed use is harmonious with the existing use and character of the surrounding area.

8. **That the proposed use will meet standards and requirements established by jurisdictions other than the City such as federal, state or county statutes requiring licensing procedures or health/safety inspections, and submit written evidence thereof:** Enclosed is a copy of the Verizon's FCC license information and Radio Frequency Exposure / FCC Compliance Assessment. TowerNorth will ensure that all equipment installations in operation at the site will conform to all applicable ANSI/TIA 222-I, FCC, and FAA regulations and standards governing such facilities.

9. **The proposed use shall conform to any stipulations or conditions approved as part of a special use permit issued for such use:** TowerNorth and Verizon will conform to all lawful stipulations or conditions approved as part of a special use permit issued for such use.

10. **The proposed use shall conform to the standards established for specific special uses as provided in this section:** The proposed use was designed to meet all the specific use requirements as contained in the City of Crystal Lake Unified Development Ordinance *Sec. 2-400 (48) Radio transmission towers, Wireless communication facilities*.

I believe the above information satisfies the application requirements as defined by the City of Crystal Lake Unified Development Ordinance and is ready for consideration by the City of Crystal Lake Planning and Zoning Commission. I look forward to the public hearing for this request and will be present at all meetings to address any remaining questions that the Planning Commission, City Counsel, or members of the public may have regarding the application and proposed use of the site.

Should you have any additional information needs or questions regarding the application, the enclosed [redacted]

Sincerely,

Peter Schau

Peter Schau
Colliers Engineering & Design (formally Terra Consulting Group)
on behalf of TowerNorth Development, LLC and Verizon Wireless

Enclosures as described

TERRA CONSULTING GROUP
has joined Colliers Engineering & Design

May 28, 2026

Mr. Randolph Funk
Crystal Lake Union Cemetery Association
[redacted]
Crystal Lake, IL 60039

Re: TowerNorth Development, LLC (TowerNorth)/Verizon Wireless-Wireless Communications Tower Facility/Crystal Lake Union Cemetery Association Property – Mt. Thabor Road, Crystal Lake, IL

PIN: 13-34-100-024

Dear Mr. Funk,

Please acknowledge this letter below as evidence of your consent for Terra Consulting Group, to file for all necessary zoning, building, erosion control, and other governmental use applications required for the proposed use of a Wireless Communications Tower Facility upon the above referenced property, by TowerNorth as your tenant, and Verizon Wireless as TowerNorth's prospective subtenant, with the City of Crystal Lake and McHenry County on your behalf as the fee owner of the property.

Thank you for your time and assistance in the matter.

Sincerely,

Peter Schau
Peter Schau
On behalf of TowerNorth and Verizon Wireless

Acknowledged this 5th day of June, 2026
[redacted]

TowerNorth
2400 ANSYS DRIVE, SUITE 102
CANONSBURG, PA 15317
SITEACCESS@TOWERNORTH.COM
1-800-821-5825x2

LICENSED PROFESSIONAL ENGINEER
JOHN J. ZIMMERMANN
062-047267
STATE OF ILLINOIS
7-29-2026
Exp 11/30/2027

176 & HALIGUS - A

IL1502-A

MT. THABOR ROAD
CRYSTAL LAKE, IL 60014
McHENRY COUNTY

MDG LOCATION NUMBER: 5000348752

FUZE ID NUMBER: 17495287

PROJECT INFORMATION

TOWER OWNER SITE
SITE NAME: 176 & HALIGUS - A
SITE #: IL1502-A

VERIZON WIRELESS SITE
SITE NAME: 176 & HALIGUS - A
PROJECT#: 17495287
MARKET ID: IL/WI
MDG#: 5000348752

SITE ADDRESS
MT. THABOR ROAD
CRYSTAL LAKE, IL 60014
McHENRY COUNTY
E911 ADDRESS: TBD

TOWER OWNER
TOWERNORTH DEVELOPMENT, LLC
2400 ANSYS DRIVE, SUITE 102
CANONSBURG, PA 15317
CONTACT: MARY CAUFIELD
PH: (978) 994-052
MCAUFIELD@TOWERNORTH.COM

PROPERTY OWNER
CRYSTAL LAKE UNION
CEMETERY ASSOCIATION
P.O. BOX 646
CRYSTAL LAKE, IL 60039
CONTACT: RANDY FUNK
PHONE: (815) 236.5340

PROJECT TYPE
CONSTRUCTION TYPE: RAWLAND
TOWER TYPE: 125' MONOPOLE TOWER
LIGHTNING ROD: 4' LIGHTNING ROD
OVER ALL TOWER HEIGHT: 129'

POLICE
POLICE DEPT.
100 W WOODSTOCK ST
CRYSTAL LAKE, IL 60014
PHONE: 815-459-2020

FIRE
FIRE DEPT.
100 W WOODSTOCK ST
CRYSTAL LAKE, IL 60014
PHONE: 815-459-2020

GENERAL INFORMATION
LATITUDE - 42° 14' 58.36" N (1A)
LONGITUDE - 88° 24' 14.90" W (1A)
1983 (NAD83)
ELEVATION - 918.3' AMSL (1A)
1988 (NAVD88)

TOWER OWNER LEASE AREA
75'-0" x 75'-0"
(5625SF)

VERIZON WIRELESS LEASE AREA
12'-0" x 25'-0"
(300 SF)

PROJECT TOTAL DISTURBED AREA
COMPOUND: (5625 SF)
ACCESS DRIVE: (2859 SF)
GROSS AREA: (8484 SF)

PROJECT DESCRIPTION

- ALL WORK ITEMS WITHIN THESE CONSTRUCTION DOCUMENTS ARE TO BE CONSTRUCTED BY THE VERIZON WIRELESS GENERAL CONTRACTOR AND THEIR SUB-CONTRACTOR(S), AND IS GENERALLY DESCRIBED BELOW.

ITEM OF WORK

TOWERNORTH SCOPE OF WORK
INSTALL THE TOWER
INSTALL THE FENCED GRAVEL COMPOUND AND ALL GENERAL SITE CONSTRUCTION ITEMS
INSTALL A GRAVEL ACCESS DRIVE
INSTALL TOWER AND SITE GROUNDING
INSTALL VERIZON GROUNDING (IN VERIZON LEASE SPACE)
INSTALL NEW ELECTRICAL SERVICE TO THE NEW UTILITY H-FRAME
OBTAIN VERIZON METER WITH THE NEW ELECTRICAL SERVICE REQUEST
INSTALL CONCRETE FOUNDATIONS FOR VERIZON EQUIPMENT AND GENERATOR
INSTALL VERIZON PROPANE TANK CONCRETE FOUNDATION AND BELOW GRADE FUEL LINE CONDUIT (ONLY FOR SITES WITH PROPANE GENERATOR AND TANK)
INSTALL VERIZON ICE BRIDGE AND FOUNDATIONS
INSTALL VERIZON EQUIPMENT H-FRAME w/ FOUNDATION, AND ICE PROTECTION
INSTALL ELECTRICAL SERVICE CONDUIT WITH PULL TAPE FROM UTILITY H-FRAME TO VERIZON ILC STUB UP LOCATION
INSTALL CONDUIT(S) WITH PULL TAPE FROM VERIZON ILC STUB UP LOCATION TO GENERATOR STUB UP LOCATION
INSTALL TELCO CONDUIT(S) W/ TRACER WIRE FROM HANDHOLE(S) AT PUBLIC R.O.W. TO THE UTILITY H-FRAME OR HANDHOLE(S) AT COMPOUND - VERIZON HANDHOLE(S) TO BE LABELLED AS "VERIZON WIRELESS ONLY"
INSTALL VERIZON ONLY TELCO CONDUIT W/ TRACER WIRE FROM UTILITY H-FRAME/COMPOUND HANDHOLE TO VERIZON EQUIPMENT H-FRAME
VERIZON SCOPE OF WORK
INSTALL VERIZON EQUIPMENT CABINET(S), GENERATOR AND PREFABRICATED CANOPY AND SUPPORTS
INSTALL VERIZON PROPANE TANK AND FUEL LINE TO GENERATOR (ONLY FOR SITES WITH PROPANE GENERATOR AND TANK)
CONNECT SUBSURFACE GROUND LEADS (INSTALLED BY TOWER OWNER) TO VERIZON EQUIPMENT AND FACILITIES
FURNISH AND INSTALL VERIZON ANTENNA MOUNT ASSEMBLY ON TOWER
INSTALL VERIZON ANTENNAS, LINES, RADIO EQUIPMENT, AND GPS ANTENNA
INSTALL GROUND OVP AND CABLING ON VERIZON EQUIPMENT H-FRAME
INSTALL ILC ENCLOSURE, POWER AND FIBER JUNCTION BOXES AND ASSOCIATED CONDUITS WITH PULL TAPES ON VERIZON EQUIPMENT H-FRAME
INSTALL VERIZON ELECTRIC SERVICE CONDUCTORS FROM UTILITY H-FRAME TO ILC ENCLOSURE ON VERIZON EQUIPMENT H-FRAME
INSTALL CIRCUITS FROM ILC ENCLOSURE TO VERIZON EQUIPMENT CABINET(S) AND GENERATOR.

APPLICABLE CODES

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

BUILDING CODE	2024 ILLINOIS BUILDING CODE (IBC 2024)
STRUCTURAL CODE	TIA/EIA-222 - REVISION G
MECHANICAL CODE	2024 ILLINOIS MECHANICAL CODE (IMC 2024)
PLUMBING CODE	2014 ILLINOIS PLUMBING CODE
ELECTRICAL CODE	2023 ILLINOIS ELECTRICAL CODE (NEC) - NFPA 70, 2023
FIRE/LIFE SAFETY CODE	2015 NFPA 101
ENERGY CODE (COMMERCIAL)	2014 ILLINOIS ENERGY CODE ASHRAE 90.1-200
GAS CODE	2015 INTERNATIONAL FUEL GAS CODE

ACCESSIBILITY REQUIREMENTS:
FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS REQUIREMENTS ARE NOT REQUIRED IN ACCORDANCE WITH THE 2012 IBC BUILDING CODE.

CONSULTANT TEAM

PROJECT CONSULTANT
TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
(847) 698-6400

SURVEYOR
XCEL CONSULTANTS
8300 42ND STREET WEST
ROCK ISLAND, IL 61201
(309) 787-9988

ELECTRICAL
COMED
P.O. BOX 6111
CAROL STREAM, ILLINOIS 60197
CONTACT: NICOLE WILLIAMS
PHONE: 779-231-0461
ACCOUNT # : 6606987689

DRAWING INDEX

SHEET NUMBER	DESCRIPTION
T-1	PROJECT INFORMATION, SITE MAPS, SHEET INDEX SURVEY PLAN
CIVIL	
C-1	OVERALL SITE PLAN w/AERIAL OVERLAY
C-1A	OVERALL SITE PLAN w/EQUIPMENT PAD DISTANCE TO PROPERTY LINES
C-1B	TOWER DISTANCE TO RESIDENTIAL STRUCTURES
C-2	GRADING AND E&S CONTROL PLAN
C-3	DETAILED & DIMENSIONED SITE PLAN
C-4	DETAILED EQUIPMENT PAD PLAN
C-5	GENERAL SITE CONSTRUCTION NOTES
C-5A	SPECIFICATIONS
C-5B	SPECIFICATIONS
C-6	BEST MANAGEMENT PRACTICES & EROSION CONTROL DETAILS AND NOTES
SITE DETAILS	
D-1	FENCE DETAILS AND NOTES
D-2	SITE DETAILS
D-2A	SITE DETAILS
D-2 B	SITE DETAILS
D-3	EQUIPMENT PAD & CANOPY ELEVATIONS
D-4	VERIZON WIRELESS SIGNAGE (REFERENCE ONLY)
L-1	LANDSCAPE PLAN, DETAILS AND NOTES
STRUCTURAL	
S-1	EQUIPMENT PAD FOUNDATION PLAN, DETAILS AND STRUCTURAL NOTES
S-2	ICE BRIDGE PLAN AND DETAILS
S-3	FOUNDATION PLAN AND DETAILS
TOWER ELEVATION	
TE-1	TOWER ELEVATION
ELECTRICAL	
E-0	ELECTRICAL NOTES
E-1	UTILITY SERVICE PLAN
E-1A	SITE UTILITY PLAN
E-2	PANEL SCHEDULE, ONE LINE DIAGRAM, ELECTRICAL NOTES AND DETAILS
E-3	EQUIPMENT PAD UTILITY PLAN & EQUIPMENT PAD TRENCH SECTIONS
E-4	OVP & INTEGRATED LOAD CENTER H-FRAME ELEVATIONS AND DETAILS
E-5	ELECTRICAL DETAILS
E-6	EQUIPMENT CABINET ELEVATIONS
E-7	EQUIPMENT PAD LIGHTING PLAN
E-8	ALARMING TABLE, WIRING, DIAGRAMS AND DETAILS (REFERENCE ONLY)
GROUNDING	
G-1	GROUNDING SITE PLAN
G-2	GROUNDING NOTES
G-3	VERIZON WIRELESS GROUNDING PLAN AND NOTES
G-4	GROUNDING DETAILS
G-5	GROUNDING DETAILS
G-6	GROUNDING DETAILS
REFERENCE DRAWINGS	
RF-1	ANTENNA PLAN AND DETAILS (REFERENCE ONLY)
REF-1	GENERATOR SPECIFICATIONS (REFERENCE ONLY)
REF-1A	GENERATOR SPECIFICATIONS (REFERENCE ONLY)
PL-1	SITE PHOTO LOG (REFERENCE ONLY)

GENERATOR TYPE:	DIESEL (30KW TERTIARY)
MAKE:	KOHLER
MODEL #:	30REOZK TANK, 203 GAL 76.18x31.89x41 UL142

VICINITY MAP

N.T.S.



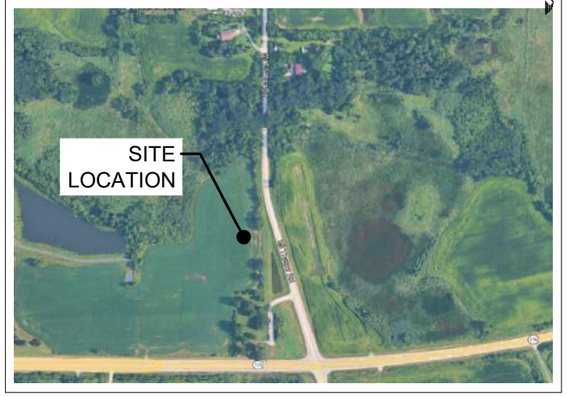
LOCATION MAP

N.T.S.



AERIAL

N.T.S.



PREPARED FOR
TowerNorth
2400 ANSYS DRIVE, SUITE 102
CANONSBURG, PA 15317
SITEACCESS@TOWERNORTH.COM
1-800-821-5825x2

PLANS PREPARED BY:
TERRA CONSULTING GROUP
has joined Colliers Engineering & Design

CARRIER:
verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

REVISIONS

NO	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	10/06/25	TJS
1	ADDITION OF LANDSCAPE PLAN	10/10/25	TJS
2	UPDATE WITH POWER COORDINATION	12/18/25	JJR
3	ADDED EROSION CONTROL & SWAPPED GEN	01/02726	APD
4	REVISED TOWER BASE SIZE	04/02/26	TJS
5	REVISED PER COMMENTS	05/13/26	PP
6	REVISED PER NEW TEMPLATE/ ISSUED FOR PERMIT	07/29/26	GD

SITE #IL1502-A
MDG LOC# 5000348752
FUZE ID: 17495287

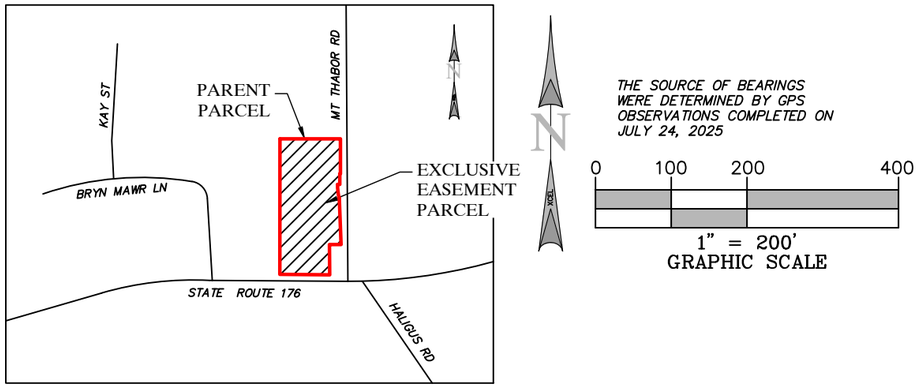
176 & HALIGUS - A

MT. THABOR ROAD
CRYSTAL LAKE, IL 60014
McHENRY COUNTY

DRAWN BY:	GAD
CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1



VICINITY MAP

NOT TO SCALE

THE SOURCE OF BEARINGS WERE DETERMINED BY GPS OBSERVATIONS COMPLETED ON JULY 24, 2025

0 100 200 400

1" = 200'
GRAPHIC SCALE

* FAA COORDINATE POINT

NAD 83
LATITUDE: 42°14'58.3662" (42.24954617)
LONGITUDE: −88°24'14.9080" (−88.40414110)
NAVD88
ELEVATION: 918.3'± AMSL

TEMPORARY BENCHMARK

NORTHING: 2033508.63984574
EASTING: 965205.83086211
ELEVATION: 917.6'± AMSL
DESCRIPTION: SET IRON ROD

GLOBAL POSITIONING SYSTEMS NOTE

1. RANDOM TRAVERSE CONTROL MONUMENTS WERE SET USING GPS METHODS. A PORTION OF THE TOPOGRAPHY AND FOUND BOUNDARY MONUMENTS WERE ALSO LOCATED USING GPS METHODS.
2. THE TYPE OF GPS UTILIZES AS NETWORK ADJUSTED REAL TIME KINEMATIC (HYPER SR NETWORK), HARN/IL ILLINOIS STATE PLANES, EAST ZONE, US FOOT.
3. TOPCON HIPER VR AND/OR VRX RECEIVERS WERE USED TO PERFORM THE SURVEY.

GENERAL NOTES

NO SEARCH OF PUBLIC RECORDS HAS BEEN COMPLETED BY XCEL CONSULTANTS TO DETERMINE ANY DEFECTS AND/OR AMBIGUITIES IN THE TITLE OF THE PARENT PARCEL.

THIS SURVEY IS FOR THE PROPOSED EXCLUSIVE EASEMENT PARCEL AND THE PROPOSED EASEMENTS ONLY, AND ONLY A PARTIAL BOUNDARY SURVEY OF THE PARENT PARCEL HAS BEEN PERFORMED.

THIS PLAT IS NOT INTENDED FOR LAND TRANSFER.

THIS PROPERTY IS SUBJECT TO ANY RECORDED EASEMENTS AND/OR RIGHTS OF WAY SHOWN HEREON OR NOT.

XCEL CONSULTANTS HAS RECEIVED AND REVIEWED THE TITLE COMMITMENT PREPARED XCEL CONSULTANTS HAS RECEIVED AND REVIEWED THE TITLE COMMITMENT PREPARED BY TOWER TITLE, AS TITLE NUMBER TN−212935−PR, DATED 7−28−2025 AT 5:56:39 P.M. PREPARED FOR THE SUBJECT PROPERTY, TO DETERMINE THE IMPACTS OF EXISTING TITLE EXCEPTIONS.

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS LOCATED IN ZONE "X" (AREA OF MINIMAL FLOOD HAZARD) OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 17111C0310J AND 17111C0200J, WHICH BOTH BEAR AN EFFECTIVE DATE OF NOVEMBER 16, 2006 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA. NO FIELD SURVEYING WAS PERFORMED TO DETERMINE THIS ZONE AND AN ELEVATION CERTIFICATE MAY BE NEEDED TO VERIFY THIS DETERMINATION OR APPLY FOR A VARIANCE FROM THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

NO WETLANDS AREAS HAVE BEEN INVESTIGATED BY THIS SURVEY

THERE WERE NO STREAMS, DRAINAGE DITCHES OR PIPES, OR RIVERS RUNNING THROUGH OR BORDERING THE PARENT PARCEL, EXCLUSIVE EASEMENT PARCEL NOR NEW EASEMENTS AT THE TIME OF SURVEY.

THE LOCATION OF THE UTILITIES SHOWN HEREON ARE FROM OBSERVED EVIDENCE OF ABOVE GROUND APPURTENANCES AND PER J.U.L.I.E. PLANNING DESIGN TICKET #A251890407. UTILITY SERVICE FOR THIS PROPERTY ARE PROVIDED AT&T DISTRIBUTION, AND TRANSMISSION, COMED, NICOR GAS, AND THE CITY OF CRYSTAL LAKE. ONLY UTILITY MAPS PROVIDED BY SAID COMPANIES ARE SHOWN HEREON. BEFORE DIGGING IN THIS AREA CALLJ.U.L.I.E. AT 811.

TO: TOWER TITLE; TOWER NORTH

I, JAMES A. FAETANINI, AN ILLINOIS PROFESSIONAL LAND SURVEYOR, CERTIFY THAT THE INFORMATION SHOWN HEREON WAS COMPILED USING DATA FROM AN ACTUAL FIELD SURVEY MADE UNDER MY DIRECT SUPERVISION AND THAT THE FIELD SURVEY AND THE COMPILATION OF INFORMATION SHOWN HEREIN WERE CONDUCTED IN ACCORDANCE WITH THE ILLINOIS MINIMUM STANDARDS OF PRACTICE. THE FIELD WORK WAS COMPLETED ON JULY 24, 2025

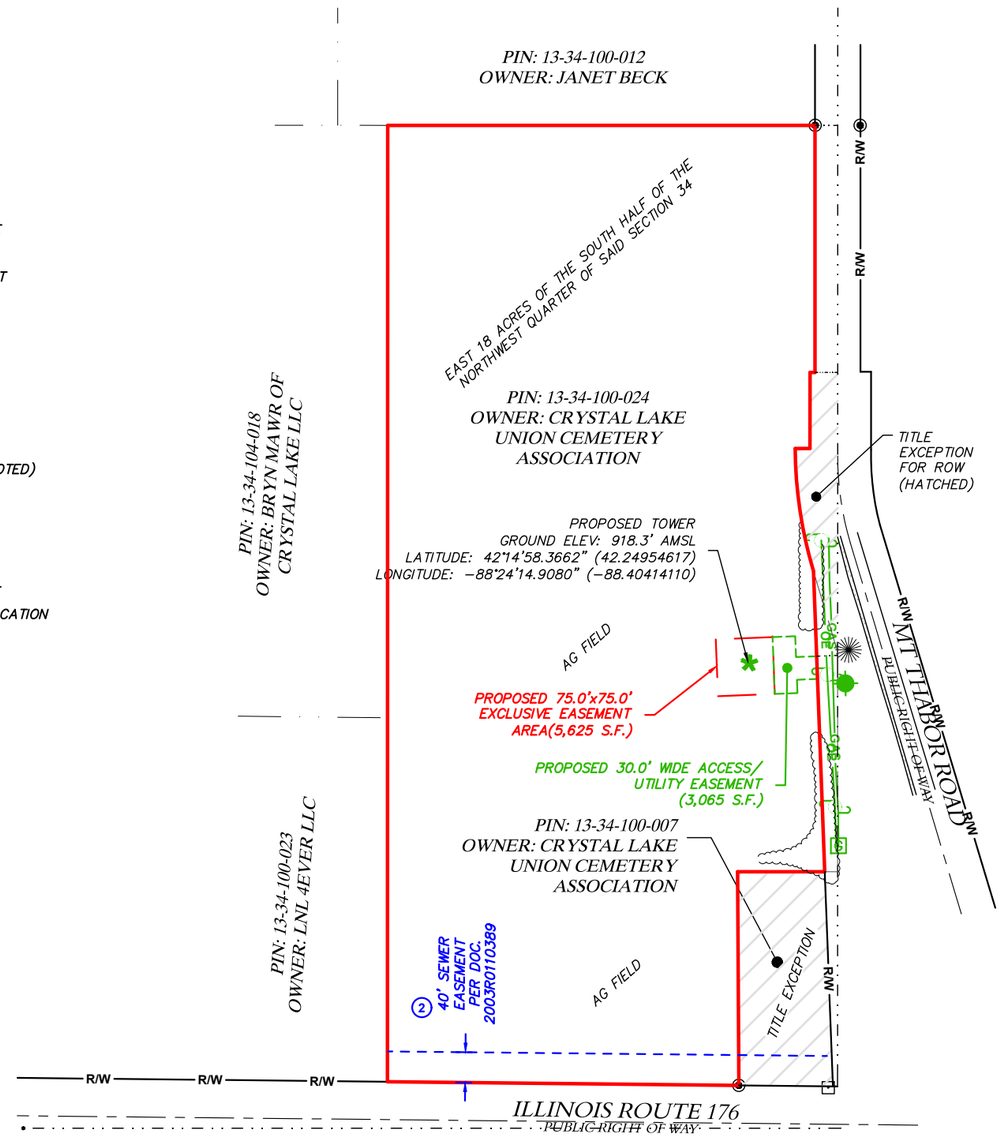
James A Faetanini MAY 13, 2026

JAMES A. FAETANINI
LICENSE NUMBER 035−003494
MY LICENSE RENEWAL DATE IS NOVEMBER 30, 2026
SHEETS COVERED BY THIS SEAL B−1, B−2, AND B−3

PROFESSIONAL LAND SURVEYOR
JAMES A. FAETANINI
NO. 035-003494
ROCK ISLAND
ILLINOIS
STATE OF ILLINOIS

LEGEND

	PROPERTY LINE
	ADJACENT PROPERTY LINE
	EXCLUSIVE EASEMENT
	ACCESS/UTILITY EASEMENT
R/W	RIGHT OF WAY LINE
	SURVEY TIE LINE
	CENTERLINE
	CONTOURS
GAS	GAS LINE
OE	OVERHEAD ELECTRIC LINE
	BENCHMARK
	FOUND MONUMENT (AS NOTED)
	UTILITY POLE
G	GAS LINE MARKER
	3" CALIPER TREE
POB	POINT OF BEGINNING
POC	POINT OF COMMENCEMENT
*	CENTERLINE OF TOWER LOCATION
(M&R)	MEASURED & RECORD
S.F.	SQUARE FEET



SURVEY

TowerNorth
TOWERNORTH DEVELOPMENT, LLC
2400 ANSYS DRIVE, SUITE 102
CANONSBURG, PA 15317

TERRA CONSULTING GROUP, LTD.
600 Busse Highway
Park Ridge, IL 60068
Ph: 847/698−6400
Fax: 847/698−6401

SURVEYED BY:
XCEL Consultants
120 10TH AVENUE EAST, SUITE 3
MILAN, IL 61264
(O) 309−787−9988
(F) 309−756−5540
(E) XCEL@XCELCONSULTANTSINC.COM

XCEL PROJECT NUMBER: 255847

SURVEY

REV.	DATE	DESCRIPTION
1	12/10/25	ISSUED AS FINAL
2	5/13/26	REISSUED AS FINAL

SITE NAME:
176 & HALIGUS - A

TOWERNORTH PROJECT NUMBER: IL-1502-A

MT THABOR ROAD
CRYSTAL LAKE, IL 60014

OWNER:
CRYSTAL LAKE UNION CEMETERY ASSOCIATION
P.O. BOX 464
CRYSTAL LAKE, IL 60039
PARCEL #: 13-34-100-024

MCHENRY COUNTY
ILLINOIS

DRAWN BY:	KJM
CHECKED BY:	BCH
SURVEY DATE:	7/24/2025
PLAT DATE:	5/13/2026

SHEET TITLE:
SURVEY
THIS DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARENT PARCEL

SHEET NUMBER:
B-1

N

THE SOURCE OF BEARINGS WERE DETERMINED BY GPS OBSERVATIONS COMPLETED ON JULY 24, 2025

0 25 50 100

1" = 50'
GRAPHIC SCALE

* FAA COORDINATE POINT

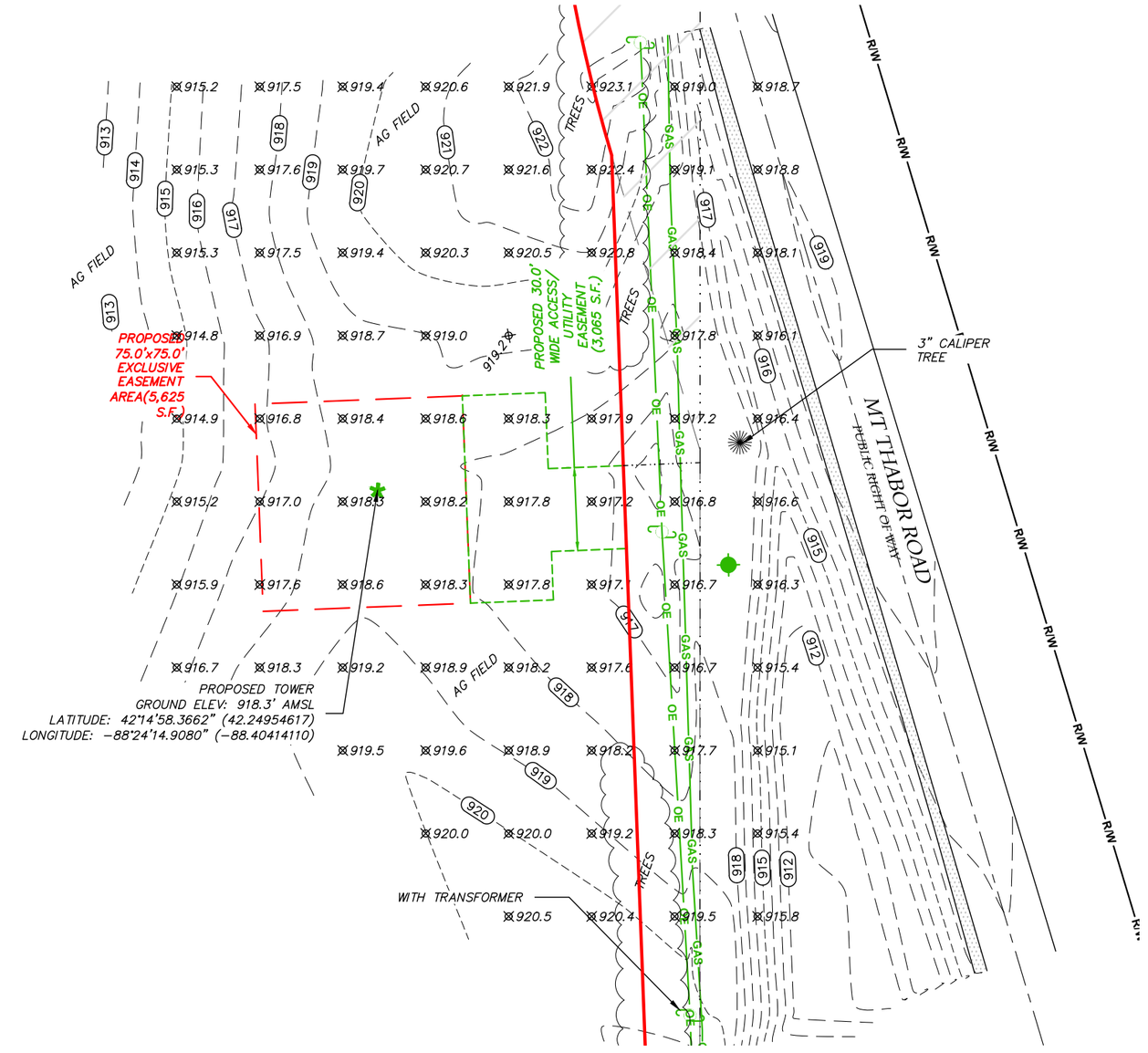
NAD 83
LATITUDE: 42°14'58.3662" (42.24954617)
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LEGEND

	PROPERTY LINE
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S.F.	SQUARE FEET



TO: TOWER TITLE; TOWER NORTH

I, JAMES A. FAETANINI, AN ILLINOIS PROFESSIONAL LAND SURVEYOR, CERTIFY THAT THE INFORMATION SHOWN HEREON WAS COMPILED USING DATA FROM AN ACTUAL FIELD SURVEY MADE UNDER MY DIRECT SUPERVISION AND THAT THE FIELD SURVEY AND THE COMPILATION OF INFORMATION SHOWN HEREIN WERE CONDUCTED IN ACCORDANCE WITH THE ILLINOIS MINIMUM STANDARDS OF PRACTICE. THE FIELD WORK WAS COMPLETED ON JULY 24, 2025

James A Faetanini MAY 13, 2026

JAMES A. FAETANINI
LICENSE NUMBER 035-003494
MY LICENSE RENEWAL DATE IS NOVEMBER 30, 2026
SHEETS COVERED BY THIS SEAL B-1, B-2, AND B-3

PROFESSIONAL LAND SURVEYOR
JAMES A. FAETANINI
NO. 035-003494
ROCK ISLAND
ILLINOIS
STATE OF ILLINOIS

TowerNorth
TOWERNORTH DEVELOPMENT, LLC
2400 ANSYS DRIVE, SUITE 102
CANONSBURG, PA 15317

TERRA CONSULTING GROUP, LTD.
600 Busse Highway
Park Ridge, IL 60068
Ph: 847/698-6400
Fax: 847/698-6401

SURVEYED BY:
XCEL Consultants
120 10TH AVENUE EAST, SUITE 3
MILAN, IL 61264
(O) 309-787-9988
(F) 309-756-5540
(E) XCEL@XCELCONSULTANTSINC.COM

XCEL PROJECT NUMBER: 255847

SURVEY

REV.	DATE	DESCRIPTION
1	12/10/25	ISSUED AS FINAL
2	5/13/26	REISSUED AS FINAL

SITE NAME:
176 & HALIGUS - A

TOWERNORTH PROJECT NUMBER: IL-1502-A

MT THABOR ROAD
CRYSTAL LAKE, IL 60014

OWNER:
CRYSTAL LAKE UNION CEMETERY ASSOCIATION
P.O. BOX 464
CRYSTAL LAKE, IL 60039
PARCEL #: 13-34-100-024

MCHENRY COUNTY
ILLINOIS

DRAWN BY:	KJM
CHECKED BY:	BCH
SURVEY DATE:	7/24/2025
PLAT DATE:	5/13/2026

SHEET TITLE:
SURVEY
THIS DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARENT PARCEL

SHEET NUMBER:
B-2

REPORT OF TITLE:

XCEL CONSULTANTS HAS RECEIVED AND REVIEWED THE TITLE COMMITMENT PREPARED BY TOWER TITLE, AS TITLE NUMBER TN-212935-PR, DATED 7-28-2025 AT 5:56:39 P.M. PREPARED FOR THE SUBJECT PROPERTY, TO DETERMINE THE IMPACTS OF EXISTING TITLE EXCEPTIONS.

EASEMENTS, COVENANTS & RESTRICTIONS LISTED:

1. EASEMENT FOR GAS LINE TO NORTHERN ILLINOIS GAS COMPANY DATED 6/19/1992 AND RECORDED AS DOC. 92R038631. REFERENCES PARENT PROPERTY – LOCATED IN THE RIGHT OF WAY OF STATE ROUTE 176
2. EASEMENT TO THE CITY OF CRYSTAL LAKE DATED 8/5/2003 AND RECORDED AS DOC. 2003R0110389. EASEMENT FOR SEWAGE FACILITY. REFERENCES PARENT PROPERTY – AFFECTS THE SOUTH 40 FEET ABUTTING STATE ROUTE 176 – AS SHOWN

PARENT PARCEL:

THE EAST 18 ACRES OF THE SOUTH HALF OF THE NORTHWEST QUARTER OF SAID SECTION 34, (EXCEPTING AND RESERVING THEREFROM A PIECE OF LAND BOUNDED AND DESCRIBED AS FOLLOWS, TO-WIT: BEGINNING AT THE SOUTHEAST CORNER OF SAID ABOVE DESCRIBED 18 ACRE TRACT, AND RUNNING THENCE NORTH ALONG THE EAST LINE THEREOF 20 RODS; THENCE WEST 8 RODS, THENCE SOUTH 20 RODS; THENCE EAST 8 RODS TO THE PLACE OF BEGINNING), ALL IN TOWNSHIP 44 NORTH, RANGE 7 EAST OF THE THIRD PRINCIPAL MERIDIAN,

LESS AND EXCEPT:

THAT PART OF THE NORTHWEST QUARTER OF SECTION 34, TOWNSHIP 44 NORTH, RANGE 7 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS:
COMMENCING AT THE NORTHEAST CORNER OF THE SOUTH 12 OF THE NORTHWEST 14 OF SAID SECTION 34; THENCE SOUTH 00 DEGREES 13 MINUTES 30 SECONDS EAST, ALONG THE EAST LINE OF SAID NORTHWEST 14 OF SECTION 34, A DISTANCE OF 325.98 FOR THE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID EAST LINE, SOUTH 00 DEGREES 13 MINUTES 30 SECONDS EAST, 368.89 FEET; THENCE NORTH 16 DEGREES 53 MINUTES 34 SECONDS WEST, 111.37 FEET TO AN ARC OF A CIRCLE; THENCE NORTHWESTERLY ALONG AN ARC OF A CIRCLE, HAVING A RADIUS OF 583.00 FEET AND AN ARC DISTANCE OF 164.18 FEET (WHICH CHORD BEARS NORTH 08 DEGREES 43 MINUTES 05 SECONDS WEST AND A CHORD DISTANCE OF 163.64 FEET); THENCE NORTH 89 DEGREES 20 MINUTES 58 SECONDS EAST, 19.56 FEET; THENCE NORTH 00 DEGREES 07 MINUTES 15 SECONDS WEST, 100.27 FEET; THENCE NORTH 89 DEGREES 51 MINUTES 21 SECONDS EAST, 36.39 FEET TO THE POINT OF BEGINNING, IN MCHENRY COUNTY, ILLINOIS.

SAID PARCEL CONTAINS 0.301 ACRES, MORE OR LESS, OF WHICH 0.252 ACRES ARE IN EXISTING RIGHT-OF-WAY.

PARCEL ID: 13-34-100-024

THIS BEING A PORTION OF THE SAME PROPERTY CONVEYED TO THE CRYSTAL LAKEUNION CEMETERY ASSOCIATION, AN ILLINOIS CORPORATION FROM RICHARD R. COOLEY AND DOROTHY STONE COOLEY, HIS WIFE IN WARRANTY DEED DATED JUNE 29, 1970 AND RECORDED JULY 1, 1970, AS INSTRUMENT NO. 526531, IN MCHENRY COUNTY, ILLINOIS.

EXCLUSIVE EASEMENT PARCEL:

A PART OF THE SE1/4 OF THE NW1/4 OF SECTION 34, T44N, R7E OF THE 3RD P.M., MCHENRY COUNTY, ILLINOIS MORE PARTICULARLY DESCRIBED AS:
COMMENCING AT THE NE CORNER OF THE SAID NW1/4; THENCE S00°00'50"W, ALONG THE EAST LINE OF THE SAID NW1/4, 2016.02 FEET; THENCE S87°44'06"W, 27.74 FEET TO THE WEST LINE OF MT THABOR ROAD; THENCE CONTINUING S87°44'06"W, 27.19 FEET; THENCE N02°15'54"W, 27.50 FEET; THENCE S87°44'06"W, 30.00 FEET TO THE POINT OF BEGINNING OF THE EXCLUSIVE EASEMENT AREAHEREIN INTENDED TO BE DESCRIBED; THENCE S02°15'54"E, 75.00 FEET; THENCE S87°44'06"W, 75.00 FEET; THENCE N02°15'54"W, 75.00 FEET; THENCE N87°44'06"E, 75.00 FEET TO THE POINT OF BEGINNING, CONTAINING 5,625 SQUARE FEET.

ACCESS/UTILITY EASEMENT:

A PART OF THE SE1/4 OF THE NW1/4 OF SECTION 34, T44N, R7E OF THE 3RD P.M., MCHENRY COUNTY, ILLINOIS MORE PARTICULARLY DESCRIBED AS:
COMMENCING AT THE NE CORNER OF THE SAID NW1/4; THENCE S00°00'50"W, ALONG THE EAST LINE OF THE SAID NW1/4, 2016.02 FEET; THENCE S87°44'06"W, 27.74 FEET TO THE WEST LINE OF MT THABOR ROAD AND BEING THE POINT OF BEGINNING OF THE EASEMENT AREA HEREIN INTENDED TO BE DESCRIBED; THENCE CONTINUING S87°44'06"W, 27.19 FEET; THENCE N02°15'54"W, 27.50 FEET; THENCE S87°44'06"W, 30.00 FEET; THENCE S02°15'54"E, 75.00 FEET; THENCE N87°44'06"E, 30.00 FEET; THENCE N02°15'54"W, 17.50 FEET; THENCE N87°44'06"E, 27.14 FEET TO THE SAID WEST LINE OF ROAD; THENCE N02°09'40"W, ALONG THE SAID WEST LINE OF ROAD, 30.00 FEET TO THE POINT OF BEGINNING, CONTAINING 3,065 SQUARE FEET.

TO: TOWER TITLE; TOWER NORTH

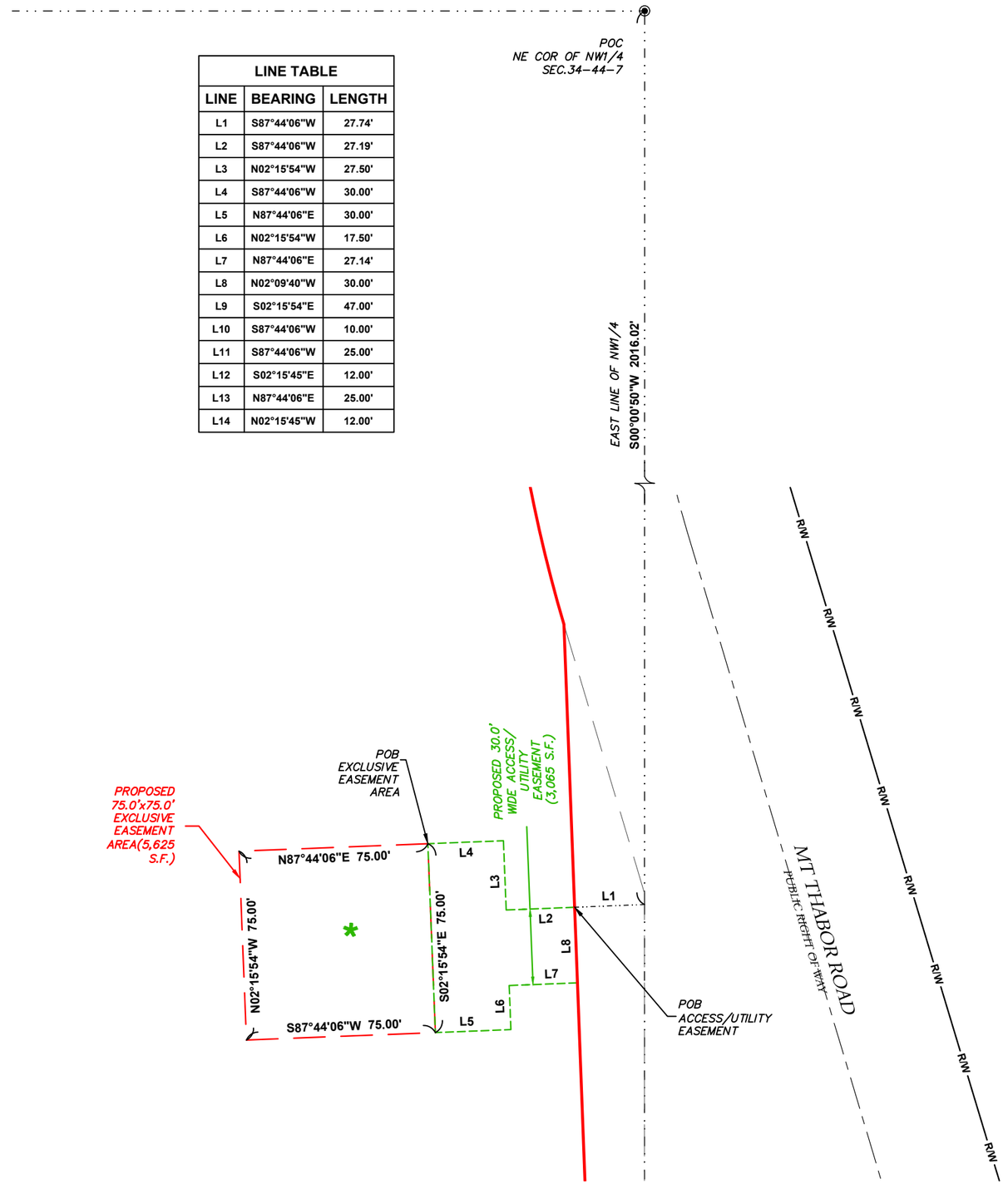
I, JAMES A. FAETANINI, AN ILLINOIS PROFESSIONAL LAND SURVEYOR, CERTIFY THAT THE INFORMATION SHOWN HEREON WAS COMPILED USING DATA FROM AN ACTUAL FIELD SURVEY MADE UNDER MY DIRECT SUPERVISION AND THAT THE FIELD SURVEY AND THE COMPILATION OF INFORMATION SHOWN HEREIN WERE CONDUCTED IN ACCORDANCE WITH THE ILLINOIS MINIMUM STANDARDS OF PRACTICE. THE FIELD WORK WAS COMPLETED ON JULY 24, 2025

James A Faetanini MAY 13, 2026

JAMES A. FAETANINI
LICENSE NUMBER 035-003494
MY LICENSE RENEWAL DATE IS NOVEMBER 30, 2026
SHEETS COVERED BY THIS SEAL B-1, B-2, AND B-3

PROFESSIONAL LAND SURVEYOR
JAMES A. FAETANINI
NO. 035-003494
ROCK ISLAND
ILLINOIS
STATE OF ILLINOIS

LINE TABLE		
LINE	BEARING	LENGTH
L1	S87°44'06"W	27.74'
L2	S87°44'06"W	27.19'
L3	N02°15'54"W	27.50'
L4	S87°44'06"W	30.00'
L5	N87°44'06"E	30.00'
L6	N02°15'54"W	17.50'
L7	N87°44'06"E	27.14'
L8	N02°09'40"W	30.00'
L9	S02°15'54"E	47.00'
L10	S87°44'06"W	10.00'
L11	S87°44'06"W	25.00'
L12	S02°15'45"E	12.00'
L13	N87°44'06"E	25.00'
L14	N02°15'45"W	12.00'



TowerNorth
TOWERNORTH DEVELOPMENT, LLC
2400 ANSYS DRIVE, SUITE 102
CANONSBURG, PA 15317

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XCEL PROJECT NUMBER: 255847

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MCHENRY COUNTY
ILLINOIS

DRAWN BY:	KJM
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SURVEY DATE:	7/24/2025
PLAT DATE:	5/13/2026

SHEET TITLE:
SURVEY
THIS DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARENT PARCEL

SHEET NUMBER:
B-3

LEGEND

= BENCHMARK
= FOUND MONUMENT
= LIGHT POLE
= STREET SIGN
= UTILITY POLE
POB = POINT OF BEGINNING
POC = POINT OF COMMENCEMENT
* = CENTER OF TOWER LOCATION

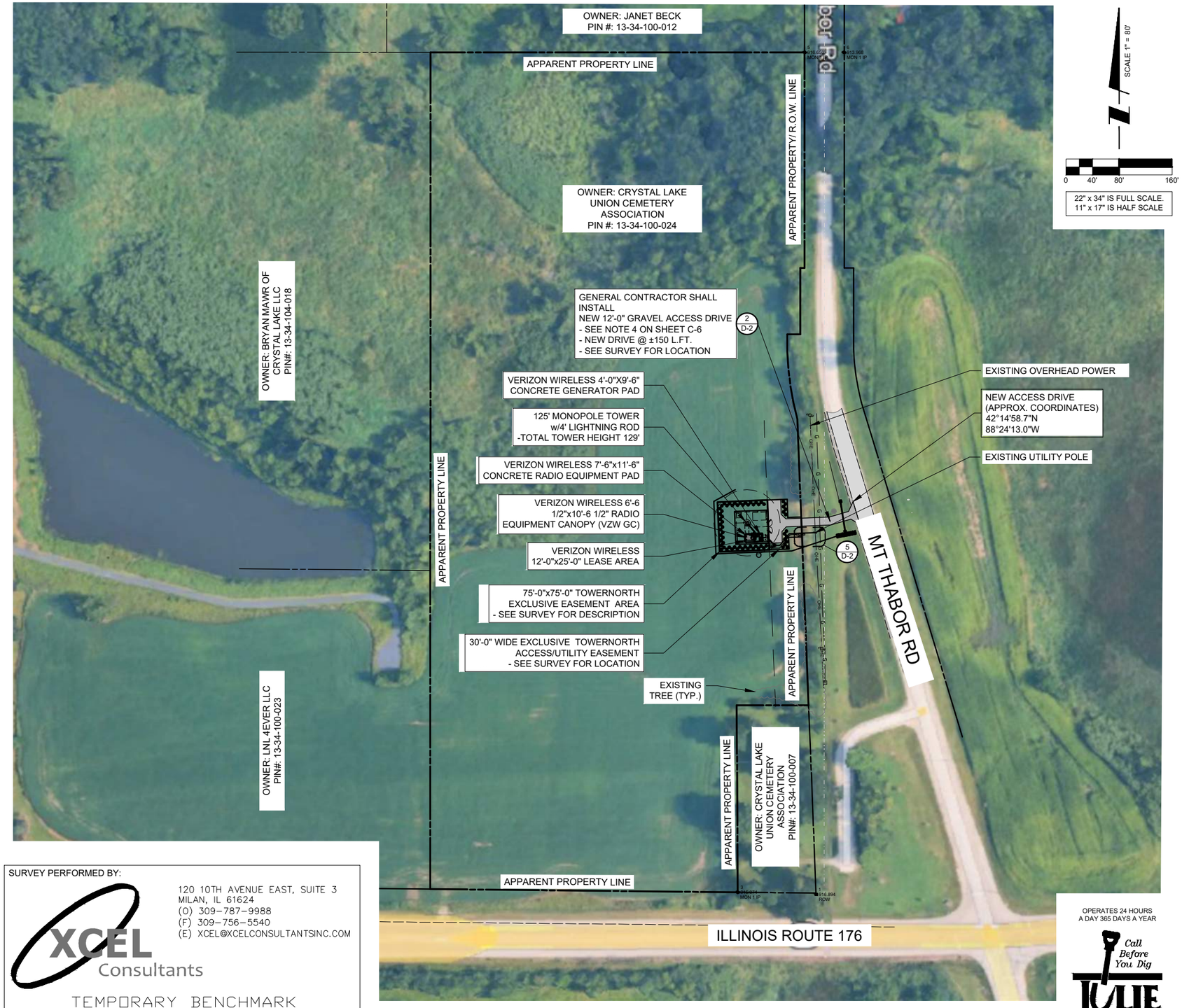
PROPERTY LINE
FENCE LINE
UNDERGROUND ELECTRIC — UGE
UNDERGROUND FIBER — UGF
UNDERGROUND TELCO — UGT
UNDERGROUND GAS LINE — GAS
OVERHEAD ELECTRIC — OHE
OVERHEAD FIBER — OHF
OVERHEAD TELCO — OHT
OVERHEAD UTILITY LINE — OHE-OHF
STORM SEWER LINE
SANITARY SEWER LINE
WATERMAIN LINE — W
BURIED GAS LINE — G
EDGE OF BUSH/TREES
BITUMINOUS
GRAVEL

APWA UTILITY COLOR CODES

- PROPOSED CONSTRUCTION
- TEMPORARY SURVEY MARKINGS
- ELEC. POWER, CABLES, CONDUIT, & LIGHTING CABLES
- GAS, OIL STEAM PETROLEUM OR GASEOUS MATERIALS
- COMMUNICATION, ALARM/SIGNAL LINES, CABLES/CONDUIT
- POTABLE WATER
- RECLAIMED WATER, IRRIGATION AND SLURRY LINES
- SEWERS AND DRAIN LINES

GENERAL SITE NOTES

1. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING PAVEMENT. CONTRACTOR SHALL PHOTOGRAPH AND VIDEOTAPE EXISTING PAVEMENT PRIOR TO CONSTRUCTION. ANY DAMAGE CAUSED DURING CONSTRUCTION SHALL BE REPLACED TO EXISTING OR BETTER CONDITION AT NO ADDITIONAL COST.
2. THE CONTRACTOR WILL, UPON BECOMING AWARE OF SUBSURFACE OR LATENT PHYSICAL CONDITIONS DIFFERING FROM THOSE DISCLOSED BY THE ORIGINAL SOIL INVESTIGATION WORK, PROMPTLY NOTIFY THE OWNER VERBALLY AND IN WRITING, AS TO THE NATURE OF THE DIFFERING CONDITIONS. NO CLAIM BY THE CONTRACTOR FOR ANY CONDITIONS DIFFERING FROM THOSE ANTICIPATED IN THE PLANS AND SPECIFICATIONS AND DISCLOSED BY THE SOIL STUDIES WILL BE ALLOWED UNLESS THE CONTRACTOR HAS SO NOTIFIED THE OWNER, VERBALLY AND IN WRITING, AS REQUIRED ABOVE, OF SUCH DIFFERING SUBSURFACE CONDITIONS.
3. CONTRACTOR TO PROVIDE APPROXIMATE 50'X50' STAGING AREA AND TEMPORARY ROAD. CONTRACTOR SHALL COORDINATE WITH ANTENNA CONTRACTOR, A STAGING AREA AND TEMPORARY ROAD THAT IS ACCEPTABLE TO THE OWNER. STAGING AREA AND TEMPORARY ROAD SHALL BE RESTORED TO EXISTING CONDITIONS AS NECESSARY UPON COMPLETION OF THE PROJECT.
4. BEFORE AND DURING CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE ADEQUATE EROSION CONTROL AS NECESSARY IN THE FORM OF SILT FENCES FOR THE SITE AND BALES AROUND ANY EXISTING MANHOLES, INLETS, OR CATCH BASINS SUSCEPTIBLE TO EROSION. EROSION CONTROL MEASURES SHALL BE PERIODICALLY INSPECTED TO ENSURE PROPER FUNCTION. EROSION CONTROL SHALL BE REMOVED UPON COMPLETION OF WORK.



1 OVERALL SITE PLAN W/ AERIAL OVERLAY
SCALE: 1" = 80'-0"

SURVEY PERFORMED BY:

XCEL Consultants
120 10TH AVENUE EAST, SUITE 3
MILAN, IL 61624
(O) 309-787-9988
(F) 309-756-5540
(E) XCEL@XCELCONSULTANTSINC.COM

TEMPORARY BENCHMARK

NORTHING:	2033508.639845
EASTING:	965205.830862
ELEVATION:	917.6'± AMSL
DISCRIPTION:	SET IRON ROD

OPERATES 24 HOURS A DAY 365 DAYS A YEAR
Call Before You Dig
JULIE ILLINOIS ONE CALL SYSTEM
CALL JULIE TOLL FREE 1(800) 892-0123 48 HOURS BEFORE YOU DIG

PREPARED FOR
TowerNorth
2400 ANSYS DRIVE, SUITE 102
CANONSBURG, PA 15317
SITEACCESS@TOWERNORTH.COM
1-800-821-5825x2

PLANS PREPARED BY:
TERRA CONSULTING GROUP
has joined Colliers Engineering & Design

CARRIER:
verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

REVISIONS

NO	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	10/06/25	TJS
1	ADDITION OF LANDSCAPE PLAN	10/10/25	TJS
2	UPDATE WITH POWER COORDINATION	12/18/25	JJR
3	ADDED EROSION CONTROL & SWAPPED GEN	01/027/26	APD
4	REVISED TOWER BASE SIZE	04/02/26	TJS
5	REVISED PER COMMENTS	05/13/26	PP
6	REVISED PER NEW TEMPLATE/ ISSUED FOR PERMIT	07/29/26	GD

SITE #IL1502-A
MDG LOC# 5000348752
FUZE ID: 17495287

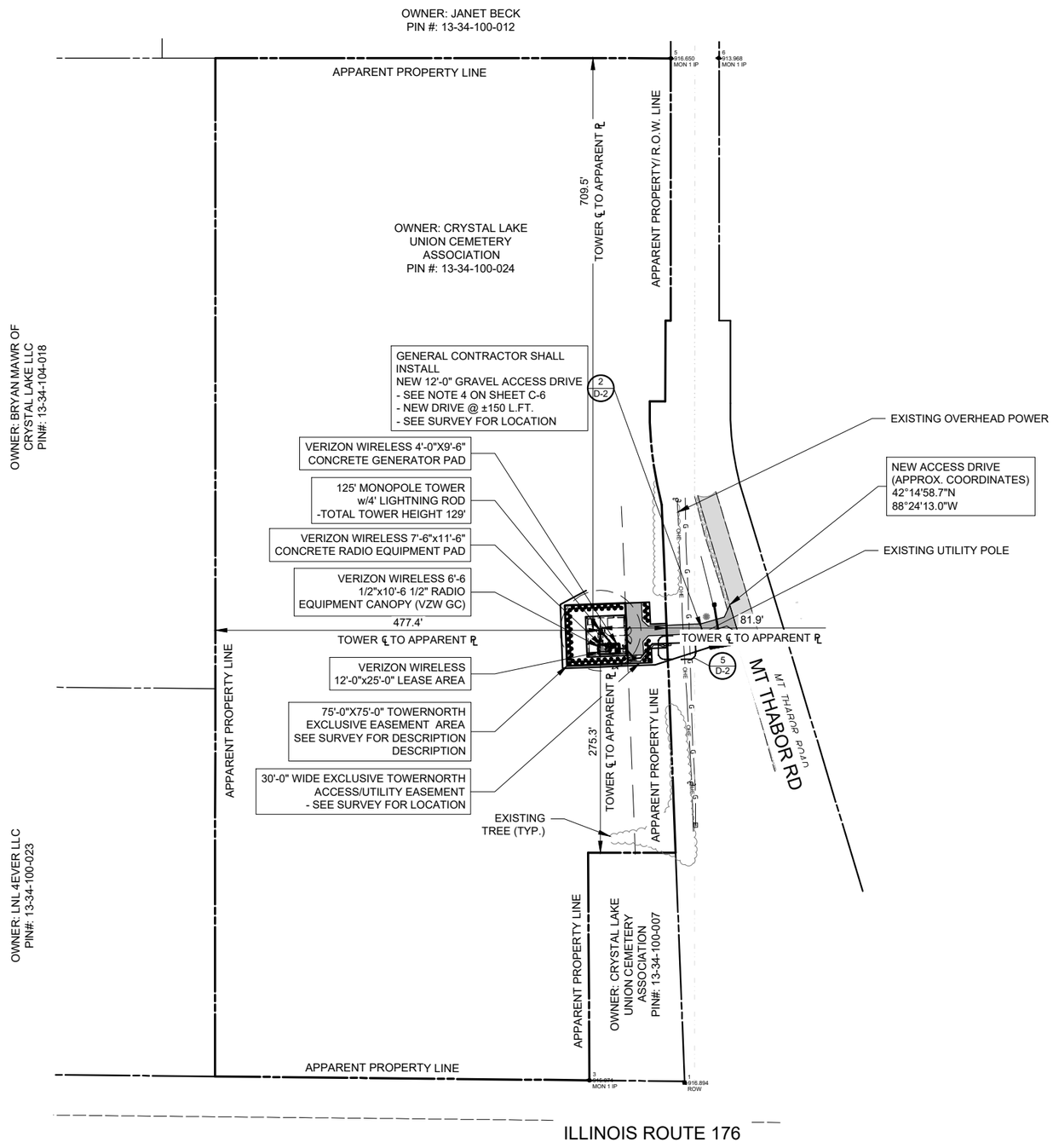
176 & HALIGUS - A

MT. THABOR ROAD
CRYSTAL LAKE, IL 60014
McHENRY COUNTY

DRAWN BY:	GAD
CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

SHEET TITLE
OVERALL SITE PLAN W/ AERIAL OVERLAY

SHEET NUMBER
C-1



1 OVERALL SITE PLAN W/ PAD DISTANCES TO PROPERTY LINES
SCALE: 1" = 40'-0"

SCALE 1" = 40'

0 20' 40' 80'

22" x 34" IS FULL SCALE.
11" x 17" IS HALF SCALE

OPERATES 24 HOURS
A DAY 365 DAYS A YEAR

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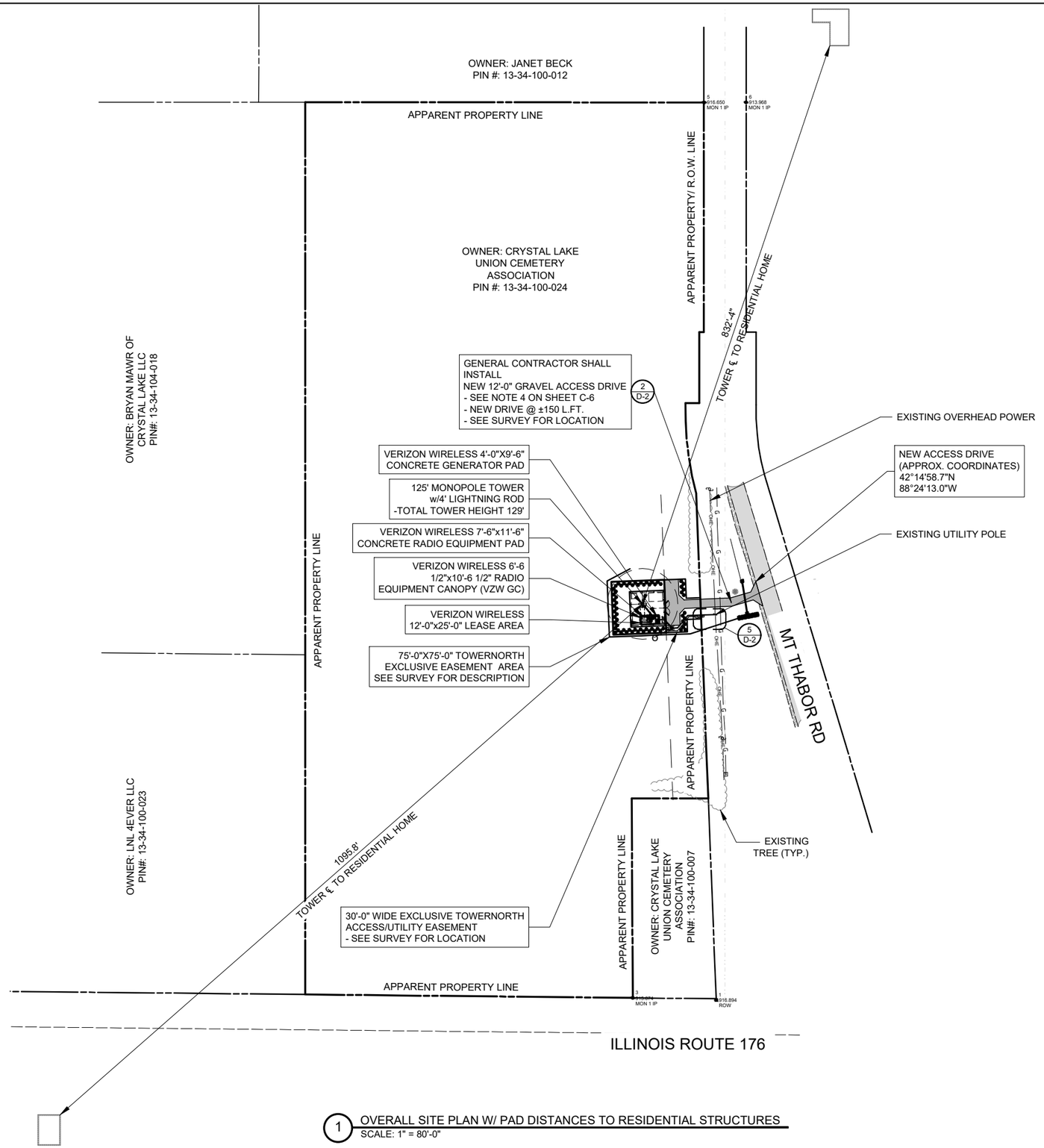
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CRYSTAL LAKE, IL 60014
McHENRY COUNTY

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PROJECT #:	170-121

SHEET TITLE
OVERALL SITE PLAN W/ TOWER CENTER DISTANCE TO PROPERTY LINES

SHEET NUMBER
C-1A



1 OVERALL SITE PLAN W/ PAD DISTANCES TO RESIDENTIAL STRUCTURES
SCALE: 1" = 80'-0"

OPERATES 24 HOURS
A DAY 365 DAYS A YEAR

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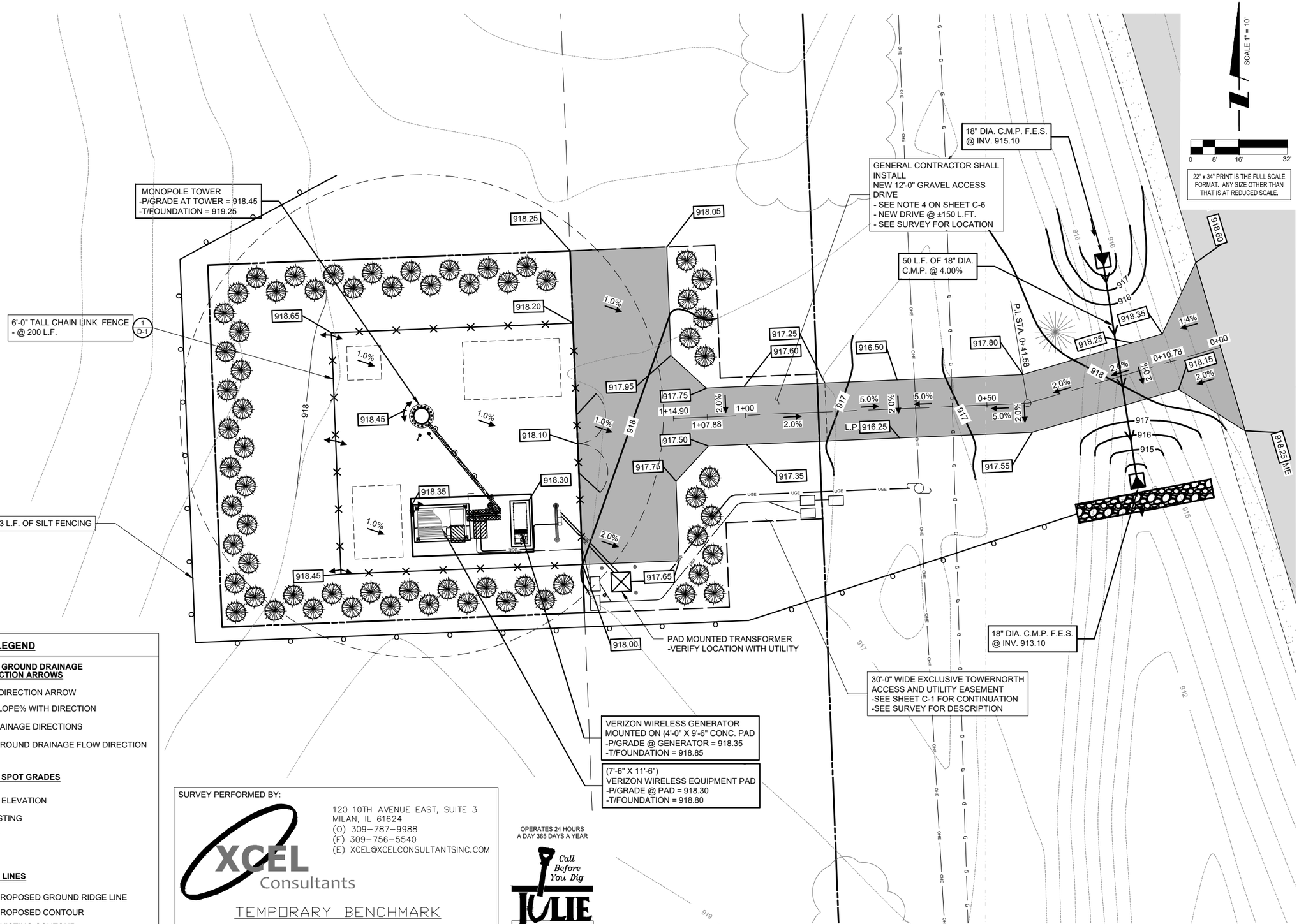
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SHEET TITLE
TOWER DISTANCE TO RESIDENTIAL STRUCTURES

SHEET NUMBER
C-1B



LEGEND

PROPOSED GROUND DRAINAGE FLOW DIRECTION ARROWS

DRAINAGE DIRECTION ARROW

GROUND SLOPE% WITH DIRECTION

SUMMIT DRAINAGE DIRECTIONS

EXISTING GROUND DRAINAGE FLOW DIRECTION

PROPOSED SPOT GRADES

PROPOSED ELEVATION

MATCH EXISTING

LOW POINT

PROPOSED LINES

PROPOSED GROUND RIDGE LINE

PROPOSED CONTOUR

EXISTING CONTOUR

PROPOSED CULVERT & FLARED END SECTIONS

SURVEY PERFORMED BY:

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ILLINOIS ONE CALL SYSTEM
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1 GRADING AND E&S CONTROL PLAN
SCALE: 1" = 10'-0"

PREPARED FOR

TowerNorth
2400 ANSYS DRIVE, SUITE 102
CANONSBURG, PA 15317
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1-800-821-5825x2

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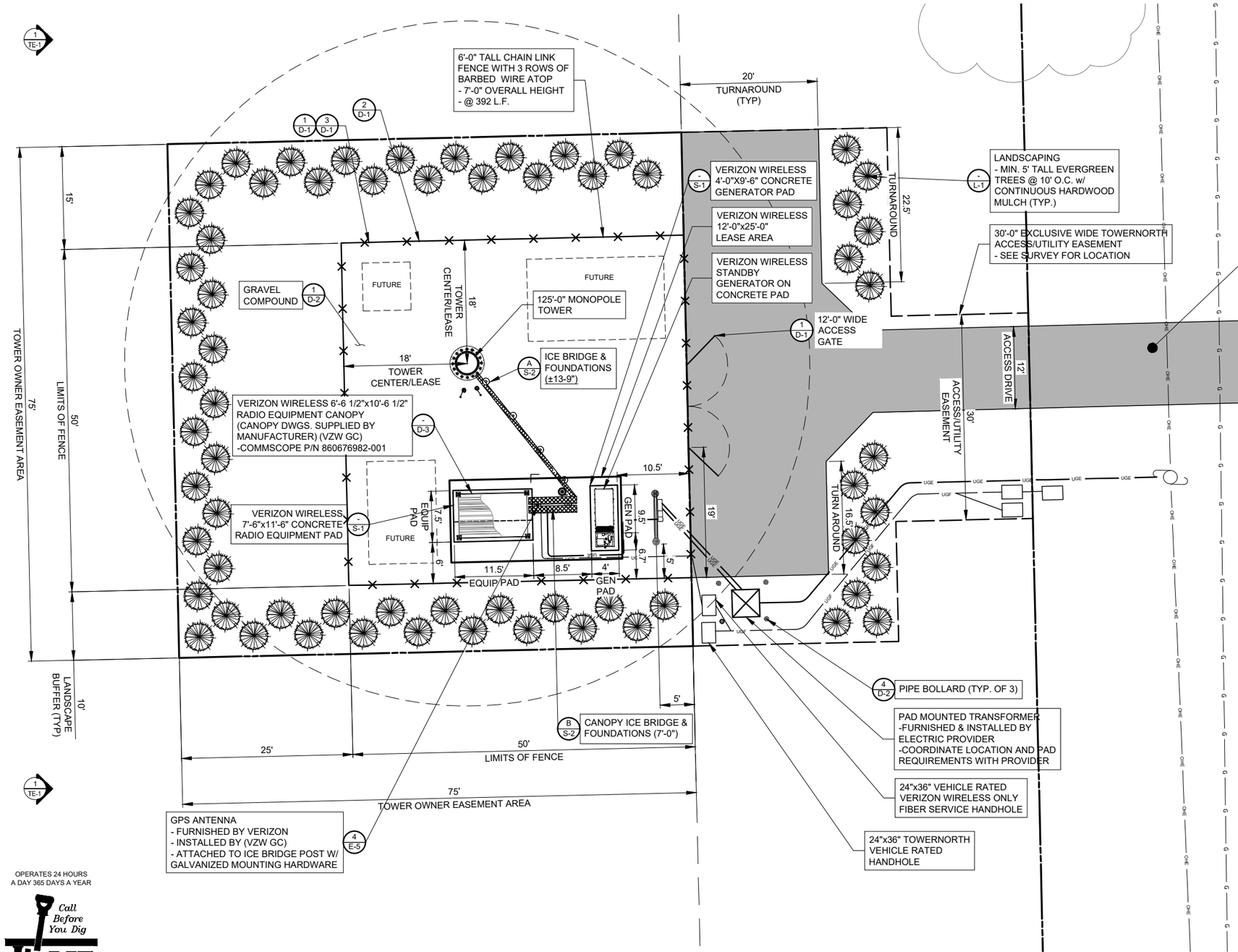
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McHENRY COUNTY

DRAWN BY:	GAD
CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

SHEET TITLE
GRADING AND E&S CONTROL PLAN

SHEET NUMBER
C-2



SCALE 1" = 8'

0 4' 8' 16'

22" x 34" IS FULL SCALE.
11" x 17" IS HALF SCALE

OPERATES 24 HOURS
A DAY 365 DAYS A YEAR

Call Before You Dig
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ILLINOIS ONE CALL SYSTEM
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1(800) 892-0123
48 HOURS BEFORE YOU DIG

*NOTE:
GENERAL CONTRACTOR IS TO ENSURE THERE IS NO DISTURBANCE OF PROPERTY, SOIL, ETC. OUTSIDE OF THE STAKED LEASE AREA WITHOUT APPROVAL FROM VERIZON WIRELESS CONSTRUCTION MANAGER

1 DETAILED & DIMENSIONED SITE PLAN
SCALE: 1" = 8'-0"

LEGEND

PROPERTY LINE	
FENCE LINE	X X X X
UNDERGROUND ELECTRIC	UGE UGE
UNDERGROUND FIBER	UGF
UNDERGROUND TELCO	UGT UGT
UNDERGROUND GAS LINE	GAS GAS
OVERHEAD ELECTRIC	OHE OHE
OVERHEAD FIBER	OHF
OVERHEAD TELCO	OHT OHT
OVERHEAD UTILITY LINE	OHE-OHF OHE-OHF
STORM SEWER LINE	
SANITARY SEWER LINE	
WATERMAIN LINE	W W
BURIED GAS LINE	G G G G
EDGE OF BUSH/TREES	
BITUMINOUS	
GRAVEL	

PREPARED FOR
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CANONSBURG, PA 15317
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1-800-821-5825x2

PLANS PREPARED BY:
TERRA CONSULTING GROUP
has joined Colliers Engineering & Design

CARRIER:
verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
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REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	10/06/25	TJS
1	ADDITION OF LANDSCAPE PLAN	10/10/25	TJS
2	UPDATE WITH POWER COORDINATION	12/18/25	JJR
3	ADDED EROSION CONTROL & SWAPPED GEN	01/02726	APD
4	REVISED TOWER BASE SIZE	04/02/26	TJS
5	REVISED PER COMMENTS	05/13/26	PP
6	REVISED PER NEW TEMPLATE/ ISSUED FOR PERMIT	07/29/26	GD

SITE #IL1502-A
MDG LOC# 5000348752
FUZE ID: 17495287

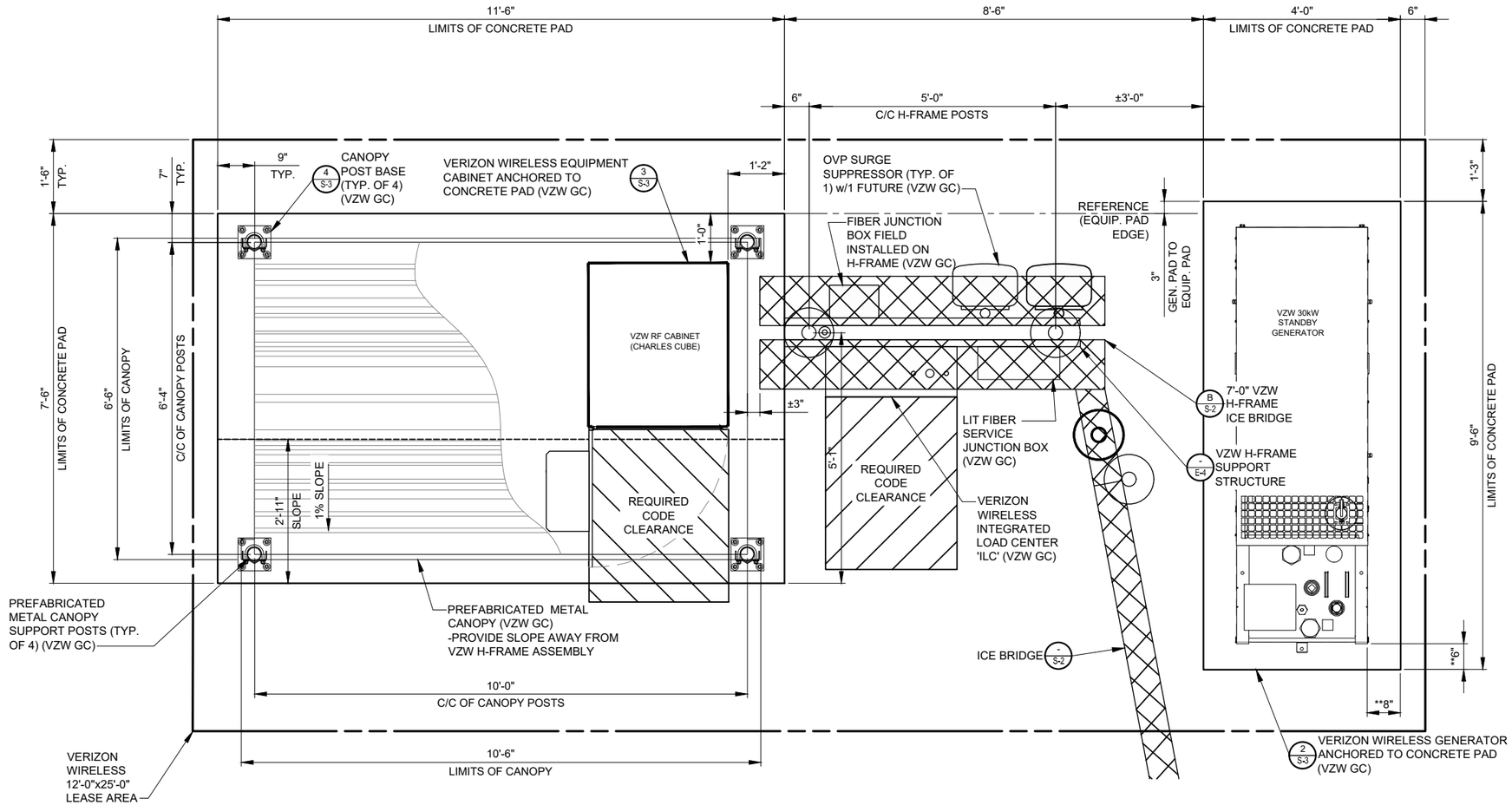
176 & HALIGUS - A

MT. THABOR ROAD
CRYSTAL LAKE, IL 60014
McHENRY COUNTY

DRAWN BY:	GAD
CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

SHEET TITLE
DETAILED & DIMENSIONED SITE PLAN

SHEET NUMBER
C-3



1 DETAILED VZW EQUIPMENT PLAN
SCALE: 3/4" = 1'-0"

NOTES:
REFER TO FULL SITE PLANS FOR CORRECT EQUIPMENT ORIENTATION

OPERATES 24 HOURS
A DAY 365 DAYS A YEAR

Call Before You Dig
JULIE
ILLINOIS ONE CALL SYSTEM
CALL JULIE TOLL FREE
1(800) 892-0123
48 HOURS BEFORE
YOU DIG

*NOTES:
1. GENERAL CONTRACTOR IS TO ENSURE THERE IS NO DISTURBANCE OF PROPERTY, SOIL, ETC. OUTSIDE OF THE STAKED LEASE AREA WITHOUT APPROVAL FROM VERIZON WIRELESS CONSTRUCTION MANAGER
2. CONTRACTOR SHALL VERIFY CONDUIT STUB-UP LOCATIONS WITH VERIZON WIRELESS SPECIFIED GENERATOR PRIOR TO INSTALLATION. GENERATOR PLACEMENT MAY VARY PER CONDUIT STUB-UP LOCATIONS

PREPARED FOR
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SHEET TITLE
DETAILED EQUIPMENT PAD PLAN

SHEET NUMBER
C-4

GENERAL SITE CONSTRUCTION NOTES

1. SCHEDULE:

THE CONSTRUCTION OF THE SITE REQUIRES A CERTAIN SEQUENCE OF EVENTS TO MINIMIZE CONSTRUCTION TIME REQUIRED UNTIL AVAILABILITY OF CELLULAR TELEPHONE SERVICE. VERIFY SCHEDULE DURING BID WALK.

2. TOWER OWNER REPRESENTATIVE:

TOWER OWNER
STREET ADDRESS
CITY, ST ZIP CODE
CONTACT: NAME
PHONE: 000-000-0000
MOBILE: 000-000-0000
E-MAIL: name@towerowner.com

PROPERTY OWNER REPRESENTATIVE:

NAME
STREET ADDRESS
CITY, ST ZIP CODE
CONTACT: NAME
PHONE: 000-000-0000
E-MAIL: name@owneripaddress.com

3. ANTENNA INSTALLATION:

THE VERIZON WIRELESS CONTRACTOR (VZW GC) INSTALLING THE FRAME/PLATFORM SHALL ENSURE THAT THE PLATFORM IS ALIGNED BASED ON THE VERIZON WIRELESS RF PLAN. DURING THIS WORK, THE GENERAL CONTRACTOR SHALL BE LIMITED TO THE WORK WHICH CAN BE PERFORMED OUTSIDE THE VICINITY OF THE TOWER.

4. ACCESS DRIVEWAY:

THE GENERAL CONTRACTOR SHALL CONSTRUCT THE ACCESS DRIVE PER THE ALIGNMENT AS SHOWN ON THESE DRAWINGS. IF ANY AREA OF CONSTRUCTION REQUIRES ADDITIONAL FILL OF AGGREGATE STONE THAN SHOWN ON THE DRAWINGS, THE GENERAL CONTRACTOR SHALL NOTIFY THE ENGINEER FOR APPROVAL OF THE SIZE, TYPE AND QUANTITY OF STONE/FILL NECESSARY AND SHALL NOT BE USED UNTIL APPROVAL BY THE ENGINEER. THE GENERAL CONTRACTOR SHALL ALSO OBTAIN DRIVE PERMIT FOR NEW ACCESS DRIVE.

5. PREFABRICATED EQUIPMENT CABINETS, CANOPY AND GENERATOR:

THIS VERIZON WIRELESS CONTRACTOR (VZW GC) SHALL PROVIDE ALL LABOR, EQUIPMENT AND MATERIALS FOR THE PROPER LIFTING, TRANSPORTING AND ASSEMBLY OF THE PREFABRICATED EQUIPMENT CANOPY FROM THE TRANSPORT TRUCK BED TO THE FINAL POSITION. THE EQUIPMENT CABINETS SHALL BE LIFTED INTO PLACE ON THE CONCRETE EQUIPMENT PAD. THE GENERATOR SHALL BE LIFTED INTO PLACE BY USING TWO SPREADER BAR ASSEMBLIES. EACH SPREADER BAR SHALL BE A MINIMUM 3' WIDE (RATED TO CARRY 3 TONS). THE GENERATOR WEIGHT IS 1,425# WITH TANK PEDESTAL. VERIZON WIRELESS CONTRACTOR (VZW GC) SHALL ANCHOR THE EQUIPMENT CABINETS AND GENERATOR BASE TO THE CONCRETE SLAB USING ANCHOR BOLTS. EXTREME CAUTION SHALL BE TAKEN IN THE INSTALLATION OF ALL EQUIPMENT TO AVOID CONTACT WITH EXISTING OVERHEAD UTILITY LINES.

THE VERIZON WIRELESS CONTRACTOR (VZW GC) IS RESPONSIBLE FOR ATTACHING, SECURING OR ASSEMBLING ANY ACCESSORY OR LOOSE ITEMS THAT ARE SHIPPED WITH THE PREFABRICATED EQUIPMENT CABINETS, CANOPY AND GENERATOR AND SHALL INCLUDE THIS WORK IN THE VZW EQUIPMENT INSTALLATION PORTION OF THE BID.

6. UTILITIES:

THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE EXCAVATION AND PROPER BACKFILLING OF TRENCHES AND SUPPLY CONDUIT REQUIRED FOR UNDERGROUND TELEPHONE & ELECTRICAL UTILITIES. ALL TRENCHING SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE W/ASTM D-1557.

THE CONTRACTOR SHALL RUN AN ELECTRICAL TRENCH WITH 2 1/2" CONDUIT AND DETECTABLE PULL TAPE FROM THE NEW RADIO EQUIPMENT PAD AND END AT THE NEW METER BOARD STRUCTURE. THE CONTRACTOR SHALL THEN RUN (2) TWO 4" CONDUIT WITH PULL TAPE FROM THE METER BOARD TO THE NEW PAD MOUNTED TRANSFORMER LOCATION AND STUB UP 6" ABOVE GRADE. THE ELECTRICAL PROVIDER WILL THEN RUN UNDERGROUND CONDUIT FROM THE NEW TRANSFORMER TO THE NEW UTILITY POLE, CONTACT UTILITY PROVIDER REPRESENTATIVE LISTED ON SHEET T-1 BEFORE BEGINNING CONSTRUCTION TO VERIFY LOCATION OF CONDUIT AND TRANSFORMER. CONDUITS MUST HAVE A MINIMUM DEPTH OF 36". CONTRACTOR SHALL CONTACT ELECTRIC PROVIDER TO HAVE TRENCH AND CONDUIT INSPECTED BEFORE THE TRENCH IS COVERED, THE ELECTRIC PROVIDER SHALL SUPPLY SERVICE TO THE NEW METER BOARD STRUCTURE. THE CONTRACTOR SHALL CONTACT THE ELECTRIC PROVIDER TO SETUP AN INSPECTION OF THE TRENCHES BEFORE THEY ARE BACKFILLED. THE CONTRACTOR SHALL PROPERLY BACKFILL THE TRENCHES AFTER INSPECTION AND SETTLEMENT. CONTACT ELECTRIC PROVIDER THREE TO FOUR WEEKS PRIOR TO CONSTRUCTION FOR NEW SERVICE AND COORDINATION OF ACCESS TO SITE. THE CONTRACTOR SHALL CONTACT THE ELECTRIC PROVIDER FOR A COPY OF THEIR SPECIFICATIONS BEFORE CONSTRUCTION

THE TOWER OWNER SHALL ENSURE PERMANENT ELECTRIC POWER IS AVAILABLE FOR VERIZON WIRELESS AT THE METER BASE PRIOR TO THE SITE BEING RELEASED TO VERIZON WIRELESS AS TENANT READY.

THE VERIZON WIRELESS GENERAL CONTRACTOR (VZW GC) SHALL RUN ELECTRICAL CONDUCTORS FROM NEW METER CENTER TO NEW VZW INTEGRATED LOAD CENTER WITHIN TOWER OWNER INSTALLED 2 1/2" CONDUIT CONTACT ELECTRIC PROVIDER TO HAVE NEW METER INSTALLED.

THE VERIZON WIRELESS GENERAL CONTRACTOR (VZW GC) SHALL BE RESPONSIBLE FOR THE ORDERING AND COORDINATING THE DELIVERY OF A FIBER OPTIC SERVICE LINE TO THE RADIO EQUIPMENT ENCLOSURE. COORDINATE WITH THE FIBER PROVIDER AND THE VERIZON WIRELESS FACILITY ENGINEER.

1. TWO (2) VERIZON ONLY 2" DIA. SCHD 40 PVC CONDUITS AND PULL TAPES FOR VERIZON WIRELESS FIBER SERVICE SHALL BE INSTALLED FROM HANDHOLE OUTSIDE COMPOUND TO HANDHOLE MEET POINT AT THE PUBLIC RIGHT-OF-WAY.
- THE VERIZON FIBER HANDHOLES SHALL BE OLDCASTLE INFRASTRUCTURE MODEL 24361480 PC2436-30 T22 - VERIZON LOGO OR QUAZITE|HUBBELL POWER SYSTEMS MODEL PG2436Z1857B4 ASSY T22 SW OB 24x36x30 VERIZON V, OR APPROVED EQUALS. ALTERNATIVE HANDHOLES MAY BE USED IF MEETING THE DESIGNATED LOADING AND HAVING DIMENSIONS OF AT LEAST 2'x3'x2.5'. ALL VERIZON HANDHOLES TO HAVE "VERIZON" LOGO ON COVER.

2. CONTRACTOR SHALL PLACE ADDITIONAL HANDHOLES ALONG ROUTE, AS NECESSARY, SO THAT SPACING BETWEEN HANDHOLES IS NO GREATER THAN 500 FEET.

3. TWO (2) 2" SCHD 40 PVC CONDUITS W/ PULL TAPES FOR VERIZON WIRELESS FIBER SERVICE SHALL BE INSTALLED FROM VERIZON WIRELESS HANDHOLE OUTSIDE COMPOUND TO VERIZON WIRELESS EQUIPMENT PAD LOCATION (PER PLANS).

4. CONTRACTOR SHALL PLACE (1) COPPERHEAD INDUSTRIES ORANGE TRACER WIRE (PART NO. 1230N-HS) OR APPROVED EQUIVALENT ABOVE PROPOSED FIBER CONDUIT(S).

5. IF WET GROUND CONDITIONS ARE ENCOUNTERED ONE 4" DIA. SCH40 PVC FIBER CONDUIT W/ THREE (3) 1" HDPE SMOOTH WALL INNERDUCTS AND PULL TAPES MAY BE INSTALLED FROM HANDHOLE OUTSIDE COMPOUND MEET POINT AT THE PUBLIC RIGHT-OF-WAY WITHIN UTILITY EASEMENT WITH PULL TAPE.

7. SITE GRADING

A. UNIFORMLY GRADE AREA TO BE SMOOTH SURFACE FREE FROM IRREGULAR SURFACE CHANGES. COMPLY WITH COMPACTION REQUIREMENTS AND GRADE TO CROSS SECTION, TOPO LINES AND ELEVATIONS INDICATED.

1. COMPOUND SURFACE GRADES ARE TO BE SLOPED TO DIRECT WATER AWAY FROM EQUIPMENT PAD AND TOWER TO PREVENT STANDING AND PONDING WATER.

2. COMPOUND SURFACE SHALL BE COMPACTED TO A 95% MAXIMUM DRY DENSITY TO ALLOW PROPER STERILIZATION FOR ACCESS TO ALL CUSTOMERS DENSITY TESTING MAY BE REQUIRED AT VERIZON WIRELESS' DISCRETION DUE TO QUESTIONABLE COMPACTION OF FINISH SURFACE GRADE OR SUB-GRADE.

3. DITCHES/SWALES AROUND THE COMPOUND AREA AND ALONG ACCESS ROAD SHALL BE CONSTRUCTED SO TO PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING GRADES/SLOPE AND NEW PROPOSED GRADES.

4. SITE GRADING AND DRAINAGE SHOULD BE CONSTRUCTED TO PREVENT WATER FROM ENTERING THE COMPOUND SURFACE OR THE ACCESS ROAD SUB-GRADE.

B. MOISTURE CONTROL - UNIFORMLY MOISTEN OR AERATE SUB-GRADE AND EACH SUBSEQUENT FILL OR BACK FILL LAYER BEFORE COMPACTION TO WITHIN 90% OF OPTIMUM MOISTURE CONTENT. DO NOT PLACE BACK FILL OR FILL MATERIAL ON SURFACES THAT ARE MUDDY, FROZEN OR CONTAIN FROST, SNOW OR ICE.

C. STOCKPILING MATERIAL (TOP SOIL OR FILL DIRT) - SHOULD BE PLACED IN AN AREA THAT CAN BE CONTROLLED TO PREVENT WATER, SNOW, OR ICE FROM EFFECTING MOISTURE CONTENT. STOCKPILES MAY HAVE TO BE COVERED TO PREVENT ADDITIONAL MOISTURE FROM ACCUMULATING SO ACCEPTABLE FILL CAN BE USED.

D. DE-WATERING - PREVENT SURFACE WATER AND SUBSURFACE OR GROUND WATER FROM ENTERING EXCAVATIONS, FROM PONDING ON PREPARED SUB-GRADE, AND FROM FLOODING PROJECT OR BUILD AREA.

E. EROSION CONTROL - MEASURES SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT.
1. ALL INLETS, DRAINS, PIPES, SWELLS, AND ROADS SHALL BE KEPT CLEAN AND FREE OF DIRT AND SILT.

F. GEOTEXTILE FABRIC - AFTER PLACEMENT AND COMPACTION OF FILL WITHIN THE WORK AREA AND BEFORE THE PLACEMENT OF LIMESTONE AGGREGATE, (SEE SITE AREA SURFACING DETAIL ON D-1), THE ENTIRE DISTURBED WORK AREA SHALL BE COVERED WITH A GEOTEXTILE FABRIC. THIS FABRIC SHALL BE "TENCATE (MIRAFI 500X) WOVEN ENGINEERING FABRIC" INSTALLED ACCORDING TO THE MANUFACTURERS RECOMMENDATIONS.

8. TRASH REMOVAL & SANITATION:

THE GENERAL CONTRACTOR AND VERIZON WIRELESS GENERAL CONTRACTOR (VZW GC) SHALL REMOVE ALL TRASH AS CREATED BY THEMSELVES AND THEIR SUBCONTRACTORS. TRASH SHALL BE REMOVED FROM THE SITE IN A TIMELY FASHION TO A LEGAL DISPOSAL AREA. THE GENERAL CONTRACTOR SHALL ALSO REMOVE ALL TRASH CREATED BY OTHER CONTRACTORS INCLUDING CABLE REELS, CARDBOARD BOXES AND PACKING. NO BURNING OR BURYING OF TRASH IS PERMITTED.

THE GENERAL CONTRACTOR SHALL PROVIDE AND MAINTAIN A PORTABLE TOILET FOR THE DURATION OF THE CONSTRUCTION PROJECT.

9. TOWER:

A. THE GENERAL CONTRACTOR SHALL VERIFY THE EQUIPMENT PAD FOUNDATION IS LOCATED CORRECTLY WITH RESPECT TO THE TOWER FOUNDATION. THE CONTRACTOR MUST NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES PRIOR TO POURING CONCRETE.

B. TOWER & FOUNDATION DESIGN ARE BY OTHERS FOR TOWER OWNER. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL VERIFY IN WRITING FROM TOWER OWNER THAT THE TOWER IS STRUCTURALLY SUFFICIENT TO SUPPORT ALL LOADINGS AS OUTLINED IN THESE DOCUMENTS. TOWER AND FOUNDATION DESIGN SHALL BE PERFORMED BY A LICENSED ENGINEER.

C. THE GENERAL CONTRACTOR SHALL VERIFY THE TOP OF FOUNDATION MATCHES THE FAA APPROVAL LETTER.

10. EXCAVATION OF UTILITIES:

A. FIELD VERIFY THE LOCATION OF ANY EXISTING UNDERGROUND UTILITIES PRIOR TO EXCAVATING IN THE VICINITY OF THE SITE. ALL EXCAVATIONS SHALL BE MADE BY HAND OVER OR UNDER OR IMMEDIATELY ADJACENT TO ANY EXISTING UTILITIES & GROUNDING.

B. ALL UTILITY COMPANIES SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION ON THIS PROJECT. CONTACT UNDERGROUND UTILITY PROTECTION SERVICE BEFORE YOU DIG AT 811 OR REFER TO LOCAL STATE SPECIFIC DIG HOTLINE.

C. EXISTING UTILITIES ARE SHOWN FROM THE SURVEY AND ARE NOT NECESSARILY COMPLETE AND ACCURATE. THE CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE, EXPOSE AND DETERMINE IF CONFLICTS EXIST WITH THE NEW IMPROVEMENTS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER (A&E FIRM) IN ORDER TO RESOLVE ANY CONFLICTS.

11. CONTRACTOR'S LICENSE:

THE GENERAL CONTRACTOR, VERIZON WIRELESS GENERAL CONTRACTOR (VZW GC) AND ALL OF THEIR SUBCONTRACTORS THAT DO ANY WORK ON THIS PROJECT SHALL BE CURRENTLY LICENSED TO PERFORM WORK IN THE LOCATION OF THIS SITE. PROOF OF LICENSES SHALL BE SUPPLIED TO VERIZON WIRELESS PRIOR TO THE COMMENCEMENT OF ANY WORK.

12. SEEDING:

ALL DISTURBED AREAS SHALL BE REPAIRED AND SEEDED BY THE GENERAL CONTRACTOR, UNLESS OTHERWISE NOTED. SEED DISTURBED AREAS W/4 POUNDS/1000 SQ. FT. - 60% KENTUCKY BLUEGRASS, 18% CREEPING RED FESCUE, 22% ANNUAL RYEGRASS.

13. TRAFFIC CONTROL:

THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN ALL REQUIRED TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES OR GOVERNING LOCAL AGENCIES.

14. CONSTRUCTION STAKING:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION STAKING NEEDED TO COMPLETE ALL THE CONSTRUCTION SHOWN HEREON. CONTACT DESIGN ENGINEER TO SCHEDULE CONSTRUCTION STAKING.

15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING PROPERTY RESULTING FROM THE CONSTRUCTION ACTIVITIES, INCLUDING BUT NOT LIMITED TO PAVEMENT, FINISHED GRADES, LANDSCAPING, BUILDINGS, SURVEY MARKERS, FIELD TILES, CULVERTS, ETC.

16. IN THE EVENT ANY DISCREPANCIES OR ERRORS ARE FOUND ON THESE PLANS OR ANY CONFLICT OR PROBLEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE GENERAL CONTRACTOR OR VERIZON WIRELESS GENERAL CONTRACTOR (VZW GC) SHALL NOTIFY THE ENGINEER BEFORE PROCEEDING WITH THE WORK. NO ADDITIONAL COMPENSATION WILL BE PAID TO THE GENERAL CONTRACTOR OR VERIZON WIRELESS GENERAL CONTRACTOR (VZW GC) FOR WORK HAVING TO BE REDONE FOR GRADE OR GEOMETRIC DISCREPANCIES IF NOTICE TO THE ENGINEER HAS NOT BEEN PROVIDED. THE ENGINEER RESERVES THE RIGHT TO MAKE MINOR ADJUSTMENTS AS NECESSARY TO ACCOMPLISH THE INTENT OF THESE PLANS.

17. ALL SITE WORK AND CONSTRUCTION SHALL CONFORM TO ANY AND ALL APPLICABLE CODES AND VERIZON WIRELESS STANDARDS AND SPECIFICATIONS.

18. ALL ELEVATIONS AND TOPOGRAPHIC INFORMATION WAS TAKEN FROM A SURVEY SUPPLIED TO A&E FIRM BY SURVEYING FIRM. A&E FIRM HAS NOT VERIFIED THIS INFORMATION AND DOES NOT WARRANT ANY INFORMATION SUPPLIED BY OTHERS.

19. THE GENERAL CONTRACTOR SHALL MAINTAIN A COMPLETE AS-BUILT SET OF PLANS AND CONDITIONS, AND SUBMIT SAME TO THE ENGINEER WITHIN 7 DAYS OF COMPLETION OF CONSTRUCTION. AS-BUILT PLANS SUBMITTED TO THE ENGINEER SHALL INCLUDE A DRAWING WITH DIMENSIONS SHOWING THE LOCATION OF THE UNDERGROUND UTILITIES, GROUNDING GRID, EQUIPMENT PAD, TOWER FOUNDATION, TOWER PLATFORM ORIENTATION, AND FENCE WITHIN THE LEASE AREA OR PROPERTY AND BE CERTIFIED BY A LICENSED PROFESSIONAL SURVEYOR.

20. THE GENERAL CONTRACTOR AND VERIZON WIRELESS GENERAL CONTRACTOR (VZW GC) SHALL BE RESPONSIBLE FOR NOTIFICATION OF ALL GOVERNING AGENCIES THAT REQUIRE SITE INSPECTION OF THE WORK AND/OR SIMPLY NOTIFICATION.

21. THE GENERAL CONTRACTOR AND VERIZON WIRELESS GENERAL CONTRACTOR (VZW GC) SHALL BE RESPONSIBLE FOR NOTIFICATION AND COORDINATION OF ALL TESTING AGENCIES THAT REQUIRE SITE INSPECTION OR TESTING OF THE WORK AS DIRECTED IN THESE PLANS, GOVERNING AGENCIES AND ALL APPLICABLE CODES.

22. PRIOR TO THE SUBMISSION OF BIDS, THE GENERAL CONTRACTOR AND HIS SUBCONTRACTORS SHALL VERIFY ALL DETAILS AND SCHEDULES ON THE DRAWINGS AND SPECIFICATIONS PROVIDED BY THE OWNER, FOR MEANING OF ABBREVIATIONS AND ADDITIONAL REQUIREMENTS AND INFORMATION. CHECK ALL CONSTRUCTION DOCUMENTS TO INCLUDE, BUT NOT LIMITED TO, GEOTECHNICAL REPORT, STRUCTURAL ANALYSIS, TOWER, MECHANICAL AND ELECTRICAL DRAWINGS, FOR SCALE, SPACE LIMITATIONS, DOOR SWINGS, ADJACENT CARRIER EQUIPMENT COORDINATION AND ADDITIONAL INFORMATION, ETC. REPORT ANY DISCREPANCIES, CONFLICTS, ETC. TO THE OWNER BEFORE SUBMITTING BIDS.

24. WORK SITE SAFETY:

A. CONSTRUCTION WORK PRESENTS UNIQUE THREATS TO HEALTH AND SAFETY. THE CONTRACTOR AND VERIZON WIRELESS CONTRACTOR (VZW GC) ARE RESPONSIBLE TO EDUCATE THEIR WORK FORCE OF THESE DANGERS AND LIMIT THEIR EXPOSURE TO HAZARDS. THIS EDUCATION SHALL INCLUDE BUT NOT BE LIMITED TO APPLICABLE TRAINING COURSES AND CERTIFICATIONS, PROPER PERSONAL PROTECTIVE EQUIPMENT USAGE, DAILY TAILGATE MEETINGS AND ANY OTHER PREVENTATIVE MEASURES WHICH MAY BE REASONABLY EXPECTED. THE CONTRACTOR, VERIZON WIRELESS CONTRACTOR (VZW GC) AND ALL SUB-CONTRACTORS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS AND ANY PROPERTY OCCUPANTS WHO MAY BE AFFECTED BY THE WORK UNDER CONTRACT. ALL CONTRACTORS SHALL REVIEW ALL LANDOWNER, PRIME CONTRACTOR, CARRIER, OSHA, AND LOCAL SAFETY GUIDELINES AND AT ALL TIMES SHALL CONFORM TO THE MOST RESTRICTIVE OF THESE STANDARDS TO ENSURE A SAFE WORKPLACE.

B. TOWER WORK PRESENTS ADDITIONAL THREATS TO HEALTH AND SAFETY. ALL TOWER WORKERS WORKING ON A TOWER MUST BE ADEQUATELY TRAINED AND MONITORED TO ENSURE THAT SAFE WORK PRACTICES ARE LEARNED AND FOLLOWED. AS REQUIRED BY OSHA, WHEN WORKING ON EXISTING COMMUNICATION TOWERS, EMPLOYEES MUST BE PROVIDED WITH APPROPRIATE FALL PROTECTION, TRAINED TO USE THIS FALL PROTECTION PROPERLY, AND THE USE OF FALL PROTECTION MUST BE CONSISTENTLY SUPERVISED AND ENFORCED BY THE CONTRACTOR.

C. ALL SAFETY EQUIPMENT SHALL BE INSPECTED ACCORDING TO ALL OSHA AND INDUSTRY SCHEDULED INTERVALS AND ALL INSPECTIONS SHALL BE DOCUMENTED PER APPLICABLE CODES AND STANDARDS.

D. ALL ANCHORS, CONNECTORS, CLAMPS, TIE WRAPS, ETC. WHEN FIELD CUT SHALL BE DONE SO WITH APPROVED CUTTING TOOLS TO REMOVE ALL SHARP EDGES AND BURRS.

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SHEET TITLE
GENERAL SITE CONSTRUCTION NOTES

SHEET NUMBER
C-5

GENERAL

THE CONSTRUCTION DOCUMENT DRAWINGS ARE INTERRELATED. WHEN PERFORMING THE WORK, EACH CONTRACTOR MUST REFER TO ALL DRAWINGS. COORDINATION IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

DIVISION 1: GENERAL REQUIREMENTS

SECTION 01700 - PROJECT CLOSEOUT

PART 1 - GENERAL

A. OBTAIN AND SUBMIT RELEASES ENABLING THE OWNER UNRESTRICTED USE OF THE WORK AND ACCESS TO SERVICES AND UTILITIES; INCLUDE OCCUPANCY PERMITS, OPERATING CERTIFICATES AND SIMILAR RELEASES.

B. SUBMIT RECORD DRAWINGS, DAMAGE OR SETTLEMENT SURVEY, PROPERTY SURVEY, AND SIMILAR FINAL RECORD INFORMATION.

C. COMPLETE FINAL CLEAN UP REQUIREMENTS. TOUCH UP AND OTHERWISE REPAIR AND RESTORE MARRED EXPOSED FINISHES.

PART 2 - FINAL CLEANING

1. COMPLETE THE FOLLOWING CLEANING OPERATIONS BEFORE REQUESTING INSPECTION FOR CERTIFICATION OF COMPLETION.
   a. CLEAN THE PROJECT SITE, YARD AND GROUNDS, IN AREAS DISTURBED BY CONSTRUCTION ACTIVITIES, INCLUDING LANDSCAPE DEVELOPMENT AREAS, OF RUBBISH, WASTE MATERIALS, LITTER AND FOREIGN SUBSTANCES. SWEEP PAVED AREAS BROOM CLEAN. REMOVE PETRO-CHEMICAL SPILLS, STAINS AND OTHER FOREIGN DEPOSITS, RAKE GROUNDS THAT ARE NEITHER PLANTED NOR PAVED, TO A SMOOTH EVEN-TEXTURED SURFACE.
   b. REMOVE TOOLS, CONSTRUCTION EQUIPMENT, MACHINERY AND SURPLUS MATERIAL FROM THE SITE
   c. REMOVE SNOW AND ICE TO PROVIDE SAFE ACCESS TO THE SITE AND EQUIPMENT ENCLOSURE.
   d. CLEAN EXPOSED EXTERIOR AND INTERIOR HARD-SURFACED FINISHES TO A DIRT-FREE CONDITION, FREE OF STAINS, FILMS AND SIMILAR FOREIGN SUBSTANCES. AVOID DISTURBING NATURAL WEATHERING OF EXTERIOR SURFACES.
   e. REMOVE DEBRIS FROM LIMITED ACCESS SPACES, INCLUDING ROOFS, EQUIPMENT ENCLOSURE, MANHOLES, AND SIMILAR SPACES.
   f. TOUCH-UP AND OTHERWISE REPAIR AND RESTORE MARRED EXPOSED FINISHES AND SURFACES. REPLACE FINISHES AND SURFACES THAT CAN NOT BE SATISFACTORILY REPAIRED OR RESTORED, OR THAT SHOW EVIDENCE OF REPAIR OR RESTORATION. DO NOT PAINT OVER “UL” AND SIMILAR LABELS, INCLUDING ELECTRICAL NAME PLATES.
   g. LEAVE THE PROJECT CLEAN AND READY FOR OCCUPANCY
2. REMOVAL OF PROTECTION: REMOVE TEMPORARY PROTECTION AND FACILITIES INSTALLED DURING CONSTRUCTION TO PROTECT PREVIOUSLY COMPLETED INSTALLATIONS DURING THE REMAINDER OF THE CONSTRUCTION PERIOD.

DIVISION 2: SITE WORK

SECTION 02200 - EARTHWORK AND DRAINAGE

PART 1 - GENERAL

1. WORK INCLUDED: SEE SITE PLAN.
2. SEQUENCING
   a. CONSTRUCT TEMPORARY CONSTRUCTION AREA ALONG EAST FENCE LINE.
   b. GRADE, SEED, FERTILIZE, AND MULCH ALL AREAS DISTURBED BY CONSTRUCTION (INCLUDING UNDERGROUND UTILITY EASEMENTS) IMMEDIATELY AFTER BRINGING LEASE AREA AND ACCESS DRIVE W/ TURNAROUND TO BASE COURSE ELEVATION, WATER TO ENSURE GROWTH

PART 2 - EXECUTION

1. INSPECTIONS: LOCAL BUILDING INSPECTORS SHALL BE NOTIFIED NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS, UNLESS OTHERWISE SPECIFIED BY JURISDICTION.
2. PREPARATION
   a. CLEAR TREES, BRUSH AND DEBRIS FROM SITE AS REQUIRED.
   b. PRIOR TO OTHER EXCAVATION AND CONSTRUCTION, GRUB ORGANIC MATERIAL TO A MINIMUM OF SIX INCHES (6”) BELOW GRADE.
   c. UNLESS OTHERWISE INSTRUCTED BY OWNER, TRANSPORT ALL REMOVED TREES, BRUSH AND DEBRIS FROM THE PROPERTY TO AN AUTHORIZED LANDFILL.
   d. PRIOR TO PLACEMENT OF FILL OR BASE MATERIALS, ROLL THE SOIL.
   e. WHERE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, LINE THE AREAS WITH STABILIZER MAT PRIOR TO PLACEMENT OF FILL OR BASE MATERIAL.
3. INSTALLATION
   a. GRADE OR FILL THE SITE AS REQUIRED IN ORDER THAT UPON DISTRIBUTION OF SOILS, RESULTING FROM EXCAVATIONS, THE RESULTING GRADE WILL CORRESPOND WITH SAID SUB-BASE COURSE. ELEVATIONS ARE TO BE CALCULATED FROM BENCHMARK, FINISHED GRADES, OR INDICATED SLOPES.
   b. CLEAR EXCESS SPOILS, IF ANY, FROM JOB SITE AND DO NOT SPREAD BEYOND THE LIMITS OF PROJECT AREA UNLESS AUTHORIZED BY PROJECT MANAGER AND AGREED TO BY LANDOWNER.
   c. AVOID CREATING DEPRESSIONS WHERE WATER MAY POND.
   d. THE CONTRACT SHALL INCLUDE GRADING, BANKING, AND DITCHING, UNLESS OTHERWISE INDICATED.
   e. PLACE FILL OR STONE IN SIX INCH (6”) MAXIMUM LIFTS, AND COMPACT BEFORE PLACING NEXT LIFT.
   f. THE TOP SURFACE COURSE, SHALL EXTEND A MINIMUM OF ONE FOOT (1') BEYOND THE SITE FENCE (UNLESS OTHERWISE NOTED) AND SHALL COVER THE AREA AS INDICATED.
   g. APPLY SEED, FERTILIZER, AND STRAW COVER TO ALL OTHER DISTURBED AREAS, DITCHES, AND DRAINAGE SWALES, NOT OTHERWISE RIPRAP.
   h. UNDER NO CIRCUMSTANCES WILL DITCHES, SWALES, OR CULVERTS BE PLACED SO THAT THEY DIRECT WATER TOWARDS, OR PERMIT STANDING WATER IMMEDIATELY ADJACENT TO SHELTER OR EQUIPMENT. IF DESIGNS OR ELEVATIONS ARE IN CONFLICT WITH THIS, ADVISE CONSTRUCTION MANAGER IMMEDIATELY.
   i. APPLY SEED, FERTILIZER, AND STRAW COVER TO ALL OTHER DISTURBED AREAS, DITCHES, AND DRAINAGE SWALES, NOT OTHERWISE RIPRAP.
   j.
   k. IN DITCHES WITH SLOPES GREATER THAN 10% MOUND DIVERSIONARY HEADWALLS IN THE DITCH AT CULVERT ENTRANCES. POSITION THE HEADWALL AT AN ANGLE NO GREATER THAN THAT 60° OFF THE DITCH LINE. RIPRAP THE UPSTREAM SIDE OF THE HEADWALL AS WELL AS THE DITCH FOR SIX FEET (6') ABOVE THE CULVERT ENTRANCE.
   l. APPLY SEED AND FERTILIZER TO SURFACE CONDITIONS WHICH WILL ENCOURAGE ROOTING. RAKE AREAS TO BE SEEDED TO EVEN THE SURFACE AND LOOSEN THE SOIL.
   m. SOW SEED IN TWO DIRECTIONS IN TWICE THE QUANTITY RECOMMENDED BY THE SEED PRODUCER.
   n. ENSURE GROWTH OF SEEDED AND LANDSCAPED AREAS, BY WATERING, UP TO THE POINT OF RELEASE FROM THE CONTRACT. CONTINUE TO REWORK THE BARE AREAS UNTIL COMPLETE COVERAGE IS OBTAINED.
4. FIELD QUALITY CONTROL: COMPACT SOILS TO MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-1557. AREAS OF SETTLEMENT WILL BE EXCAVATED AND REFILLED AT CONTRACTOR'S EXPENSE. INDICATE PERCENTAGE OF COMPACTION ACHIEVED ON AS-BUILT DRAWINGS.
5. PROTECTION
   a. PROTECT SEEDED AREAS FROM EROSION BY SPREADING STRAW TO A UNIFORM LOOSE DEPTH OF 1-2 INCHES, STAKE AND TIE DOWN AS REQUIRED. USE OF EROSION CONTROL MESH OR MULCH NET WILL BE AN ACCEPTABLE ALTERNATIVE.
   b. PROTECT ALL EXPOSED AREAS AGAINST WASHOUTS AND SOIL EROSION. PLACE STRAW BALES AT THE INLET APPROACH TO ALL NEW OR EXISTING CULVERTS. WHERE THE SITE OR ROAD AREAS HAVE BEEN ELEVATED IMMEDIATELY ADJACENT TO THE RAIL LINE, STAKE EROSION CONTROL FABRIC FULL LENGTH IN THE SWALE TO PREVENT CONTAMINATION OF THE RAIL BALLAST. ALL EROSION CONTROL METHODS SHALL CONFORM TO APPLICABLE BUILDING CODE REQUIREMENTS.

SECTION 02830 - FENCING AND GATE(S)

PART 1 - GENERAL

1. WORK INCLUDED - SEE PLAN FOR SITE AND LOCATION OF FENCE
2. QUALITY ASSURANCE
   a. ALL STEEL MATERIALS UTILIZED IN CONJUNCTION WITH THIS SPECIFICATION WILL BE GALVANIZED OR STAINLESS STEEL. WEIGHT OF ZINC COATING ON THE FABRIC SHALL NOT BE LESS THAN 12 OUNCES PER SQUARE FOOT OF MATERIAL COVERED. POSTS SHALL BE HOT-DIPPED IN GRADE “E” ZINC, 18 OUNCES PER SQUARE FOOT.
3. SEQUENCING
   a. IF THE SITE AREA HAS BEEN BROUGHT UP TO SURFACE COURSE ELEVATION (PRIOR TO THE FENCE CONSTRUCTION), FENCE POST EXCAVATION SPOILS MUST BE CONTROLLED TO PRECLUDE CONTAMINATION OF SAID SURFACE COURSE.
4. SUBMITTALS
   a. MANUFACTURER'S DESCRIPTIVE LITERATURE.
   b. CERTIFICATE OR STATEMENT OF COMPLIANCE WITH THE SPECIFICATIONS.

PART 2 - PRODUCTS

1. FENCE MATERIAL
   a. ALL FABRIC WIRE, RAILS, HARDWARE, AND OTHER STEEL MATERIALS SHALL BE HOT-DIPPED GALVANIZED.
   b. FABRIC SHALL BE SEVEN-FOOT (7') HIGH OR TO MATCH EXISTING FENCE TWO-INCH CHAIN LINK MESH OF NO. 9 GAUGE (0.148”) WIRE. THE FABRIC SHALL HAVE A KNUCKLED FINISH FOR THE TOP SELVAGES. FABRIC SHALL CONFORM TO THE SPECIFICATIONS OF ASTM A-392 CLASS 1.
   c. ALL POSTS SHALL BE SCHEDULE - 40 MECHANICAL SERVICE PIPE AND SHALL BE TYPE 1 ASTM A-128 AND OF THE FOLLOWING DIAMETER
      i. LINE 2” SCHEDULE 40 (2 3/8” O.D.)
      ii. CORNER 3” SCHEDULE 40 (3 1/2” O.D.)
      iii. GATE 3” SCHEDULE 40 (3 1/2” O.D.)
   d. ALL TOP AND BRACE RAILS SHALL BE 1" DIAMETER SCHEDULE - 40 MECHANICAL - SERVICE PIPE.
   e. GATE FRAMES AND BRACES SHALL BE 1.90 INCH DIAMETER SCHEDULE 40 MECHANICAL - SERVICE PIPE. FRAMES SHALL HAVE WELDED CORNERS.
   f. GATE FRAMES SHALL HAVE A FULL-HEIGHT VERTICAL BRACE, AND A FULL-WIDTH HORIZONTAL BRACE, SECURED IN PLACE BY USE OF GATE BRACE CLAMPS.
   g. GATE HINGES SHALL BE MERCHANTS METAL MODEL 64386 HINGE ADAPTER WITH MODEL 6409, 188-DEGREE ATTACHMENT.
   h. A NO. 7 GAUGE ZINC COATED TENSION WIRE SHALL BE USED AT THE BOTTOM OF THE FABRIC, TERMINATED WITH BAND CLIPS AT CORNER AND GATE POSTS.
   i. A SIX-INCH BY 1/2-INCH DIAMETER EYEBOLT TO HOLD TENSION WIRE SHALL BE PLACED AT LINE POSTS.
   j. STRETCHER BARS SHALL BE 3/16-INCH BY 3/4-INCH OR HAVE EQUIVALENT CROSS-SECTIONAL AREA.
   k. ALL CORNER GATE AND PANELS SHALL HAVE A 3/8-INCH TRUSS ROD WITH TURNBUCKLES.
   l. ALL POST EXCEPT GATE POSTS SHALL HAVE A COMBINATION CAP AND BARBED WIRE SUPPORTING ARM. GATE POSTS SHALL HAVE A DOME CAP.
   m. OTHER HARDWARE INCLUDES BUT MAY NOT BE LIMITED TO TIE CLIPS, BAND CLIPS, AND TENSION BAND CLIPS.
   n. ALL CAPS SHALL BE MALLEABLE IRON, DOME OR ACORN SHAPED AS REQUIRED BY PIPE SIZE.

PART 3 - EXECUTION

1. INSPECTION: TO CONFIRM PROPER DEPTH AND DIAMETER OF POST HOLE EXCAVATIONS. ALL POST HOLES WILL BE EXCAVATED AS PER CONSTRUCTION DOCUMENTS,
2. INSTALLATION
   a. FOUNDATIONS SHALL HAVE A MINIMUM SIX INCH (6”) CONCRETE COVER UNDER POST.
   b. ALL FENCE POSTS SHALL BE VERTICALLY PLUMB; ON QUARTER INCH (1/4”)
   c. AT CORNER POSTS, GATE POSTS, AND SIDES OF GATE FRAME, FABRIC SHALL BE ATTACHED WITH STRETCHER AND TENSION BAND-CLIPS AT FIFTEEN (15) INCH INTERVALS.
   d. AT LINE POSTS, FABRIC SHALL BE ATTACHED WITH BAND-CLIPS AT FIFTEEN (15) INCH INTERVALS.
   e. FABRIC SHALL BE ATTACHED TO BRACE RAILS, TENSION WIRE AND TRUSS RODS WITH TIE-CLIPS AT TWO FOOT (2') INTERVALS.
   f. A MAXIMUM GAP OF ONE INCH WILL BE PERMITTED BETWEEN TIE CHAIN LINE FABRIC AND THE FINAL GRADE.
   g. GATE SHALL BE INSTALLED SO LOCKS ARE ACCESSIBLE FROM BOTH SIDES.
   h. GATE HINGE BOLTS SHALL HAVE THEIR THREADS PEENED OR WELDED TO PREVENT UNAUTHORIZED REMOVAL.
   i. CONCRETE TO BE A MINIMUM OF 4,000 PSI AT 7 DAYS. CEMENT SHALL EXCEED ASTM C150, TYPE IIIA.
3. PROTECTION: UPON COMPLETION OF ERECTION, INSPECT FENCE MATERIAL AND PAINT FIELD CUTS OR GALVANIZING BREAKS WITH ZINC-BASED PAINT, COLOR TO MATCH THE GALVANIZED METAL. APPLICABLE STANDARDS:

ASTM-A120	SPECIFICATION FOR PIPE, STEEL, BLACK AND HOT-DIPPED ZINC COATED (GALVANIZED) WELDED AND SEAMLESS, FOR ORDINARY USES.
ASTM-A123	ZINC (HOT-DIP GALVANIZED) COATING ON IRON AND STEEL PRODUCTS.
ASTM-A153	STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE.
ASTM-A392 LINK	SPECIFICATION FOR ZINC-COATED STEEL CHAIN FENCE FABRIC.
ASTM-A491	SPECIFICATION FOR ALUMINUM-COATED STEEL CHAIN LINK FENCE FABRIC
ASTM-A525 PROCESS.	STANDARD SPECIFICATION FOR STEEL SHEET ZINC COATED (GALVANIZED) BY THE HOT-DIPPED
ASTM-A570	SPECIFICATION FOR HOT-ROLLED CARBON STEEL SHEET AND STRIP. STRUCTURAL QUALITY.

A. FEDERAL SPECIFICATION RR-F-191-FENCING, WIRE AND POST METAL (AND GATES, CHAIN LINK FENCE FABRIC, AND ACCESSORIES)

DIVISION 3: CONCRETE

SECTION 03000 - BASIC CONCRETE MATERIALS AND METHODS

PART 1 - GENERAL

1. WORK INCLUDED: FORMWORK, REINFORCEMENT, ACCESSORIES, CAST-IN-PLACE CONCRETE, FINISHING, AND CURING.
2. INSPECTIONS
   a. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING BUILDING DEPARTMENT INSPECTIONS REQUIRED FOR HIS SCOPE OF WORK.
   b. ALL REINFORCING STEEL SHALL BE INSPECTED AND APPROVED BY THE LESSEE'S CONSTRUCTION MANAGER PRIOR TO PLACEMENT OF CONCRETE.
   c. THE LESSEE'S CONSTRUCTION MANAGER SHALL BE NOTIFIED NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS.
3. QUALITY ASSURANCE
   a. CONSTRUCT AND ERECT CONCRETE FORMWORK IN ACCORDANCE WITH ACI 301 AND ASTM 318.
   b. PERFORM CONCRETE REINFORCING WORK IN ACCORDANCE WITH ACI 301, ACI 318, AND ASTM A184.
   c. PERFORM CAST-IN-PLACE CONCRETE WORK IN ACCORDANCE WITH ACI 301, ACI 318, AND ACI 117-90.
   d. OPEN FOUNDATION TRENCHES SHALL BE INSPECTED BY MES PRIOR TO CONCRETE INSTALLATION.
4. SUBMITTALS: SUBMIT CONCRETE MIX AND REINFORCING STEEL SHOP DRAWINGS FOR APPROVAL BY LESSEE CONSTRUCTION MANAGER/ENGINEER. THE SHOP DRAWING SHALL BE SUBMITTED IN THE FORM OF TWO (2) CONCRETE MIX DESIGN INFORMATION SHEETS AND TWO (2) BLUELINE DRAWINGS FOR REINFORCING STEEL.

PART 2 - PRODUCTS

1. REINFORCEMENT MATERIALS
   a. REINFORCEMENT STEEL, ASTM A615, 60 ksi YIELD GRADE, DEFORMED BILLET STEEL BARS, PLAIN FINISH.
   b. WELDED STEEL WIRE FABRIC ASTM A185 PLAIN TYPE IN FLAT SHEETS, PLAIN FINISH.
   c. CHAIRS, BOLSTERS, BAR SUPPORTS, SPACERS. SIZED AND SHAPED FOR SUPPORTS OR REINFORCING.
   d. FABRICATE CONCRETE REINFORCING IN ACCORDANCE WITH ACI 315, ACI 318, ASTM A184.
2. CONCRETE MATERIALS
   a. CEMENT: ASTM C150, PORTLAND TYPE
   b. FINE AND COURSE AGGREGATES: ASTM C33 - MAXIMUM SIZE OF CONCRETE AGGREGATE SHALL NOT EXCEED; ONE INCH (1”) SIZE SUITABLE FOR INSTALLATION METHOD UTILIZED OR ONE-THIRD (1/3) CLEAR DISTANCE BEHIND OR BETWEEN REINFORCING.
   c. WATER: CLEAN AND NOT DETRIMENTAL TO CONCRETE
   d. AIR ENTRAINING ADMIXTURE: ASTM C260
   e. BONDING AGENT: LATEX EMULSION FOR BONDING NEW TO OLD CONCRETE AS MANUFACTURED BY DAYTON SUPERIOR.
   f. NON-SHRINK GROUT: PREMIXED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE. CEMENT, WATER REDUCING AND PLASTICISING AGENTS.
3. CONCRETE MIX
   a. CONCRETE MATERIALS SHALL CONFORM TO THE APPROPRIATE A.C.I. REQUIREMENTS FOR EXPOSED STRUCTURAL CONCRETE.
   b. MIX AND DELIVER CONCRETE IN ACCORDANCE WITH ASTM C94, ALT. 3.
   c. PROPORTIONS OF CONCRETE MATERIALS SHALL BE SUITABLE FOR THE INSTALLATION METHOD UTILIZED AND SHALL RESULT IN DURABLE CONCRETE FOR LOCAL ANTICIPATED AGGRESSIVE ACTIONS. THE DURABILITY REQUIREMENTS OF ACI 318 CHAPTER 4 SHALL BE SATISFIED BASED ON THE CONDITIONS EXPECTED AT THE SITE. PROVIDE CONCRETE AS FOLLOWS:
      i. COMPRESSIVE STRENGTH: 4000 psi AT 7 DAYS. SEE SHEET 2-1 FOR CAISSON CONCRETE COMPRESSIVE STRENGTH.
      ii. SLUMP: 3 INCHES

PART 3 - EXECUTION

1. INSERTS, EMBEDDED COMPONENTS AND OPENINGS
   a. THE CONSTRACTOR SHALL COORDINATE AND CROSS-CHECK ARCHITECTURAL, BUILDING & ELECTRICAL DRAWINGS FOR OPENINGS, SLEEVES, ANCHORS, HANGERS, AND OTHER ITEMS RELATED TO CONCRETE WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THE PROPER LOCATION BEFORE PLACING CONCRETE.
   b. PROVIDE FORMED OPENINGS WHERE REQUIRED FOR WORK TO BE EMBEDDED IN AND PASSING THROUGH CONCRETE MEMBERS.
   c. COORDINATE WORK OF OTHER SECTIONS IN FORMING AND SETTING OPENING, SLOTS, RECESSES, CHASES, SLEEVES, BOLTS, ANCHORS, AND OTHER INSERTS.
   d. INSTALL CONRETE ACCESSORIES STRAIGHT, LEVEL AND PLUMB.
2. REINFORCEMENT PLACEMENT
   a. PLACEMENT REINFORCEMENT, SUPPORTED AND SECURED AGAINST DISPLACEMENT.
   b. ENSURE REINFORCING IS CLEAN, FREE OF LOOSE SCALE, DIRT, OR OTHER FOREIGN COATINGS.
   c. WELDING IS PROHIBITED ON REINFORCING STEEL AND EMBEDMENTS.
   d. MINIMUM CONCRETE COVER FOR REINFORCING SHALL BE THREE INCHES (3”) UNLESS OTHERWISE NOTED.
   e. CONCRETE COVER FROM TOP OF FOUNDATION TO ENDS OF VERTICAL REINFORCEMENT SHALL NOT EXCEED THREE INCHES (3”) NOR BE LESS THAN TWO INCHES (2”).
3. PLACING CONCRETE
   a. VIBRATE ALL CONCRETE.
   b. ALL CONCRETE WORK SHALL ADHERE TO THE LATEST A.C.I. STANDARDS FOR WINTER POURING AND CURING PROCECURES IF SEASONAL CONDITIONS APPLY.
4. CURING
   a. AFTER PLACEMENT, PROTECT CONCRETE FROM PREMATURE DRYING.
   b. MAINTAIN CONCRETE WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR A PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.
5. PROVIDE HAND RUBBED SMOOTH FINISH TO ALL EXPOSED VERTICAL FORMED CONCRETE SURFACES.
6. FIELD QUALITY CONTROL
   a. SUBMIT THREE (3) CONCRETE TEST CYLINDERS - TAKEN FOR EVERY 15 CUBIC YARD OR LESS. SUBMIT CONCRETE TESTS TO THE PROJECT MANAGER IN ACCORDANCE WITH ASTM, C-31 AND C-39.
   b. SUBMIT ONE (1) ADDITIONAL TEST CYLINDER - TAKEN DURING COLD WEATHER POURS, AND CURED ON JOB SITE UNDER SAME CONDITIONS AS CONCRETE IT REPRESENTS.
   c. SUBMIT ONE (1) SLUMP TEST - TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN.
7. DEFECTIVE CONCRETE: MODIFY OR REPLACE CONCRETE NOT CONFORMING TO REQUIRED LINES, DETAILS OR ELEVATIONS AT COST OF GC, AS DIRECTED BY ARCHITECT/ENGINEER.

PREPARED FOR
TowerNorth
2400 ANSYS DRIVE, SUITE 102
CANONSBURG, PA 15317
SITEACCESS@TOWERNORTH.COM
1-800-821-5825x2

PLANS PREPARED BY:
TERRA CONSULTING GROUP
has joined Colliers Engineering & Design

CARRIER:
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1701 GOLF ROAD,
TOWER 2, SUITE 400
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REVISIONS

NO	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	10/06/25	TJS
1	ADDITION OF LANDSCAPE PLAN	10/10/25	TJS
2	UPDATE WITH POWER COORDINATION	12/18/25	JJR
3	ADDED EROSION CONTROL & SWAPPED GEN	01/02726	APD
4	REVISED TOWER BASE SIZE	04/02/26	TJS
5	REVISED PER COMMENTS	05/13/26	PP
6	REVISED PER NEW TEMPLATE/ ISSUED FOR PERMIT	07/29/26	GD

SITE #IL1502-A
MDG LOC# 5000348752
FUZE ID: 17495287

176 &
HALIGUS - A

MT. THABOR ROAD
CRYSTAL LAKE, IL 60014
McHENRY COUNTY

DRAWN BY:	GAD
CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

SHEET TITLE
SPECIFICATIONS

SHEET NUMBER
C-5A

DIVISION 5: METALS

SECTION 05000 - METALS

PART 1 - GENERAL

1. SECTION INCLUDES:

   STRUCTURAL STEEL FRAMING MEMBERS, BASE PLATES, PLATES, BARS, AND GROUTING UNDER BASE PLATES.

2. SUBMITTALS:

   SHOP DRAWINGS: INDICATE SIZES, SPACING, AND LOCATIONS OF STRUCTURAL MEMBERS, OPENINGS, CONNECTIONS, CAMBERS, LOADS, AND WELDED SECTIONS.

3. QUALITY ASSURANCE

   A. FABRICATE STRUCTURAL STEEL MEMBERS IN ACCORDANCE WITH AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS.

   B. PERFORM DESIGN UNDER DIRECT SUPERVISION OF A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE.

PART 2 - PRODUCTS

1. MATERIALS:

   A. STRUCTURAL STEEL MEMBERS: ASTM A572, GRADE 50

   B. STRUCTURAL TUBING: ASTM A500, GRADE B

   C. PIPE: ASTM A53, TYPE E OR S, GRADE B

   D. BOLTS, NUTS, AND WASHERS: ASTM A325

   E. ANCHOR BOLTS: ASTM A307

   F. WELDING MATERIALS: AWS 01.1, TYPE REQUIRED FOR MATERIALS BEING WELDED

   G. GROUT: NON - SHRINK TYPE, PREMIXED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING ADDITIVES, CAPABLE OF DEVELOPING A MINIMUM COMPRESSIVE STRENGTH OF 7000 PSI AT 28 DAYS.

   H. SHOP AND TOUCH-UP PRIMER: SSPC 15, TYPE 1, RED OXIDE

   I. TOUCH-UP PRIMER FOR GALV. SURFACES: ZINC RICH TYPE

2. FABRICATION:

   CONTINUOUSLY SEAL JOINTED MEMBERS BY CONTINUOUS WELDS. GRIND EXPOSED WELDS SMOOTH.

3. FINISH:

   A. PREPARE STRUCTURAL COMPONENT SURFACES IN ACCORDANCE WITH SSPC SP-1 TO SP-10 PROCEDURES.

   B. STRUCTURAL STEEL MEMBERS SHALL BE HOT DIPPED GALVANIZED.

PART 3 - EXECUTION

1. EXAMINATION AND PREPARATION:

   VERIFY THAT THE FIELD CONDITIONS ARE ACCEPTABLE.

2. ERECTION:

   A. ALLOW FOR ERECTION LOADS. PROVIDE TEMPORARY BRACING TO MAINTAIN FRAMING IN ALIGNMENT UNTIL COMPLETION OF ERECTION AND INSTALLATION OF PERMANENT BRIDGING AND BRACING.

   B. FIELD WELD COMPONENTS INDICATED ON SHOP DRAWINGS.

   C. DO NOT FIELD CUT OR ALTER STRUCTURAL MEMBERS WITHOUT APPROVAL OF THE ARCHITECT/ENGINEER.

   D. AFTER ERECTION, TOUCH-UP WELDS, ABRASIONS, AND SURFACES NOT SHOP PRIMED OR GALVANIZED WITH TOUCH-UP PRIMERS AS SPECIFIED UNDER SECTION 05000, 0METALS, PART 2 - PRODUCTS, H & I. SURFACES TO BE IN CONTACT WITH CONCRETE NOT INCLUDED.

3. FIELD QUALITY CONTROL:

   FIELD INSPECTION OF MEMBERS, CONNECTIONS, WELDS, AND TORQUING

DIVISION 16: ELECTRICAL

SECTION 16050 - BASIC ELECTRICAL MATERIALS AND METHODS

1. CONTRACTOR SHALL REVIEW THE CONTRACT DOCUMENTS PRIOR TO ORDERING THE ELECTRICAL EQUIPMENT AND STARTING THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ARCHITECT LISTING ANY DISCREPANCIES OR CONFLICTING INFORMATION.
2. ELECTRICAL PLANS, DETAILS AND DIAGRAMS ARE DIAGRAMMATIC ONLY. VERIFY EXACT LOCATIONS AND MOUNTING HEIGHTS OF ELECTRICAL EQUIPMENT WITH OWNER PRIOR TO INSTALLATION.
3. EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANEL BOARD, PULL BOX, JUNCTION BOX, SWITCH BOX, ETC. THE TYPE OF TAGGING METHODS SHALL BE IN COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (O.S.H.A).
4. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN GOOD WORKING CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED "J" WHERE APPLICABLE. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA, NBFU, AND "UL" LISTED.
5. ALL CONDUIT SHALL HAVE A PULL CORD.
6. PROVIDE PROJECT MANAGER WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS, AND CIRCUITS.
7. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C.
8. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY UBC, NEC AND ALL APPLICABLE CODES.
9. PATCH, REPAIR AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.
10. PLASTIC PLATES FOR ALL SWITCHES, RECEPTACLES, TELEPHONE AND BLANKED OUTLETS SHALL HAVE ENGRAVED LETTERING WHERE INDICATED ON THE DRAWINGS. WEATHERPROOF RECEPTACLES SHALL HAVE SIERRA #WPD-8 LIFT COVERPLATES.

SECTION 16400 - SERVICE AND DISTRIBUTION

1. WIRE AND CABLE CONDUCTORS SHALL BE COPPER, 600V, TYPE THHN OR THWN, WITH A MIN. SIZE OF #12 AWG, COLOR CODED. ALL RECTIFIER DROPS SHALL BE STRANDED TO ACCEPT CRIMP CONNECTORS.
2. ALL CHEMICAL GROUND RODS SHALL BE "UL" APPROVED.
3. METER SOCKET AMPERES, VOLTAGE, NUMBER OF PHASES SHALL BE AS NOTED ON THE DRAWINGS. MANUFACTURED BY MILBANK OR APPROVED EQUAL, AND SHALL BE UTILITY COMPANY APPROVED.
4. CONDUIT:

   A. RIGID CONDUIT SHALL BE U.L LABEL GALVANIZED ZINC COATED WITH GALVANIZED ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE ½ LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.

   B. ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTING SHALL BE GLAND RING COMPRESSION TYPE.

   C. FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR SQUEEZE" TYPE. ALL FLEXIBLE CONDUITS SHALL HAVE FULL LENGTH GROUND WIRE.

   D. ALL UNDERGROUND CONDUIT SHALL BE AS NOTED ON THE DRAWINGS AT A MINIMUM DEPTH OF 42" BELOW GRADE. IT IS REQUIRED AND WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO NOTIFY J.U.L.I.E. AT 1-800-892-0123 OR OTHER SUCH NOTIFYING AGENCY FORTY-EIGHT (48) HOURS PRIOR TO DIGGING.

5. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS ARE TO BE PAID BY THE CONTRACTOR.
6. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS WITH WHITE ON BLUE BACKGROUND LETTERING (MINIMUM LETTER HEIGHT SHALL BE ONE FORTH INCH (1/4'). NAMEPLATES SHALL BE FASTENED WITH STAINLESS STEEL SCREWS, NOT ADHESIVE.
7. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL POTENTIAL GROUNDING TESTS BY AN INDEPENDENT TESTING SERVICE ENGAGED BY THE CONTRACTOR SHALL BE SUBMITTED FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.
8. GROUNDING ELECTRODE SYSTEM

   A. PREPARATION

1. SURFACE PREPARATION:

   ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTS SURFACES SHALL BE FIELD INSPECTED AND MODIFIED TO ENSURE PROPER CONTACT. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS ARE TO HAVE A NO-OXIDIZING GENT APPLIED PRIOR TO INSTALLATION.

2. GROUND BAR PREPARATION:

   ALL COPPER GROUND BARS SHALL BE CLEANED, POLISHED AND A NON-OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.

3. SLEEVES:

   ALL GROUNDING CONDUCTORS SHALL RUN THROUGH PVC SLEEVES WHEREVER CONDUCTORS RUN THROUGH WALLS, FLOORS OR CEILINGS. IF CONDUCTORS MUST RUN THROUGH EMT, BOTH ENDS OF CONDUIT SHALL BE GROUNDED. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.

   B. GROUND BARS

1. ALL GROUND BARS SHALL BE ONE FORTH INCH (1/4" THICK TINNED COPPER PLATE AND OF AND OF SIZE INDICATED ON DRAWINGS.
2. ALL CONNECTIONS TO THE GROUND BAR SHALL OBSERVE THE FOLLOWING SEQUENCE:

   A. BOLT-HEAD

   B. 2-HOLE LUG

   C. TINNED COPPER BUSS BAR

   D. STAR WASHER

   E. NUT

   C. EXTERNAL CONNECTIONS

1. ALL BURIED GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS. CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE, SPLICES, TEE'S, CROSSES, ETC. ALL CABLE TO GROUND RODS, GROUND ROD SPLICES AND LIGHTNING PROTECTION SYSTEMS ARE TO BE AS INDICATED. ALL MATERIALS USED (MOLDS, WELDING METAL, TOOLS, ETC.) SHALL BE BY "CADWELD" AND INSTALLED PER MANUFACTURER'S RECOMMENDED PROCEDURES.
2. ALL ABOVE GRADE GROUNDING AND BONDING CONDUCTORS SHALL BE CONNECTED BY TWO HOLE CRIMP TYPE (COMPRESSION) CONNECTIONS (EXCEPT FOR THE ACEG AND GROUND ROD) MECHANICAL CONNECTIONS, FITTINGS OR CONNECTIONS THAT DEPEND SOLELY ON SOLDIER SHALL NOT BE USED. ALL CABLE TO CABLE CONNECTIONS SHALL BE HIGH PRESSURE DOUBLE CRIMP TYPE CONNECTIONS. CONNECTIONS TO STRUCTURAL STEEL SHALL BE EXOTHERMIC WELDS.

   D. GROUND RODS

   ALL GROUND RODS SHALL BE 5/8 -INCH DIAMETER X 10' -0" LONG "COPPERWELD" OR APPROVED EQUAL, OF THE NUMBER AND LOCATIONS INDICATED. GROUND RODS SHALL BE DRIVEN FULL LENGTH VERTICAL IN UNDISTURBED EARTH.

   E. GROUND RODS

   ALL GROUND RODS SHALL BE STANDARD TINNED SOLID BARE COPPER ANNEALED, AND OF SIZE INDICATED ON DRAWINGS UNLESS NOTED OTHERWISE.

   F. LUGS

1. LUGS SHALL BE 2 - HOLE, LONG BARREL, STRAND COPPER UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS. LUGS SHALL BE THOMAS AND BETTS SERIES #548_ _BE OR EQUIVALENT

A. 535 MCM DLO	54880BE
B. 262 MCM DLO	54872BE
C. #1/0 DLO	54862BE
D. #4/0 THWN AND BARE	54866BE
E. #2/0 THWN	54862BE
F. #2 THHN	54207BE
G. #6 DLO	54205BE

2. WHEN THE DIRECTION OF THE CONDUCTOR MUST CHANGE, IT SHALL BE DONE GRADUALLY. THE CURVATURE OF THE TURN SHALL BE DONE IN ACCORDANCE WITH THE FOLLOWING CHART:

	GROUNDING CONDUCTOR SIZE	MINIMUM BENDING RADIUS TO INSIDE EDGE
NO.	6 AWG TO NO. 4 AWG	6 INCHES
NO.	2 AWG TO NO. 1/0 AWG	8 INCHES
NO.	2/0 AWG TO 4/0 MCM	12 INCHES
	250 MCM TO 750 MCM	24 INCHES

   G. GROUND RING

1. THE EXTERNAL GROUND RING ENCIRCLING THE TOWER (IF APPLICABLE) AND BETWEEN THE EQUIPMENT SHELTER PLATFORM ANCHORS SHALL BE MINIMUM NO. 2 SOLID TINNED BARE COPPER CONDUCTOR IN DIRECT CONTACT WITH THE EARTH AT THE DEPTH INDICATED ON THE DRAWINGS. CONDUCTOR BENDS SHALL HAVE A MINIMUM BENDING RADIUS OF EIGHT INCHES (8").

2. ALL EXTERNAL GROUND RINGS ARE TO BE JOINED TOGETHER AND ALL CONNECTIONS MUST BE CADWELDED. NO LUNGS OR CLAMPS WILL BE ACCEPTED.

   H. FENCE/GATE

   GROUND EACH GATE POST, CORNER POST AND GATE AS INDICATED ON DRAWING GROUND CONNECTIONS TO FENCE POST AND ALL OTHER CONNECTIONS FOR THE GROUND GRID SYSTEM SHALL BE MADE BY EXOTHERMIC WELD PROCESS, AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES, AND SPRAYED WITH COLD-GALVANIZED PAINT.

3. I.E.E.E. FALL POTENTIAL TESTS

   A. FOR RAW LAND SITE

1. GROUND TESTS SHALL BE PERFORMED AS INDICATED ON DRAWINGS. A BIDDLE GROUND OHMER OR THE METHOD OF USING TWO AUXILIARY GROUND RODS (AS DESCRIBED IN I.E.E.E. STANDARDS NO. 81-1983, PART 1) MAY BE USED. THE I.E.E.E. METHOD REQUIRES THE USE OF AN A.C. TEST CURRENT. THE AUXILIARY TEST RODS MUST BE SUFFICIENTLY FAR AWAY FROM THE ROD UNDER TEST SO THAT THE REGIONS IN WHICH THEIR RESISTANCE IS LOCALIZED DO NOT OVERLAP. THE TEST POINT WILL BE GROUND ROD AND WILL CONSIST OF THE THREE POINT FALL OF POTENTIAL MEGGER TEST METHOD, USING THE BIDDLE NULL-BALANCE EARTH TESTER (MEGGER #250220-2 OR EQUIVALENT)
2. CONTRACTOR TO CONDUCT GROUND RESISTANCE TEST IN THE FORMAT AS FOLLOWS:

   B. EQUIPMENT PAD

1. FIRST TEST - SHALL BE WITH FOUR GROUND RODS INSTALLED, ONE AT EACH CORNER OF THE PAD BUT NOT CONNECTED TO THE MAIN GROUNDING BUS. FURNISH WIRE TO CONNECT (TEMPORARY CLAMP) ALL FOUR GROUND RODS TOGETHER TO MAKE A SYSTEM TEST AFTER EACH ROD IS INDIVIDUALLY TESTED. IF ANY INDIVIDUAL ROD TESTS 35 OHMS OR MORE, THE ELECTRICAL CONTRACTOR AND OWNER'S REPRESENTATIVE SHOULD BE NOTIFIED SO THAT THE ROD CAN BE DRIVEN DEEPER UNTIL ALL FOUR RODS HAVE A RESISTANCE OF 10 OHMS OR LESS ON A DRY DAY.
2. SECOND TEST- SHALL BE WITH THE GROUND RODS CONNECTED, WITH DRY SOIL AND WHEN NO STANDING WATER HAS BEEN PRESENT FOR THE PAST TEN (10) DAYS. THE MAXIMUM ALLOWABLE READING IS 5 OHMS TO GROUND. IF THE RESISTANCE OF THE ENTIRE SYSTEM EXCEEDS 5 OHMS, NOTIFY THE CONTRACTOR AND OWNER'S REPRESENTATIVE SO THAT ADDITIONAL AND/OR DEEPER RODS CAN BE INSTALLED.

   C. TOWER

1. FIRST TEST - SHALL BE WITH THREE GROUND RODS INSTALLED (MINIMUM), EQUALLY SPACED AROUND THE TOWER FOUNDATION, BUT NOT CONNECTED TO THE SHELTER PAD EXTERNAL GROUND RING. FURNISH WIRE TO CONNECT (TEMPORARY CLAMP) ALL THREE GROUND RODS TOGETHER TO MAKE A SYSTEM TEST AFTER EACH ROD IS INDIVIDUALLY TESTED. IF ANY INDIVIDUAL ROD TESTS 25 OHMS OR MORE, NOTIFY THE CONTRACTOR AND OWNER'S REPRESENTATIVE SO THAT THE ROD CAN BE DRIVEN DEEPER UNTIL ALL THREE (3) RODS HAVE A RESISTANCE OF 10 OHMS OR LESS ON A DRY DAY.
2. SECOND TEST- SHALL BE WITH THE GROUND RODS CONNECTED, WITH DRY SOIL AND WHEN NO STANDING WATER HAS BEEN PRESENT FOR THE PAST (10) DAYS, THE MAXIMUM ALLOWABLE READING IS 5 OHMS THE ELECTRICAL CONTRACTOR AND OWNER'S REPRESENTATIVE SHOULD BE NOTIFIED SO THAT EITHER ADDITIONAL AND/OR DEEPER RODS CAN BE INSTALLED.

   D. EQUIPMENT PAD AND TOWER

1. AFTER THE EQUIPMENT PAD AND TOWER GROUND RESISTANCE TEST IS COMPLETED, CONTRACTOR SHALL TIE EQUIPMENT PAD EXTERNAL GROUND RING AND TOWER EXTERNAL GROUND RING TOGETHER. AFTER FIRST AND SECOND TEST ALL CONNECTIONS MUST BE MADE USING EXOTHERMIC WELD. NO LUGS OR CLAMPS WILL BE ACCEPTED.
2. AFTER ALL THE EXTERNAL GROUND RINGS ARE TIED TOGETHER, COMPETE A MEGGER CHECKER OF THE GROUND SYSTEM SHOULD BE DONE. THE MAXIMUM ALLOWABLE LEADING IS 5 OHMS TO GROUND.

10. GROUNDING RESISTANCE TEST REPORT

UPON COMPLETION OF THE TESTING FOR EACH SITE, A TEST REPORT SHOWING RESISTANCE IN OHMS WITH AUXILIARY POTENTIAL ELECTRODES AT 5 FEET AND 10 FEET INTERVALS UNTIL THE AVERAGE RESISTANCE STARTS INCREASING AND ALSO NOTE THAT 10-15 PHOTOS MUST BE TAKEN TO PROOF ENTIRE EXTERNAL GROUND RING SYSTEM BEFORE BACKFILL. TWO (2) SETS OF TEST DOCUMENTS AREA OF THE INDEPENDENT TESTING SERVICE TO BE BOUND AND SUBMITTED WITHIN ONE (1) WEEK OF WORK COMPLETION.

SECTION 16503 - POLES, POSTS, AND STANDARDS (SINGLE MAST AND SELF SUPPORTING TOWERS)

1. GENERAL

   A. LIGHTNING ROD AND EXTENSION PIPE INCLUDING ALL APPURTENANCES, TO BE FURNISHED BY OWNER, IF REQUIRED

   B. PROVIDE TEMPORARY LIGHTING FOR TOWER AS PER FAA REGULATIONS DURING CONSTRUCTION, IF REQUIRED.

   C. GROUNDING:

   GROUND TOWER WITH A MINIMUM OF #2 AWG TINNE SOLID BARE COPPER CONDUCTOR CADWELDED TO TOWER BASE PLATE. TWO (2) GROUNDING LEADS PER TOWER BASE PLATE.

   NO EXOTHERMIC WELDS SHALL BE ATTACHED DIRECTLY TO THE MONOPOLE TOWER SHAFT

SECTION 16745- TELECOMMUNICATIONS WIRING COMPONENT

(COAXIAL ANTENNA CABLE)

1. GENERAL

   A. ALL MATERIALS, PRODUCTS OR PROCEDURES INCORPORATED INTO WORK SHALL BE NEW AND OF STANDARD COMMERCIAL QUALITY.

   B. CERTAIN MATERIALS AND PRODUCTS WILL BE SUPPLIED BY THE OWNER (REFER TO GENERAL CONDITIONS FOR THE LIST OF OWNER FURNISHED EQUIPMENT, MATERIALS AND SUPPLIES FOR THESE ITEMS). THE CONTRACTOR IS RESPONSIBLE FOR PICKUP AND DELIVERY OF ALL SUCH MATERIALS

   C. ALL OTHER MATERIALS AND PRODUCTS SPECIFIED IN THE CONTRACT DOCUMENTS SHALL BE SUPPLIED BY THE CONTRACTOR.

2. MATERIALS

   a. COAXIAL CABLE:

1. INSTALL COAXIAL CABLE AND TERMINATIONS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS WITH COAXIAL CABLES SUPPORTED AT NO MORE THAN 3'-0" O.C. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE FEET (3') IN EXCESS OF EQUIPMENT LOCATION UNLESS OTHERWISE STATED.
2. ALL COAX RUN LENGTHS GREATER THAN 175 FEET SHALL BE 1-5/8", ALL COAX. RUN LENGTH BETWEEN 101 FEET AND 174 FEET SHALL BE 1-1/4", AND IN LENGTH LESS THAN OR EQUAL TO 100 FEET SHALL BE 7/8".
3. ANTENNA AND COAXIAL CABLE GROUNDING

   a. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS)

4. COAXIAL CABLE IDENTIFICATION

   a. TO PROVIDE EASY IDENTIFICATION AND UNIFORM MARKING OF ANTENNA CABLING, PLASTIC TAGS SHALL BE USED AT THE FOLLOWING LOCATIONS:

1. FIRST LOCATION IS AT THE END OF THE COAX NEAREST THE ANTENNA (WHERE THE COAXIAL CABLE AND JUMPER ARE CONNECTED).
2. SECOND LOCATION IS INSIDE THE EQUIPMENT SHELTER NEAR THE WAVEGUIDE ENTRY PORT.

   b. USE ANDREW CABLE TIES (PT. # 7290) TO SECURE IDENTIFICATION TAGS.

5. TESTING

   LESSEE SHALL PROVIDE AN INDEPENDENT TESTING AGENCY TO PERFORM THE COAXIAL SWEEP TEST & REPORT. THE CONTRACTOR IS TO PROVIDE ONE CLIMBER / QUALIFIED PERSONNEL TO ASSIST IN ANY REPAIRS AND WEATHERPROOFING ONCE THE TEST IS COMPLETE. THE CONTRACTOR IS TO PROVIDE LESSEE WITH A MINIMUM OF 48 HOURS NOTICE PRIOR TO THE TIME OF THE SWEEP TEST.

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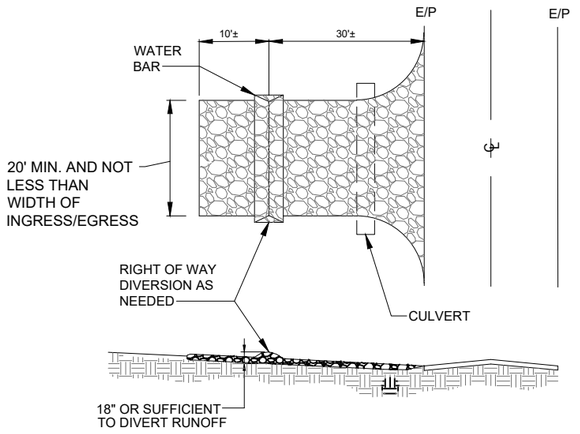
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CRYSTAL LAKE, IL 60014
McHENRY COUNTY

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CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

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SPECIFICATIONS

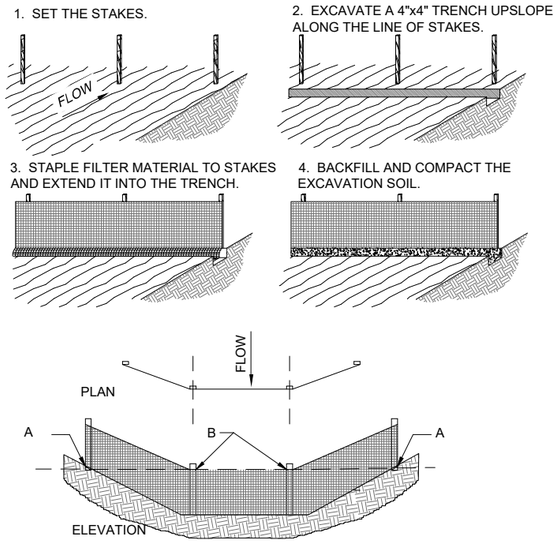
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C-5B



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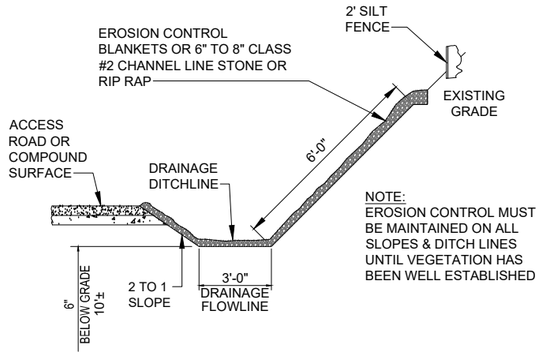
1. STONE SIZE - TWO INCH STONE SHALL BE USED, OR RECYCLED CONCRETE EQUIVALENT.
2. THE CONSTRUCTION ENTRANCE SHALL COINCIDE WITH THE PROPOSED DRIVE AS SHOWN ON THE PLAN.
3. PAVEMENT THICKNESS - STONE LAYER SHALL BE AT LEAST 6" THICK.
4. DRIVEWAY WIDTH - THE ENTRANCE SHALL BE AT LEAST 10' WIDE, BUT NOT LESS THAN FULL WIDTH AT POINTS WHERE INGRESS/EGRESS OCCURS.
5. BEDDING - A GEOTEXTILE SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE. IT SHALL HAVE A GRAB TENSILE STRENGTH OF AT LEAST 200 LBS. AND A MULLEN BURST STRENGTH OF AT LEAST 190 LBS.
6. CULVERT - A PIPE OR CULVERT SHALL BE CONSTRUCTED UNDER THE ENTRANCE IF NEEDED TO PREVENT SURFACE WATER FLOWING ACROSS THE ENTRANCE FROM BEING DIRECTED OUT ONTO PAVED SURFACES.
7. WATER BAR - A WATER BAR SHALL BE CONSTRUCTED AS PART OF THE CONSTRUCTION ENTRANCE IF NEEDED TO PREVENT SURFACE RUNOFF FROM FLOWING THE LENGTH OF THE CONSTRUCTION ENTRANCE AND OUT ONTO PAVED SURFACES.
8. MAINTENANCE - TOP DRESSING OF ADDITIONAL STONE SHALL BE APPLIED AS CONDITIONS DEMAND, MUD SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADS, OR ANY SURFACE WHERE RUNOFF OS NOT CHECKED BY SEDIMENT CONTROLS, SHALL BE REMOVED IMMEDIATELY, REMOVAL SHALL BE ACCOMPLISHED BY SCRAPING OR SWEEPING.
9. CONSTRUCTIONS ENTRANCES SHALL NOT BE RELIED UPON TO REMOVE MUD FROM VEHICLES AND PREVENT OFF SITE TRACKING. VEHICLES THAT ENTER AND LEAVE THE CONSTRUCTION SHALL BE RESTRICTED FROM MUDDY AREAS.

1 TEMPORARY STABILIZED CONSTRUCTION ENTRANCE
SCALE: N.T.S.



POINTS A SHOULD BE HIGHER THAN POINT B

2 SILT FENCE DETAIL
SCALE: N.T.S.



NOTES:

1. WHEN FACED WITH SLOPES LESS THAN 2 TO 1 SLOPES, ALL SLOPES SHOULD BE DOZER TRACKED PRIOR TO SEEDING. ALL SLOPES SHOULD HAVE EROSION CONTROL BLANKETS OR RIP RAP EMBEDDED ON SLOPES SURFACES TO REDUCE EROSION.
2. ALL FLOWLINES MUST BE INSTALLED BELOW SUB-GRADE OF COMPOUND. (AT MINIMUM OF 6" BELOW)

3 DRAINAGE DITCHLINE DETAIL (SWALE)
SCALE: N.T.S.

EROSION & SEDIMENT CONTROL NOTES

1. ALL WORK SPECIFIED AS A/AN DOT ITEM SHALL BE GOVERNED BY THE APPLICABLE STATES DEPARTMENT OF TRANSPORTATION CONSTRUCTION HANDBOOK. IT IS CONTRACTORS RESPONSIBILITY TO POSSESS AND BE FAMILIAR WITH APPLICABLE SECTIONS.
2. THIS CONTRACT DRAWING SHALL BE MADE AVAILABLE ON SITE AT ALL TIMES AND PRESENTED UPON REQUEST. IF UNFORESEEN STORM WATER POLLUTION PREVENTION IS ENCOUNTERED, ADDITIONAL STORM WATER POLLUTION PREVENTION (SWPP) MEASURES MAY BE REQUESTED BY THE OWNER, COUNTY ENGINEER, PROJECT ENGINEER OR SOIL CONSERVATION SERVICE REPRESENTATIVE AT ANYTIME. SUCH REQUESTS SHALL BE IMPLEMENTED IMMEDIATELY AT CONTRACTOR'S EXPENSE.
3. ALL STORM WATER POLLUTION PREVENTION ITEMS SHALL BE INSTALLED AS SHOWN OR NOTED ON THIS SHEET.
4. PLANT TEMPORARY SEEDING AND MULCHING IN ALL AREAS THAT SHALL BE INACTIVE FOR 7 DAYS OR MORE. ALL DISTURBED AND ERODED EARTH SHALL BE REGRADED AND SEEDED WITHIN 14 DAYS WITH SEEDING, AS DEFINED ABOVE AND AS SHOWN ON THE TABLE BELOW. TO ESTABLISH STABILITY AND PROVIDE SEDIMENT CONTROL, WHERE POSSIBLE. TEMPORARY SEEDING GROWTH SHALL NOT BE MOWED UNTIL IT HAS GONE TO SEED FOR 1 YEAR.

	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
PERMANENT SEEDINGS			A→			*→	*→		*→			
DORMANT SEEDINGS	B→									B→		
TEMPORARY SEEDINGS			C→			D→						
SODDING			E**→									
MULCHING	F→											

A. KENTUCKY BLUEGRASS 90 LBS./AC/MIXED PERENNIAL RYEGRASS 30 LBS./ACRE

B. KENTUCKY BLUEGRASS 135 LBS./AC/MIXED PERENNIAL RYEGRASS 45 LBS./AC, 2 TON STRAW MULCH PER ACRE

C. SPRING OATS 100 LBS./ACRE

D. WHEAT OR CEREAL RYE 150 LBS./ACRE

E. SOD (NURSERY CROWN KENTUCKY BLUEGRASS) 150 LBS./ACRE

F. STRAW MULCH 2 TONS PER ACRE

* IRRIGATION NEEDED DURING JUNE, JULY & SEPTEMBER

** IRRIGATION NEEDED FOR 2-3 WEEKS AFTER SODDING

5. PERMANENT VEGETATION SHALL BE INSTALLED WITHIN 10 DAYS AT THE COMPLETION OF ANY GRADED AREAS, WEATHER PERMITTING. ALL PERMANENT VEGETATION SHALL CONSIST OF PLANTING AND SOD
6. AT SUCH TIME ROUGH GRADING OF THE SITE IS COMPLETE AND DRAINAGE DIVERTS TO INLETS, INLET SEDIMENT FILTERS SHALL BE INSTALLED AT ALL INLET STRUCTURES TO KEEP PIPING SYSTEMS FREE OF SILTATION.
7. SILT BARRIERS SHALL BE INSTALLED AROUND ALL EXISTING OR NEW STORM INLETS, CATCH BASINS, AND YARD DRAINS. INSTALL ROCK CHECK DAMS FOR HEADWALL INLETS FOR STORM WATER POLLUTION PREVENTION.
8. STORM WATER POLLUTION PREVENTION MEASURES SHALL BE INSTALLED OR TOPSOIL STOCKPILES AND OTHER TEMPORARILY DISTURBED AREAS AS SHOWN ON THESE PLANS AND AS DIRECTED BY THE ENGINEER.
9. CONTRACTOR SHALL INSPECT ALL SWPP MEASURES DAILY AND REPAIR AS NECESSARY TO PREVENT EROSION. SILTATION SHALL BE REMOVED FROM AREAS WHERE FAILURES HAVE OCCURRED AND CORRECTIVE ACTION TAKEN WITHIN 24 HOURS TO MAINTAIN ALL SWPP.
10. SILT BARRIERS, CONSTRUCTION ENTRANCES, AND SILT FENCES SHALL REMAIN IN PLACE UNTIL A GOOD STAND OF GRASS HAS BEEN OBTAINED AND/OR PAVING OPERATIONS ARE COMPLETE. CONTRACTOR SHALL KEEP SILT FROM ENTERING ANY STORM DRAINAGE SYSTEM. ONCE SITE HAS BEEN COMPLETELY STABILIZED, ANY SILT IN PIPES AND DRAINAGE SWALES SHALL BE REMOVED WITHIN 10 DAYS.
11. TEMPORARY SEDIMENTATION AND STORM WATER POLLUTION PREVENTION MEASURES MUST BE INSPECTED AND LOGGED BY THE CONTRACTOR FOR INSPECTION, LOGGING SHALL BE WEEKLY AND AFTER RAIN STORMS.
12. UTILITY COMPANIES MUST COMPLY WITH ALL STORM WATER POLLUTION PREVENTION MEASURES AS DEFINED ON THE STORM WATER PREVENTION PLANS, DETAILS AND NOTES.
13. ALL EXISTING WATER COURSES WITHIN THE PROJECT LIMITS SHALL BE TEMPORARILY PROTECTED DURING LAND CLEARING AND GRADING OPERATIONS. SOILS WITHIN 50 FEET OF SAID WATER COURSES SHALL BE STABILIZED WITHIN 2 DAYS OF THE INITIAL CLEARING / GRADING OPERATION AS SHOWN ON PLANS.
14. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 7 DAYS OF FINAL GRADING.
15. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN ALL SEDIMENTATION AND STORM WATER POLLUTION PREVENTION ITEMS AT ALL TIMES.
16. ALL STORM WATER POLLUTION PREVENTION PRACTICES WILL BE INSTALLED BEFORE ANY OTHER EARTH MOVING OCCURS.
17. THE FOLLOWING STORM WATER POLLUTION PREVENTION AND SEDIMENT CONTROL MEASURES WILL BE USED ON THIS SITE:
    1. SILT BARRIERS
    2. SILT FENCE
    3. CONSTRUCTION ENTRANCE
    4. EROSION CONTROL SEED BLANKETS - SPEC FOR TEMPORARY EROSION CONTROL BLANKETS ON SLOPES/DITCHES

CONSTRUCTION SEQUENCE

1. STAKE AND/OR FLAG LIMITS OF CLEARING
2. DURING PRECONSTRUCTION MEETING ALL EROSION & SEDIMENT CONTROL FACILITIES & PROCEDURES SHALL BE DISCUSSED.
3. CLEARING & GRUBBING, AS NECESSARY, FOR INSTALLATION OF PERIMETER CONTROLS.
4. INSTALL SILT FENCE PERIMETER CONTROLS AS SHOWN ON PLANS.
5. INSTALL CONSTRUCTION ENTRANCE, IF CONDITIONS ARE SUCH THAT MUD IS COLLECTION ON VEHICLE TIRES, THE TIRES MUST BE CLEANED BEFORE THE VEHICLES ENTER THE PUBLIC ROADWAY. THE SITE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT THE TRACKING OR FLOW OF MUD INTO THE PUBLIC RIGHT-OF-WAY. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO THE ROADWAY MUST BE REMOVED PROMPTLY.
6. CLEARING & GRUBBING THE REMAINING SITE AS NECESSARY.
7. BEGIN FILLING & GRADING AS REQUIRED TO REACH SUBGRADE.
8. CONSTRUCT AND MAINTAIN TEMPORARY DRAINAGE SWALES DURING FILLING AND GRADING ACTIVITIES.
9. CONSTRUCT SITE WORK INCLUDING STORM DRAINAGE FACILITIES.
10. MAINTAIN EROSION & SEDIMENTATION CONTROL MEASURES UNTIL THE SITE HAS BEEN COMPLETELY STABILIZED.
11. REMOVE SEDIMENT CONTROLS.

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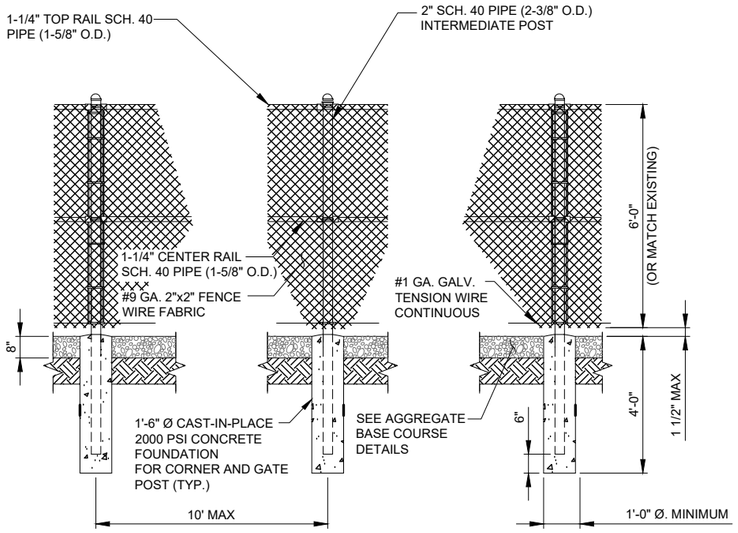
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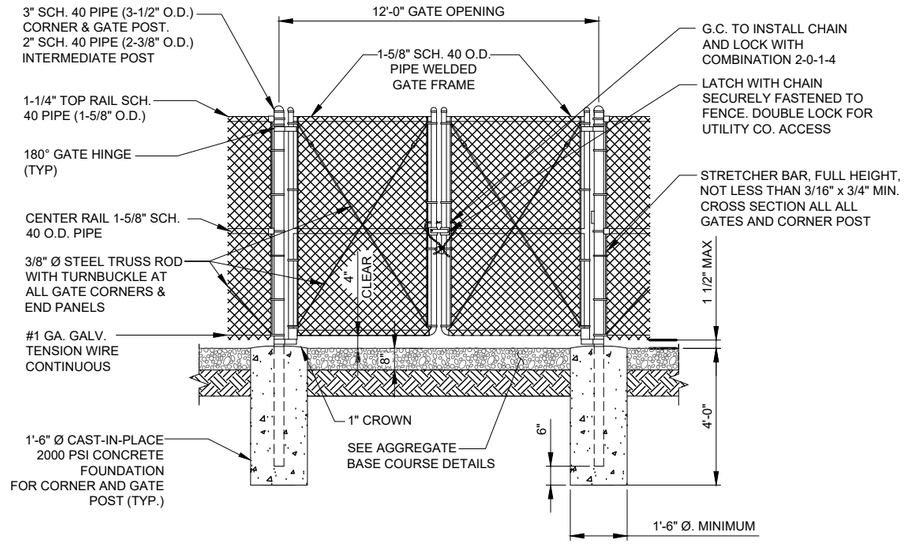
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SHEET TITLE
BEST MANAGEMENT PRACTICES & EROSION CONTROL

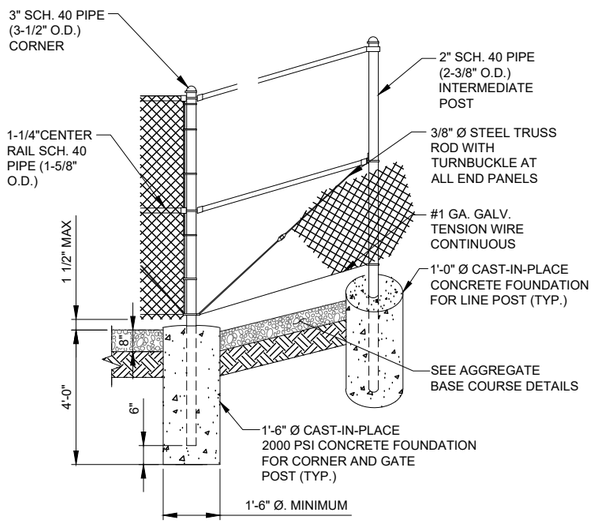
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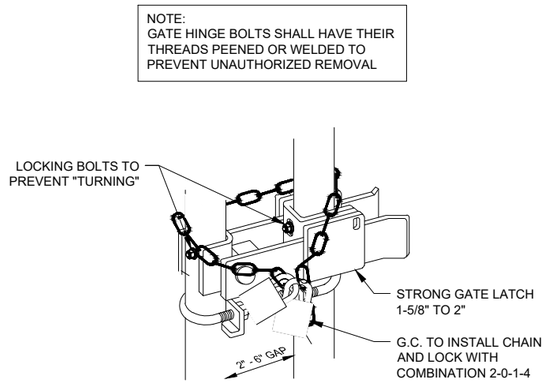
1 FENCE POST DETAILS
N.T.S.



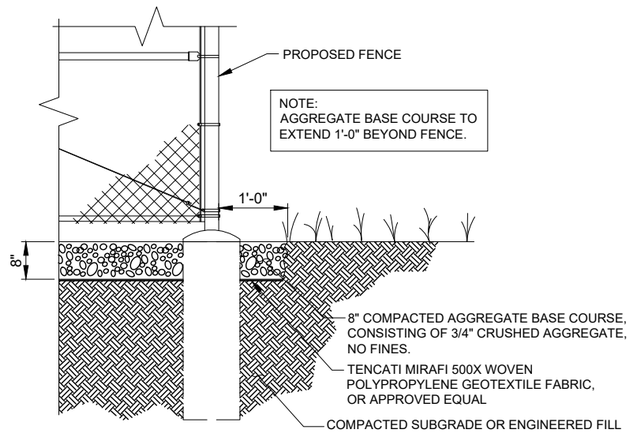
2 12'-0" DOUBLE SWING GATE
N.T.S.



3 CORNER POST DETAIL
N.T.S.



4 STRONG ARM GATE LATCH DETAIL
N.T.S.



5 AGGREGATE CROSS-SECTION
N.T.S. LEASE SITE

PREPARED FOR

TowerNorth

2400 ANSYS DRIVE, SUITE 102
CANONSBURG, PA 15317
SITEACCESS@TOWERNORTH.COM
1-800-821-5825x2

PLANS PREPARED BY:

TERRA CONSULTING GROUP
has joined Colliers Engineering & Design

CARRIER:

verizon

1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

REVISIONS

NO	DESCRIPTION	DATE	BY
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6	REVISED PER NEW TEMPLATE/ ISSUED FOR PERMIT	07/29/26	GD

SITE #IL1502-A
MDG LOC# 5000348752
FUZE ID: 17495287

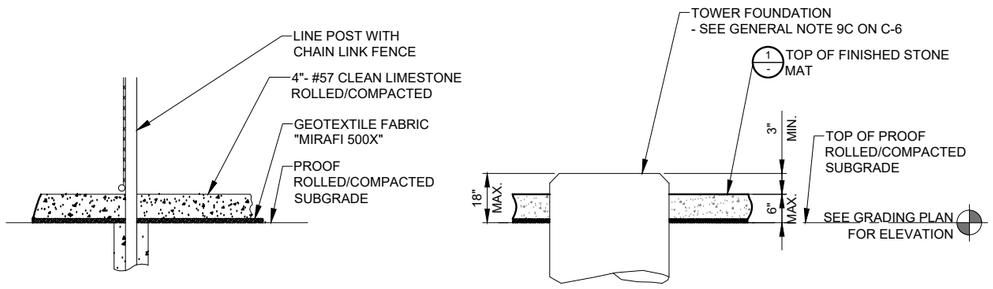
176 & HALIGUS - A

MT. THABOR ROAD
CRYSTAL LAKE, IL 60014
McHENRY COUNTY

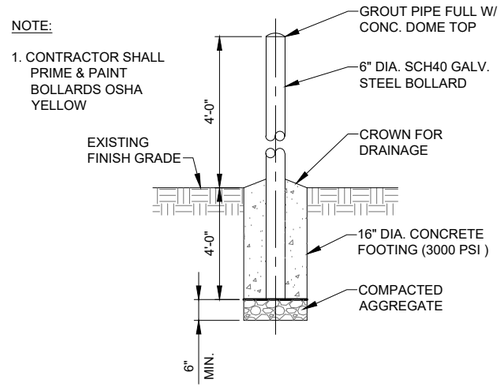
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CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

SHEET TITLE
FENCE DETAILS

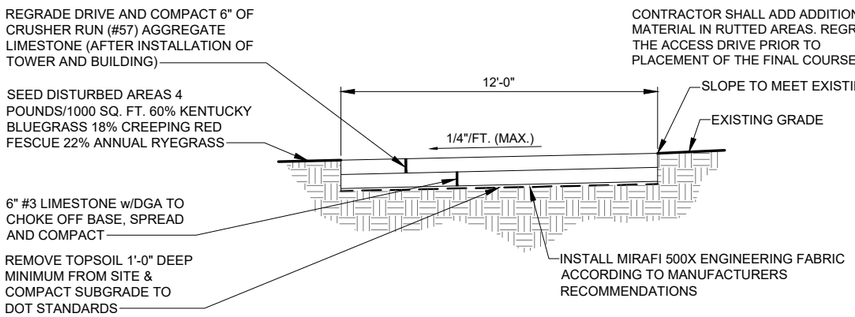
SHEET NUMBER
D-1



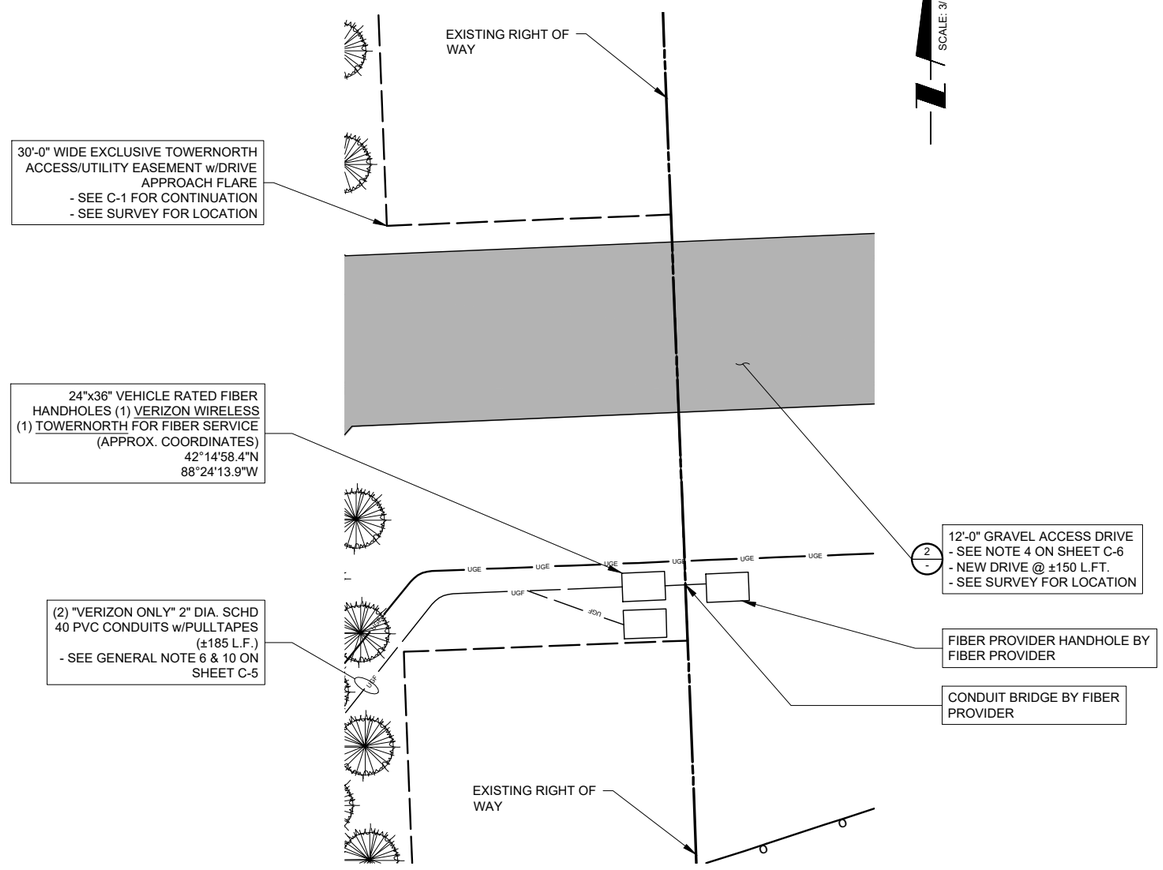
1 PARTIAL COMPOUND SECTION
SCALE: N.T.S



4 BOLLARD DETAIL
SCALE: N.T.S



2 ACCESS DRIVE TYPICAL SECTION
SCALE: N.T.S



5 ENLARGED FIBER HANDHOLE PLAN AT R.O.W.
SCALE: 3/16"' = 1'-0"

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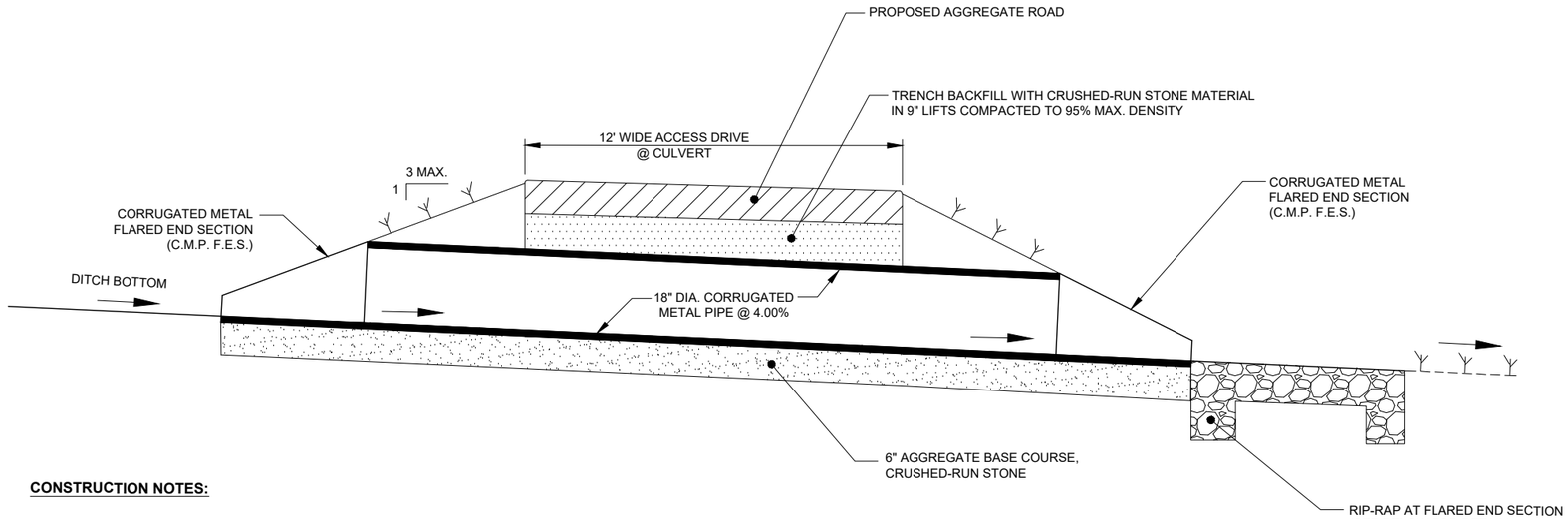
176 & HALIGUS - A

MT. THABOR ROAD
CRYSTAL LAKE, IL 60014
McHENRY COUNTY

DRAWN BY:	GAD
CHECKED BY:	TAZ
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SHEET TITLE
SITE DETAILS

SHEET NUMBER
D-2

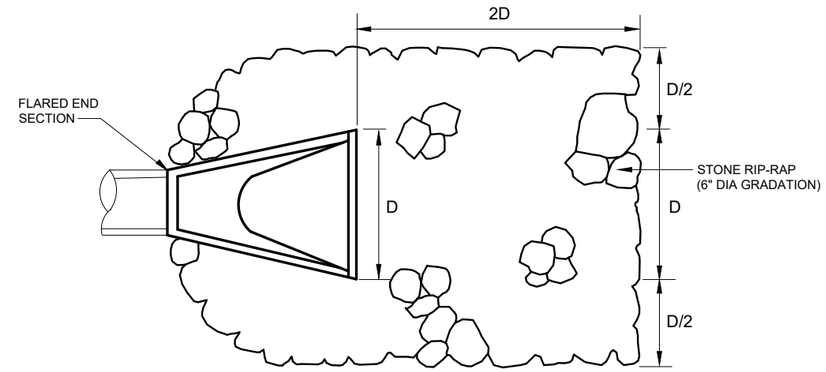


CONSTRUCTION NOTES:

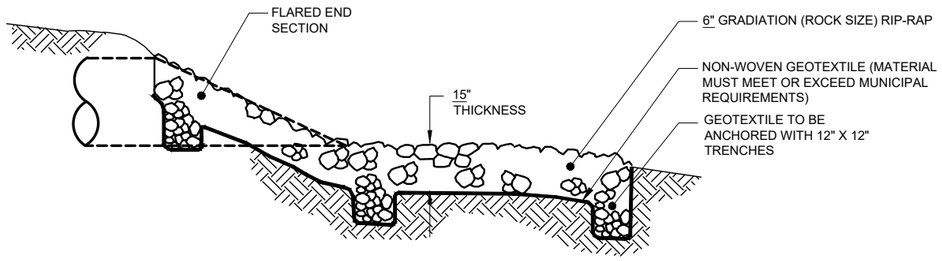
1.) INSTALL CULVERT AT THE LOCATION NOTED ON SHEET C-2.

2.) CULVERT LENGTHS PROVIDED ON THE GRADING PLAN ARE MEASURED FROM THE END OF THE F.E.S. TO THE END OF THE F.E.S.

1 ACCESS DRIVE CULVERT DETAIL
N.T.S.



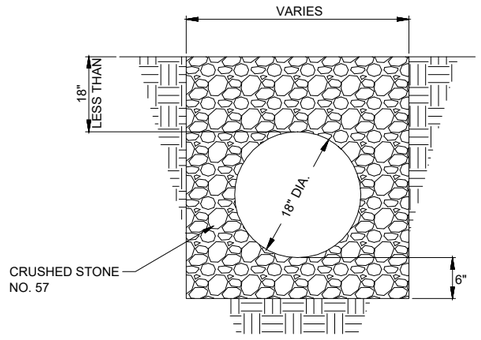
PLAN VIEW



PROFILE VIEW

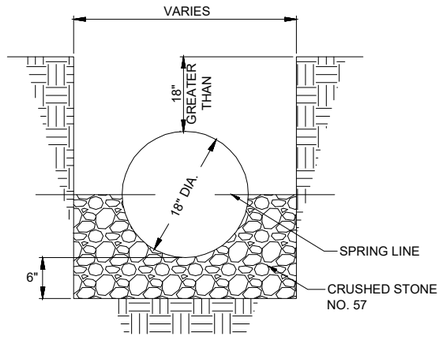
NOTE:
REMOVE TOPSOIL PRIOR TO PLACING STONE

2 RIP-RAP AT FLARED END SECTION
N.T.S.



CRUSHED STONE ENCASEMENT DETAIL

NOTE:
ENCASEMENT USED WITH 18" OF COVER OR LESS.



CRUSHED STONE CRADLE DETAIL

NOTE:
CRADLE USED WITH MORE THAN 18" OF COVER.

CULVERT NOTES

1. INSTALL CULVERTS WITH THE INLETS AT OR BELOW NATURAL GRADE.
2. OUTLET THE CULVERTS AT OR BEYOND THE TOE OF THE SLOPE. EROSION PROTECTION, SUCH AS RIP-RAP IS OFTEN NECESSARY AT THE OUTLET OF CULVERTS. NEVER OUTLET A CULVERT INTO FILL MATERIAL WITHOUT PROTECTIVE MEASURES.

3 CULVERT DETAILS
N.T.S.

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176 &
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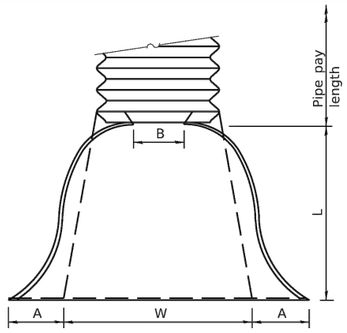
MT. THABOR ROAD
CRYSTAL LAKE, IL 60014
McHENRY COUNTY

DRAWN BY:	GAD
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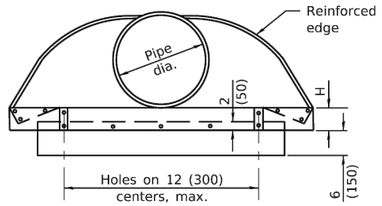
SHEET TITLE
CULVERT DETAILS

SHEET NUMBER
D-2A

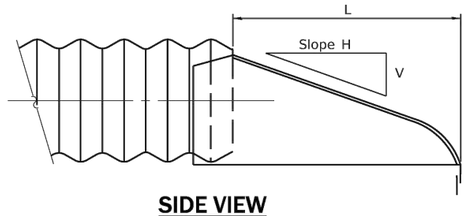
PIPE DIA.	THICK-NESS	DIMENSIONS A 1± (25)	B (max.)	H 1± (25)	L 1½± (38)	W 2± (50)	SLOPE (Approx.) (V:H)	BODY
12 (300)	0.064 (1.63)	6 (150)	6 (150)	6 (150)	21 (535)	24 (610)	1:2½	1 Pc.
15 (375)	0.064 (1.63)	7 (180)	8 (205)	6 (150)	26 (660)	30 (760)	1:2½	1 Pc.
18 (450)	0.064 (1.63)	8 (205)	10 (255)	6 (150)	31 (785)	36 (915)	1:2½	1 Pc.
21 (525)	0.064 (1.63)	9 (230)	12 (305)	6 (150)	36 (915)	42 (1.065 m)	1:2½	1 Pc.
24 (600)	0.064 (1.63)	10 (255)	13 (330)	6 (150)	41 (1.040 m)	48 (1.220 m)	1:2½	1 Pc.
30 (750)	0.079 (2.01)	12 (305)	16 (405)	8 (205)	51 (1.295 m)	60 (1.525 m)	1:2½	1 Pc.
36 (900)	0.079 (2.01)	14 (355)	19 (480)	9 (230)	60 (1.525 m)	72 (1.830 m)	1:2½	2 Pc.
42 (1050)	0.109 (2.77)	16 (405)	22 (560)	11 (280)	69 (1.750 m)	84 (2.135 m)	1:2½	2 Pc.
48 (1200)	0.109 (2.77)	18 (455)	27 (685)	12 (305)	78 (1.980 m)	90 (2.285 m)	1:2¼	2 Pc.
54 (1350)	0.109 (2.77)	18 (455)	30 (760)	12 (305)	84 (2.135 m)	102 (2.590 m)	1:2	2 Pc.
60 (1500)	0.109 (2.77)	18 (455)	33 (840)	12 (305)	87 (2.210 m)	114 (2.895 m)	1:1¾	3 Pc.
66 (1650)	0.109 (2.77)	18 (455)	36 (915)	12 (305)	87 (2.210 m)	120 (3.050 m)	1:1½	3 Pc.
72 (1800)	0.109 (2.77)	18 (455)	39 (990)	12 (305)	87 (2.210 m)	126 (3.200 m)	1:1⅓	3 Pc.
78 (1950)	0.109 (2.77)	18 (455)	42 (1.065 m)	12 (305)	87 (2.210 m)	132 (3.355 m)	1:1¼	3 Pc.
84 (2250)	0.109 (2.77)	18 (455)	45 (1.145 m)	12 (305)	87 (2.210 m)	138 (3.505 m)	1:1⅙	3 Pc.



PLAN



END VIEW



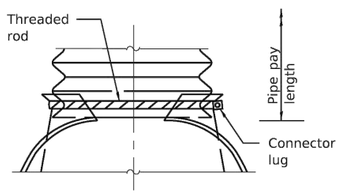
SIDE VIEW

NOTES

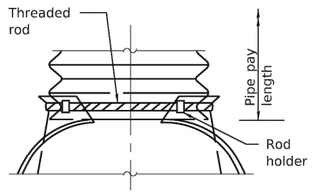
For 60 (1500) thru 84 (2250) sizes, reinforced edges shall be supplemented with stiffener angles. The angles shall be 2x2x¼(51x51x6.4) for 60 (1500) thru 72 (1800) diameter and 2½x2½x¼ (64x64x6.4) for 78 (1950) thru 84 (2250) diameter. The angles shall be attached by ⅜ (M10) rivets or bolts.

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

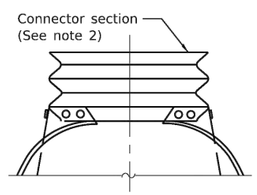
END SECTION



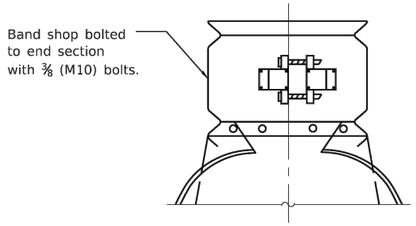
TYPE 1
For 12 (300) thru 24 (600) only
(See Note 1)



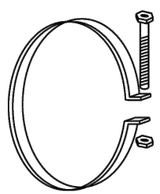
TYPE 2
For 30 (750) and 36 (900) only
(See Note 1)



TYPE 3
(See Note 2)



TYPE 4
(See Note 3)



1 (25) wide, 0.109 (2.77) thick strap with standard ½x6 (M12x150) band bolt and nut.

ALTERNATE STRAP CONNECTOR
(For Type 1 only)

NOTES

1. Types 1 and 2 for pipes with annular ends only.
2. Type 3 connection may be used for all pipe sizes and includes 12 (300) of the pipe length. The connector section shall be attached to the end section by rivets or bolts and shall be the same metal thickness as the end section. Stub shall be either 2⅔ (68) pitch x ½ (13) depth or 3 (75) pitch x 1 (25) depth annular corrugated pipe.
3. Type 4 connection can be used for all pipe sizes. Coupler shall be 2⅔ x ½ (68x13) dimple, hugger, or annular band of 3x1 (75x25). The dimple, hugger, or annular band may be used with corrugated metal pipes having annular ends. For corrugated metal pipes having helical ends, only the dimple band will be allowed.

All dimensions are in inches (millimeters) unless otherwise shown.

CONNECTIONS OF END SECTIONS

Illinois Department of Transportation

PASSED January 1, 2021
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2021
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-21	Revised THICKNESS values
	in table.
1-1-18	Renamed standard.

METAL FLARED END SECTION FOR PIPE CULVERTS

STANDARD 542401-04

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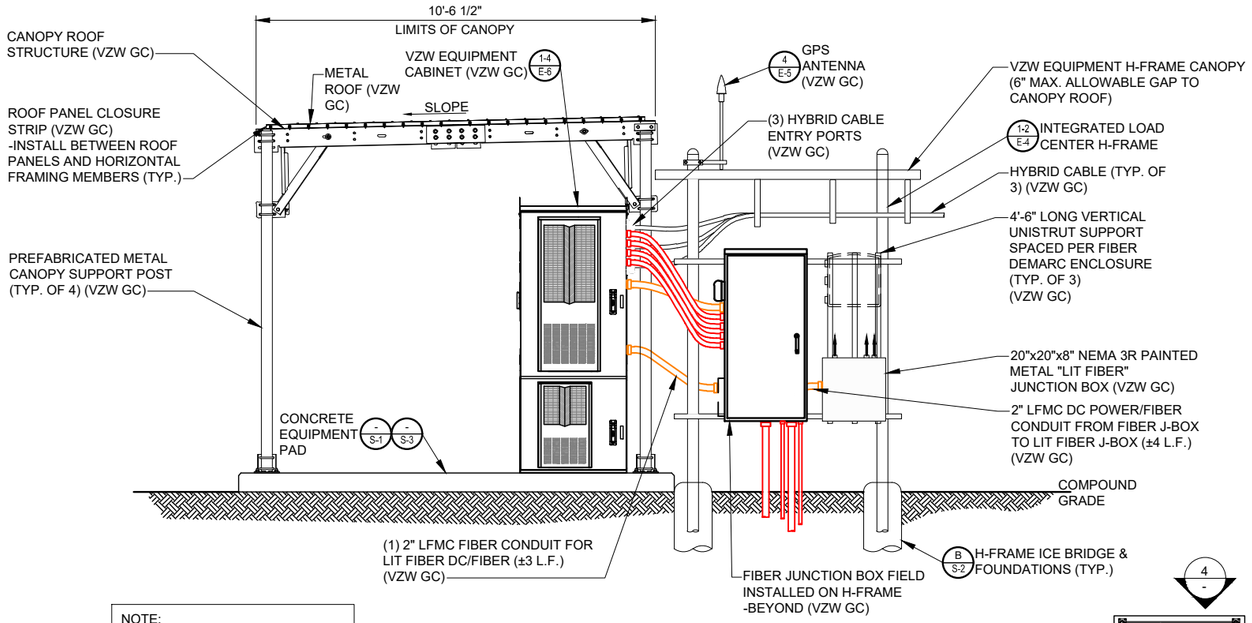
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SHEET TITLE
FLARED END SECTION DETAILS

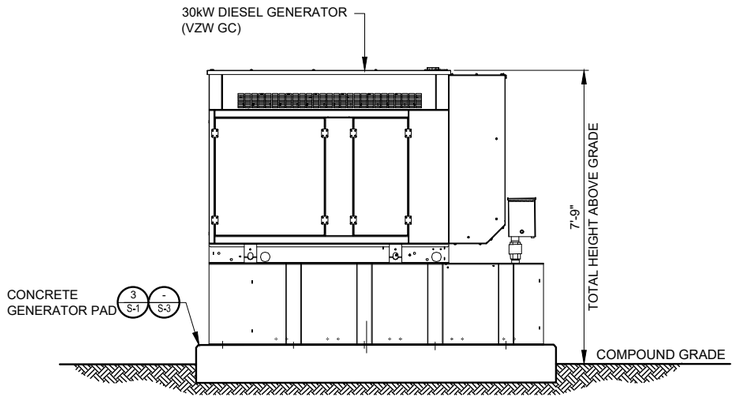
SHEET NUMBER
D-2B



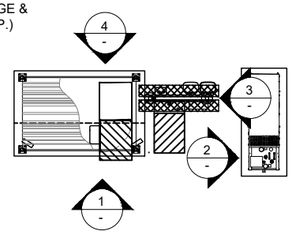
NOTE:
VERIZON WIRELESS 6'-6"x10'-6" RADIO EQUIPMENT CANOPY (CANOPY DWGS. SUPPLIED BY MANUFACTURER) (VZW GC)
-COMMSCOPE P/N 860676982-001

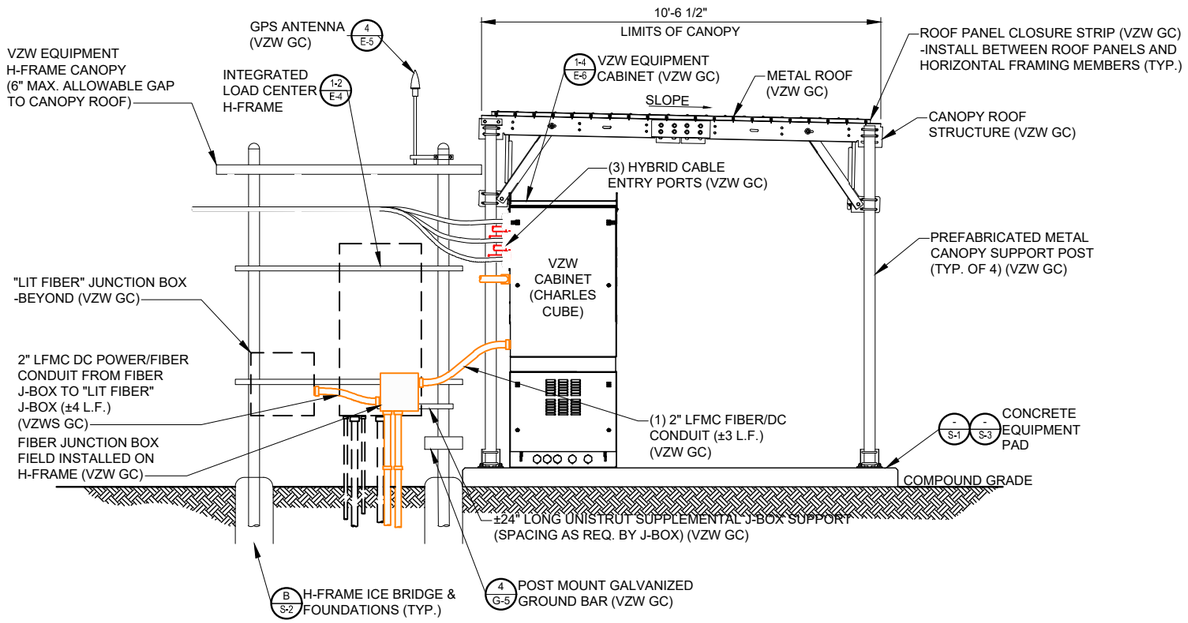
1 FRONT ELEVATION
SCALE: 1/2" = 1'-0"

NOTE:
CANOPY ROOF PANELS PROFILE R/PBR. PROVIDE 1.7lb DENSITY POLYETHYLENE FOAM PANEL CLOSURE STRIPS TO MATCH PROFILE. AS MANUFACTURED BY: SEALTITE BUILDING FASTENERS "ST CLOSURE" STRIPS OR EQUAL (VERIFY PROFILE WITH ROOF PANELS SUPPLIED WITH CANOPY)

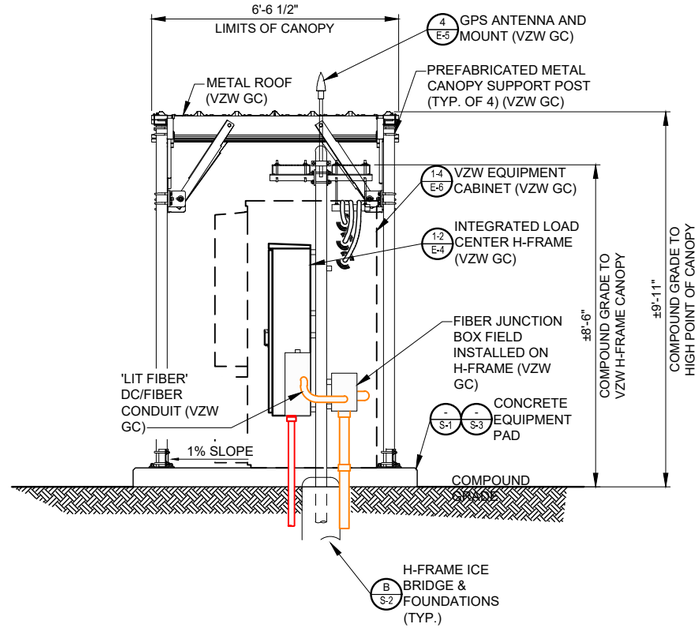


2 GENERATOR ELEVATION
SCALE: 1/2" = 1'-0"





4 REAR ELEVATION
SCALE: 1/2" = 1'-0"



3 RIGHT ELEVATION
SCALE: 1/2" = 1'-0"

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SHEET TITLE
EQUIPMENT PAD & CANOPY ELEVATIONS

SHEET NUMBER
D-3

STANDARD SITE SIGNAGE:

	REQUIRED SIGNS:	LOCATIONS:
C1	• N.O.C. "IN CASE OF EMERGENCY"	FRONT ACCESS DOOR OF CABINET (SEE FIGURE 1)
C2	• NOTICE (CONTACT INFO)	
C3	• COMBINATION WARNING (SEE NOTE 2)	FRONT ACCESS DOOR OF EACH CABINET WITH BATTERIES (SEE FIGURE 1)
C4	• COMBINATION WARNING (SEE NOTE 2)	
C5	• S.D.S.	INSIDE FRONT ACCESS DOOR OF EACH CABINET WITH BATTERIES

-N.O.C. STANDS FOR "NETWORK OPERATIONS CENTER"
-S.D.S. STANDS FOR "SAFETY DATA SHEET"

NOTES:

1. CONTRACTOR SHALL INSTALL ALL SIGNS ON THE FRONT OF EACH CABINET. ALL SIGNS CAN BE PLACED ON ONLY THE UPPER DOOR, IF SPACE IS AVAILABLE.
2. CONTRACTOR SHALL INSTALL SIGN C3 OR C4 BASED ON THE TYPE OF BATTERY THAT IS BEING INSTALLED.

C1 C2 C5



C3 C4





FRONT



REAR

FIGURE 1 - EQUIPMENT CABINET SIGNAGE

SIGNANGE FOR SITES OWNED BY VERIZON:

	REQUIRED SIGNS:	LOCATIONS:
S1 S2	• NOTICE "ENVIRONMENT GUIDELINES" • N.O.C. "IN CASE OF EMERGENCY"	INSTALL ON COMPOUND FENCE
A1	• TEMPORARY/PERMANENT A.S.R.	INSTALL AT DRIVEWAY
A1	• PERMANENT A.S.R.	INSTALL AT TOWER
A1	• PERMANENT A.S.R.	INSTALL AT FENCE
A1	• PERMANENT A.S.R.	INSTALL AT GATE/POST

-A.S.R. STANDS FOR "ANTENNA STRUCTURE REGISTRATION"
-N.O.C. STANDS FOR "NETWORK OPERATIONS CENTER"

NOTES:

1. CONTRACTOR SHALL VERIFY IF A.S.R. SIGNAGE IS REQUIRED WITH THE VERIZON CONSTRUCTION MANAGER PRIOR TO SIGNAGE INSTALLATION.
2. A.S.R. SIGNAGE TO BE INSTALLED AT A MINIMUM OF TWO LOCATIONS AS FOLLOWS:
   (1) ALWAYS ON THE TOWER
   (1) ALWAYS ON THE FENCE
   (1) ON THE DRIVEWAY ENTRANCE GATE OR STANDALONE POST IF THE A.S.R. SIGN ON THE COMPOUND FENCE CANNOT BE READ FROM THE ROAD.
3. IF NO ENTRANCE GATE IS PROPOSED, A.S.R. SIGN SHALL BE INSTALLED ON 4" DIAMETER STEEL POST AT 42" ABOVE EX. GRADE.



FIGURE 2 - VERIZON SITE FENCE SIGNAGE



FIGURE 5 - EME SIGN



FIGURE 3 - TOWER A.S.R. SIGN



FIGURE 4 - FENCE COMPOUND A.S.R. SIGN

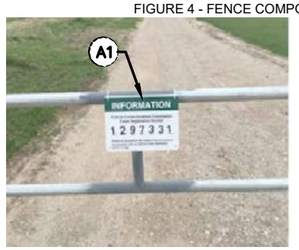


FIGURE 6 - DRIVEWAY A.S.R. SIGN

SIGNAGE FOR EACH GENERATOR FUEL TYPE:

DIESEL GENERATOR

	REQUIRED SIGNS:	LOCATIONS:
D1	• "DANGER DIESEL FUEL"	INSTALL ON GENERATOR (SEE FIGURE 6)
D2	• HAZARD DIAMOND	
D3	• NOTICE SIGN	
D4	• FUEL TANK CAPACITY	INSTALL ON FUEL TANK

*SIGNS D1 AND D2 MAY BE COMBINED TO A SINGLE SIGN

D1 D2 D3 D4



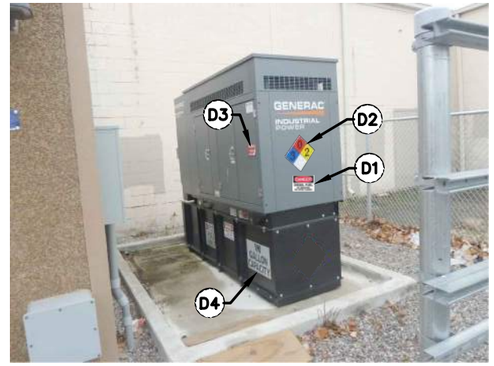


FIGURE 6 - DIESEL GENERATOR SIGNAGE

PROPANE GENERATOR

	REQUIRED SIGNS:	LOCATIONS:
P1	• "DANGER PROPANE"	INSTALL ON PROPANE TANK (SEE FIGURE 7)
P2	• HAZARD DIAMOND	
P3	• NOTICE SIGN	INSTALL ON GENERATOR

P1 P2 P3

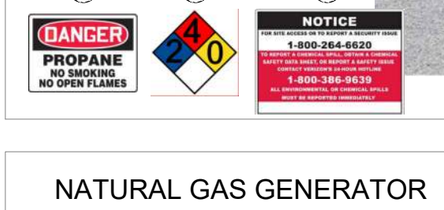




FIGURE 7 - PROPANE TANK & GENERATOR SIGNAGE

NATURAL GAS GENERATOR

	REQUIRED SIGNS:	LOCATIONS:
N1	• NOTICE SIGN	INSTALL ON GENERATOR (SEE FIGURE 8)

N1





FIGURE 8 - NATURAL GAS GENERATOR SIGNAGE

E.M.E. SIGNAGE NOTES:

VZW GC SHALL VERIFY WITH THE VERIZON CONSTRUCTION MANAGER IF ANY E.M.E. SIGNAGE, IF REQUIRED. ANY REQUIRED E.M.E. SIGNAGE WILL BE INSTALLED IN ACCORDANCE WITH THE SITE SPECIFIC PRE-E.M.E. REPORT AND MOUNT AS APPROPRIATE FOR THE SIGN LOCATION.

PREPARED FOR
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CANONSBURG, PA 15317
SITEACCESS@TOWERNORTH.COM
1-800-821-5825x2

PLANS PREPARED BY:
TERRA CONSULTING GROUP
has joined Colliers Engineering & Design

CARRIER:
verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	10/06/25	TJS
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2	UPDATE WITH POWER COORDINATION	12/18/25	JJR
3	ADDED EROSION CONTROL & SWAPPED GEN	01/02/726	APD
4	REVISED TOWER BASE SIZE	04/02/26	TJS
5	REVISED PER COMMENTS	05/13/26	PP
6	REVISED PER NEW TEMPLATE/ ISSUED FOR PERMIT	07/29/26	GD

SITE #IL1502-A
MDG LOC# 5000348752
FUZE ID: 17495287

176 &
HALIGUS - A

MT. THABOR ROAD
CRYSTAL LAKE, IL 60014
McHENRY COUNTY

DRAWN BY:	GAD
CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

SHEET TITLE
VERIZON WIRELESS SIGNAGE (REFERENCE ONLY)

SHEET NUMBER
D-4

NOTE:

G.C. TO PROVIDE AND INSTALL ALL SIGNS.

APPLICABLE TO ALL: THICKNESS IS .063" THICK AND THE MATERIAL IS ALUMINUM
LOGO STANDARD: MKTG_TOWERNORTH_LOGO_VS01.0_05-15-2024
BRAND GUIDELINES: MKTG_TOWERNORTH_BRAND_GUIDELINES_VS01.0_05-15-2024

SIGN PLACEMENT OUTLINE:

3 SIGNS REQUIRED ON GATE:
- TOWER NORTH MARKETING SIGN
- DANGER NO TRESPASSING
- YELLOW CAUTION RF SIGN

2 SIGNS REQUIRED AT THE TOWER LOCATION CLOSEST TO THE CLIMBING LEG.
- GREEN FCC REGISTRATION SIGN
- YELLOW CAUTION RF SIGN

NOTE: SEE TYPICAL SIGNS AND SPECIFICATIONS DETAIL ON THIS SHEET FOR SIGN DESIGNATIONS.



8"

12"

(A) FCC REGISTRATION SIGN

WHITE/ GREEN BACKGROUND, WHITE/ BLACK LETTERING.
MOUNTING: BASE OF TOWER
QUANTITY: 1



10"

14"

(B) AUTHORIZED PERSONNEL SIGN

WHITE/BLACK/RED BACKGROUND, WHITE/ BLACK LETTERING.
MOUNTING: GATE
QUANTITY: 1
WHEN AN ENTRANCE TO THE ACCESS ROAD INCLUDES A GATE, QUANTITY SHOULD BE 2.



14"

10"

(C) RFE CAUTION SIGN

WHITE/YELLOW BACKGROUND, BLACK LETTERING.
MOUNTING LOCATION: GATE & BASE OF TOWER
QUANTITY: 2



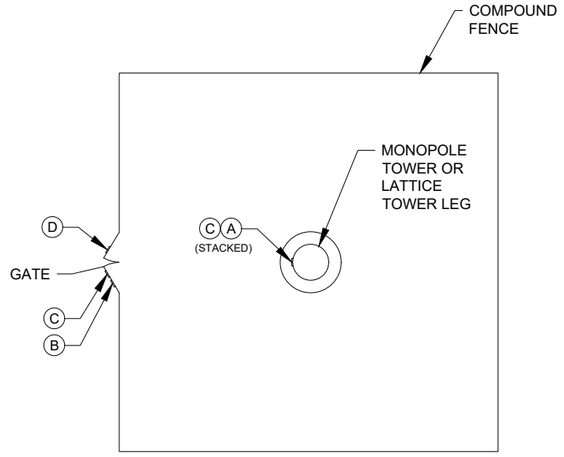
12"

18"

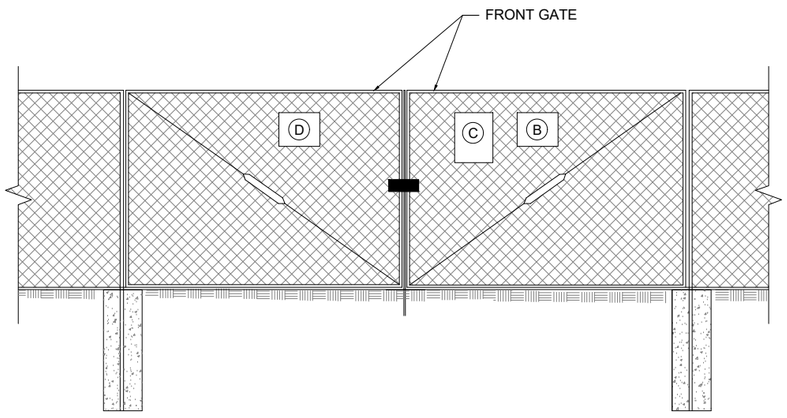
(D) TOWERNORTH SIGN

WHITE/BLACK BACKGROUND, BLUE LETTERING (see standards.
MOUNTING LOCATION: GATE
QUANTITY: 1
WHERE AN ENTRANCE TO THE ACCESS ROAD INCLUDES A GATE, QUANTITY SHOULD BE 2.

1 TYPICAL SIGNS AND SPECIFICATIONS
N.T.S.



2 OVERALL SIGN PLACEMENT PLAN VIEW
N.T.S.



3 SITE SIGNAGE FRONT GATE VIEW
N.T.S.

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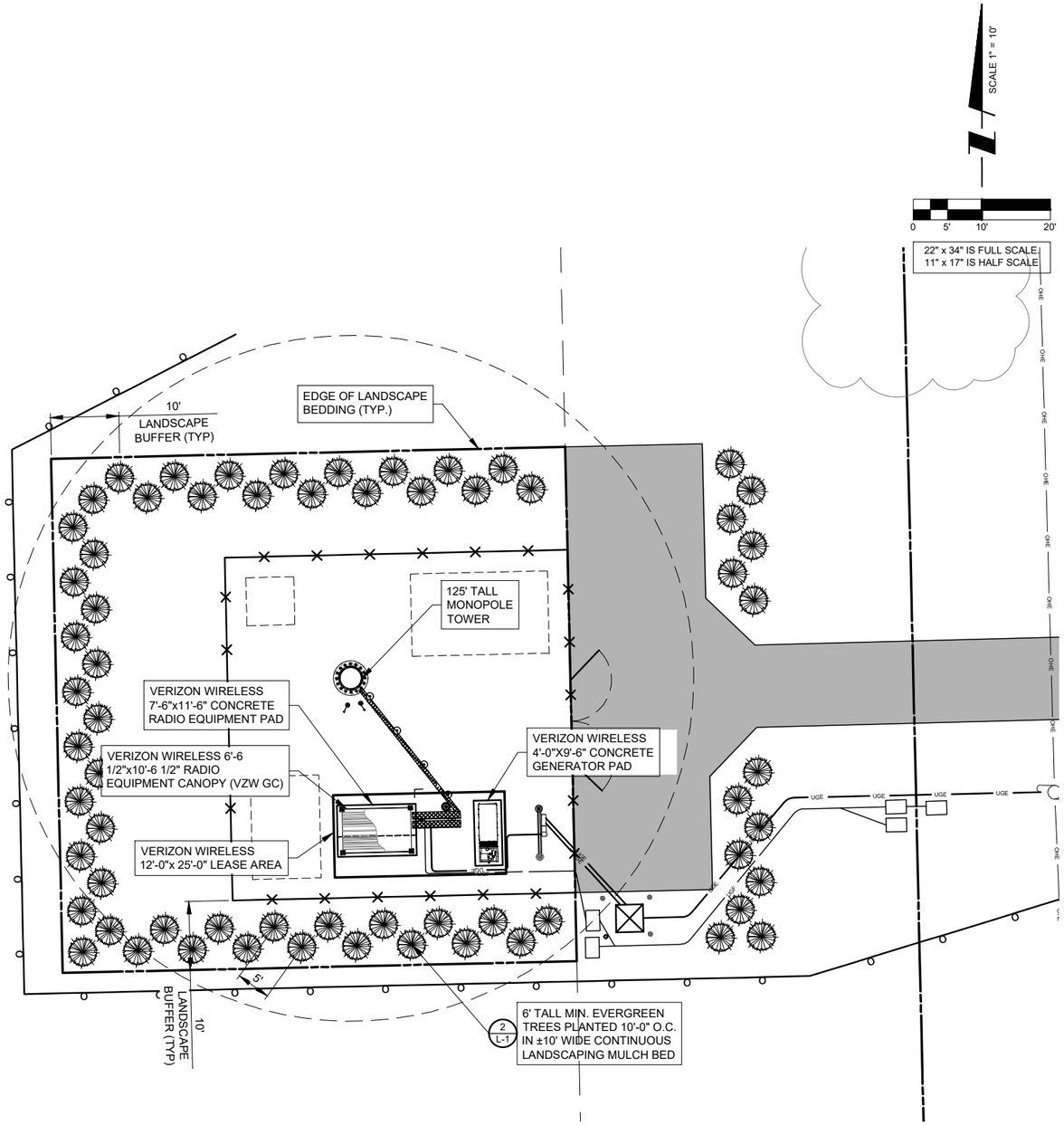
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CRYSTAL LAKE, IL 60014
McHENRY COUNTY

DRAWN BY:	GAD
CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

SHEET TITLE
SITE SIGNAGE

SHEET NUMBER
D-5



OPERATES 24 HOURS
A DAY 365 DAYS A YEAR

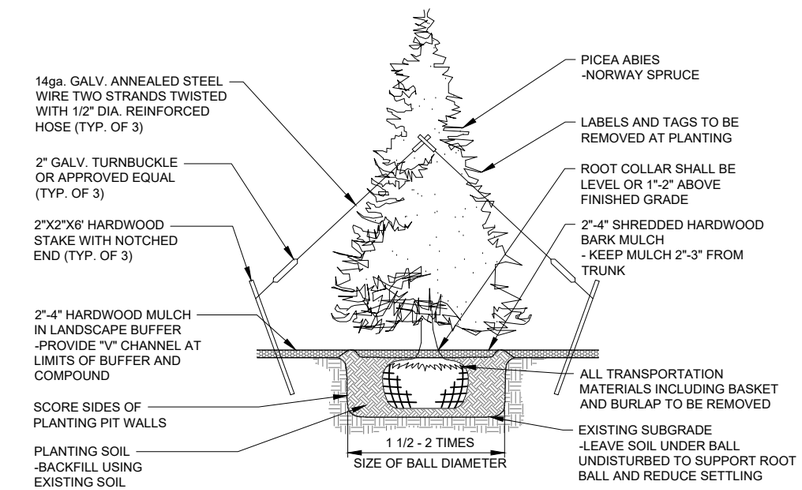
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1 LANDSCAPE PLAN
SCALE: 1" = 10'-0"

LANDSCAPING CONTRACTOR NOTES

1. THE CONTRACTOR SHALL VISIT THE SITE & BECOME COMPLETELY FAMILIAR WITH ALL EXISTING CONDITIONS AND EROSION CONTROL MEASURES PRIOR TO STARTING WORK.
2. THE CONTRACTOR SHALL FURNISH ALL LABOR AND MATERIALS COMPLETE IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.
3. THE CONTRACTOR SHALL COMPLY WITH ALL BUILDING CODES, INSPECTIONS AND SAFETY REGULATIONS, AND PROVIDE ALL NECESSARY PERMITS. THE CONTRACTOR SHALL HAVE ALL NECESSARY LOCAL, STATE & FEDERAL LICENSE REQUIRED. UPON REQUEST, THE CONTRACTOR SHALL SHOW EVIDENCE OF WORKERS COMPENSATION COVERAGE AND LIABILITY POLICY.
4. THE CONTRACTOR SHALL GUARANTEE ALL PLANTS TO BE IN A HEALTHY, VIGOROUS CONDITION (INCLUDING WATERING AND UPKEEP) FOR A PERIOD OF ONE (1) YEAR FOLLOWING ACCEPTANCE BY OWNER AND/OR PROJECT REPRESENTATIVE. THE CONTRACTOR SHALL REPLACE WITHOUT COST TO OWNER, ANY DEAD OR SERIOUSLY DECLINING PLANTS. REPLACEMENT SHALL OCCUR DURING THE NEXT APPROPRIATE PLANTING SEASON.
5. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES AND PERFORM WORK IN A MANNER WHICH WILL AVOID POSSIBLE DAMAGE; HAND EXCAVATE AS REQUIRED.
6. ALL LANDSCAPE/PLANTING AREAS SHALL HAVE PROPER DRAINAGE THAT PREVENTS EXCESS WATER FROM STANDING AROUND TREES AND SHRUBS. IT IS INTENDED THAT THIS SITE WILL MATCH EXISTING GROUND ELEVATIONS AND WILL MAINTAIN EXISTING DRAINAGE PATTERNS WHERE APPLICABLE.
7. THE CONTRACTOR SHALL PROVIDE PLANT MATERIAL OF THE SIZE & TYPE SPECIFIED, IF SUBSTITUTIONS ARE PROPOSED, THEY MUST BE APPROVED BY TOWER OWNER. ALL PLANT MATERIAL SHALL BE FREE OF DISEASE, INSECTS AND DEFECTS SUCH AS BUT NOT LIMITED TO KNOTS, SUN-SCALD, INJURIES, ABRASIONS AND DISFIGUREMENT. APPROVAL OF PLANT MATERIAL AT THE SOURCE DOES NOT ALTER THE RIGHT OF REJECTION AT PROJECT. ALL PLANT MATERIAL SHALL COMPLY WITH THE CURRENT ISSUE OF "ASSOCIATION OF AMERICAN STANDARD" FOR NURSERY STOCK PUBLISHED BY THE "AMERICAN ASSOCIATION OF NURSERYMEN".
8. THE CONTRACTOR SHALL PROVIDE A FINISHED GRADE THAT SHALL BE REASONABLY SMOOTH, COMPACTED AND FREE OF ANY IRREGULAR SURFACE CHANGE. THE CONTRACTOR SHALL SLOPE ALL PLANTING BEDS AND LAWN AREAS TO CAUSE RUN-OFF TO FLOW AWAY FROM BUILDING AND PAVING.
9. THE CONTRACTOR SHALL BACKFILL ALL PLANT MATERIAL WITH SHREDDED TOPSOIL AND PEAT MOSS AS REQUIRED FOR THE BED PREPARATION.
10. THE LANDSCAPING CONTRACTOR SHALL USE SOME TYPE OF HARDWOOD MULCH.
    - THE FINISHED DEPTH OF MULCH MUST BE AT LEAST 2" AND NO MORE THAN 3".
    - THE MULCH SHALL BE NON-DYED, NATURAL DOUBLE SHREDDED HARDWOOD MULCH.
    - PRIOR TO MULCHING THE CONTRACTOR SHALL APPLY A PRE-EMERGENT HERBICIDE TO AID IN WEED CONTROL. READ WARNING LABEL BEFORE APPLYING. WATER ALL TREES IMMEDIATELY OR WITHIN 16 HOURS AFTER INSTALLATION
    - THE CONTRACTOR SHALL INSTALL LANDSCAPING FABRIC AFTER APPLICATION OF PRE-EMERGENT HERBICIDE AND PRIOR TO MULCH INSTALLATION..
11. PLANTING SOIL MIX - SHALL BE CLEAR OF ALL STONES AND DEBRIS 1" OR LARGER, AND CONSIST OF THE FOLLOWING: 25% ORGANIC COMPOST, 75% ACCEPTABLE TOP SOIL.
12. ALL PLANTS SHALL BE HEALTHY, OF NORMAL GROWTH, WELL ROOTED, FREE FROM DISEASE AND INSECTS. QUALITY AND SIZE OF PLANT MATERIAL SHALL CONFORM TO ANSI Z60.1 "AMERICAN STANDARDS FOR NURSERY STOCK".
13. MAINTAIN TREES BY PRUNING, CULTIVATING, AND WEEDING AS REQUIRED FOR HEALTHY GROWTH. RESTORE PLANTING SAUCERS. RESET TREES TO PROPER GRADES OR VERTICAL POSITION AS REQUIRED.

SYMBOL	QUANTITY	PLANT NAME	BOTANICAL NAME	COMMENTS/SPECIFICATIONS
	40	NORWAY SPRUCE EVERGREEN TREE	PICEA ABIES	6 FEET HEIGHT MINIMUM (BALLED & BURLAPPED)



NOTE:
CONTRACTOR SHALL GUARANTEE ALL NEWLY PLANTED AND RELOCATED TREES FOR A MINIMUM OF 1 YEAR AFTER COMPLETION OF PROJECT. GUARANTEE SHALL BE FOR FULL REPLACEMENT OF LOST PLANTS.

2 EVERGREEN TREE PLANTING
SCALE: N.T.S.

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MDG LOC# 5000348752
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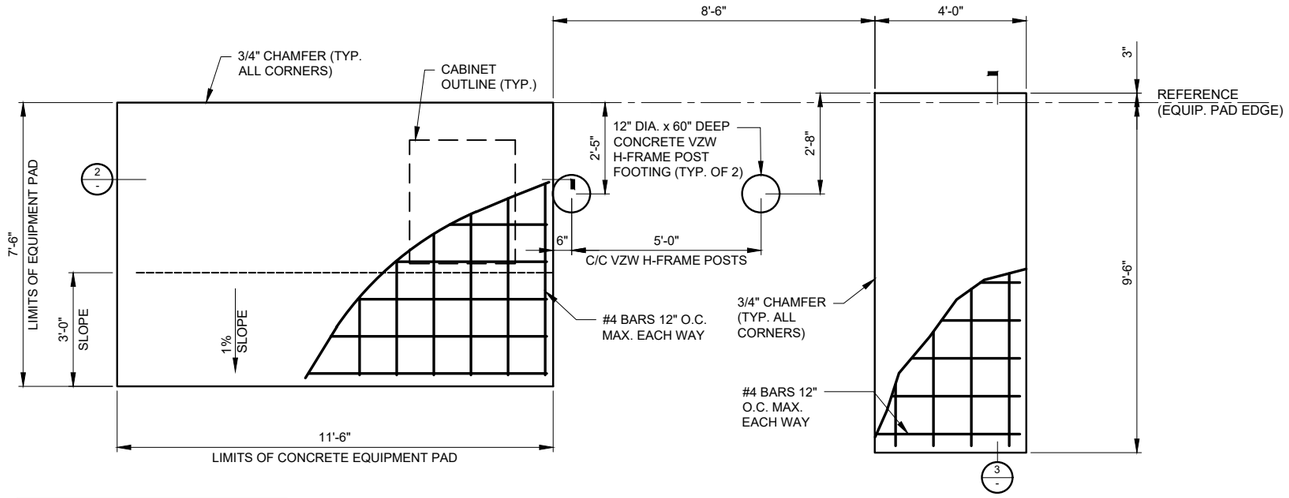
SHEET TITLE
LANDSCAPE PLAN, DETAILS AND NOTES

SHEET NUMBER
L-1

OPERATES 24 HOURS
A DAY 365 DAYS A YEAR

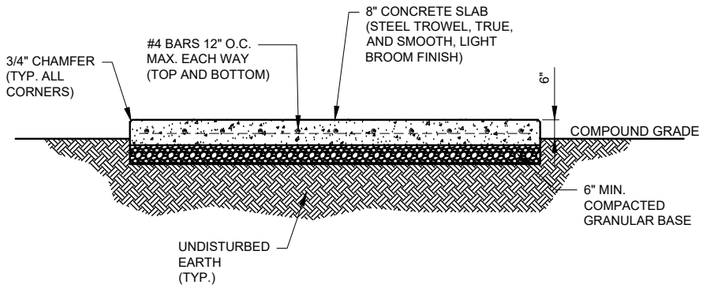
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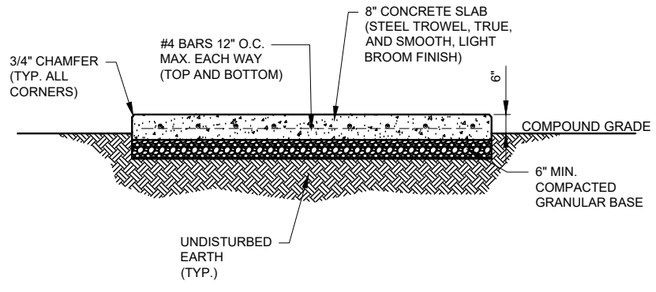


NOTE:
CONTRACTOR SHALL VERIFY CONDUIT STUB-UP LOCATIONS WITH VERIZON WIRELESS SPECIFIED GENERATOR PRIOR TO INSTALLATION

1 EQUIPMENT AND GENERATOR PAD FOUNDATIONS PLAN
SCALE: 1/2" = 1'-0"



2 EQUIPMENT PAD FOUNDATION SECTION
SCALE: 1/2" = 1'-0"



3 GENERATOR PAD FOUNDATION SECTION
SCALE: 1/2" = 1'-0"

STRUCTURAL NOTES

1. CANOPY SYSTEM DESIGN LOADINGS:

ROOF SNOW LOAD	60 PSF
DEAD LOADS	ACTUAL MATERIAL WEIGHTS
BASIC WIND SPEED	110 MPH

DESIGN CODES
BUILDINGS AND OTHER STRUCTURES: ASCE 7-10, ASCE 7-16
ANTENNA SUPPORTS, RELATED APPURTENANCES AND TOWERS:
TIA-5053, TIA-222-H AND TIA-222-G

2. BUILDING FOUNDATION SYSTEM:

ALL CONTRACTORS SHALL EXERCISE GREAT CARE DURING EXCAVATION. ALL CONTRACTORS SHALL PREDETERMINE UTILITY LOCATIONS AND NOTIFY THE ENGINEER IMMEDIATELY IF DEVIATION FROM PLANS EXIST.

THE SUBSURFACE REPORT IS NOT TO BE CONSIDERED AS A COMPLETE RECORD OF THE EXISTING CONDITIONS AT THE SITE. THE CONTRACTOR SHALL VERIFY ALL EXISTING SITE CONDITIONS, INCLUDING SUBSURFACE CONDITIONS. THE CONTRACTOR SHALL OBTAIN PERMISSION FROM THE OWNER PRIOR TO SITE ENTRY FOR THE PURPOSE OF CONDUCTING SOIL TESTING AND VERIFICATION OF EXISTING CONDITIONS.

FOUNDATION SUBGRADES SHALL BE HAND TRIMMED AND COMPACTED. ALL BACKFILL TO BE COMPACTED TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557.

3. CONCRETE WORK:

CONCRETE CYLINDERS SHALL BE TAKEN AND TESTED BY A QUALIFIED CONCRETE TESTING COMPANY. THE GENERAL CONTRACTOR SHALL PROVIDE ONE (1) CYLINDER SAMPLE TAKEN PER TRUCK OR FOUR (4) TOTAL FOR BUILDING FOUNDATION AND THE CONCRETE MUST MEET A 4" SLUMP. THE GENERAL CONTRACTOR SHALL PROVIDE THREE (3) COPIES OF TESTING RESULTS TO VERIZON WIRELESS AND TOWER OWNER CONSTRUCTION MANAGERS. FAILURE TO PROVIDE WRITTEN DOCUMENTATION WILL RESULT IN A DEDUCTION FROM THE CONTRACT. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY ADDITIONAL COSTS IN TESTING DUE TO DELAYS BY THE GENERAL CONTRACTOR OR HIS SUBCONTRACTORS. USE AIR ENTRAINMENT IN EXTERIOR SLABS.

SPECIFICATIONS	- LATEST EDITION OF ACI-318 AS ADOPTED BY THE STATE OF INDIANA	- BLDG. FOUNDATION F'c = 4000 PSI @ 28 DAYS
MATERIALS	- REINFORCING	ASTM A615, GRADE 60
	- ANCHOR BOLTS	ASTM F1554 A36
REINFORCING COVERS	- FOOTINGS	
	TOP	2"
2"-4" SLUMP	BOTTOM/SIDES	3"

REINFORCING EMBEDMENT AND LAP SPLICES (INCHES) FOR 4000 PSI CONCRETE

BAR SIZE	ANCHORAGE	SPLICE (OTHER)	ANCHORAGE (TOP)	SPLICE (TOP)
#4	12"	25"	25"	33"

CHAMFER TOP CORNERS OF ALL FOUNDATIONS (3/4")

4. BURIED CABLE LOCATIONS INFORMATION

CONTACT STATE DIGGERS HOTLINE 48 HR. PRIOR TO DIGGING, GRADING, OR DRILLING

ADDITIONAL CONCRETE NOTES:

1. ALL CONCRETE CONSTRUCTION SHALL CONFORM TO ACI*96, "STANDARD SPECIFICATION FOR STRUCTURAL CONCRETE" AND ACI 305, 306 AND 307 UNLESS NOTED OTHERWISE.
2. ALL DETAILING, FABRICATION AND PLACING OF CONCRETE SHALL CONFORM TO ACI 318-11.
3. ALL CONCRETE EXPOSED TO WEATHER SHALL CONTAIN 6% (±1%) AIR ENTRAINMENT.
4. PROVIDE CORNER BARS AT ALL LOCATIONS WHERE REINFORCEMENT CHANGES DIRECTION.

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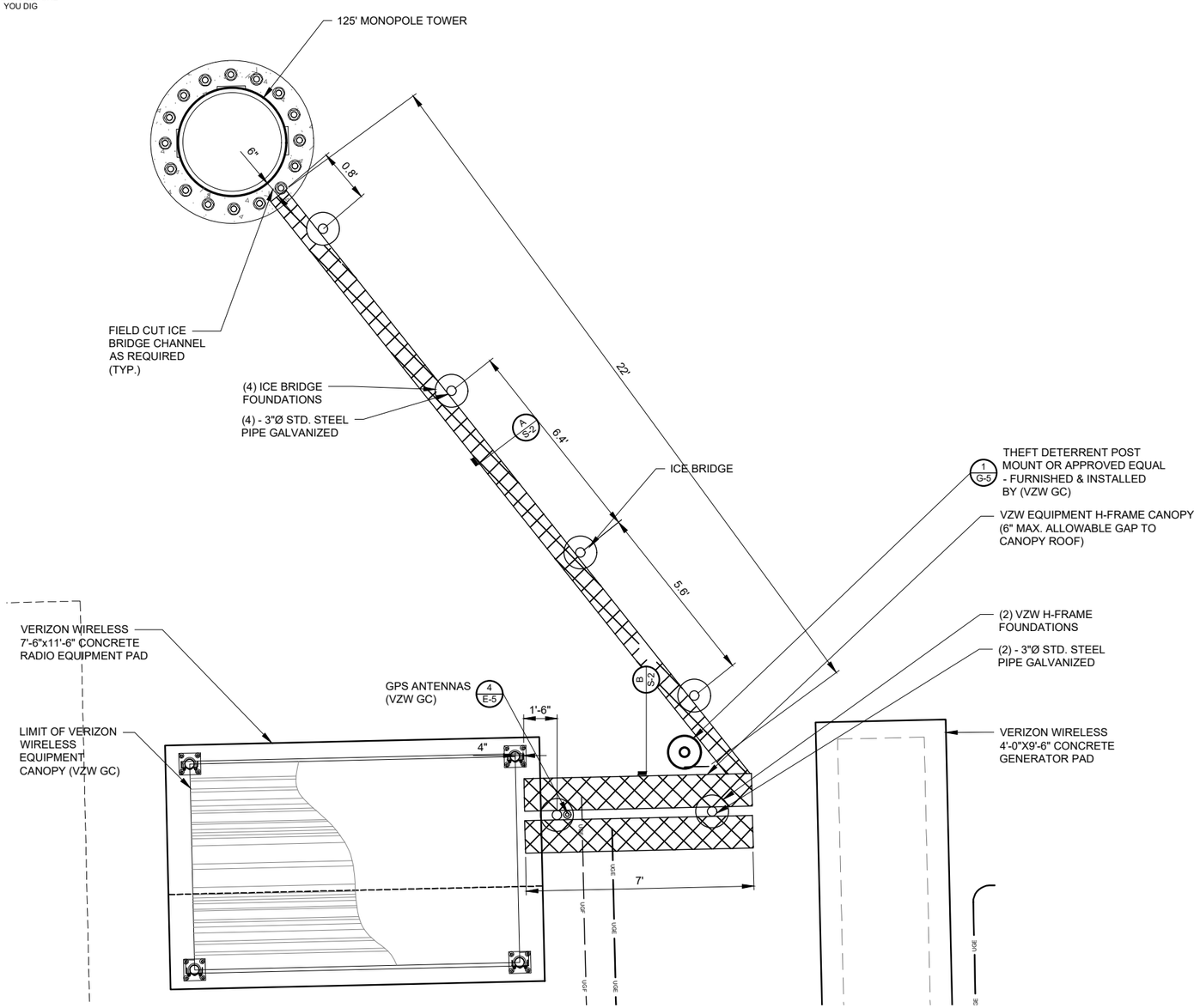
SHEET TITLE
EQUIPMENT PAD & FOUNDATION PLAN, DTLS. & STRUC. NOTES

SHEET NUMBER
S-1

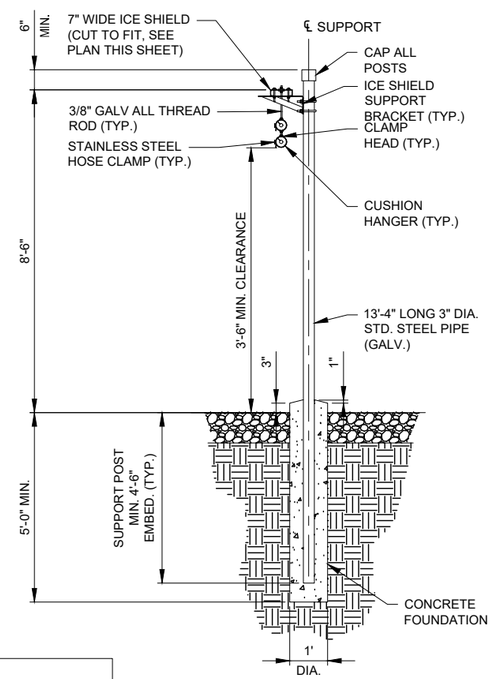
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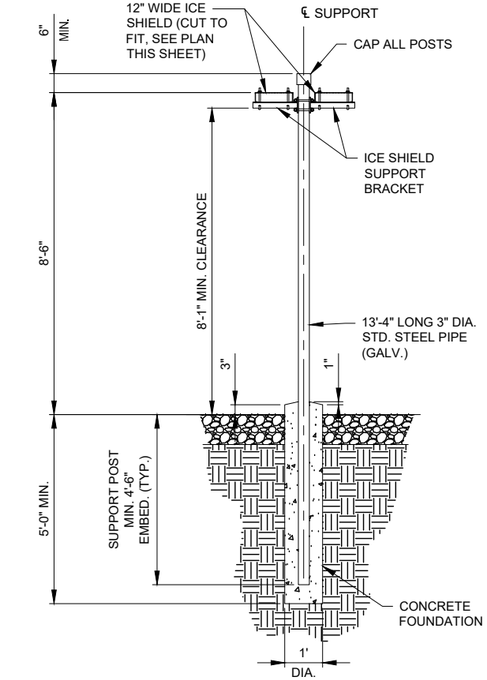


1 ICE BRIDGE PLAN
SCALE: 1" = 2'-0"



NOTE:
CONTRACTOR MAY SUBSTITUTE 12" ICE BRIDGE FOR THE 7" SECTION TO THE TOWER IF NO ADDITIONAL COST TO VZW

A ICE BRIDGE SECTION
SCALE: 1/2" = 1'-0"



B VZW H-FRAME CANOPY SECTION
SCALE: 1/2" = 1'-0"

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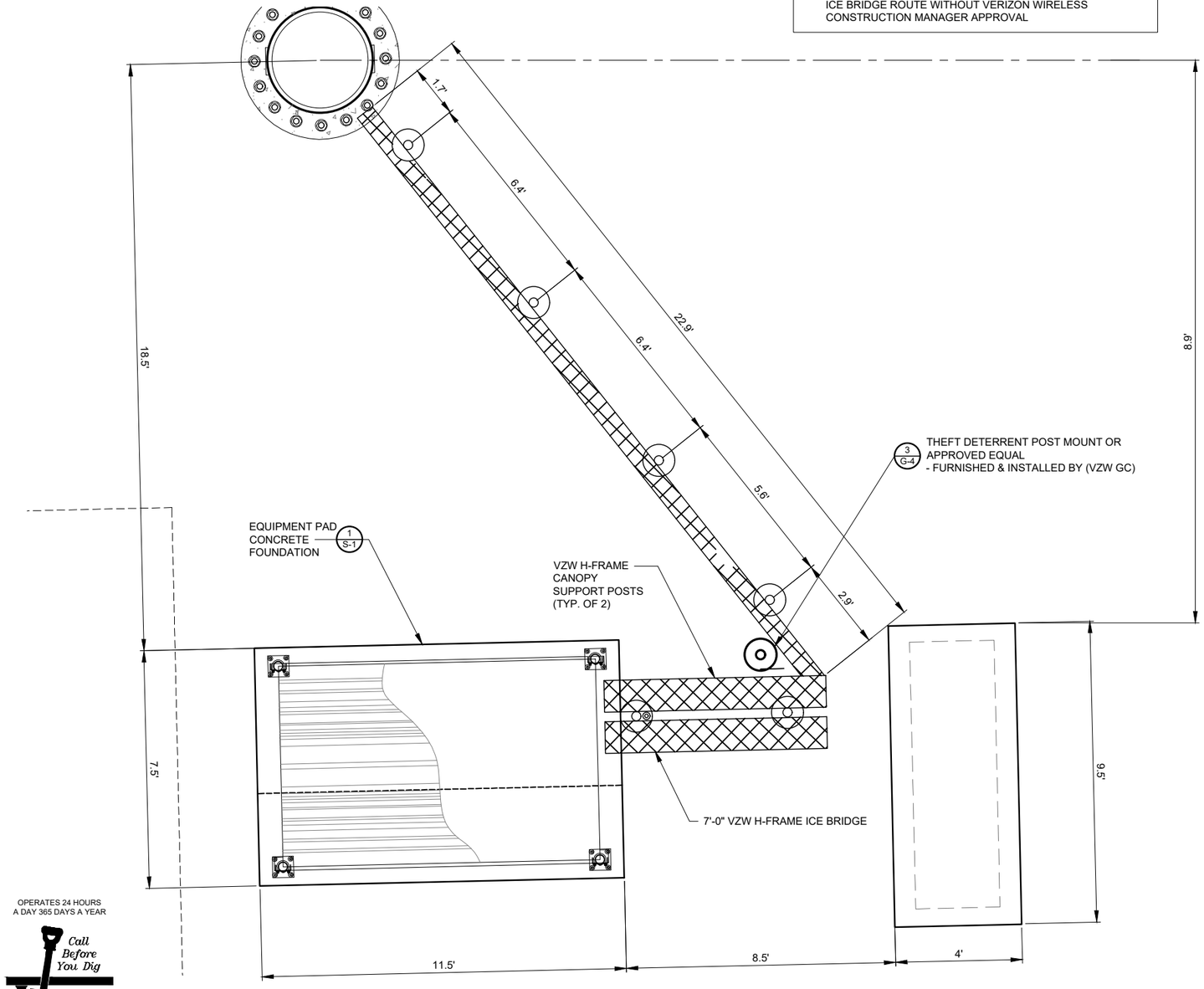
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ICE BRIDGE PLAN AND NOTES

SHEET NUMBER
S-2

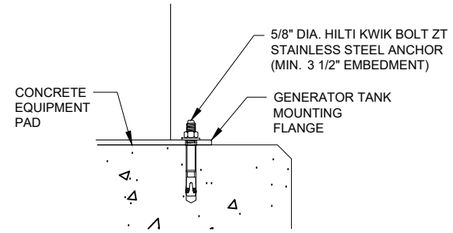
NOTE:

- CONTRACTOR SHALL LOCATE ICE BRIDGE POSTS AS REQUIRED TO ACHIEVE THE ROUTE DEPICTED ON THE PLAN
- POSTS SHALL NOT EXCEED 10' CENTER/CENTER SPACING
- TERMINAL POSTS SHALL BE LOCATED AS PROVIDE A MAXIMUM 3'-0" ICE BRIDGE CANTILEVER
- NO 90 DEGREE HORIZONTAL BENDS ARE PERMITTED IN THE ICE BRIDGE ROUTE WITHOUT VERIZON WIRELESS CONSTRUCTION MANAGER APPROVAL

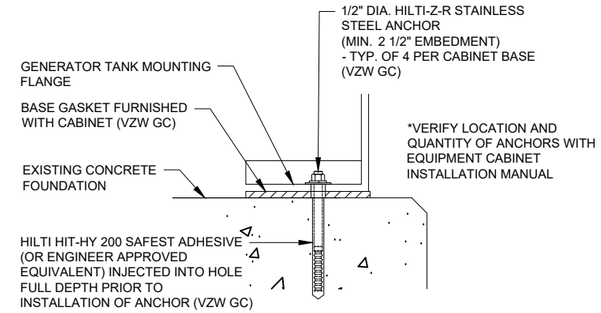
SCALE: 1" = 2'-0"



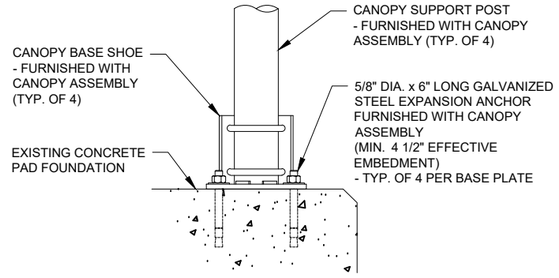
1 FOUNDATION PLAN
SCALE: 1" = 2'-0"



1 GENERATOR ANCHOR DETAIL
SCALE: N.T.S. (VZW GC)



2 EQUIPMENT CABINET MOUNTING DETAIL
SCALE: N.T.S. (VZW GC)



3 CANOPY BASE PLATE ANCHORING DETAIL
SCALE: N.T.S. (VZW GC)

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PLANS PREPARED BY:

TERRA CONSULTING GROUP
has joined Colliers Engineering & Design

CARRIER:

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ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
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REVISIONS

NO	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	10/06/25	TJS
1	ADDITION OF LANDSCAPE PLAN	10/10/25	TJS
2	UPDATE WITH POWER COORDINATION	12/18/25	JJR
3	ADDED EROSION CONTROL & SWAPPED GEN	01/027/26	APD
4	REVISED TOWER BASE SIZE	04/02/26	TJS
5	REVISED PER COMMENTS	05/13/26	PP
6	REVISED PER NEW TEMPLATE/ ISSUED FOR PERMIT	07/29/26	GD

SITE #IL1502-A
MDG LOC# 5000348752
FUZE ID: 17495287

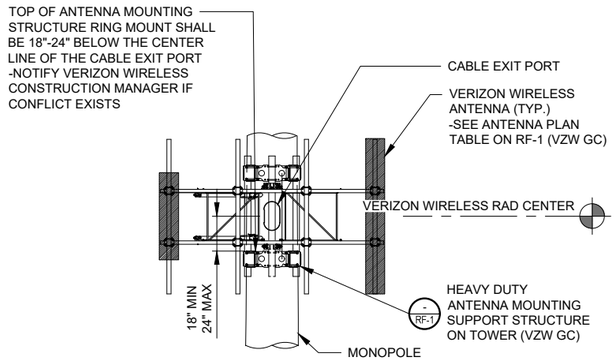
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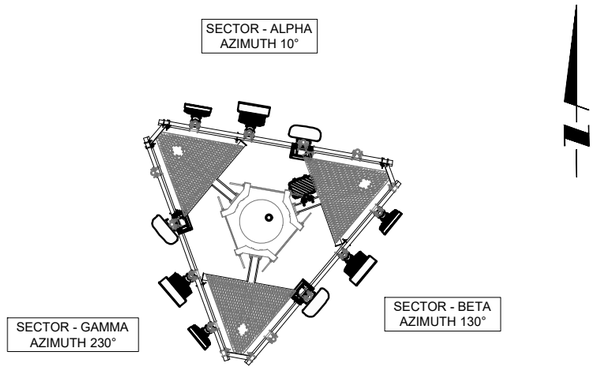
DRAWN BY:	GAD
CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

SHEET TITLE
ICE BRIDGE PLAN AND DETAILS

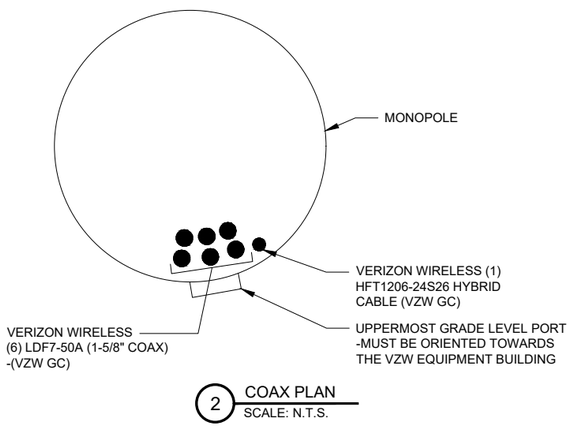
SHEET NUMBER
S-3



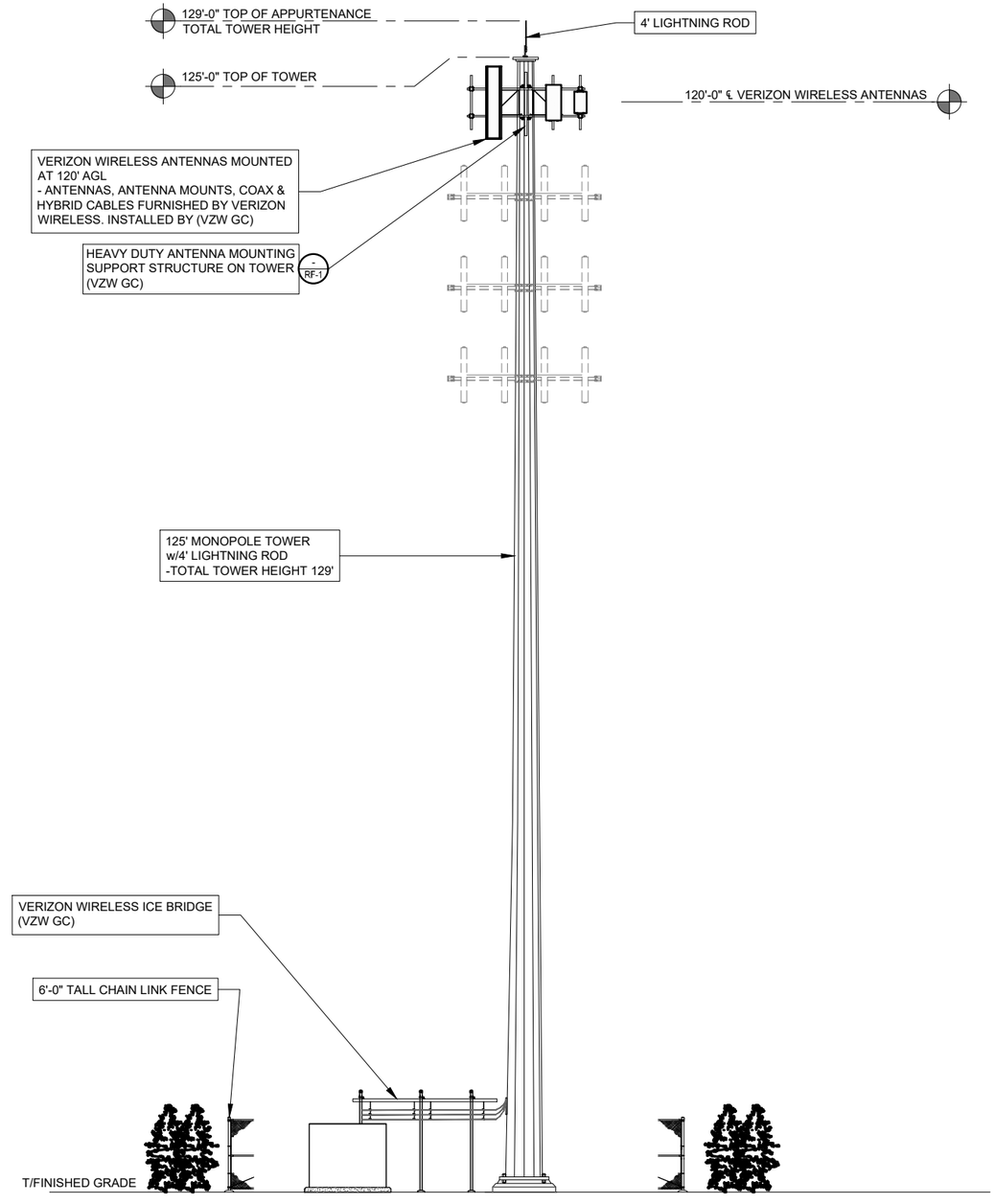
4 ANTENNA SUPPORT STRUCTURE INSTALLATION DETAIL
SCALE: N.T.S.



3 ANTENNA ORIENTATION VIEW
SCALE: 1" = 4'-0"



2 COAX PLAN
SCALE: N.T.S.



1 EAST TOWER ELEVATION
SCALE: 1/8" = 1'-0"

0 1/2" 1" 2"

SCALE: 1/8 = 1'-0"

22" x 34" PRINT IS THE FULL SCALE FORMAT. ANY SIZE OTHER THAN THAT IS AT REDUCED SCALE.

AERONAUTICAL STUDY NO.: XXXX-XX-XXXXX-XX
STRUCTURE:
LOCATION:
LAT:
LONG:
HEIGHTS: XXX FEET SITE ELEVATION (SA)
XXX FEET ABOVE GROUND LEVEL (AGL)
XXX FEET ABOVE MEAN SEA LEVEL (AMSL)

NOTE:

1. IT IS THE INSTALLING CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL ANTENNA INFORMATION AGAINST FINAL RADIO ENGINEERING PLAN PROVIDED BY VERIZON LEGAL BUSINESS ENTITY d/b/a VERIZON WIRELESS (VZW GC)

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DRAWN BY:	GAD
CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

SHEET TITLE
TOWER ELEVATION

SHEET NUMBER
TE-1

ELECTRICAL INSTALLATION NOTES

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC, AND ALL APPLICABLE LOCAL CODES.
2. ALL ELECTRICAL EQUIPMENT AND ACCESSORIES SHALL BE U.L. APPROVED OR LISTED.
3. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
4. WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
5. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
6. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
7. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFIRM WITH THE NE & OSHA.
8. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LIMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATINGS, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
9. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LIMACOID PLASTIC LABELS.
10. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE USE-2 CABLE (314 AWG OR LARGER), 600 V, OIL RESISTANT RHW-2 OR XHHW-2, STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE USE-2 CABLE (314 AWG OR LARGER), 600V, OIL RESISTANT RHW-2 OR XHHW-2, STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
12. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 90°C
13. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
14. ELECTRICAL METALLIC TUBING (EMT) OR RIGID METALLIC CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
15. ELECTRICAL METALLIC TUBING (EMT) OR RIGID METALLIC CONDUIT (RMC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
16. RIGID NON-METALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR IN AREAS OF HEAVY VEHICLE TRAFFIC, GALVANIZED RIGID CONDUIT SHALL BE USED.
17. ALL OUTDOOR EXPOSED CONDUIT SHALL BE RMC AND SHALL BE SUPPORTED ADEQUATELY.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LTMC) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED. LMFC SHALL CONFORM TO NEC ARTICLE 350.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
21. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
22. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
23. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
24. NON-METALLIC RECEPTACLE SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
25. CONTRACTOR SHALL APPLY FOR ELECTRICAL SERVICE AS SOON AS POSSIBLE AND COORDINATE REQUIREMENTS, SERVICE ROUTING, AND METER SOCKET TYPE WITH LOCAL POWER COMPANY.
26. CONTRACTOR SHALL APPLY FOR TELEPHONE SERVICE AS SOON AS POSSIBLE AND COORDINATE REQUIREMENTS AND SERVICE ROUTING WITH TELEPHONE COMPANY.
27. CONTRACTOR SHALL OBTAIN ALL PERMITS, PAY PERMIT FEES, AND SCHEDULE INSPECTIONS.
28. ALL SAFETY SWITCHES SHALL BE NEMA 1 FOR INDOOR, NEMA 3R FOR OUTDOOR, UL LISTED 200K SCCR RATED, REJECTION TYPE, WITH RK1 FUSES. FUSES SHALL HAVE AN AIR OF 200K AND SHALL HAVE A LIMITING RATING AS SHOWN IN THESE DRAWINGS. EQUIPMENT AND ACCESSORIES SHALL BE RATED FOR 75 DEGREES CELSIUS OR HIGHER.
29. ALL LOAD CENTERS SHALL BE 42 SPACE UNLESS NOTED OTHERWISE, NEMA 1 FOR INDOOR, NEMA 3R FOR OUTDOOR, MCB WITH CONVERTIBLE MAINS, UL LISTED 22K IA OR HIGHER SCCR, WITH 22K AIR BREAKERS, BREAKERS AND LOAD CENTER SHALL BE RATED FOR 75 DEGREES CELSIUS OR HIGHER. BREAKERS SHALL HAVE A LIMITING RATING AS SPECIFIED ON THESE DRAWINGS.
30. CONTRACTOR SHALL LABEL ELECTRICAL EQUIPMENT IN ACCORDANCE WITH NEC 110.16 AND 110.24.
31. CONTRACTOR SHALL VERIFY THAT THE MAIN BONDING JUMPER AND GROUNDING ELECTRODE CONDUCTOR IS INSTALLED PROPERLY AT SERVICE ENTRANCE.
32. CONTRACTOR SHALL SEAL AROUND ALL CONDUIT PENETRATIONS TO PREVENT MOISTURE PENETRATION OR VERMIN INFESTATIONS.
33. DURING TRENCH BACK-FILLING FOR EACH UNDERGROUND ELECTRICAL, TELEPHONE, SIGNAL AND COMMUNICATIONS LINE, PROVIDE A CONTINUOUS UNDERGROUND WARNING TAPE TWELVE INCHES BELOW FINISHED GRADE.

GROUNDING NOTES

1. ALL GROUNDING CONNECTIONS SHALL BE MADE USING EXOTHERMIC WELDING PROCESS (CAD WELD OR EQUAL) EXCEPT FOR EQUIPMENT THAT MAY BE MECHANICALLY FASTENED. ALL LUGS SHALL BE TWO HOLE, LONG BARREL TYPE, FOR COPPER, UNLESS OTHERWISE NOTED.
2. ALL GROUND PLATES SHALL BE INSTALLED AT 30" BELOW GRADE PER MANUFACTURER'S SPECIFICATIONS. UNDERGROUND GROUNDING CONDUCTORS SHALL BE 30" BELOW GRADE.
3. ALL GROUND CONDUCTORS SHALL BE MIN. #2 AWG SOLID TINNED COPPER WIRE BARE. EQUIPMENT GROUND CONDUCTORS SHALL BE MIN #6 GREEN INSULATED, UNLESS OTHERWISE NOTED.
4. GROUND PLATES FOR GROUND RING SHALL BE LOCATED 5'-0" APART.
5. ANY METAL OBJECT WITHIN 6 FEET OF THE TOWER OR EQUIPMENT GROUND RING SHALL BE BONDED DIRECTLY TO THE RING.
6. THE MINIMUM BENDING RADIUS FOR ALL GROUNDING CONDUCTORS #6 AWG OR LARGER SHALL BE 24".
7. ALL ABOVE GRADE GROUND CONDUCTORS SHALL BE ROUTED DOWNWARD TOWARD EARTH AND HORIZONTALLY ONLY WHERE NECESSARY.
8. ALL CONDUCTORS SHALL BE ROUTED SUCH THAT THERE ARE NO INCLUSIVE ANGLES OF LESS THAN 90 DEGREES.
9. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A RECOMMENDED TEST RESULT OF 5 OHMS OR LESS.
10. ALL GROUNDING SHALL COMPLY WITH THE N.E.C. AND NFPA 780, "LIGHTING PROTECTION CODE".
11. ALL GROUNDING COMPONENTS SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR.
12. ANY METAL CONDUIT MOUNTED ON THE TOWER SHALL BE BONDED TO THE TOWER AT EACH END.
13. ALL EXPOSED GROUNDING SHALL BE IN NON-METALLIC FLEX CONDUIT AND SECURED AS NECESSARY.
14. WHEN BONDING TO EQUIPMENT, REMOVE PAINT TO BARE STEEL AND PROTECT WITH A COATING OF NO-OX.
15. APPROVED ANTIOXIDANT COATINGS SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

BOND ICE BRIDGE SECTIONS TOGETHER EXOTHERMICALLY OR WITH 2 HOLE LUGS. BOND ICE BRIDGE TO SUPPORT POSTS.

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PROJECT #:	170-121

SHEET TITLE
ELECTRICAL NOTES

SHEET NUMBER
E-0

UTILITY NOTES:

WORK INCLUDES:

THESE NOTES AND ACCOMPANYING DRAWINGS COMPLEMENT THE PROVISIONS AND INSTALLATIONS BY THE ELECTRICAL CONTRACTOR, OF ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO INSTALL THE ELECTRICAL WORK COMPLETE IN CONNECTION WITH THIS VERIZON WIRELESS SITE AND SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

1. THE PROVISIONS, INSTALLATION, AND CONNECTION OF A GROUNDING ELECTRODE SYSTEM COMPLETE WITH A BUILDING AND SECONDARY GROUNDING, CELLULAR TELEPHONE COMMUNICATIONS TOWER AND CONNECTIONS TO THE INCOMING ELECTRICAL DISTRIBUTION EQUIPMENT.
2. THE PROVISION AND INSTALLATION OF AN OVERHEAD ELECTRICAL SERVICE OR UNDERGROUND ELECTRICAL SERVICE AND ALL ASSOCIATED WIRE AND CONDUIT AS REQUIRED AND/OR INDICATED ON PLANS.
3. THE PROVISION, INSTALLATION OF CONDUIT AND CONNECTIONS FOR LOCAL TELEPHONE SERVICE.
4. THE FURNISHING AND INSTALLATION OF THE ELECTRICAL SERVICE ENTRANCE CONDUCTORS, CONDUITS, METER SOCKET, AND CONNECTIONS TO THE SERVICE EQUIPMENT WITHIN THE ENCLOSURE.
5. TWO INCH (2") AND THREE INCH (3") DIAMETER PVC CONDUITS SCHEDULE 40.
6. ALL PVC CONDUITS SHOULD BE LEFT WITH NYLON PULL CORD FOR FUTURE USE.
7. EXCAVATION, TRENCHING, AND BACKFILLING FOR CONDUIT(S), CABLE(S), AND EXTERNAL GROUNDING SYSTEM.

CODES, PERMITS, AND FEES:

1. ALL REQUIRED PERMITS, LICENSES, INSPECTIONS AND APPROVALS SHALL BE SECURED AND ALL FEES FOR SAME PAID BY CONTRACTOR.
2. THE INSTALLATION SHALL COMPLY WITH ALL APPLICABLE CODES: STATE, LOCAL AND NATIONAL, AND THE DESIGN, PERFORMANCE CHARACTERISTICS AND METHODS OF CONSTRUCTION OF ALL ITEMS AND EQUIPMENT SHALL BE IN ACCORDANCE WITH THE LATEST ISSUE OF THE VARIOUS APPLICABLE STANDARD SPECIFICATIONS OF THE FOLLOWING AUTHORITIES:

N.E.C.	NATIONAL ELECTRIC CODE
A.N.S.I.	AMERICAN NATIONAL STANDARDS INSTITUTE
I.E.E.E.	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
A.S.T.M.	AMERICAN SOCIETY FOR TESTING MATERIALS
N.E.M.A.	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
U.L.	UNDERWRITERS LABORATORIES, INC.
N.F.P.A.	NATIONAL FIRE PROTECTION ASSOCIATION

RACEWAYS AND WIRING:

1. WIRING OF EVERY KIND MUST BE INSTALLED IN CONDUIT, UNLESS NOTED OTHERWISE, OR AS APPROVED BY THE ENGINEER.
2. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE COPPER (CU) TYPE THWN, SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
3. RACEWAYS SHALL BE GALVANIZED STEEL, SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, UNLESS OTHERWISE NOTED. ALL RACEWAYS SHALL BE APPROVED FOR THE INSTALLATION.
4. PULL OR JUNCTION BOXES SHALL BE PROVIDED AS REQUIRED TO FACILITATE INSTALLATION OF RACEWAYS AND WIRING. PROVIDE JUNCTION AND PULLBOXES FOR CONDUIT RUNS WITH MORE THAN (360) DEGREES OF BENDS.
5. PROVIDE A COMPLETE RACEWAY AND WIRING INSTALLATION, PERMANENTLY AND EFFECTIVELY GROUNDED IN ACCORDANCE WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE AND LOCAL CODES.
6. ELECTRICAL PANELBOARD TO BE FURNISHED BY VERIZON WIRELESS AND INSTALLED BY THE GENERAL CONTRACTOR/ELECTRICAL CONTRACTOR.
7. ALL STEEL CONDUIT SHALL BE BONDED AT BOTH ENDS WITH GROUNDING BUSHING.

GENERAL NOTES:

SEE DETAILS AND SCHEDULES ON DRAWINGS AND SPECIFICATIONS FOR MEANING OF ABBREVIATIONS AND ADDITIONAL REQUIREMENTS AND INFORMATION. CHECK ARCHITECTURAL, STRUCTURAL AND OTHER MECHANICAL AND ELECTRICAL DRAWINGS FOR SCALE, SPACE LIMITATIONS, COORDINATION, AND ADDITIONAL INFORMATION, ETC. REPORT ANY DISCREPANCIES, CONFLICTS, ETC. TO ENGINEER BEFORE SUBMITTING BID. ALL EQUIPMENT FURNISHED BY OTHERS (FBO) SHALL BE PROVIDED WITH PROPER MOTOR STARTERS, DISCONNECTS, CONTROLS, ETC. BY THE ELECTRICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE. THE ELECTRICAL CONTRACTOR SHALL INSTALL AND COMPLETELY WIRE ALL ASSOCIATED EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S WIRE DIAGRAMS AND AS REQUIRED FOR A COMPLETE OPERATING INSTALLATION. ELECTRICAL CONTRACTOR SHALL VERIFY AND COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF (FBO) EQUIPMENT PRIOR TO ROUGH-IN OF CONDUIT AND WIRING TO AVOID CONFLICTS.

COORDINATION WITH UTILITY COMPANY:

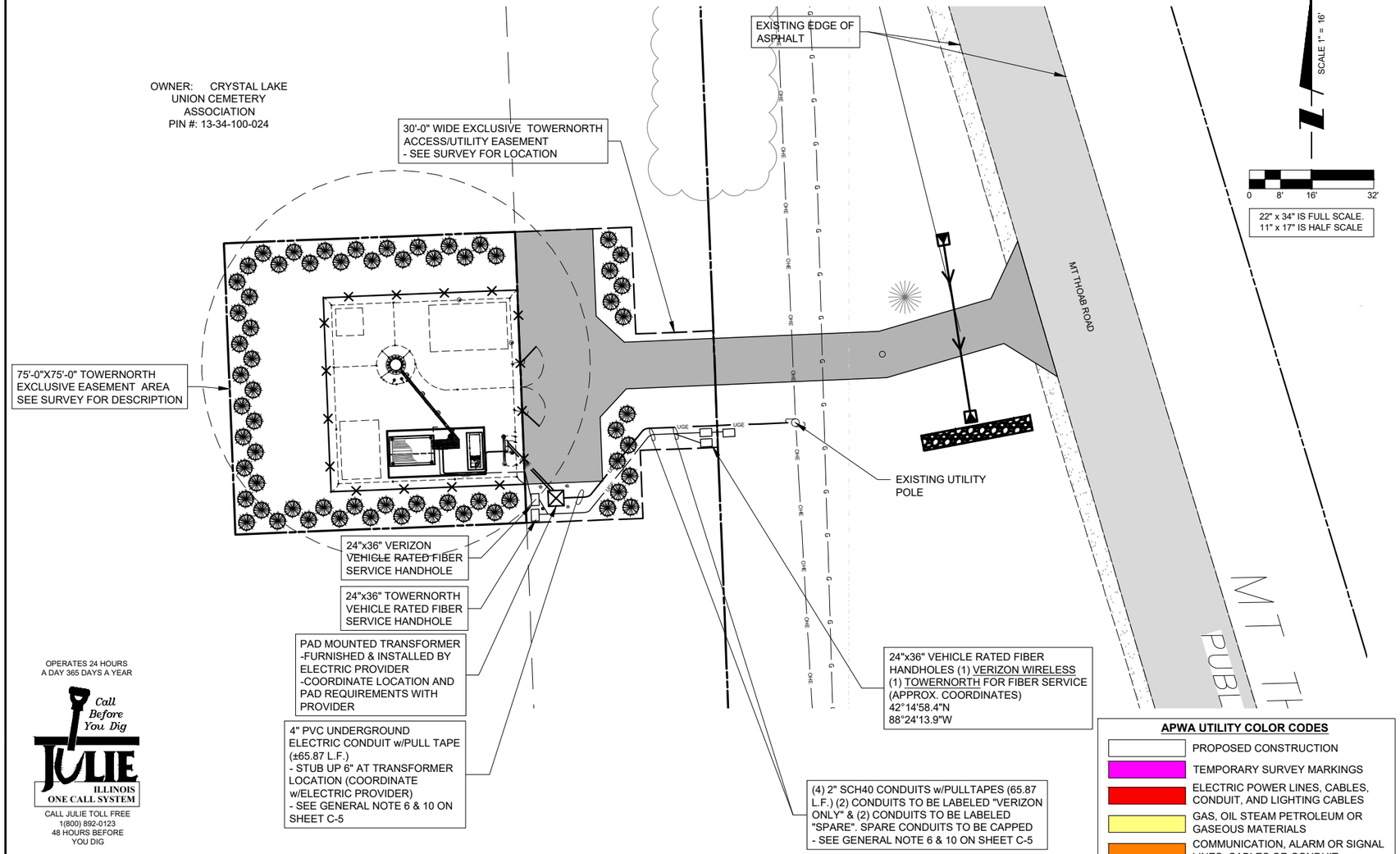
THE ELECTRICAL CONTRACTOR SHALL COORDINATE COMPLETE ELECTRICAL SERVICE WITH LOCAL UTILITY COMPANY FOR A COMPLETE OPERATIONS SYSTEM, INCLUDING TRANSFORMER CONNECTIONS, CONCRETE TRANSFORMER PADS, IF REQUIRED, METER SOCKETS, PRIMARY CABLE RACEWAY REQUIREMENTS, SECONDARY SERVICE, ETC. PRIOR TO SUBMITTING BID TO INCLUDE ALL LABOR AND MATERIALS. THE ELECTRICAL CONTRACTOR SHALL INCLUDE IN THE BID ANY OPTIONAL OR EXCESS FACILITY CHARGES ASSOCIATED WITH PROVIDING ELECTRICAL SERVICE FROM LOCAL UTILITY COMPANY. VERIFY BEFORE BIDDING TO INCLUDE ALL COSTS. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE AVAILABLE FAULT CURRENT WITH THE LOCAL UTILITY COMPANY PRIOR TO SUBMITTING BID. ADJUST A.I.C. RATINGS OF ALL OVER CURRENT PROTECTION DEVICES IN DISTRIBUTION EQUIPMENT AS REQUIRED TO COORDINATE WITH AVAILABLE FAULT CURRENT FROM LOCAL UTILITY COMPANY. ALL GROUNDING RODS PROVIDED BY THE POWER OR TELEPHONE UTILITY COMPANIES MUST BE TIED INTO THE MAIN EXTERNAL GROUND RING.

ELECTRICAL CONTRACTOR SHALL COORDINATE WITH POWER COMPANY FOR ENTRY INTO FENCED AREA BY EITHER MAILING A KEY TO A SLAVE LOCKED CHAIN AT THE FENCE GATE OR CALLING AND LEAVING A COMBINATION.

FOR CONTINUATION AND CONNECTION OF ELECTRIC AND FIBER SERVICE. COORDINATE WITH ELECTRIC AND FIBER COMPANY.

NOTES:
GENERAL CONTRACTOR & ELECTRICAL CONTRACTOR TO USE EXPANSION COUPLINGS FOR ALL UTILITY CONNECTIONS ASSOCIATED WITH THE EQUIPMENT PAD. UTILIZE A CARLON EXPANSION COUPLING (WWW.CARLON.COM, OR EQUAL) W/ A MINIMUM OF 4" TRAVEL LENGTH. GROUND CONDUCTORS FROM PAD TO BELOW GRADE TO BE INSTALLED WITH A SLACK LOOP TO ACCOUNT FOR ANY POSSIBLE FROST HEAVE.

NOTE:
CONTRACTOR TO VERIFY ROUTES WITH LOCAL UTILITY COMPANY PRIOR TO INSTALLATION.



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EASEMENT NOTES:
1. SEE SURVEY DRAWING FOR UTILITY EASEMENT LEGAL DESCRIPTION.
2. CONTRACTOR IS REQUIRED TO HAVE EASEMENT STAKED PRIOR TO CONDUIT INSTALLATION TO INSURE CONDUIT IS WITHIN EASEMENT.

1 UTILITY SERVICE PLAN
SCALE: 1" = 16'-0"

APWA UTILITY COLOR CODES

- PROPOSED CONSTRUCTION
- TEMPORARY SURVEY MARKINGS
- ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
- GAS, OIL STEAM PETROLEUM OR GASEOUS MATERIALS
- COMMUNICATION, ALARM OR SIGNAL LINES, CABLES OR CONDUIT
- POTABLE WATER
- RECLAIMED WATER, IRRIGATION AND SLURRY LINES
- SEWERS AND DRAIN LINES

FIBER SERVICE NOTES

1. TWO (2) 2" DIA. SCHD 40 PVC CONDUITS AND PULL TAPES FOR VERIZON WIRELESS FIBER SERVICE SHALL BE INSTALLED FROM HANDHOLE OUTSIDE COMPOUND TO HANDHOLE MEET POINT AT THE PUBLIC RIGHT-OF-WAY.
   - THE VERIZON FIBER HANDHOLES SHALL BE OLDCASTLE INFRASTRUCTURE MODEL 24361480 PC2436-30 T22 - VERIZON LOGO OR QUAZITE|HUBBELL POWER SYSTEMS MODEL PG2436Z1857B4 ASSY T22 SW OB 24x36x30 VERIZON V, OR APPROVED EQUALS. ALTERNATIVE HANDHOLES MAY BE USED IF MEETING THE DESIGNATED LOADING AND HAVING DIMENSIONS OF AT LEAST 2'x3'x2.5'. ALL VERIZON HANDHOLES TO HAVE "VERIZON" LOGO ON COVER.
2. CONTRACTOR SHALL PLACE ADDITIONAL HANDHOLES ALONG ROUTE, AS NECESSARY, SO THAT SPACING BETWEEN HANDHOLES IS NO GREATER THAN 500 FEET.
3. TWO (2) 2" DIA. SCHD 40 PVC CONDUITS W/ PULL TAPES FOR VERIZON WIRELESS FIBER SERVICE SHALL BE INSTALLED FROM HANDHOLE OUTSIDE COMPOUND TO VERIZON WIRELESS EQUIPMENT PAD LOCATION (PER PLANS).
4. CONTRACTOR SHALL PLACE (1) COPPERHEAD INDUSTRIES ORANGE TRACER WIRE (PART NO. 1230N-HS) OR APPROVED EQUIVALENT ABOVE PROPOSED FIBER CONDUIT(S).
5. IF WET GROUND CONDITIONS ARE ENCOUNTERED ONE (1) 4" DIA. SCH40 PVC FIBER CONDUIT W/ THREE (3) 1" HDPE SMOOTH WALL INNERDUCTS AND PULL TAPES MAY BE INSTALLED FROM HANDHOLE OUTSIDE COMPOUND MEET POINT AT THE PUBLIC RIGHT-OF-WAY WITHIN UTILITY EASEMENT WITH PULL TAPE.
6. ALTERNATE CONDUIT MATERIALS THAT MAY BE UTILIZED ARE:
   - 2" DIA. SDR-13.5 HDPE
   - 2" DIA. SCHD 80 PVC

POWER DESIGN NOTES:

POWER COMPANY	(NAME)
POWER CONTACT	-
CONTACT PHONE	-
CONTACT EMAIL	-
WORK ORDER	-
NOTES	-

FIBER COORDINATION NOTES:

FIBER COMPANY	(NAME)
FIBER CONTACT	-
FIBER PHONE	-
FIBER EMAIL	-
NOTES	-

PREPARED FOR

TowerNorth
2400 ANSYS DRIVE, SUITE 102
CANONSBURG, PA 15317
SITEACCESS@TOWERNORTH.COM
1-800-821-5825x2

PLANS PREPARED BY:

TERRA CONSULTING GROUP
has joined Colliers Engineering & Design

CARRIER:

verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

REVISIONS

NO	DESCRIPTION	DATE	BY
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2	UPDATE WITH POWER COORDINATION	12/18/25	JJR
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SITE #IL1502-A
MDG LOC# 5000348752
FUZE ID: 17495287

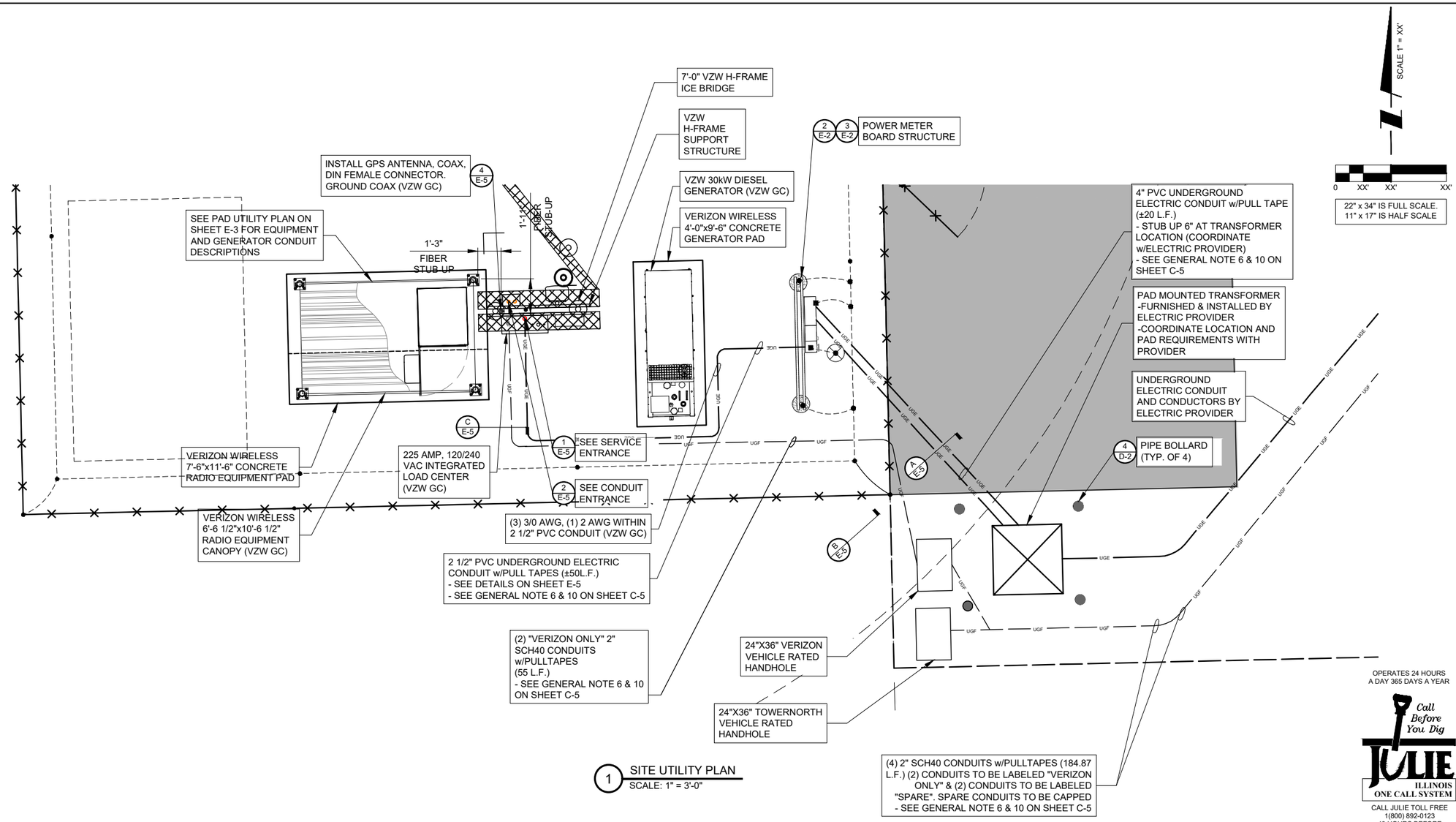
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HALIGUS - A

MT. THABOR ROAD
CRYSTAL LAKE, IL 60014
McHENRY COUNTY

DRAWN BY:	GAD
CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

SHEET TITLE
UTILITY SERVICE PLAN

SHEET NUMBER
E-1



1 SITE UTILITY PLAN
SCALE: 1" = 3'-0"

OPERATES 24 HOURS A DAY 365 DAYS A YEAR

Call Before You Dig
JULIE ILLINOIS ONE CALL SYSTEM
CALL JULIE TOLL FREE 1(800) 892-0123 48 HOURS BEFORE YOU DIG

FIBER SERVICE NOTES

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CONTACT PHONE	-
CONTACT EMAIL	-
WORK ORDER	-
NOTES	-

FIBER COORDINATION NOTES:

FIBER COMPANY	(NAME)
FIBER CONTACT	-
FIBER PHONE	-
FIBER EMAIL	-
NOTES	-

APWA UTILITY COLOR CODES

- PROPOSED CONSTRUCTION
- TEMPORARY SURVEY MARKINGS
- ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
- GAS, OIL STEAM PETROLEUM OR GASEOUS MATERIALS
- COMMUNICATION, ALARM OR SIGNAL LINES, CABLES OR CONDUIT
- POTABLE WATER
- RECLAIMED WATER, IRRIGATION AND SLURRY LINES
- SEWERS AND DRAIN LINES

EASEMENT NOTES:
1. SEE SURVEY DRAWING FOR UTILITY EASEMENT LEGAL DESCRIPTION.
2. CONTRACTOR IS REQUIRED TO HAVE EASEMENT STAKED PRIOR TO CONDUIT INSTALLATION TO INSURE CONDUIT IS WITHIN EASEMENT.

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SHEET TITLE
SITE UTILITY PLAN

SHEET NUMBER
E-1A

VERIZON PANEL "A" SCHEDULE

MAIN: 225/2 VOLTAGE: 120/240 PHASE: 1 WIRE: 3

TO AUTOMATIC TRANSFER SWITCH

225A

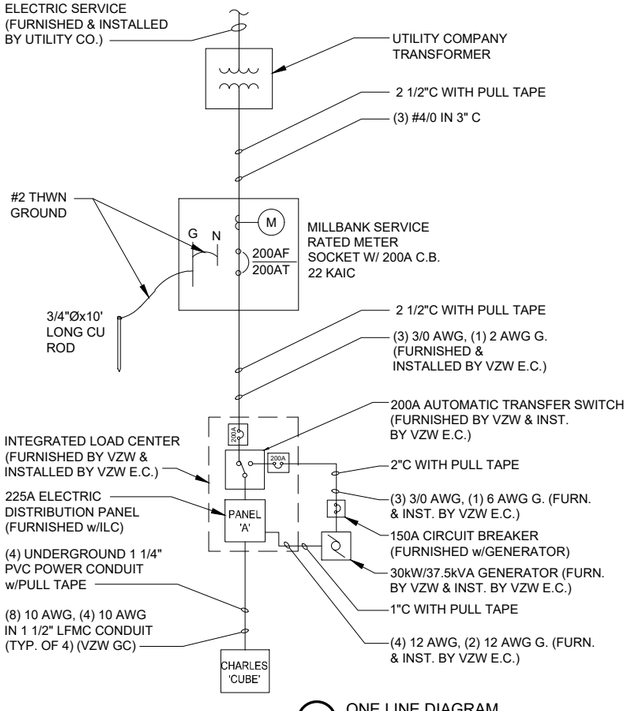
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			3			4			
RECTIFIER #3	30/2	1800 / 1800	5			6	1800 / 1800	30/2	RECTIFIER #4
			7			8			
RECTIFIER #5	30/2	1800 / 1800	9			10	1800 / 1800	30/2	RECTIFIER #6
			11			12			
SPACE			13			14			SPACE
SPACE			15			16			SPACE
SPACE			17			18			SPACE
SPACE			19			20			SPACE
SPACE			21			22			SPACE
SPACE			23			24			SPACE
SPACE			25			26			SPACE
SPACE			27			28			SPACE
SPACE			29			30			SPACE
GFCI RECEPTACLE (RF CABINET)	15/1	180	31			32			SPACE
GEN. BLOCK HEATER	20/1	1500	33			34	180	15/1	GFCI RECEPTACLE
CANOPY LIGHTS	15/1	126	35			36	250	20/1	GEN. BATTERY CHARGER

SURGE ARRESTOR

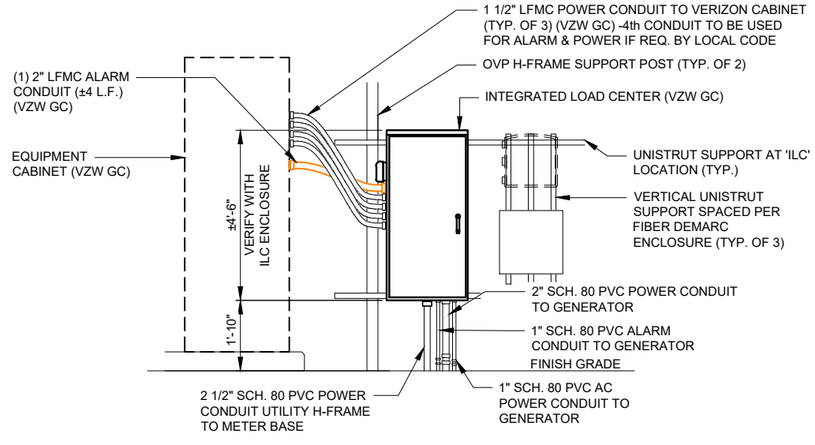
SURFACE MOUNTED NEMA 3R w/DOOR
22K AIC BREAKERS
(E.C. SHALL VERIFY AIC RATINGS W/LOCAL POWER CO.)

PANEL LOADING SUMMARY:
MAXIMUM LOADING ON 200A PANEL SHALL BE 160A CONTINUOUS. RECTIFIERS SHALL BE CONSIDERED A CONTINUOUS LOAD. MAXIMUM NUMBER OF RECTIFIERS SHALL NOT EXCEED 8. LOADING WILL VARY BASED ON QUANTITY OF RECTIFIERS/CABINETS AND WILL NOT BE DETERMINED UNTIL TIME OF BUILD BY VERIZON. VERIZON TO ENSURE THE MAXIMUM TOTAL PANEL LOAD DOES NOT EXCEED 160A CONTINUOUS LOAD. VERIZON SHALL ALSO VERIFY THAT THE GENERATORTOR IS CAPABLE OF TRANSFERING THE ENTIRE PLANNED LOAD. VERIZON SHALL LOAD SHED AS REQUIRED IN ORDER TO ENSURE GENERATOR RATING IS NOT EXCEEDED.

A PANEL SCHEDULE "A"
SCALE: N.T.S.



1 ONE LINE DIAGRAM
SCALE: N.T.S.



2 VZW ILC MOUNTING DETAIL
SCALE: 1/2" = 1'-0"

GENERAL ELECTRICAL NOTES

1. UNLESS NOTED AS VERIZON WIRELESS GENERAL CONTRACTOR OR VZW GC, ALL WORK ITEMS ON ELECTRICAL "E" & GROUNDING "G" SHEETS SHALL BE PERFORMED BY THE GENERAL CONTRACTOR'S ELECTRICAL CONTRACTOR. ALL WORK SHOWN AS NEW UNLESS NOTED EXISTING.
2. THE GENERAL CONTRACTOR AND VERIZON WIRELESS ELECTRICAL CONTRACTORS SHALL BE LICENSED TO PERFORM WORK IN THE COUNTY OF THIS PROJECT AND SHALL BE RESPONSIBLE FOR OBTAINING AN ELECTRICAL PERMIT FROM THE COUNTY.
3. UNDERGROUND CONDUIT SHALL BE SCH. 40 (SCH. 80 UNDER ROADWAY) PVC PLASTIC DUCT WITH ALL BENDS MINIMUM 24" RADIUS 90° SWEEP SCH. 80 UNLESS OTHERWISE NOTED ON DRAWINGS. ELECTRICAL AND FIBER UTILITY LATERAL CONDUITS SHALL BE MINIMUM 36" RADIUS 90° SWEEP SCH. 80. ALL PVC SCH80 PIPING AND FITTINGS SHALL USE BELL END WHERE FEASIBLE.
4. ABOVE GRADE RISER CONDUIT SHALL BE RIGID SCH. 80 PVC WITH MATCHING FITTINGS UNLESS NOTED OTHERWISE.
5. ALL CONDUITS SHALL BE PLACED WITH 200 LB POLYETHYLENE PULL TAPES. PULL TAPES SHALL BE SECURELY FASTENED AT EACH END OF CONDUIT. (THIS SHALL ALSO APPLY FOR ALL FIBER CONDUITS).
6. PRIOR TO TRENCHING AND FOR COORDINATING OF THE FIBER AND ELECTRICAL SERVICES, SEE SHEET C-6 GENERAL NOTE #6 FOR UTILITY CONTACT NAMES & PHONE NUMBERS TO ALSO INCLUDE VERIZON WIRELESS CONSTRUCTION MANAGER.
7. ALL WORK SHALL BE IN ACCORDANCE WITH N.F.P.A. AND N.E.C. CODES, NEMA STANDARDS AND ALL LOCAL CODES.
8. ALL WIRE SHALL BE COPPER, 600V THHN-2/THWN-2 OR XHHW-2 90°C UNLESS NOTED OTHERWISE.
9. ALL ELECTRICAL CONTRACTORS SHALL ABIDE BY ALL GUIDELINES REQUIRED BY TOWER OWNER AND VERIZON WIRELESS, INCLUDING BUT NOT LIMITED TO, a) STAGE CONSTRUCTION AND REPORT WHEN ON AND OFF THE SITE. b) PROVIDE LOG BOOK RECORDS OF PERSONNEL ON TOWER. c) PROVIDE R.F. MONITORING DEVICES TO TOWER PERSONNEL. d) VERIZON WIRELESS TO INSPECT ALL TRENCHING BEFORE BACKFILLING.
10. THE ELECTRICAL CONTRACTOR SHALL INSTALL ALL UNDERGROUND CONDUITS SHOWN ON PLANS UNLESS NOTED OTHERWISE. ALL UNDERGROUND CONDUIT SHALL BE STUBBED-UP AND CAPPED AT THE LOCATION INDICATED ON PLANS. VZW CONTRACTOR SHALL COMPLETE ALL CONDUIT TERMINATIONS TO VZW ENCLOSURES SHOWN ON PLANS AND ELECTRICAL PROVIDER DESIGN .
11. THE VZW ELECTRICAL CONTRACTOR SHALL VERIFY ELECTRICAL SERVICE REQUIRED - 120/240V, SINGLE PHASE, 200 AMP BEFORE ROUGH IN.
12. GENERAL CONTRACTOR AND VZW ELECTRICAL CONTRACTORS SHALL PROVIDE FIRE WATCH DURING ALL WELDING OPERATIONS. TWO (2) HAND HELD 30 LB. FIRE EXTINGUISHERS & ADEQUATE WATER SUPPLY SHALL BE APPROVED BY THE CLIENT AND THE TOWNSHIP WATER AUTHORITY.
13. SEAL ALL PENETRATIONS WITH SILICONE SEALANT.
14. ELECTRICAL WORK PRESENTS SPECIFIC THREATS TO THE HEALTH AND SAFETY OF WORKERS ON SITE. SPECIFICALLY ELECTROCUTIONS ARE THE FOURTH LEADING CAUSE OF DEATH ON CONSTRUCTION SITES. ALL ELECTRICAL WORKERS SHALL HAVE CURRENT CERTIFICATIONS WHICH SATISFY ALL TRAINING REQUIREMENTS FOR THE ELECTRICAL WORK THEY ARE PERFORMING PER OSHA STANDARDS. ALL ELECTRICAL WORKERS SHALL ADHERE TO ALL SAFETY RULES AND REGULATIONS FOR WORKER AND PUBLIC SAFETY. ALL WORK SHALL BE PERFORMED BY QUALIFIED ELECTRICIANS TRAINED FOR THE TYPE OF WORK AND THE VOLTAGES PRESENT FOR EACH TASK. THE CONTRACTOR SHALL REVIEW ALL LANDOWNER, PRIME CONTRACTOR, CARRIER, OSHA, NFPA 70E, AND LOCAL SAFETY GUIDELINES AND AT ALL TIMES SHALL CONFORM TO THE MOST RESTRICTIVE OF THESE STANDARDS TO ENSURE A SAFE WORKPLACE.
15. CONNECT NEUTRAL TERMINAL IN SERVICE DISCONNECTING DEVICE TO GROUNDING ELECTRODE. (2/0 AWG TINNED STRANDED COPPER GROUNDING ELECTRODE CONDUCTOR IN 1" PVC CONDUIT). CONNECT FIRST GROUNDING ELECTRODE TO SECOND GROUNDING ELECTRODE WITH 2/0 AWG TINNED STRANDED COPPER CONDUCTOR EXOTHERMICALLY WELDED TO ELECTRODES.
16. VZW E.C. SHALL VERIFY SUFFICIENT CAPACITY EXISTS AT EXISTING METER CENTER. NOTIFY ENGINEER IMMEDIATELY IF SERVICE IS NOT ADEQUATE.
17. REFER TO ELECTRICAL SITE PLAN FOR CONDUIT AND WIRE EQUIREMENTS.
18. ALL ELECTRICAL EQUIPMENT PLACARDS MUST BE ENGRAVED PLASTIC LABELS ONLY, NO P-TOUCH LABELS ARE TO BE USED. PLACARDS SHALL BE 1 1/2" x 5" IN SIZE AND PERMANENTLY AFFIXED TO THE ENCLOSURES EASILY VISIBLE LOCATIONS.
19. VERIZON WIRELESS ELECTRICAL PLACARD REQUIREMENTS:
    a) AVAILABLE FAULT CURRENT RATING FROM UTILITY PROVIDER WITH DATE.
    b) VERIZON WIRELESS SERVICE DISCONNECT AT METER BASE.
    c) VERIZON MAIN BREAKER AT INTEGRATED LOAD CENTER 'ILC'.
    d) GENERATOR NEUTRAL CONDUCTOR BONDED TO SERVICE GROUNDING ELECTRODE IN THIS ENCLOSURE AT METER CENTER AND AUTOMATIC TRANSFER SWITCH "ATS" NEUTRAL BAR.
    e) VERIZON WIRELESS GENERATOR
    f) 'ACCESS PROPERTY OF VERIZON WIRELESS' AT ALL VERIZON WIRELESS FIBER HANDHOLES FASTENED TO INSIDE WALL OF HANDHOLE.
20. ALL EQUIPMENT SHALL BE GROUNDED PER LATEST EDITION OF NEC AND AS INDICATED ON GROUNDING PLAN.
21. ELECTRICAL EQUIPMENT SHALL BE MIN 3'-0" FROM ANY STRUCTURE AND AS REQUIRED BY LOCAL UTILITY COMPANIES.
22. 2 AWG BARE SOLID TINNED COPPER WIRE LEADS FROM NEW H-FRAME STRUCTURE TO BE BONDED TO EXISTING GROUNDING SYSTEM (TYP)
23. ALL METALLIC CABINETS & ENCLOSURES MUST BE GROUNDED WITH 2 AWG TO GROUND RING.
24. ALL ABOVE GRADE GROUND VZW CONNECTIONS SHALL BE IN 1/2" FLEXIBLE PVC CONDUIT w/ANTI-THEFT COMPOUND. ALL OTHER LEADS SHALL BE IN 1/2" PVC CONDUIT.
25. ALL HARDWARE USED MUST BE GALVANIZED OR STAINLESS STEEL, NO ZINC OR OTHER MATERIAL IS TO BE USED.
26. VERIZON WIRELESS FURNISH & INSTALL ALL INNER CONNECTING CONDUITS BETWEEN CABINETS AND LAND ALL AC POWER TO VZW EQUIPMENT.
27. ALL CONDUIT RUNS SHALL HAVE A CONTINUOUS SLOPE DOWNWARD AND AWAY FROM THE METERBOARD SO THAT WATER WILL NOT FLOW FROM THE EQUIPMENT. TRENCHES SHALL BE EXCAVATED ALONG STRAIGHT LINES BEFORE CONDUIT ARE INSTALLED SO THE ELEVATION CAN BE ADJUSTED, IF NECESSARY, TO AVOID UNSEEN OBSTACLES.
28. PRIOR TO THE SUBMISSION OF BIDS, THE GENERAL CONTRACTOR AND HIS SUBCONTRACTORS SHALL VERIFY ALL DETAILS AND SCHEDULES ON THE DRAWINGS AND SPECIFICATIONS PROVIDED BY THE OWNER, FOR MEANING OF ABBREVIATIONS AND ADDITIONAL REQUIREMENTS AND INFORMATION, CHECK STRUCTURAL AND OTHER MECHANICAL AND ELECTRICAL DRAWINGS FOR SCALE, SPACE LIMITATIONS, DOOR SWINGS, ADJACENT CARRIER EQUIPMENT COORDINATION AND ADDITIONAL INFORMATION, ETC. REPORT ANY DISCREPANCIES, CONFLICTS, ETC. TO THE OWNER BEFORE SUBMITTING BIDS.

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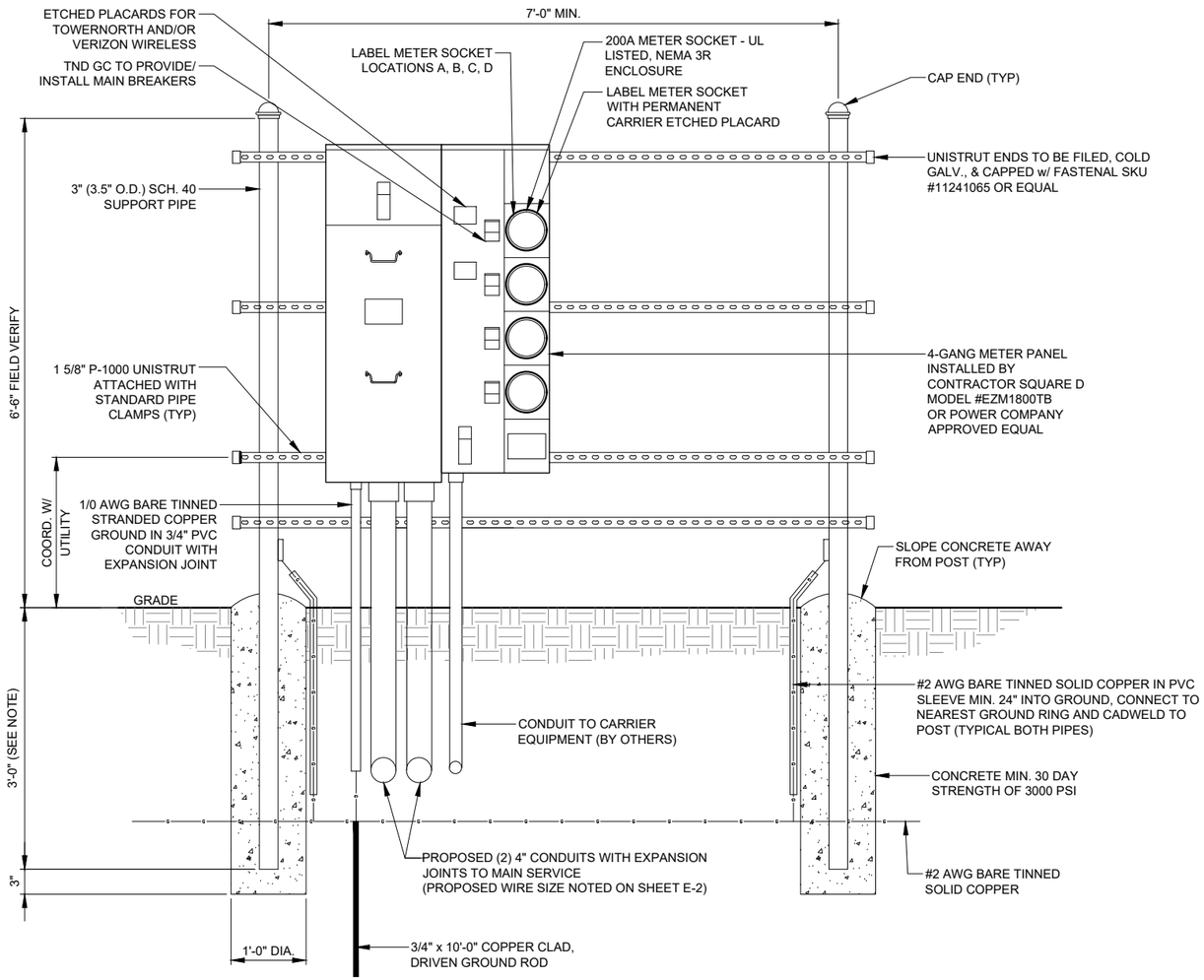
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SHEET TITLE
PANEL SCHEDULE
ONE LINE DIAGRAM,
ELEC. NOTES & DETAILS

SHEET NUMBER
E-2



1 UTILITY H-FRAME DETAIL (GANG METER)
SCALE: 1" = 10'

NOTES:

1. CONTRACTOR TO FIELD LOCATE THE METER PEDESTAL AS SHOWN ON THE PLAN. INSTALL THE METER PEDESTAL NEAR THE PERIMETER OF THE FENCED COMPOUND WITH THE METERS FACING AS SHOWN.
2. THE CONTRACTOR SHALL COORDINATE THE LOCAL UTILITY COMPANY FOR THE CONDUIT RUN TO THE MAIN SERVICE CONNECTION OR TRANSFORMER.
3. THE CONTRACTOR SHALL COORDINATE THE LOCAL UTILITY COMPANY FOR GROUND ROD REQUIREMENTS. IF REQUIRED, THE CONTRACTOR SHALL ORDER AN PAY FOR NECESSARY GROUND TEST.
4. SUPPORT POST AND UNISTRUT SHALL BE GALVANIZED. PIPE CLAMS AND HARDWARE SHALL BE GALVANIZED OR STAINLESS STEEL.
5. TELCO CABINET SHALL BE A 48" x 48" x12" HOFFMAN OR EQUIVALENT. PROVIDE 3/4" PLYWOOD BACKBOARD INSIDE THE MULTI-TENANT TELCO CABINET.
6. ADJUSTMENTS TO THE METER PEDESTAL DESIGN MAY BE REQUIRED DEPENDING ON THE EXACT METER PANEL INSTALLED. CONTRACTOR SHALL FIELD COORDINATE ADJUSTMENTS AND INFORM THE ENGINEER IF ANY UNUSUAL CONDITIONS ARE FOUND TO EXIST.

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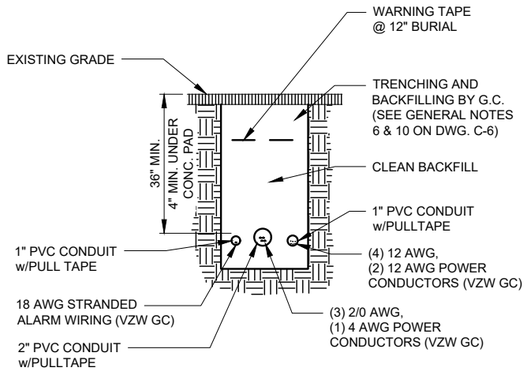
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SHEET TITLE
H-FRAME DETAILS

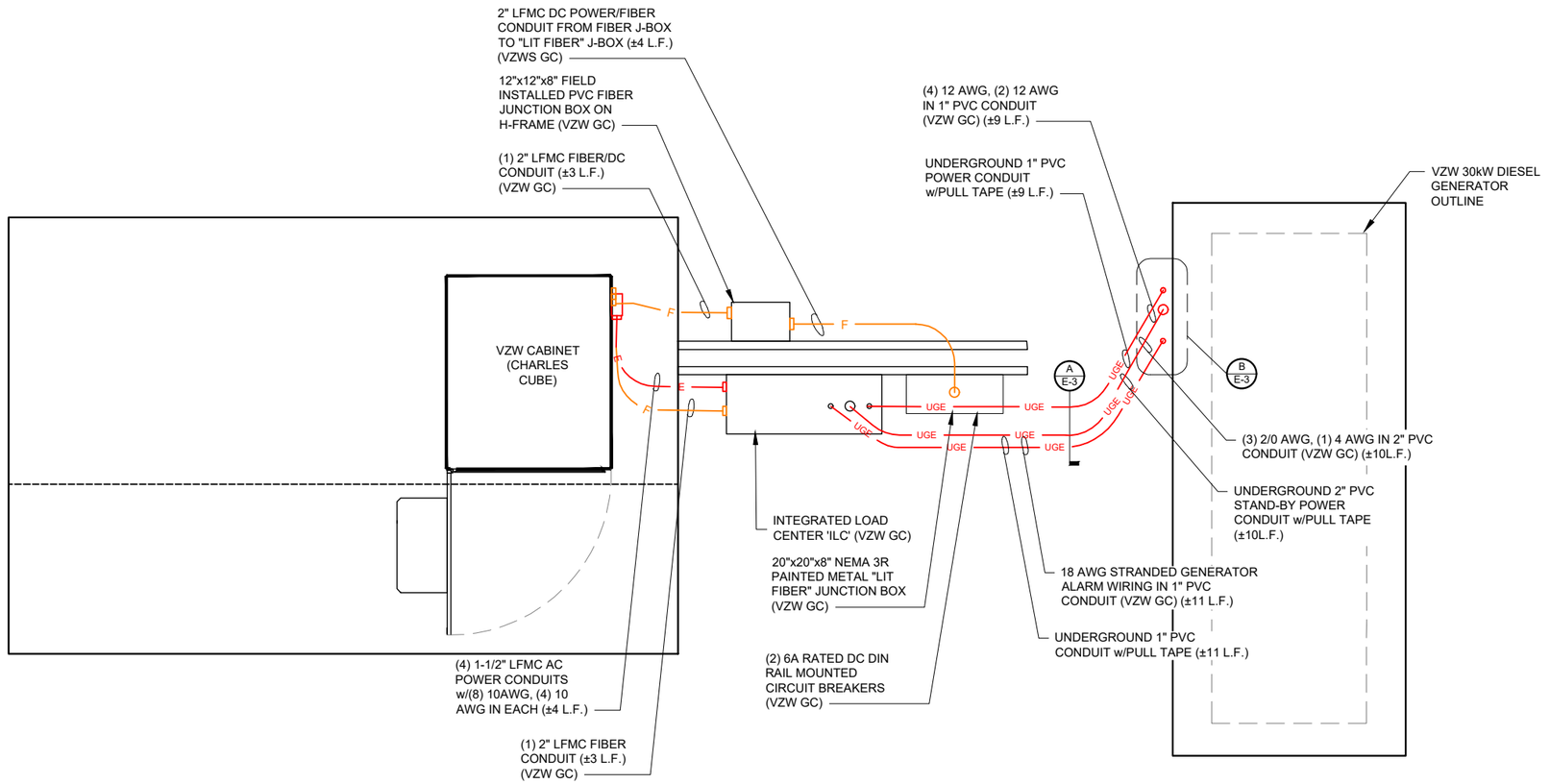
SHEET NUMBER
E-2A



A GENERATOR FEEDER TRENCH SECTION DETAIL
SCALE: N.T.S.

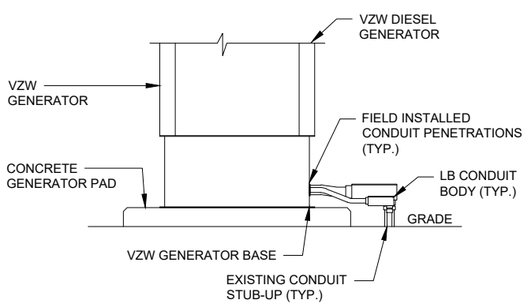
NOTE:
ALL GENERATOR CONDUITS SHALL BE STUBBED UP OUTSIDE THE CONCRETE GENERATOR PAD AND CAPPED WEATHER TIGHT FOR FUTURE INSTALLATION OF LB FITTINGS AND FLEX CONDUIT TO GENERATOR. CONTRACTOR SHALL FIELD DETERMINE THE APPROPRIATE LOCATION FOR CONDUIT PENETRATIONS INTO GENERATOR BASE. CONTRACTOR SHALL ENSURE ALL CONDUIT LOCATIONS DO NOT OBSTRUCT GENERATOR ACCESS DOORS AND PANELS. ALL FINAL CONDUIT CONNECTIONS TO GENERATOR SHALL BE WEATHER TIGHT.

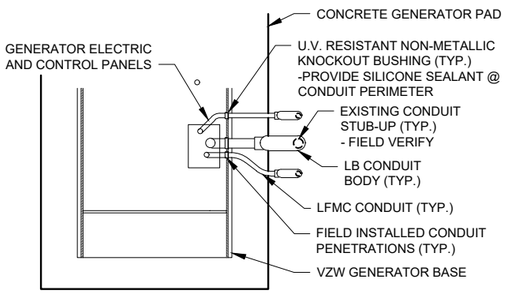
NOTE:
ALL GENERATOR CONDUITS SHALL BE INSTALLED AND CAPPED WEATHERTIGHT FOR FUTURE GENERATOR INSTALLATION IF REQUIRED



1 EQUIPMENT PAD UTILITY PLAN
SCALE: 1" = 1.25

REFER TO SITE PLAN FOR EQUIPMENT ORIENTATION





1 GENERATOR CONDUIT PENETRATION DETAIL
SCALE: N.T.S.

VERIZON CAT5 CABLE ALARM SCHEDULE	
CIRCUIT DESCRIPTION	CAT5 CABLE TERMINATIONS
ILC TO CABINET	(1) FOR DRY CONTACT TO 66 BLOCK
	(1) FOR SB RELAY TO ADVANCED ALARMING UNIT
ILC TO GENERATOR	(1) FOR DRY CONTACT/GENERATOR RUN COMMUNICATION BETWEEN ILC AND GENERATOR
GENERATOR TO CABINET	(1) FOR DRY CONTACT TO 66 BLOCK
	(1) FOR GENERATOR TO ADVANCED ALARMING UNIT

ELECTRICAL NOTES:

1. PROVIDE 6'-0" MAX. LIQUIDTIGHT FLEXIBLE METAL CONDUIT AT ALL EQUIPMENT AND GENERATOR CONNECTIONS.
2. ALL CONDUIT SHALL BE ROUTED WITHIN 2'-0" OF PERIMETER COMPOUND FENCE WHERE APPLICABLE.
3. CONDUIT TRENCH WIDTH SHALL NOT EXCEED 18" AT ALL ACCESS DRIVE LOCATIONS AND WHEN CROSSING THE COMPOUND GATE OPENING.
4. ALL CONDUIT RACEWAYS BETWEEN CABINETS AND EQUIPMENT ABOVE CONCRETE PAD SHALL BE LFMC WITH DIAMETER AS NOTED ON PLAN WITH WEATHERPROOF FITTINGS.
5. ALL GENERATOR CONDUITS SHALL BE INSTALLED REGARDLESS OF INITIAL GENERATOR INSTALLATION.

PREPARED FOR
TowerNorth
2400 ANSYS DRIVE, SUITE 102
CANONSBURG, PA 15317
SITEACCESS@TOWERNORTH.COM
1-800-821-5825x2

PLANS PREPARED BY:
TERRA CONSULTING GROUP
has joined Colliers Engineering & Design

CARRIER:
verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

REVISIONS

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3	ADDED EROSION CONTROL & SWAPPED GEN	01/027/26	APD
4	REVISED TOWER BASE SIZE	04/02/26	TJS
5	REVISED PER COMMENTS	05/13/26	PP
6	REVISED PER NEW TEMPLATE/ ISSUED FOR PERMIT	07/29/26	GD

SITE #IL1502-A
MDG LOC# 5000348752
FUZE ID: 17495287

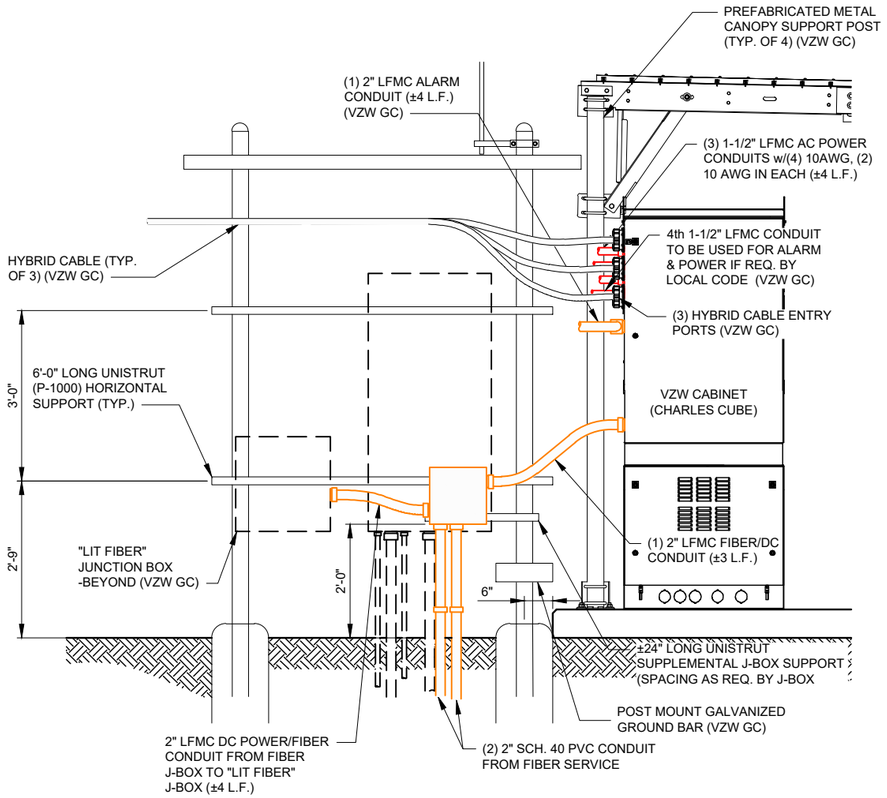
176 &
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McHENRY COUNTY

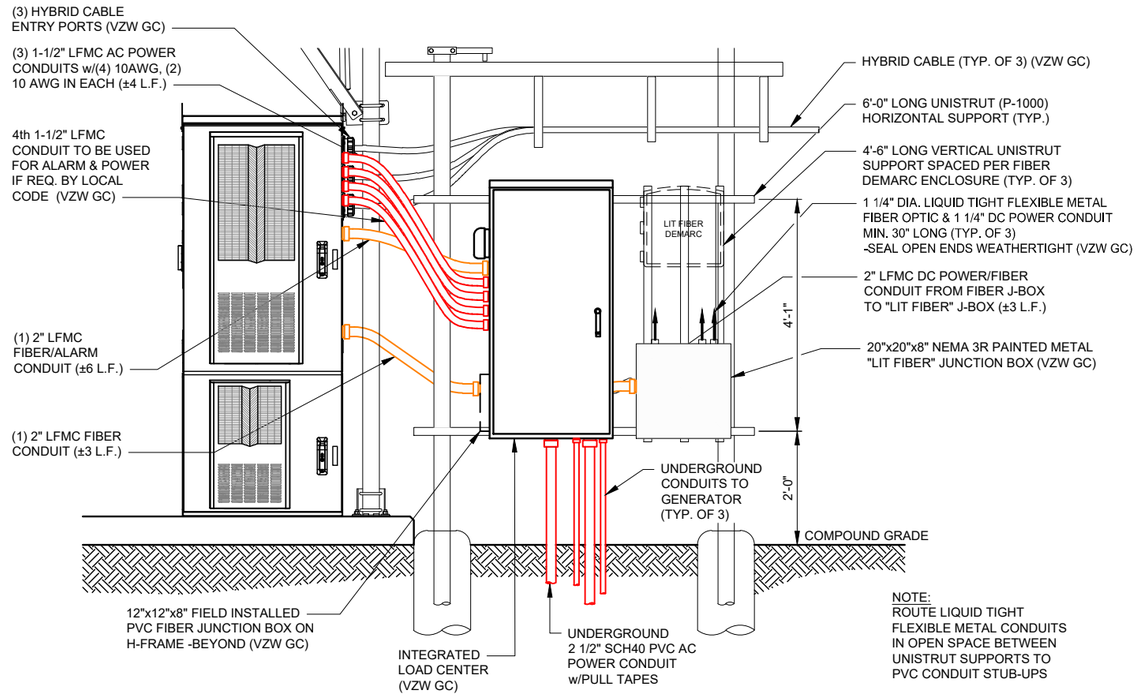
DRAWN BY:	GAD
CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

SHEET TITLE
EQUIPMENT PAD UTILITY PLAN & EQUIP. PAD TRENCH SECTIONS

SHEET NUMBER
E-3



1 OUTDOOR OVP EQUIPMENT ELEVATION (OVP SIDE) - REAR
SCALE: 3/4" = 1'-0"



2 OUTDOOR OVP EQUIPMENT ELEVATION (ILC SIDE) - FRONT
SCALE: 3/4" = 1'-0"

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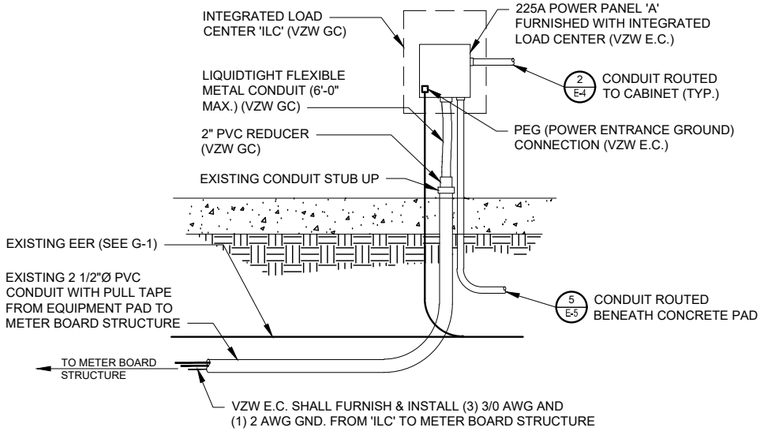
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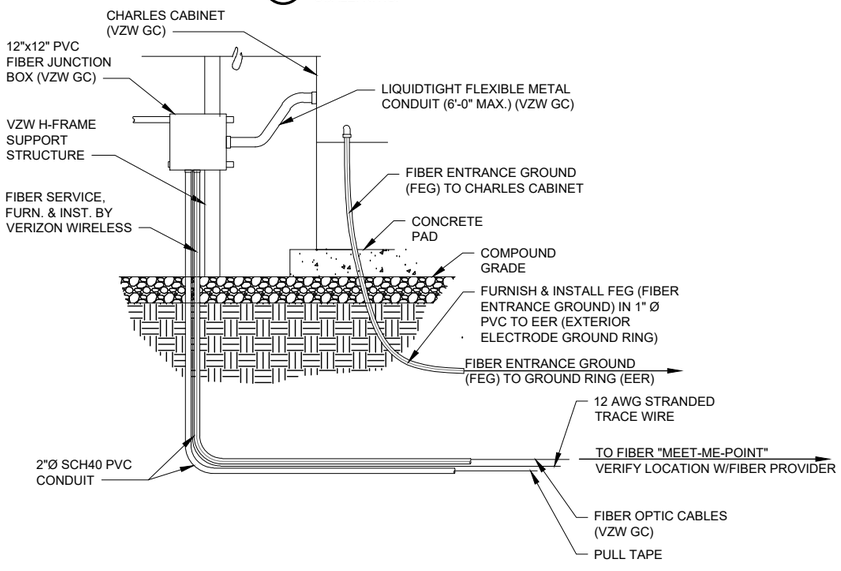
DRAWN BY:	GAD
CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

SHEET TITLE
OVP & INTEGRATED LOAD CENTER H-FRAME ELEVATIONS & DETAILS

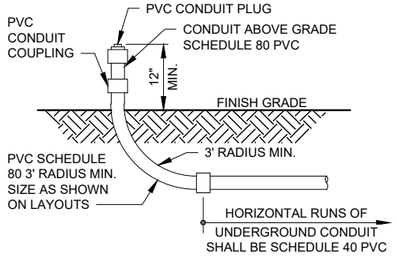
SHEET NUMBER
E-4



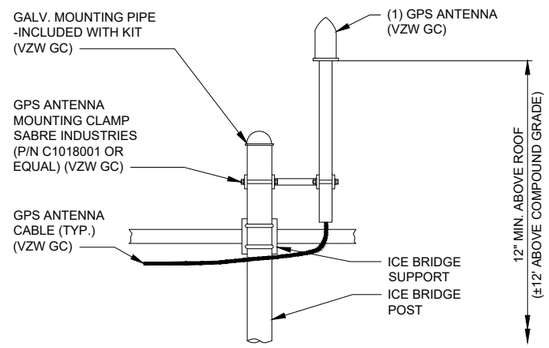
1 SERVICE ENTRANCE DETAIL
SCALE: N.T.S.



2 FIBER CONDUIT ENTRANCE DETAIL
SCALE: N.T.S.



3 UNDERGROUND CONDUIT STUB-UP DETAIL
SCALE: N.T.S.

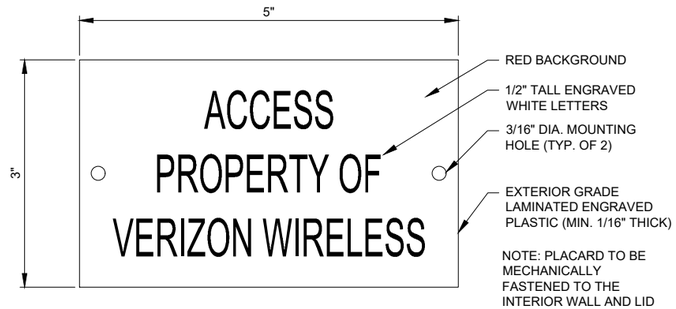


*ALL GPS ANTENNA INSTALLATION BY VZW GC

NOTE:
GPS ANTENNA MUST BE INSTALLED IN SUCH A MANNER AS TO PROVIDE A 360° CLEAR VIEW OF THE SKY AT ITS LOWEST MOUNTING POINT

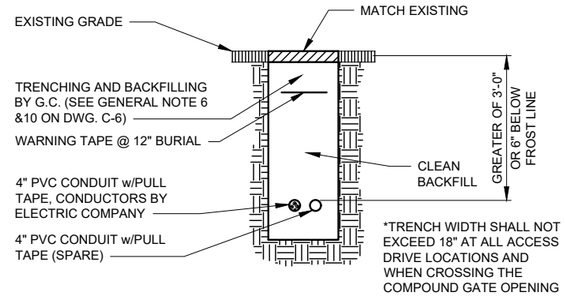
MINIMUM GPS ANTENNA HORIZONTAL IS MINIMUM ONE WAVELENGTH OF THE OPERATING FREQUENCY

4 GPS MOUNT DETAIL
SCALE: N.T.S.
(BY VZW GC)

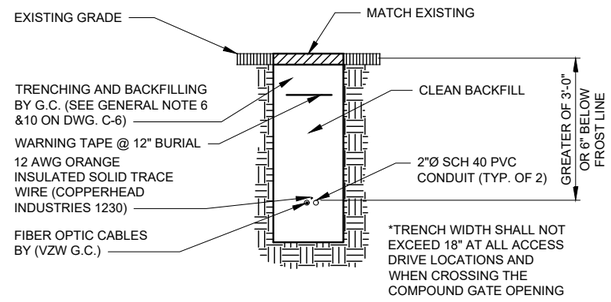


NOTE: PLACARD TO BE MECHANICALLY FASTENED TO THE INTERIOR WALL AND LID OF ALL VERIZON WIRELESS FIBER HAND HOLES

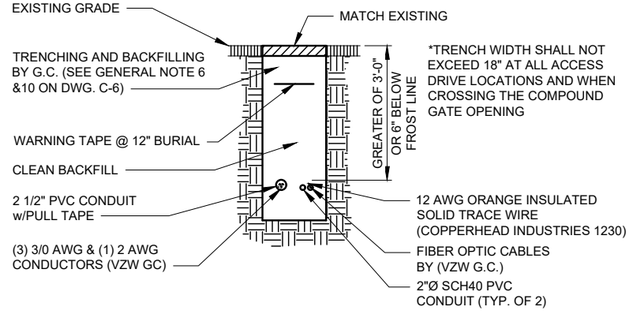
5 FIBER HAND HOLE PLACARD DETAIL
SCALE: N.T.S.
(BY VZW GC)



A SERVICE LATERAL TRENCH SECTION DETAIL
SCALE: N.T.S.



B FIBER TRENCH SECTION DETAIL
SCALE: N.T.S.



C JOINT SERVICES TRENCH SECTION DETAIL
SCALE: N.T.S.

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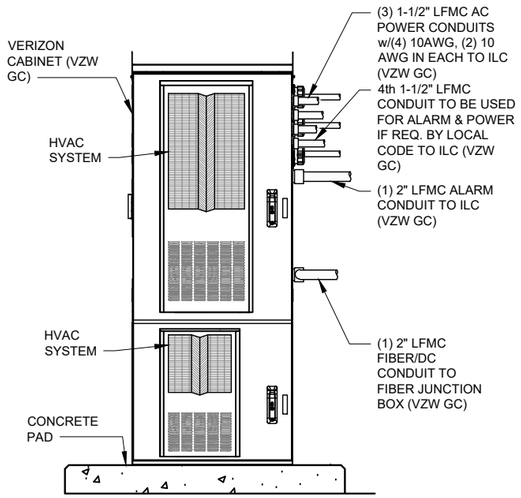
SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-5

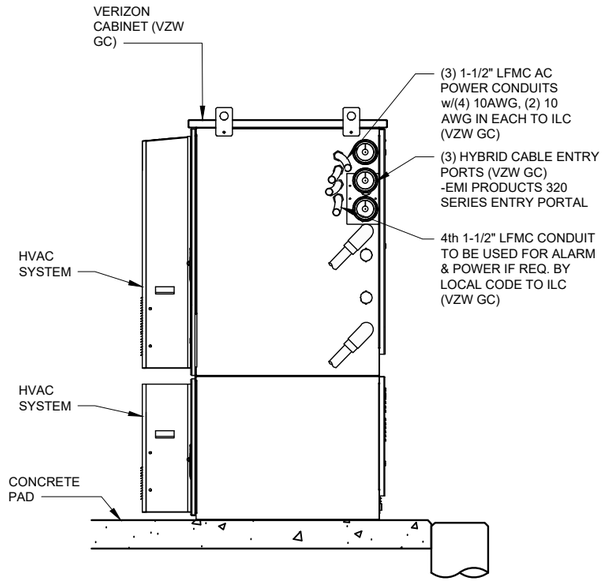
NOTE:
CONCRETE EQUIPMENT PAD TO HAVE 1% SLOPE AWAY FROM FRONT OF CABINET.
SEE DETAIL 1 ON SHEET S-1

NOTE:
FIBER OPTIC INNERDUCTS SHALL TERMINATE INSIDE VERIZON CABINET ONLY

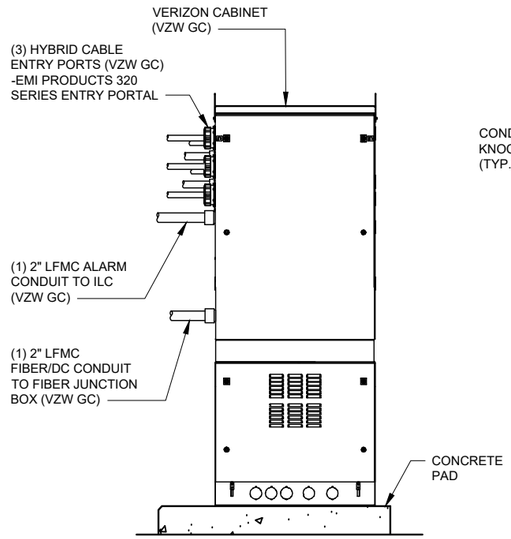
NOTE:
VERIFY INTERIOR EQUIPMENT LOCATION PRIOR TO JUNCTION BOX FASTENER INSTALLATION. NO SHARP FASTENER EDGES PERMITTED WITHIN VERIZON CABINET



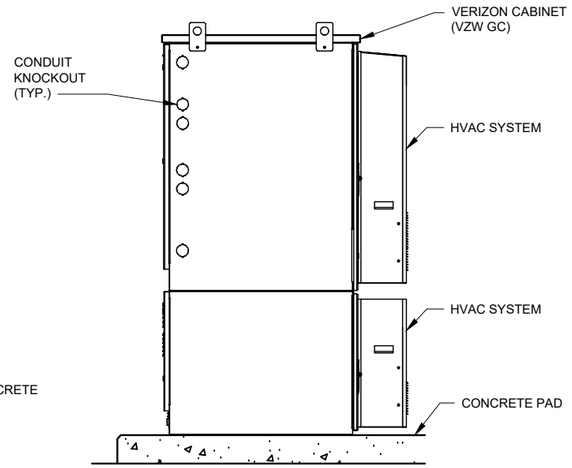
1 VERIZON CABINET FRONT ELEVATION
SCALE: N.T.S.



2 VERIZON CABINET RIGHT ELEVATION
SCALE: N.T.S.



3 VERIZON CABINET REAR ELEVATION
SCALE: N.T.S.



4 VERIZON CABINET LEFT ELEVATION
SCALE: N.T.S.

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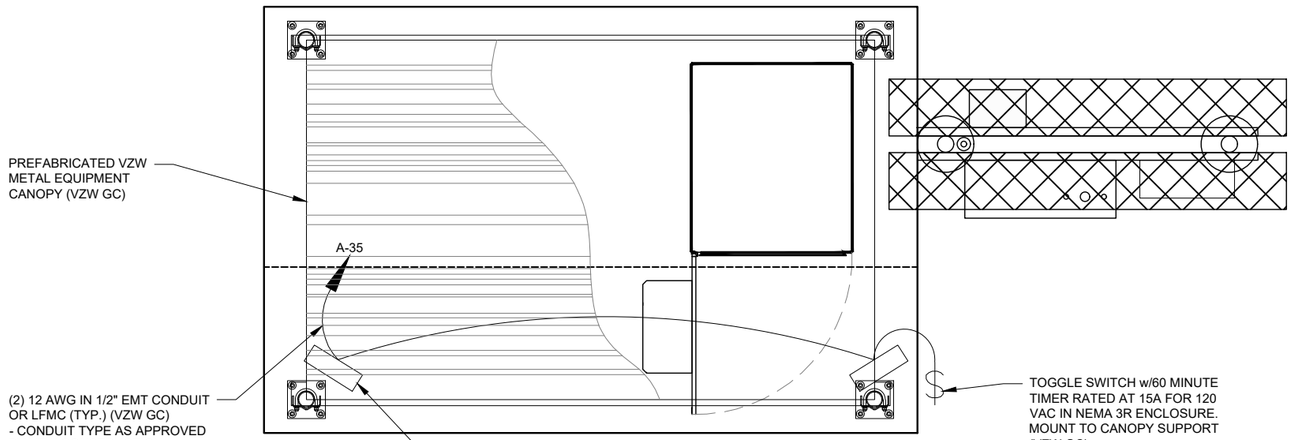
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CHECKED BY:	TAZ
DATE:	06/24/26
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SHEET TITLE
EQUIPMENT CABINET ELEVATIONS

SHEET NUMBER
E-6



1 EQUIPMENT PAD LIGHTING PLAN
SCALE: N.T.S.

REFER TO SITE PLAN FOR EQUIPMENT ORIENTATION

PREPARED FOR

TowerNorth

2400 ANSYS DRIVE, SUITE 102
CANONSBURG, PA 15317
SITEACCESS@TOWERNORTH.COM
1-800-821-5825x2

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DATE:	06/24/26
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SHEET TITLE
EQUIPMENT PAD LIGHTING PLAN

SHEET NUMBER
E-7

Alarm wiring table							
	RMX - 4000 Wiring Install on right side of panel when facing front of panel				Misc Wiring - left side of panel		
Alarm block Pos	Wire color	Alarm	RMX-4000	Wire Color	Wire Color	Alarm	Conn/Pos
1	White/Orange	Door Intrusion	1-4	White or Blue	Orange	Intrusion Alarm	
2	Orange				White Orange		
3	White/Green	Commercial Power Failure	1-4	White or Blue	N/A	N/A	
4	Green				N/A		
5	White/Blue	Surge Suppressor Lightning Arrestor	1-4	White or Blue	N/A	N/A	
6	Blue				N/A		
7	White/Brown	Rectifier Failure	1-4	White or Blue	Green/White	Rectifier Failure	J4 Pos 8
8	Brown				Red/Green		J4 Pos 18
9	White/Orange	Multiple Rectifier Failure	5-8	Red or Blue	White/Red	Multiple Rectifier Failure	J4 Pos 9
10	Orange				Red/White		J4 Pos 19
11	White/Green	Battery Discharge	5-8	Red or Blue	White	Battery Discharge	J4 Pos 4
12	Green				White/Black		J4 Pos 14
13	White/Blue	Low Voltage	5-8	Red or Blue	Black	Low Voltage	J4 Pos 5
14	Blue				Black/White		J4 Pos 15
15	White/Brown	DC Power Failure	5-8	Red or Blue	Blue/White	Fuse	J4 Pos 6
16	Brown				Red/Black	High Voltage	J4 Pos 20
17	White/Orange	Generator Running	9-12	Black or Blue	N/A	N/A	
18	Orange				N/A		
19	White/Green	Generator Low Fuel	9-12	Black or Blue	N/A	N/A	
20	Green				N/A		
21	White/Blue	Generator Failure	9-12	Black or Blue	N/A	N/A	
22	Blue				N/A		
23	White/Brown	HVAC Failure	9-12	Black or Blue	Black	HVAC Failure	
24	Brown				White/Blue		
25	White/Orange	High Temp	13-16	Yellow or Blue	Green	Overheat Alarm	
26	Orange				White/Green		
27	White/Green	Low Temp	13-16	Yellow or Blue	N/A	N/A	
28	Green				N/A		
29	White/Blue	Tower Light	13-16	Yellow or Blue	N/A	N/A	
30	Blue				N/A		
31	White/Brown	Tower Light Side	13-16	Yellow or Blue	N/A	N/A	
32	Brown				N/A		
33	White/Orange	Raycap Upconverter Failure	17-20	Violet or Blue	White/Blue	RRH Upconverter Failure	
34	Orange				Blue		
35	White/Green	Raycap Power Failure	17-20	Violet or Blue	N/A	N/A	
36	Green				N/A		
37	White/Blue	Raycap High Humidity	17-20	Violet or Blue	N/A	N/A	
38	Blue				N/A		
39	White/Brown	Raycap Intrusion	17-20	Violet or Blue	N/A	N/A	
40	Brown				N/A		
41	White/Orange	Smoke Fire	21-24	Blue	N/A	N/A	
42	Orange				N/A		
43	White/Green	Bus Bar Theft	21-24	Blue	N/A	N/A	
44	Green				N/A		
45	White/Blue	N/A	21-24	Blue	N/A	N/A	
46	Blue				N/A		
47	White/Brown	N/A	21-24	Blue	N/A	N/A	
48	Brown				N/A		
49	White/Orange	Microwave Critical	25-28	Orange or Blue	N/A	N/A	
50	Orange				N/A		
51	White/Green	Microwave Major	25-28	Orange or Blue	N/A	N/A	
52	Green				N/A		
53	White/Blue	Dehydrator Alarm	25-28	Orange or Blue	N/A	N/A	
54	Blue				N/A		
55	White/Brown	Fire Suppression Discharge	25-28	Orange or Blue	N/A	N/A	
56	Brown				N/A		
57	White/Orange	Fire Suppression Trouble	29-32	Green or Blue	N/A	N/A	
58	Orange				N/A		
59	White/Green	Secondary HVAC Running	29-32	Green or Blue	N/A	N/A	
60	Green				N/A		
61	White/Blue	Explosive gas	29-32	Green or Blue	N/A	N/A	
62	Blue				N/A		
63	White/Brown	High Humidity	29-32	Green or Blue	N/A	N/A	
64	Brown				N/A		
65-84	N/A	N/A	N/A	N/A	N/A	N/A	

1 ALARM WIRING TABLE
SCALE: N.T.S.



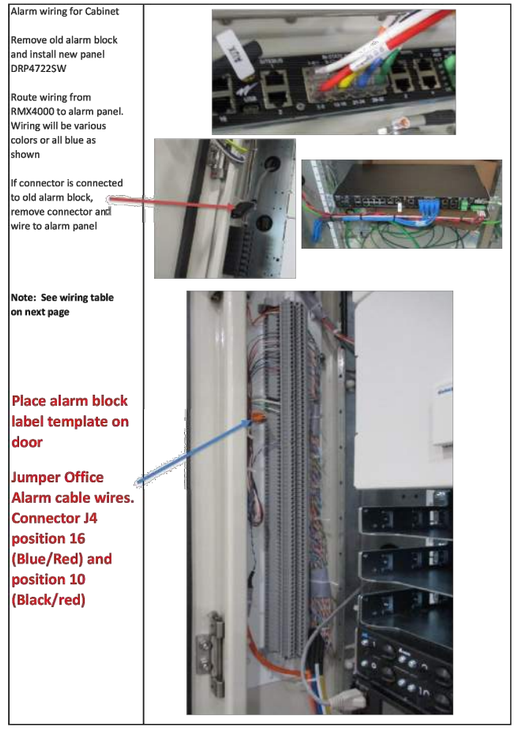
2 INTEGRATED LOAD CENTER INTERIOR DETAIL
SCALE: N.T.S.



3 INTEGRATED LOAD CENTER "SURGE" & "COMMERCIAL POWER" DETAIL
SCALE: N.T.S.



4 GENERATOR ALARM PANEL DETAIL
SCALE: N.T.S.



5 ALARM WIRING CONNECTIONS
SCALE: N.T.S.

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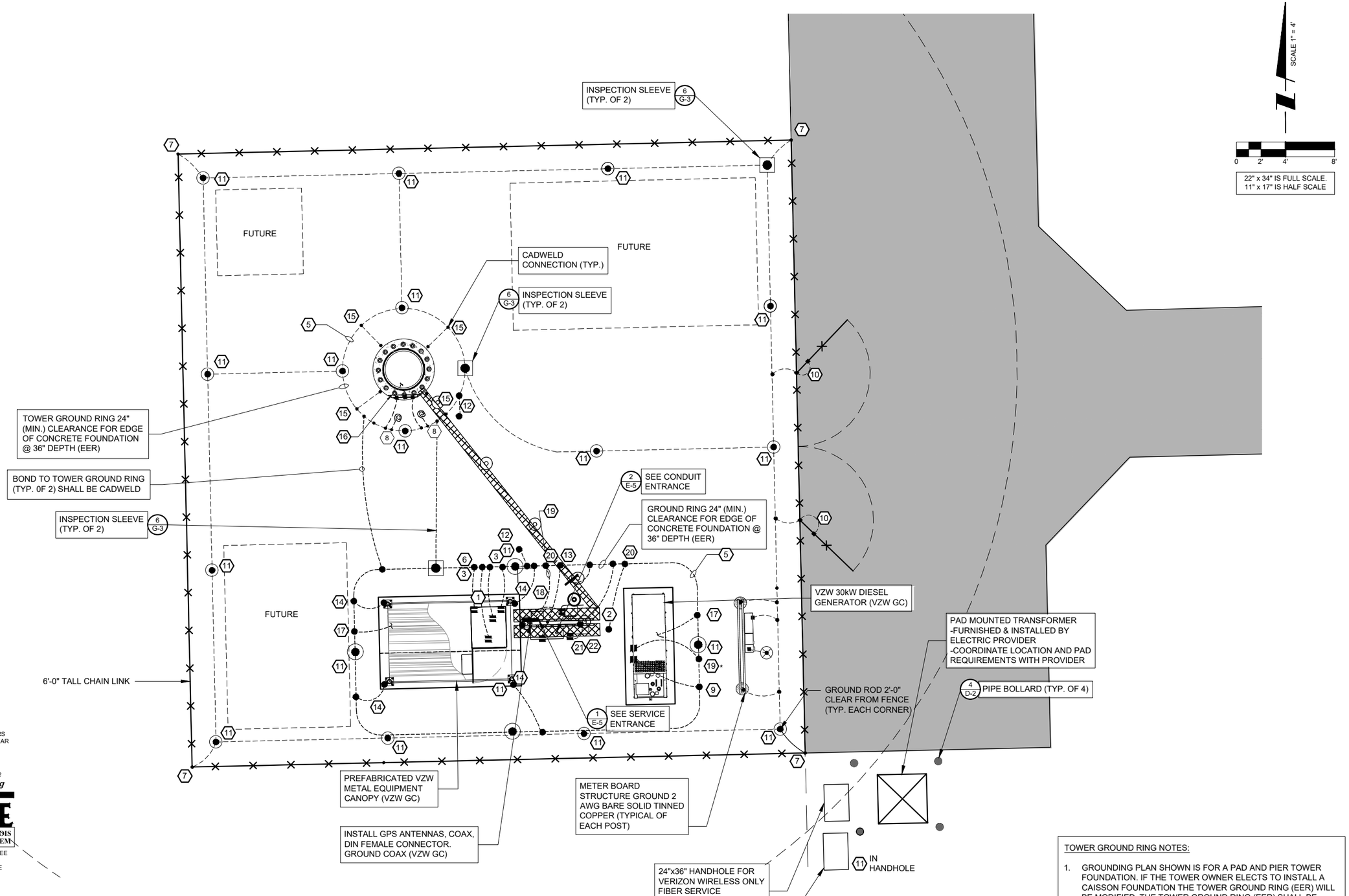
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SHEET TITLE
ALARMING TABLE, WIRING, DIAGRAMS AND DETAILS

SHEET NUMBER
E-8



1 GROUNDING SITE PLAN
SCALE: 1" = 4'-0"

OPERATES 24 HOURS
A DAY 365 DAYS A YEAR

Call Before You Dig
JULIE
ILLINOIS ONE CALL SYSTEM
CALL JULIE TOLL FREE
1(800) 892-0123
48 HOURS BEFORE
YOU DIG

NOTES:
1. ALL ABOVE GRADE GROUND LEADS TO BE INSTALLED IN 1/2" NON-CONDUCTIVE FLEXIBLE PVC CONDUIT WITH ANTI-THEFT COMPOUND.
2. COORDINATE ICE BRIDGE POST GROUND LEAD INSTALLATION WITH ICE BRIDGE POST LOCATIONS ON SHEET S-1.
3. SEE SHEET G-3 FOR GROUNDING KEYED NOTES.

TOWER GROUND RING NOTES:

1. GROUNDING PLAN SHOWN IS FOR A PAD AND PIER TOWER FOUNDATION. IF THE TOWER OWNER ELECTS TO INSTALL A CAISSON FOUNDATION THE TOWER GROUND RING (EER) WILL BE MODIFIED. THE TOWER GROUND RING (EER) SHALL BE INSTALLED PER VERIZON WIRELESS STANDARDS. 24" MIN. CLEARANCE FROM THE TOWER FOUNDATIONS AT 36" MIN. BELOW GRADE.
2. ALL GROUND RODS SHALL BE INSTALLED PER VERIZON WIRELESS STANDARDS.
3. ALL GROUND LEADS DEPICTED ON THIS PLAN SHALL BE MODIFIED TO CONNECT TO THE MODIFIED TOWER GROUND RING (EER) LOCATION.

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TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	10/06/25	TJS
1	ADDITION OF LANDSCAPE PLAN	10/10/25	TJS
2	UPDATE WITH POWER COORDINATION	12/18/25	JJR
3	ADDED EROSION CONTROL & SWAPPED GEN	01/02726	APD
4	REVISED TOWER BASE SIZE	04/02/26	TJS
5	REVISED PER COMMENTS	05/13/26	PP
6	REVISED PER NEW TEMPLATE/ ISSUED FOR PERMIT	07/29/26	GD

SITE #IL1502-A
MDG LOC# 5000348752
FUZE ID: 17495287

176 & HALIGUS - A

MT. THABOR ROAD
CRYSTAL LAKE, IL 60014
McHENRY COUNTY

DRAWN BY:	GAD
CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

SHEET TITLE
GROUNDING SITE PLAN

SHEET NUMBER
G-1

TOWER OWNER GROUNDING KEYED NOTES

1. BBG: FURN. & INST. 1 - 2/0 AWG INSULATED STRANDED COPPER GND. WIRE FOR BATTERY BAY GROUND (BBG) TO (EER). COIL UP 6' ABOVE GRADE. CONNECTION TO (EER) SHALL BE CADWELD.
2. CEPSG: FURN. & INST. 1 - 2 AWG BARE SOLID TINNED COPPER GND. WIRE FOR CEPSG POST TO (EER). CONNECTION (EER) SHALL BE CADWELD.
3. CG: FURN. & INST. 2 - 2 AWG BARE SOLID TINNED COPPER GND. WIRE FOR CABINET GROUND (CG) TO (EER). COIL UP 6' ABOVE GRADE. CONNECTION (EER) SHALL BE CADWELD.
4. CSG: FURN. & INST. 1 - 2 AWG BARE SOLID TINNED COPPER GND WIRE FOR ICE BRIDGE CHANNEL TO (EER). CONNECTION (EER) SHALL BE CADWELD.
5. EER: FURN. & INST. 2 AWG BARE SOLID TINNED COPPER BURIED EXTERIOR ELECTRODE GROUND RING (EER) AROUND RADIO EQUIPMENT PAD AND TOWER BURIED AT 36" OR 6" BELOW FROST LINE (WHICHEVER IS GREATER). MAINTAIN 24" FROM EQUIPMENT PAD AND TOWER FOUNDATIONS MINIMUM.
6. FEG: FURN. & INST. 1 - 2 AWG BARE SOLID TINNED COPPER GND. WIRE FOR FIBER ENTRANCE GROUND (FEG) TO (TGE). COIL UP 10' ABOVE GRADE. CONNECTION TO (EER) SHALL BE CADWELD.
7. FG: FURN. & INST. 1 - 2 AWG BARE SOLID TINNED COPPER GND WIRE FROM FENCING TO GROUND RING (EER). CONNECTION TO FENCING SHALL BE AT THE BASE OF FENCE POST USING CADWELD AND WEAVE GND. WIRE THRU FABRIC AND ATTACH TO TOP RAIL WITH CADWELD. CONNECTION TO (EER) SHALL BE CADWELD.
8. FTWGL: FURN. & INST. FUTURE TOWER WAVEGUIDE GROUND BAR LEADS. CONTRACTOR SHALL COIL UP TEN (10') OF 2 AWG SOLID TINNED COPPER GROUND (TYP.)
9. GEG: FURN. & INST. 1 - 2 AWG BARE SOLID TINNED COPPER GND. WIRE FOR THE GENERATOR ENCLOSURE TO (EER). COIL UP 6' ABOVE GRADE. CONNECTION (EER) SHALL BE CADWELD. *GENERATOR SERVICE GROUND WHERE REQUIRED BY JURISDICTION HAVING AUTHORITY
10. GG: FURN. & INST. 1 - 2 AWG BARE SOLID TINNED COPPER GND WIRE AT EACH GATE POST AND PROVIDE GROUND WIRE TO BONDING JUMPER FROM GATE POST TO FENCE POST.
11. GRE: FURN. & INST. GROUND RODS TO 36" BELOW FINISH GRADE (OR 6" BELOW FROST LINE, WHICHEVER IS GREATER) AT A MINIMUM SPACING OF 10'-0" AT RADIO EQUIPMENT PAD, TOWER AND SITE EXTERIOR GROUND SYSTEM. CONNECTION TO (EER) SHALL BE CADWELD. REFER TO DETAIL 5 ON SHEET G-3.
12. IBSG: FURN. & INST. 1 - 2 AWG BARE SOLID TINNED COPPER GND. WIRE FROM ICE BRIDGE SUPPORT POST TO (EER). CONNECTION (EER) SHALL BE CADWELD. SEE SHEET S-2 FOR ICE BRIDGE POST LOCATIONS.
13. PEG: FURN. & INST. 1 - 2 AWG BARE SOLID TINNED COPPER GND. WIRE FOR THE 'ILC' GROUND BAR TO (EER). COIL UP 6' ABOVE GRADE. CONNECTION (EER) SHALL BE CADWELD.
14. PCSG: FURN. & INST. 1 - 2 AWG BARE SOLID TINNED COPPER GND. WIRE FOR EACH PAD CANOPY SUPPORT BASE TO (EER). COIL UP 6' ABOVE GRADE. CONNECTION TO (EER) SHALL BE CADWELD.
15. TBG: FURN. & INST. 1- 2 AWG BARE SOLID TINNED COPPER GND. WIRE FROM TOWER LEG BASE PLATE TO (EER). CONNECTION TO TOWER LEG BASE PLATE SHALL BE CADWELD OR MECHANICAL TO LEG AND (EER) SHALL BE CADWELD.
16. TWG: BY VZW E.C.
17. UG: FURN. & INST. 1 - 2 AWG BARE SOLID TINNED COPPER GND. WIRE (UFER GROUND) FOR PAD FOUNDATION REINFORCEMENT STEEL CONNECTION TO (EER) SHALL BE CADWELD. PROVIDE HEAT SHRINK TUBING OR ELECTRICAL TAPE PROTECTION FOR CONDUCTOR AT TRANSITION BETWEEN CONCRETE AND SOIL.
18. OGA: BY VZW E.C.
19. OGL: BY VZW E.C.
20. OHG: FURN. & INST. 2 - 2 AWG BARE SOLID TINNED COPPER GND. WIRE FOR THE 'OVP' H-FRAME TO (EER). (TYP. OF 2 POSTS). CONNECTION (EER) SHALL BE CADWELD.
21. OSF: BY VZW E.C.
22. OSG: BY VZW E.C.

TOWER OWNER GROUNDING NOTES

1. ALL UNDERGROUND CONNECTIONS ON THE LIGHTNING PROTECTION SYSTEM SHALL BE EXOTHERMIC WELDED USING THE CADWELD PROCESS. THE TOWER OWNER E.C. SHALL FURN. & INST. ALL THESE CONNECTIONS, INCLUDING WELD METALS, MOLDS AND TOOLS. THE TOWER OWNER E.C. SHALL FURN. & INST. 5/8" x 10' COPPER CLAD STEEL (COPPER JACKET 0.0012" MIN.) GROUND RODS, DRIVEN VERTICAL TO 36" BELOW FIN. GRADE (OR 6" BELOW FROSTLINE, WHICHEVER IS GREATER) @ 10'-0" O.C. MINIMUM.
2. THE TOWER OWNER E.C. SHALL FURN. & INST. 2 AWG BARE SOLID TINNED COPPER GND. WIRE AT A DEPTH OF 36" BELOW FIN. GRADE FOR THE EQUIPMENT PAD (EER) AND ICE BRIDGE (CSG).
3. ALL EXTERIOR GND. CONNECTIONS SHALL BE EXOTHERMIC CADWELD (U.N.O).
4. UPON COMPLETION OF THE EQUIPMENT PAD GROUNDING RING AND BEFORE BONDING TO THE TOWER GROUND RING, THE TOWER OWNER E.C. SHALL MEGGER TEST THIS GROUNDING FIELD. THE REQUIRED RESISTANCE LEVEL IS 5 OHMS OR LESS. THE TOWER OWNER E.C. SHALL NOTIFY THE ENGINEER IF THESE REQUIREMENTS ARE NOT ACHIEVED. THE TOWER OWNER E.C. SHALL SUBMIT PRICING TO TOWER OWNER FOR THE INSTALLATION OF ADDITIONAL GROUND RODS REQUIRED FOR PROPER RESISTANCE. UPON APPROVAL FROM TOWER OWNER, THE TOWER OWNER E.C. SHALL INSTALL ADDITIONAL GROUND RODS AS REQUIRED. AFTER PASSING TEST, THE TOWER OWNER E.C. SHALL BOND THE EQUIPMENT PAD RING TO THE TOWER RING. THE TOWER OWNER E.C. SHALL NOTIFY VERIZON WIRELESS CONSTRUCTION MANAGER AND TOWER OWNER CONSTRUCTION MANAGER 48 HOURS PRIOR TO BACKFILLING TRENCHES, POURING CONCRETE FOR FOUNDATIONS, TO INSPECT BONDS AND INSPECT ANY/ALL BREAKS AND REPAIRS TO THE GROUND RING.
5. GROUND SYSTEM SHALL BE VISUALLY INSPECTED BY A TOWER OWNER AND VERIZON WIRELESS CONSTRUCTION ENGINEER BEFORE BACKFILLING IF REQUESTED.
6. NO SHARP 90° BENDS SHALL BE USED. A LONG SWINGING RADIUS BEND REQUIRED.
7. ALL EQUIPMENT PAD AND EQUIPMENT GROUNDING SHALL BE IN ACCORDANCE WITH VERIZON WIRELESS SPECIFICATIONS.
8. ALL ABOVE GROUND BARE COPPER CONDUCTORS BELOW 10' ABOVE GRADE SHALL BE INSTALLED IN FLEXIBLE PVC CONDUIT. CONDUIT SHALL BE FILLED WITH THEFT DETERRENT COMPOUND (ELECTRIC MOTION COMPANY ANTI-THEFT COMPOUND EM-5101).
9. CONNECTION OF COPPER CONDUCTORS TO GALVANIZED METAL OR ALUMINUM SHALL BE AVOIDED. BRASS OR STAINLESS STEEL LUGS OR BARS SHALL BE USED FOR THESE CONNECTIONS.
10. BARE COPPER CONDUCTORS SHALL NOT BE INSTALLED WHERE THEY MAY BE IN CONTACT WITH GALVANIZED METALS. THE CONDUCTORS SHALL BE INSULATED OR ENCLOSED IN PVC CONDUIT, PLASTIC SEALTIGHT OR INSTALLED WITH STANDOFF SUCH THAT NO CONTACT BETWEEN DISSIMILAR METALS MAY TAKE PLACE.

LEGEND	
BBG	BATTERY BAY GROUND
CEPSG	COAX ENTRY PROTECTION SYSTEM GROUND
CG	CABINET GROUND
CSG	CABLE SUPPORT GROUND
EER	BURIED EXTERIOR ELECTRODE GROUND RING
EGC	EQUIPMENT GROUNDING CONDUCTOR (NEC DESIGNATION)
FEG	FIBER ENTRANCE GROUND
FG	FENCE GROUND
FTWGL	FUTURE TOWER WAVEGUIDE GROUND LEAD
GEC	GROUNDING ELECTRODE CONDUCTOR (NEC DESIGNATION)
GEG	GENERATOR ENCLOSURE GROUND
GES	GROUNDING ELECTRODE SYSTEM (NEC DESIGNATION)
GG	GATE GROUND
GRE	GROUND ROD ELECTRODE
IBSG	ICE BRIDGE SUPPORT GROUND
OGA	OVP GROUND ASSEMBLY
OGL	OVP GROUND LEAD
OHG	OVP H-FRAME SUPPORT GROUND
OSF	OPTICAL FIBER FUTURE SERVICE GROUND
OSG	OPTICAL FIBER SERVICE GROUND
PEG	POWER ENTRANCE GROUND
PCSG	PAD CANOPY SUPPORT GROUND DOWN LEAD
TBG	TOWER BASE GROUND
TWG	TOWER WAVEGUIDE GROUND ASSEMBLY
UG	UFER GROUND (PIER FOUNDATION)
●	CABLE TO CABLE CADWELD CONNECTION
◉	CABLE TO GND. ROD CADWELD CONNECTION
⊠	TEST WELL
◙	INSPECTION PORT CABLE TO CABLE CADWELD CONNECTION

PREPARED FOR
TowerNorth
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CANONSBURG, PA 15317
SITEACCESS@TOWERNORTH.COM
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PLANS PREPARED BY:
TERRA CONSULTING GROUP
has joined Colliers Engineering & Design

CARRIER:
verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
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6	REVISED PER NEW TEMPLATE/ ISSUED FOR PERMIT	07/29/26	GD

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HALIGUS - A

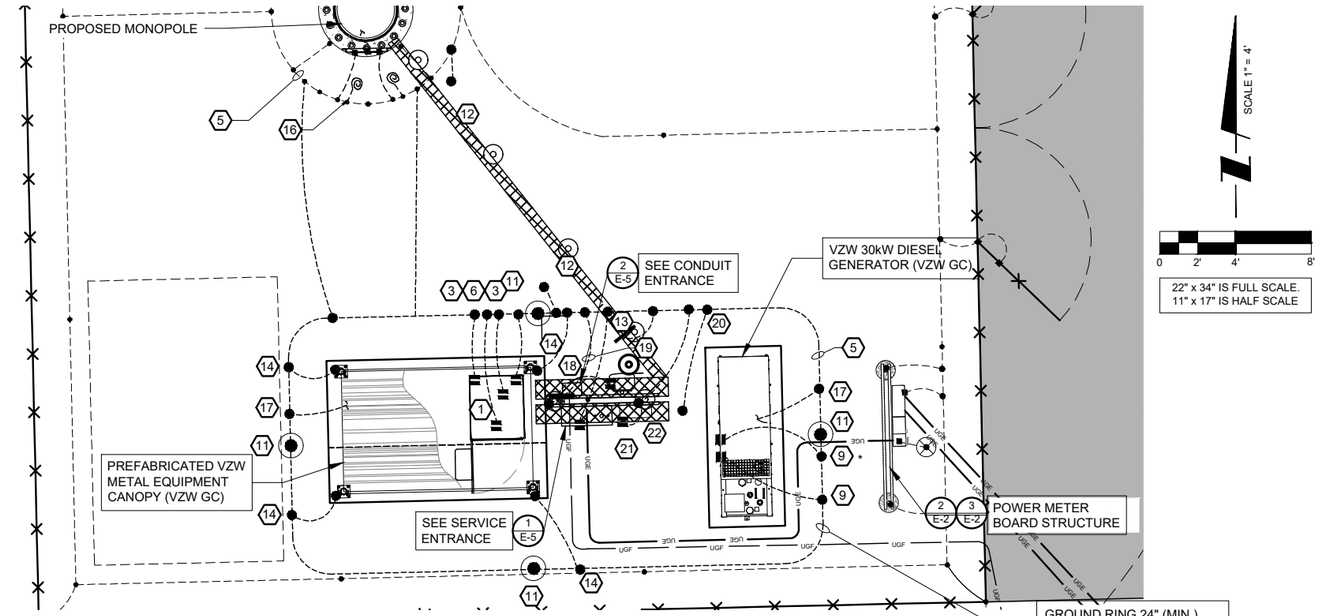
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CRYSTAL LAKE, IL 60014
McHENRY COUNTY

DRAWN BY:	GAD
CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

SHEET TITLE
GROUNDING NOTES

SHEET NUMBER
G-2

LEGEND	
BBG	BATTERY BAY GROUND
CEPSG	COAX ENTRY PROTECTION SYSTEM GROUND
CG	CABINET GROUND
CSG	CABLE SUPPORT GROUND
EER	BURIED EXTERIOR ELECTRODE GROUND RING
EGC	EQUIPMENT GROUNDING CONDUCTOR (NEC DESIGNATION)
FEG	FIBER ENTRANCE GROUND
FG	FENCE GROUND
FTWGL	FUTURE TOWER WAVEGUIDE GROUND LEAD
GEC	GROUNDING ELECTRODE CONDUCTOR (NEC DESIGNATION)
GEG	GENERATOR ENCLOSURE GROUND
GES	GROUNDING ELECTRODE SYSTEM (NEC DESIGNATION)
GG	GATE GROUND
GRE	GROUND ROD ELECTRODE
IBSG	ICE BRIDGE SUPPORT GROUND
OGA	OVP GROUND ASSEMBLY
OGL	OVP GROUND LEAD
OHG	OVP H-FRAME SUPPORT GROUND
OSF	OPTICAL FIBER FUTURE SERVICE GROUND
OSG	OPTICAL FIBER SERVICE GROUND
PEG	POWER ENTRANCE GROUND
PCSG	PAD CANOPY SUPPORT GROUND DOWN LEAD
TBG	TOWER BASE GROUND
TWG	TOWER WAVEGUIDE GROUND ASSEMBLY
UG	UFER GROUND (PIER FOUNDATION)
●	CABLE TO CABLE CADWELD CONNECTION
◉	CABLE TO GND. ROD CADWELD CONNECTION
⊠	TEST WELL
▣	INSPECTION PORT CABLE TO CABLE CADWELD CONNECTION



1 VERIZON WIRELESS GROUNDING PLAN
SCALE: 1" = 4'-0"

SCALE 1" = 4'
0 2' 4' 8'
22" x 34" IS FULL SCALE.
11" x 17" IS HALF SCALE

VERIZON WIRELESS GROUNDING KEYED NOTES

1. BBG: VZW E.C. SHALL CONNECT 1 - 2/0 AWG INSULATED STRANDED COPPER GND. WIRE COILED UP BY THE TOWER OWNER E.C. FOR THE BATTERY BAY GROUND (BBG). CONNECTION TO THE GROUND BAR IN THE BATTERY BAY SHALL BE MECHANICAL. ROUTE LEAD IN LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT w/ANTI-THEFT COMPOUND. CONNECTION TO (EER) SHALL BE CADWELD.
2. CEPSG: VZW E.C. SHALL FURNISH & INSTALL A THEFT DETERRENT GROUND POST ASSEMBLY FOR THE COAX ENTRY PROTECTION SYSTEM TO THE POST. CONNECT THE 2 AWG BARE SOLID TINNED COPPER COILED UP BY TOWER OWNER E.C. TO THE POST. THE CONNECTION TO POST SHALL BE CADWELD. SEE DETAIL 1 & 4 ON SHEET G-4 FOR DETAILS.
3. CG: VZW E.C. SHALL FURNISH & INSTALL TWO HOLE LONG BARREL LUGS ON EXISTING 2 AWG BARE TINNED COPPER LEADS. VZW E.C. SHALL FURNISH & INSTALL DRAGON TOOTH WASHERS AND #8 STAINLESS STEEL FASTENERS ON ALL EQUIPMENT CABINET EXTERIOR GROUND LOCATIONS (TYP. 2 PER CABINET). REMOVE ALL SURFACE PAINT AND USE ANTIOXIDENT COMPOUND BETWEEN METAL AND WASHER. ALL LEADS SHALL BE DRESSED TO REDUCE TRIP HAZARDS. DETAIL 3 ON SHEET G-4 FOR DETAILS. CONNECTION TO (EER) SHALL BE CADWELD.
4. CSG: FURN. & INST. 1 - 2 AWG BARE SOLID TINNED COPPER GND. WIRE FOR ICE BRDGE CHANNEL TO (EER). CONNECTION (EER) SHAL BE CADWELD.
5. EER: FURN. & INST. 1 - 2 AWG BARE SOLID TINNED COPPER BURIED EXTERIOR ELECTRODE GROUND RING (EER) AROUND RADIO EQUIPMENT PAD AND TOWER BURIED AT 36" IR 6" BELOW FROST LINE 9WHICHEVER IS GREATER). MAINTAIN 24" FROM EQUIPMENT PAD AND TOWER FOUNDATIONS MINIMUM.
6. FEG: VZW E.C. SHALL BRING THE 2 AWG BARE SOLID TINNED COPPER GND. WIRE FOR (FIBER ENTRANCE GROUND) INTO THE POWER PLANT CABINET AND MAKE A MECHANICAL CONNECTION TO THE FIBER SERVICE GROUND POINT. ROUTE LEAD IN FLEXIBLE NONMETALLIC CONDUIT w/ANTI-THEFT COMPOUND. CONNECTION TO (EER) SHALL BE CADWELD.
7. FG: FURN. & INST. 1 - 2 AWG BARE SOLID TINNED COPPER GND. WIRE FROM NEW FENCING TO GROUND RING (EER). CONNECTION TO FENCING SHALL BE AT THE BASE OF FENCE POST USING CADWELD AND WEAVE GND, WIRE THRU FABRIC AND ATTACH TO TOP RAIL WITH CADWELD. CONNECTION TO (EER) SHALL BE CADWELD
8. -
9. GEG: VZW E.C. SHALL CONNECT 1 - 2 AWG BARE SOLID TINNED COPPER GND. WIRE FOR THE GENERATOR ENCLOSURE. CONNECTION TO GENERATOR ENCLOSURE SHALL BE MECHANICAL. ROUTE LEAD IN FLEXIBLE NONMETALLIC CONDUIT w/ANTI-THEFT COMPOUND. "GENERATOR SERVICE GROUND WHERE REQUIRED BY JURISDICTION HAVING AUTHORITY
10. GG: FURN. & INST. 1 - 2 AWG BARE SOLID TINNED COPPER GND. WIRE AT EACH GATE POST AND PROVIDE GROUND WIRE TO BONDING JUMPER FROM GATE POST TO FENCE POST
11. GRE: FURN. & INST. GROUND RODS TO 36" BELOW FINISH GRADE (OR 6" BELOW FROST LINE, WHICHEVER IS GREATER) AT A MINIMUM SPACING OF 10'-0" AT RADIO EQUIPMENT PAD, TOWER AND SITE EXTERIOR GROUND SYSTEM. CONNECTION TO (EER) SHALL BE CADWELD. REFER TO DETAIL 5 ON SHEET G-3.
12. IBSG: FURN. & INST. 1 - 2 AWG BARE SOLID TINNED COPPER GND. WIRE FROM ICE BRIDGE SUPPORT POST TO (EER). CONNECTION (EER) SHALL BE CADWELD. SEE SHEET S-2 FOR ICE BRIDGE POST LOCATIONS
13. PEG: FURN. & INST. 1 - 2 AWG BARE SOLID TINNED COPPER GND. WIRE FOR THE 'ILC' GROUND BAR TO (EER) E.C. CONNECTION OF THE COILED WIRE TO THE INTEGRATED LOAD CENTER GROUND BAR SHALL BE MECHANICAL. ROUTE LEAD IN FLEXIBLE NONMETALLIC CONDUIT w/ANTI-THEFT COMPOUND. CONNECTION (EER) SHALL BE CADWELD.
14. PCSG: VZW E.C. SHALL FURN. INST. 1 - 2 AWG BARED SOLID TINNED COPPER GND. WIRE FOR EACH PAD CANOPY SUPPORT BASE TO (EER) AND CONNECT WITH AN EXOTHERMIC CONNECTION. THE CONNECTION OF THE COILED GROUND WIRE AND LUG TO THE CANOPY SUPPORT BASE SHALL BE MECHANICAL. SEE DETAIL 3 ON SHEET G-4. ROUTE LEAD IN FLEXIBLE NONMETALLIC CONDUIT w/ANTI THEFT COMPOUND. CONNECTION (EER) SHALL BE CADWELD.
15. -:
16. TWG: VZW E.C. SHALL FURN. & INST. THEFT DETERRENT GROUND ASSEMBLY KIT PART #TDSGABC14 FOR THE TOWER WAVEGUIDE GROUND (TWG) DIRECTLY TO THE TOWER (SEE SITE SPECIFIC GROUNDING PLAN OF DESIGN DRAWINGS).
17. UG: BY TOWER OWNER E.C.
18. OGA: VZW E.C. SHALL FURN. & INST. THE GROUND BAR FOR THE OVP GROUND (OGL) DIRECTLY TO THE OVP H-FRAME POST. SEE DETAIL 4 ON SHEET G-5.
19. OGL: VZW E.C. SHALL FURN. & INST. 1 - 6 AWG GREEN INSULATED STRANDED COPPER GND. WIRE FROM OVP GROUND POINT TO OVP GROUND ASSEMBLY (OGA). CONNECTION TO GROUND BAR SHALL BE MECHANICAL.
20. OHG: FURN. & INST. 1 - 2 AWG BARE SOLID TINNED COPPER GND. WIRE
21. OSF VZW E.C. SHALL FURN & INST. 1 - 2 AWG BARE SOLID TINNED COPPER GND WIRE FOR THE FUTURE "LIT FIBER" SERVICE PROVIDER NETWORK INTERFACE DEVICE. E.C. SHALL PROVIDE MIN. 8' COIL ABOVE GRADE. CONNECTION OF THE COILED WIRE TO THE OVP GROUND ASSEMBLY SHALL BE 2-HOLE LUG MECHANICAL. ROUTE LEAD IN FLEXIBLE NONMETALLIC CONDUIT w/ANTI-THEFT COMPOUND.
22. OSG VZW E.C. SHALL FURN & INST. 1 - 2 AWG BARE SOLID TINNED COPPER GND WIRE FOR THE 'OVP' H-FRAME TO (EER). (TYP. OF 2 POSTS). CONNECTION (EER) SHALL BE CADWELD.

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VERIZON WIRELESS GROUNDING NOTES

1. ALL UNDERGROUND CONNECTIONS ON THE LIGHTNING PROTECTION SYSTEM SHALL BE EXOTHERMIC WELDED USING THE CADWELD PROCESS. THE VZW E.C. AND GENERAL CONTRACTOR E.C. SHALL FURN. & INST. ALL THESE CONNECTIONS, INCLUDING WELD METALS, MOLDS AND TOOLS. THE E.C. SHALL FURN. & INST. 5/8" x 10' COPPER CLAD STEEL (COPPER JACKET 0.0012" MIN.) GROUND RODS, DRIVEN VERTICAL TO 36" BELOW FIN. GRADE (OR 6" BELOW FROSTLINE, WHICHEVER IS GREATER) @ 10'-0" O.C. MINIMUM.

   THE VZW E.C. SHALL FURN. & INST. 2 AWG BARE SOLID TINNED COPPER GND. WIRE AT A DEPTH OF 36" BELOW FIN. GRADE FOR THE EQUIPMENT PAD (EER) AND ICE BRIDGE (CSG).
2. THE GENERAL CONTRACTOR E.C. SHALL FURN. & INST. 2 AWG BARE SOLID TINNED COPPER GND. WIRE AT A DEPTH OF 36" BELOW FIN. GRADE FOR THE TOWER (EER), FUTURE TOWER WAVEGUIDE GROUND LEADS (FTWGL), GATE GROUND (GG), FENCE (FG), TOWER BASE GROUND (TBG) AND TOWER WAVEGUIDE GROUND (TWG).
3. ALL EXTERIOR GND. CONNECTIONS SHALL BE EXOTHERMIC CADWELD (U.N.O.).

   ALL CRIMP LUG CONNECTIONS TO ALL GROUND BARS SHALL BE LUBRICATED WITH A CORROSION INHIBITER ("OXY-GREASE") OR APPROVED EQUAL.
4. UPON COMPLETION OF THE TOWER GROUNDING RING, THE GENERAL CONTRACTOR E.C. SHALL MEGGER TEST THE COUMPOUND GROUNDING
5. FIELD. THE REQUIRED RESISTANCE LEVEL IS 5 OHMS OR LESS. THE GENERAL CONTRACTOR E.C. SHALL NOTIFY THE ENGINEER IF THESE
6. REQUIREMENTS ARE NOT ACHIEVED. THE GENERAL CONTRACTOR E.C. SHALL SUBMIT PRICING TO TOWER OWNER FOR THE INSTALLATION OF ADDITIONAL GROUND RODS REQUIRED FOR PROPER RESISTANCE. UPON APPROVAL FROM TOWER OWNER, THE GENERAL CONTRACTOR E.C. SHALL INSTALL ADDITIONAL GROUND RODS AS REQUIRED. AFTER PASSING TEST, THE GENERAL CONTRACTOR E.C. SHALL NOTIFY TOWER OWNER 48 HOURS PRIOR TO BACKFILLING TRENCHES, POURING CONCRETE FOR FOUNDATIONS, TO INSPECT BONDS AND INSPECT ANY/ALL BREAKS AND REPAIRS TO THE GROUND RING.
7. UPON COMPLETION OF THE RADIO EQUIPMENT PAD GROUNDING RING AND BEFORE BONDING TO THE TOWER GROUNDING RING, THE VZW E.C. SHALL MEGGER TEST THE EQUIPMENT PAD GROUNDING FIELD. THE REQUIRED RESISTANCE LEVEL IS 5 OHMS OR LESS. THE VZW E.C. SHALL NOTIFY THE ENGINEER IF THESE REQUIREMENTS ARE NOT ACHIEVED. THE VZW E.C. SHALL SUBMIT PRICING TO VERIZON WIRELESS FOR THE INSTALLATION OF ADDITIONAL GROUND RODS REQUIRED FOR PROPER RESISTANCE. UPON APPROVAL FROM VERIZON WIRELESS, THE VZW E.C. SHALL INSTALL ADDITIONAL GROUND RODS AS REQUIRED. AFTER PASSING TEST, THEN THE VZW E.C. SHALL BOND THE RADIO EQUIPMENT PAD GROUND RING TO THE TOWER GROUND RING. THE VZW E.C. SHALL NOTIFY VERIZON WIRELESS 48 HOURS PRIOR TO BACKFILLING TRENCHES, POURING CONCRETE FOR FOUNDATIONS, TO INSPECT BONDS AND INSPECT ANY/ALL BREAKS AND REPAIRS TO THE GROUND RING.
8. UPON COMPLETION OF THE EQUIPMENT PAD GROUNDING RING AND BEFORE BONDING TO THE TOWER GROUND RING, THE TOWER OWNER E.C. SHALL MEGGER TEST THIS GROUNDING FIELD. THE REQUIRED RESISTANCE LEVEL IS 5 OHMS OR LESS. THE TOWER OWNER E.C. SHALL NOTIFY THE ENGINEER IF THESE REQUIREMENTS ARE NOT ACHIEVED. THE TOWER OWNER E.C. SHALL SUBMIT PRICING TO TOWER OWNER FOR THE INSTALLATION OF ADDITIONAL GROUND RODS REQUIRED FOR PROPER RESISTANCE. UPON APPROVAL FROM TOWER OWNER, THE TOWER OWNER E.C. SHALL INSTALL ADDITIONAL GROUND RODS AS REQUIRED. AFTER PASSING TEST, THE TOWER OWNER E.C. SHALL BOND THE EQUIPMENT PAD RING TO THE TOWER RING. THE TOWER OWNER E.C. SHALL NOTIFY VERIZON WIRELESS CONSTRUCTION MANAGER AND TOWER OWNER CONSTRUCTION MANAGER 48 HOURS PRIOR TO BACKFILLING TRENCHES, POURING CONCRETE FOR FOUNDATIONS, TO INSPECT BONDS AND INSPECT ANY/ALL BREAKS AND REPAIRS TO THE GROUND RING.

   GROUND SYSTEM SHALL BE VISUALLY INSPECTED BY A TOWER OWNER AND VERIZON WIRELESS CONSTRUCTION ENGINEER BEFORE BACKFILLING IF REQUESTED.
9. GROUND ASSEMBLIES SHALL BE THEFT DETERRENT DESIGN AS MANUFACTURED BY ERICO INC. AND FURNISHED BY VERIZON WIRELESS. PROVIDE TWO (2) LUG HOLES PER VERIZON WIRELESS STANDARDS. UNLESS NOTED OTERWISE.
10. ALL ABOVE GROUND BARE COPPER CONDUCTORS BELOW 10' ABOVE GRADE SHALL BE INSTALLED IN FLEXIBLE PVC CONDUIT. CONDUIT SHALL BE FILLED WITH THEFT DETERRENT COMPOUND (ELECTRIC MOTION COMPANY ANTI-THEFT COMPOUND EM-5101).
11. BARE COPPER CONDUCTORS SHALL NOT BE INSTALLED WHERE THEY MAY BE IN CONTACT WITH GALVANIZED METALS. THE CONDUCTORS SHALL BE INSULATED OR ENCLOSED IN PVC CONDUIT, PLASTIC SEALTIGHT OR INSTALLED WITH STANDOFF SUCH THAT NO CONTACT BETWEEN DISSIMILAR METALS MAY TAKE PLACE.
12. CONNECTION OF COPPER CONDUCTORS TO GALVANIZED METAL OR ALUMINUM SHALL BE AVOIDED. BRASS OR STAINLESS STEEL LUGS OR BARS
13. SHALL BE USED FOR THESE CONNECTIONS.
14. NO SHARP 90° BENDS SHALL BE USED. A LONG SWINGING RADIUS BEND REQUIRED.
15. ALL GROUNDING SHALL BE IN ACCORDANCE WITH VERIZON WIRELESS SPECIFICATIONS.

PREPARED FOR
TowerNorth
2400 ANSYS DRIVE, SUITE 102
CANONSBURG, PA 15317
SITEACCESS@TOWERNORTH.COM
1-800-821-5825x2

PLANS PREPARED BY:
TERRA CONSULTING GROUP
has joined Colliers Engineering & Design

CARRIER:
verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
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6	REVISED PER NEW TEMPLATE/ ISSUED FOR PERMIT	07/29/26	GD

SITE #IL1502-A
MDG LOC# 5000348752
FUZE ID: 17495287

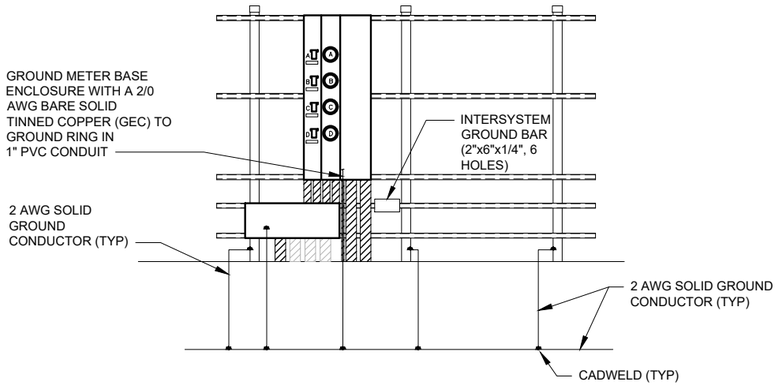
176 &
HALIGUS - A

MT. THABOR ROAD
CRYSTAL LAKE, IL 60014
McHENRY COUNTY

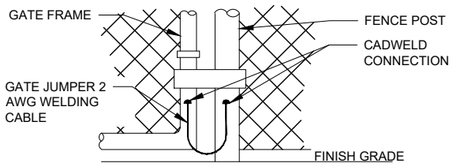
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CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

SHEET TITLE
VERIZON WIRELESS GROUNDING PLAN & NOTES

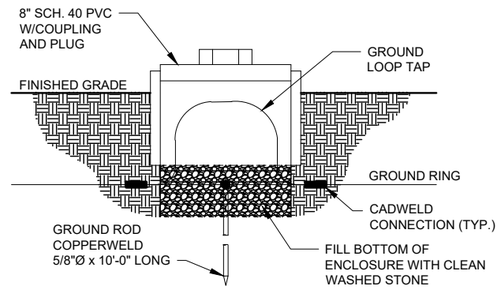
SHEET NUMBER
G-3



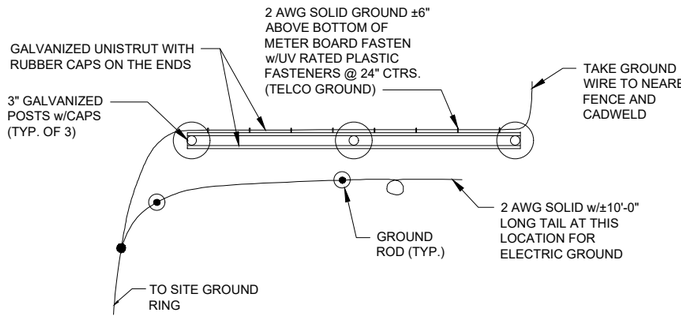
1 METER BOARD STRUCTURE GROUNDING
SCALE: 1/2" = 1'-0"



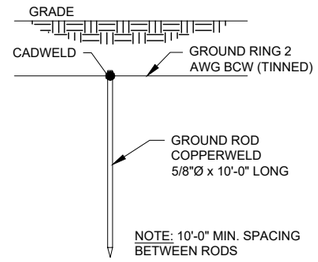
4 GATE GROUNDING DETAIL
SCALE: N.T.S.



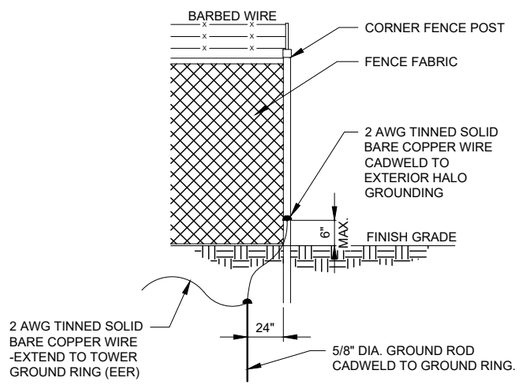
7 GROUND TEST WELL DETAIL
SCALE: N.T.S.



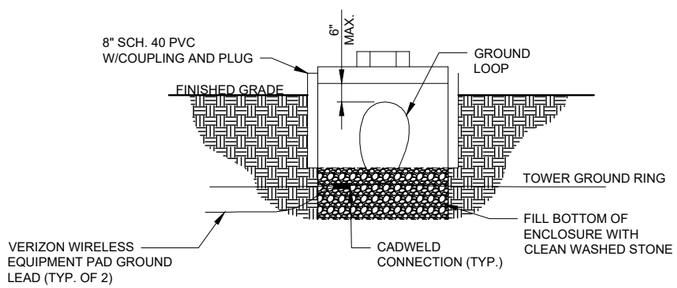
2 METER BOARD STRUCTURE GROUND PLAN
SCALE: N.T.S.



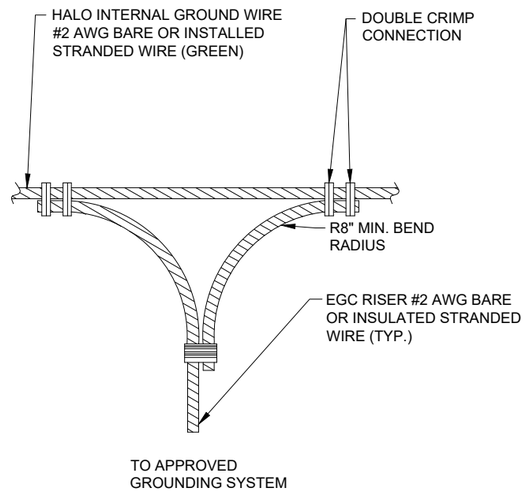
5 GROUND ROD DETAIL
SCALE: N.T.S.
(TYP. FOR CONTRACTOR AND VZW GC)



3 FENCE GROUNDING DETAIL
SCALE: N.T.S.



6 INSPECTION SLEEVE DETAIL
SCALE: N.T.S.



9 HALO NON-DIRECTIONAL GROUND RING SPLICE DETAIL
N.T.S.

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PLANS PREPARED BY:
TERRA CONSULTING GROUP
has joined Colliers Engineering & Design

CARRIER:
verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
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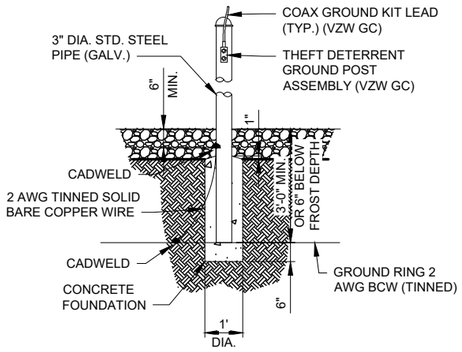
176 &
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McHENRY COUNTY

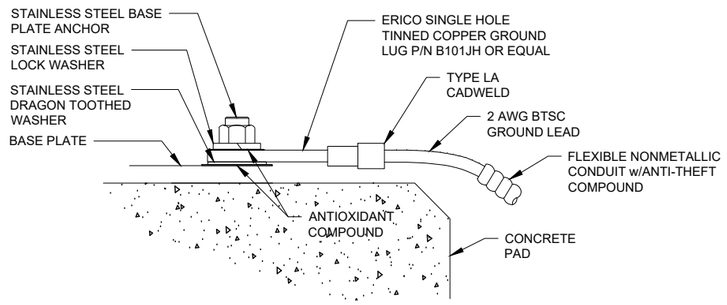
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CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-4

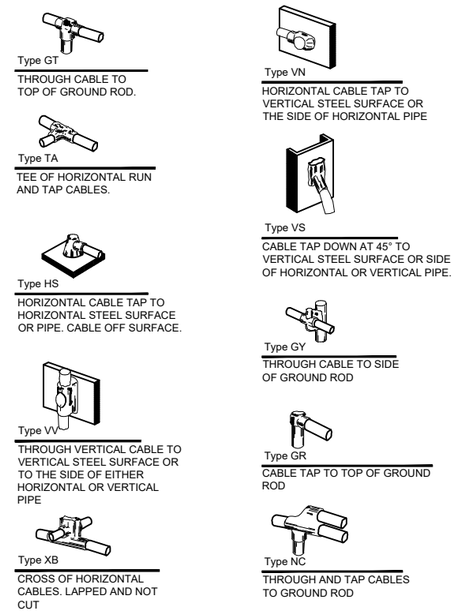


1 THEFT DETERRENT POST MOUNT GROUND DETAIL (CEPSG)
SCALE: N.T.S.
(BYVZW GC)

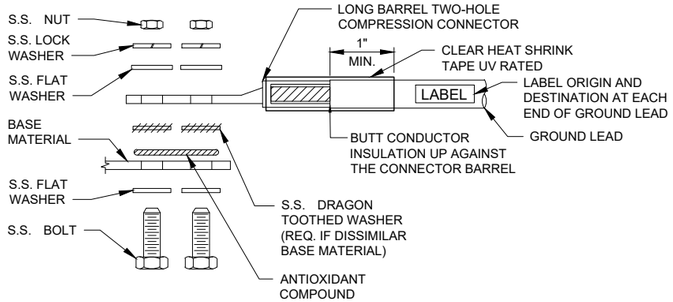


1. ALL HARDWARE SHALL BE 18-8 STAINLESS STEEL.
2. INSTALL ANCHOR LENGTH TO ALLOW EXPOSURE OF AT LEAST TWO THREADS.
3. AT CONNECTIONS MADE TO STEEL OR ANY OTHER DISSIMILAR METALS, A DRAGON TOOTH WASHER SHALL BE USED BETWEEN THE CONNECTOR AND METAL.
4. IF NO DRAGON TOOTH WASHER IS USED, THOROUGHLY REMOVE A SECTION OF THE COATING APPROXIMATELY THE SIZE OF THE CONNECTOR WITH AND ABRASIVE STYLE TOOL.
5. No-Ox-ID ANTI-OXIDATION COMPOUND (SANCHEM) SHALL BE USED AT ALL COPPER TO COPPER CONNECTIONS.
6. A ZINC BASED (GRAY COLORED) ANTI-OXIDATION COMPOUND SHALL BE USED AT ALL COPPER TO STEEL CONNECTIONS.
7. PENTROX OR EQUAL ANTI-OXIDATION COMPOUND SHALL BE USED AT ALL COPPER TO ALUMINUM CONNECTIONS.

2 GROUND LUG TO BASEPLATE INSTALLATION DETAIL
SCALE: N.T.S.

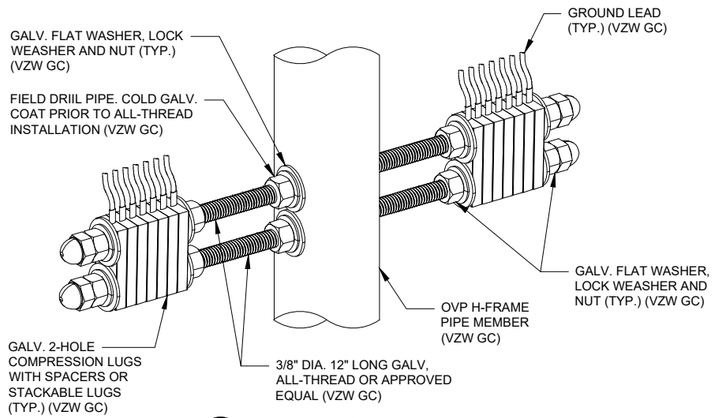


3 EXOTHERMIC WELD DETAILS
EXOTHERMIC AND HARGER ULTRAWELD OR APPROVED EQUAL



1. ALL HARDWARE SHALL BE 18-8 STAINLESS STEEL.
2. CHOOSE BOLT LENGTH TO ALLOW EXPOSURE OF AT LEAST TWO THREADS.
3. BACK TO BACK LUG CONNECTIONS ARE ACCEPTABLE WHEN BONDED TO A GROUND BAR OR STEEL OBJECT.
4. AT CONNECTIONS MADE TO STEEL OR ANY OTHER DISSIMILAR METALS, A DRAGON TOOTH WASHER SHALL BE USED BETWEEN THE CONNECTOR AND METAL.
5. IF NO DRAGON TOOTH WASHER IS USED, THOROUGHLY REMOVE A SECTION OF THE COATING APPROXIMATELY THE SIZE OF THE CONNECTOR WITH AND ABRASIVE STYLE TOOL.
6. No-Ox-ID ANTI-OXIDATION COMPOUND (SANCHEM) SHALL BE USED AT ALL COPPER TO COPPER CONNECTIONS.
7. A ZINC BASED (GRAY COLORED) ANTI-OXIDATION COMPOUND SHALL BE USED AT ALL COPPER TO STEEL CONNECTIONS.
8. PENTROX OR EQUAL ANTI-OXIDATION COMPOUND SHALL BE USED AT ALL COPPER TO ALUMINUM CONNECTIONS.

4 GROUND LUG INSTALLATION DETAIL
SCALE: N.T.S.



5 OVP GROUND ASSEMBLY (OGA)
SCALE: N.T.S.
(BY VZW GC)

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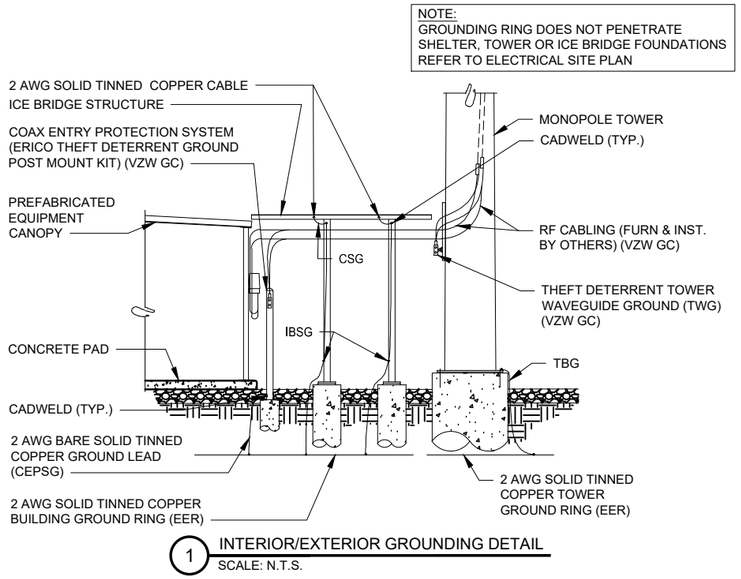
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McHENRY COUNTY

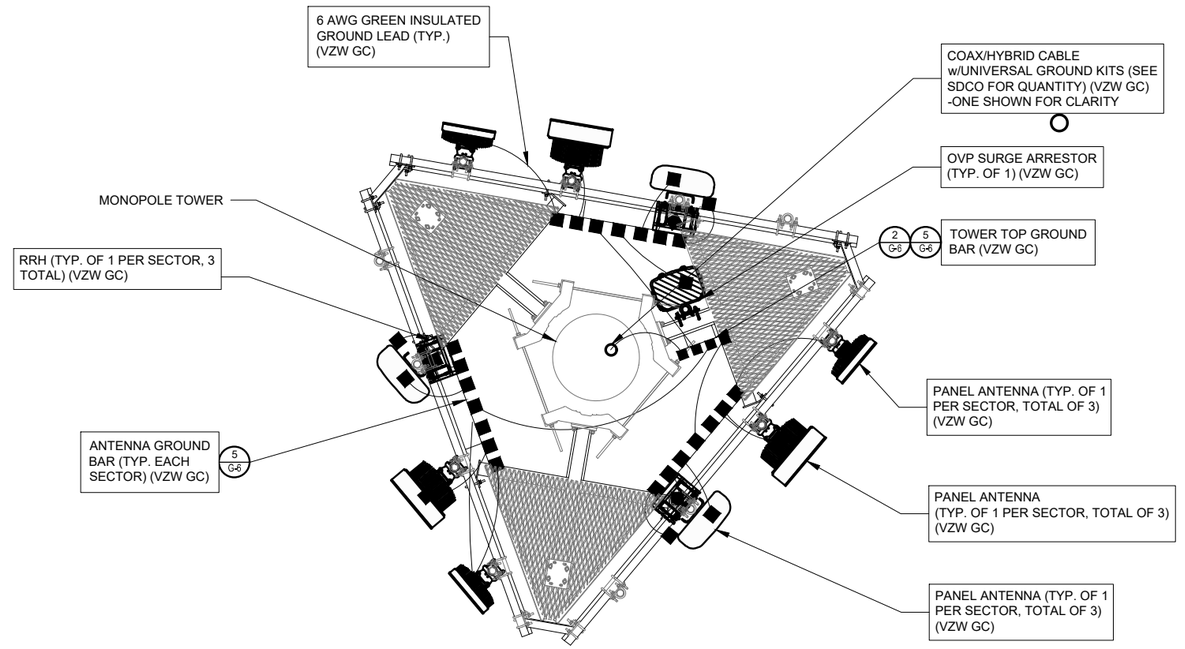
DRAWN BY:	GAD
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SHEET TITLE
GROUNDING DETAILS

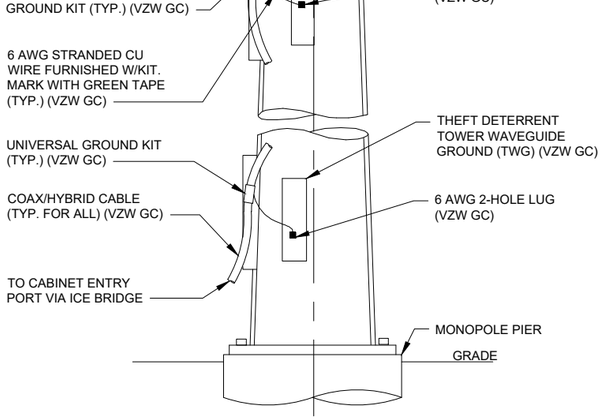
SHEET NUMBER
G-5



1 INTERIOR/EXTERIOR GROUNDING DETAIL
SCALE: N.T.S.

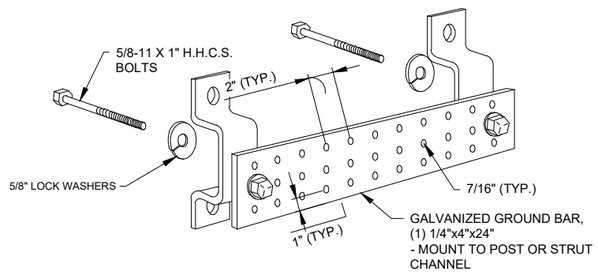


3 ANTENNA LEVEL GROUNDING PLAN
SCALE: N.T.S.



NOTE:
1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED (VZW GC)
2. INSTALL UNIVERSAL GROUND KITS AT ALL GROUND BAR LOCATIONS. (VZW GC)

2 ANTENNA CABLE GROUNDING INSTALLATION DETAIL
SCALE: N.T.S.



4 TOP & BOTTOM GROUND BAR
SCALE: N.T.S.
(BY VZW GC)

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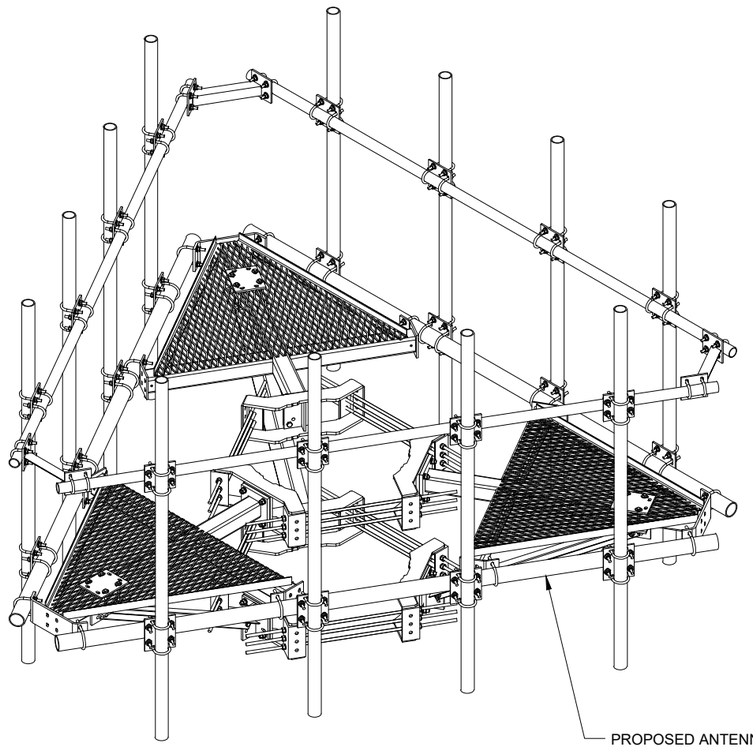
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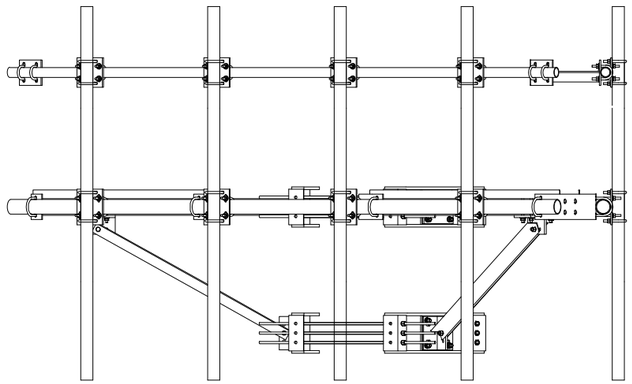
SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-6

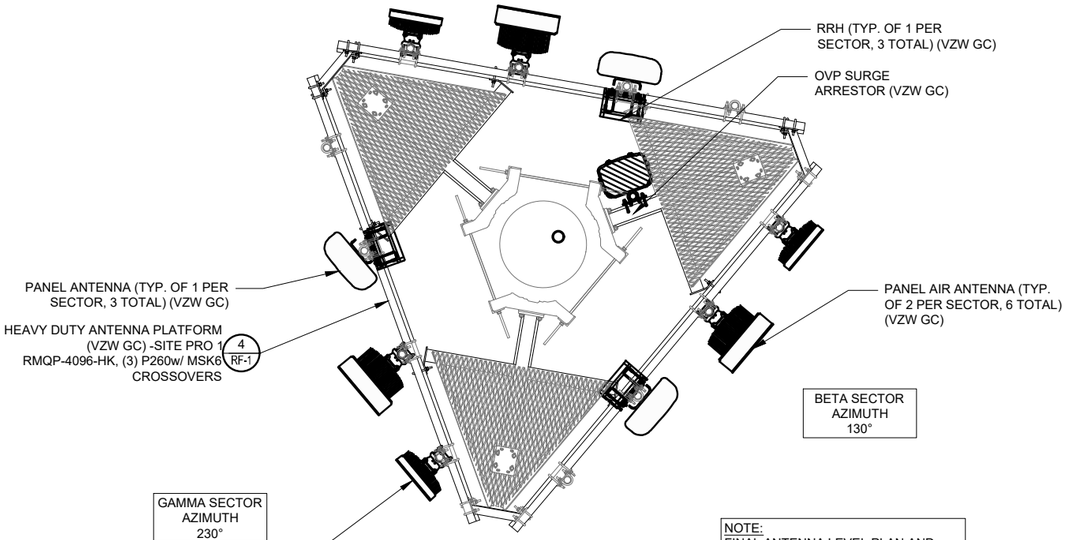


PROPOSED ANTENNA PLATFORM
SITEPRO1 MODEL #: RMQP-4096 + HK
(OR APPROVED EQUAL)

2 ISOMETRIC VIEW
N.T.S.



3 PROPOSED PLATFORM SUPPORT SIDE VIEW
N.T.S.



NOTE:
FINAL ANTENNA LEVEL PLAN AND PASSING MOUNT ANALYSIS MUST MATCH. NOTIFY VZW CONSTRUCTION MANAGER IF DISCREPANCY EXISTS.

1 ANTENNA LAYOUT - PLAN VIEW
SCALE: N.T.S.
(BY VZW GC)

GENERAL NOTES

1. VERIFY EACH HYBRID CABLE LENGTH, DIAMETER, ROUTING, AND ALL MOUNTING APPURTENANCES WITH OWNER PRIOR TO ORDER.
2. TAG ALL MAIN CABLES AT TWO (2) LOCATIONS. 1) AT ANTENNAS 2) OUTSIDE EQUIPMENT CABINET NEAR THE WAVEGUIDE ENTRY PORT.
3. EACH CABLE SHALL BE GROUNDED AT (3) THREE LOCATIONS. ANTENNA LEVEL ON TOWER, TOWER BASE, AND EQUIPMENT H-FRAME.
4. HYBRID CABLES TO BE SUPPORTED EVERY 36" OFF MOUNTING FRAMES WITH LOW PIM HANGERS IN ACCORDANCE WITH ME-RFS-ST-21-001.
5. JUMPER CABLES TO BE SUPPORTED EVERY 18" WITH LOW PIM HANGERS IN ACCORDANCE WITH ME-RFS-ST-21-001.
6. DETAILS 1, 3, AND 4 ARE FOR REFERENCE ONLY AND ARE INTENDED DEPICT POSSIBLE MOUNTING LOCATIONS. REFER TO DETAIL 2 AND MOUNT ANALYSIS FOR EXACT MOUNTING LOCATIONS.

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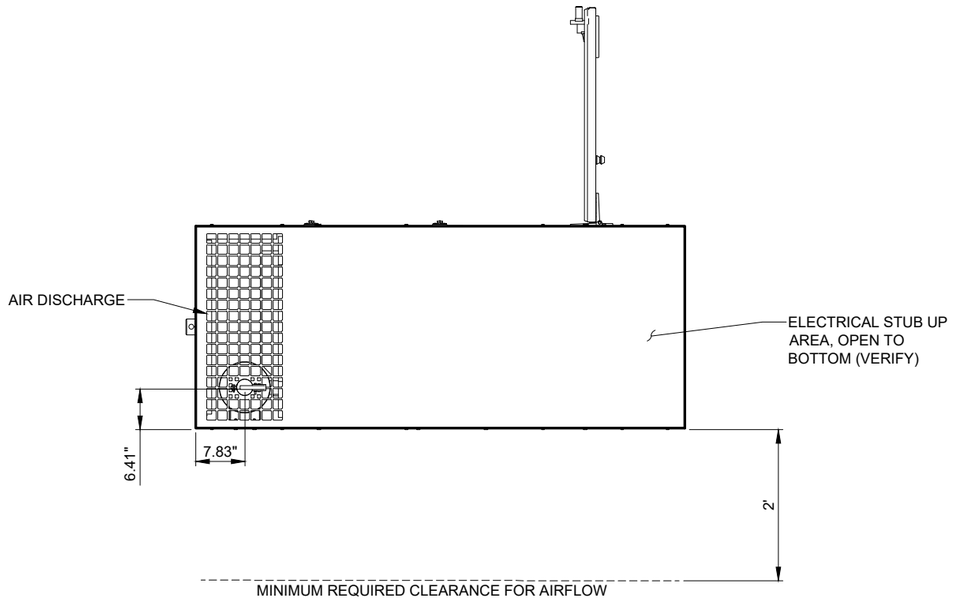
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SHEET TITLE
ANTENNA PLAN
AND DETAILS
(REFERENCE ONLY)

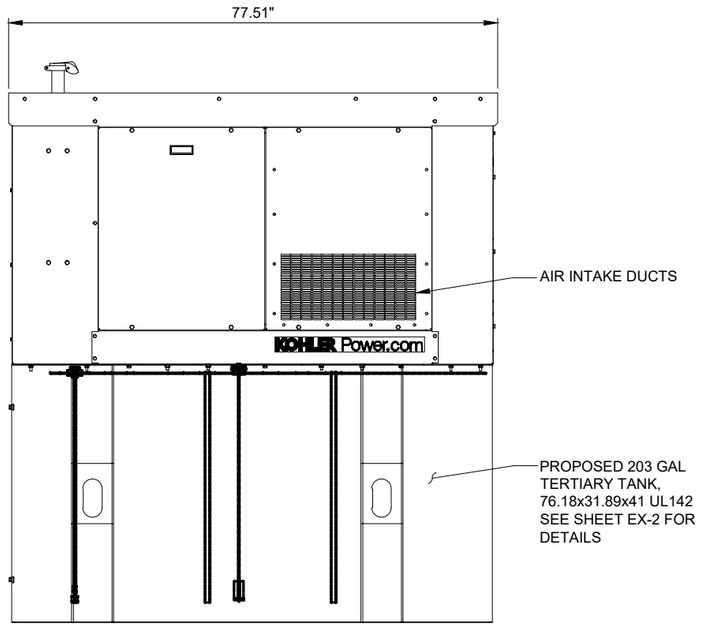
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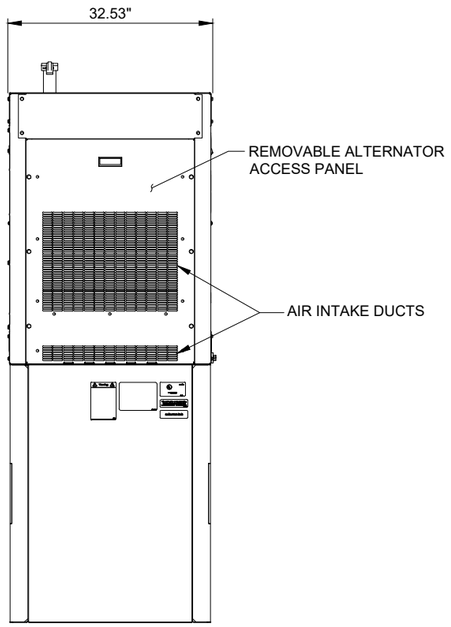
TOP OR PLAN VIEW

NOTES:

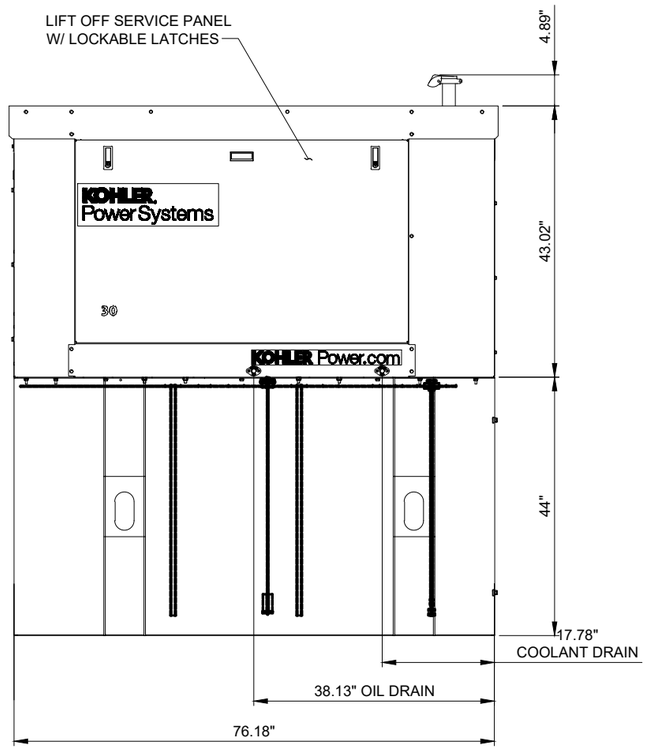
1. IF TANK IS ORDERED, ENCLOSURE MOUNT DIRECTLY TO TANK.
2. THE RIGHT SIDE OF THE GENERATOR IS SERVICE ACCESSIBLE.
3. 6 AMP BATTERY CHARGER
4. 120VAC ENGINE BLOCK HEATER
5. GENERATOR MUST BE GROUNDED.
6. SOUND ATTENUATED ENCLOSURE STANDARD WITH GENERATOR.
7. MUST ALLOW FREE FLOW OF DISCHARGE AIR AND EXHAUST.
8. MUST ALLOW FREE FLOW OF INTAKE AIR.
9. EASY ACCESS SERVICE PANEL IS LOCATED ON THE RIGHT SIDE OF THE GENERATOR ONLY.
10. BASE TANK REQUIRES ALL STUB-UPS TO BE IN THE REAR TANK STUB-UP AREA.
11. TANK EQUIPPED WITH FIRE SAFETY VALVE ON FUEL SUPPLY LINE.
12. IT IS THE RESPONSIBILITY OF THE INSTALLATION TECHNICIAN TO ENSURE THAT THE GENERATOR INSTALLATION COMPLIES WITH ALL APPLICABLE CODES, STANDARDS, AND REGULATIONS.
13. GENERATOR IS INSTALLED ON A UL-142 RATE DOUBLE WALL SUBBASE FUEL TANK.



LEFT SIDE VIEW



REAR VIEW



RIGHT SIDE VIEW

1 KOHLER 30kW DIESEL GENERATOR
MODEL: 30RE0ZK 30KW DIESEL 120/240 1-PH
OUTDOOR TERTIARY 203 GALLON TANK

WEIGHT DATA: (INCLUDING EMPTY FUEL TANK)
GENERATOR : 2114 LBS

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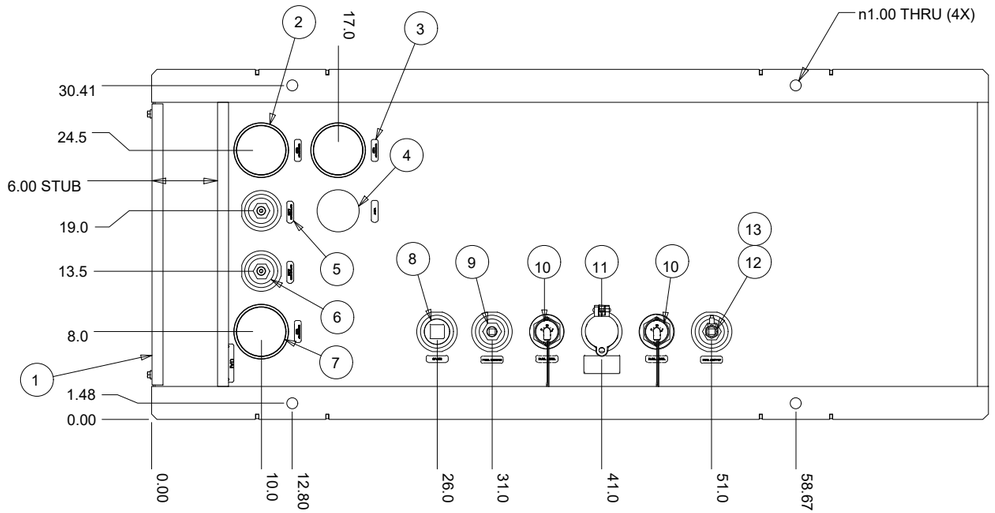
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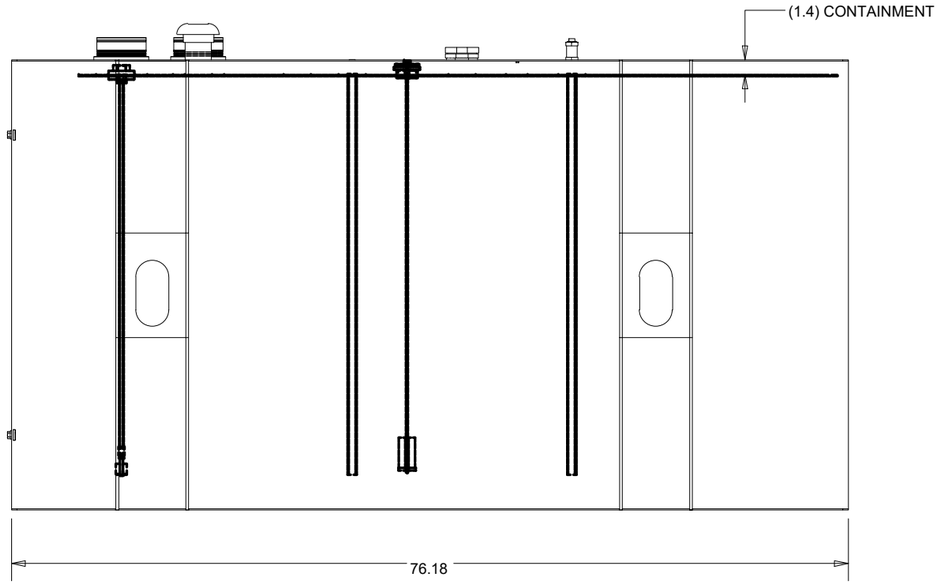
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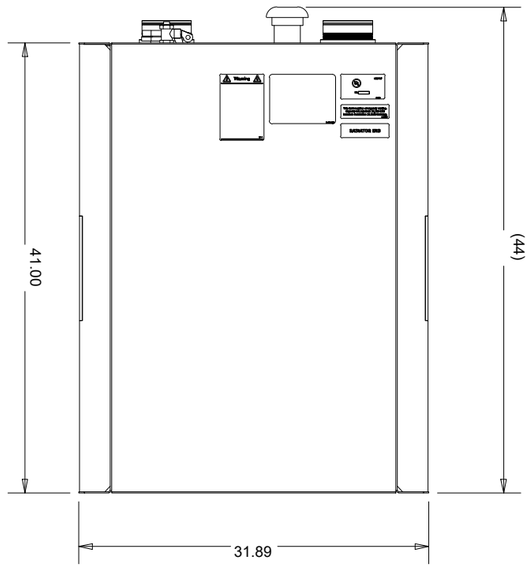
SHEET TITLE
GENERATOR CUT-SHEET (REFERENCE ONLY)

SHEET NUMBER
REF-1



ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	REMOVABLE ACCESS PANEL	STUB ACCESS PANEL
2	1	EMERGENCY VENT (TERTIARY)	4" NPT EMERGENCY VENT
3	1	EMERGENCY VENT (PRIMARY)	4" NPT EMERGENCY VENT
4	1	VENT	2" NPT NORMAL ATMOSPHERIC VENT
5	1	LEAK SWITCH (TERTIARY)	2" NPT FUEL IN BASIN ALARM SWITCH
6	1	LEAK SWITCH (SECONDARY)	2" NPT FUEL IN BASIN ALARM SWITCH
7	1	EMERGENCY VENT (SECONDARY)	4" NPT EMERGENCY VENT
8	1	SPARE PORT	2" NPT SPARE PORT
9	1	FUEL RETURN	2" NPT FUEL RETURN WITH 1/2" NPT DIPTUBE
10	2	FUEL GAUGE	2" NPT VISUAL FUEL LEVEL SENDER (SPIRAL)
11	1	FUEL FILL	2" NPT LOCKING FUEL FILL CAP
12	1	FUEL SUPPLY	2" NPT FUEL SUPPLY WITH 1/2" NPT DIPTUBE
13	1	FIRE SAFETY VALVE	1/2" NPT FIRE SAFETY VALVE





Notes:
1. Oil fog interior with Protecto Cote 150
2. Pressure test at 3 psi
3. Use diesel fuel resistant sealant on all threads
4. Affix UL 142, UA, and warning labels
5. All fittings to be plugged before paint
6. Powder coat texture black
7. Tank capacities
   Actual: 216 gallons (817 L)
   Usable: 203 gallons (768 L)
8. Tank weight approx. 890 lbs ±10%
9. Tank is min 110% rupture basin containment

Customer has reviewed and approves fabrication drawing for accuracy, completeness and compliance with customer supplied design and specifications. This fabrication drawing serves as a contract addendum to

Quote # UAI-95103

CUSTOMER APPROVAL:

NAME: _____

DATE: _____

REVISION HISTORY

REV	DATE	DESCRIPTION	DESIGNER

	INITIALS	DATE
DRAWN:	HMH	2/29/2024
CHECKED:		

TOLERANCES
EXCEPT AS NOTED
DECIMAL
.X ± .25
.XX ± .13
ANGULAR ±2°

UNITED ALLOY
Custom Metal Fabricated Products
4100 Kennedy Road Phone (608) 758-4717
Janesville, WI 53545 Fax (608) 758-1272

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DESCRIPTION: TANK, 203 GAL 76.18x31.89x41 UL142

DRAWING NO: KC-ES-87762 APPROVAL

REV 00

PREPARED FOR
TowerNorth
2400 ANSYS DRIVE, SUITE 102
CANONSBURG, PA 15317
SITEACCESS@TOWERNORTH.COM
1-800-821-5825x2

PLANS PREPARED BY:
TERRA CONSULTING GROUP
has joined Colliers Engineering & Design

CARRIER:
verizon
1701 GOLF ROAD,
TOWER 2, SUITE 400
ROLLING MEADOWS, IL 60008
PHONE: (847) 619-5397
FAX: (847) 706-7415

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	10/06/25	TJS
1	ADDITION OF LANDSCAPE PLAN	10/10/25	TJS
2	UPDATE WITH POWER COORDINATION	12/18/25	JJR
3	ADDED EROSION CONTROL & SWAPPED GEN	01/027/26	APD
4	REVISED TOWER BASE SIZE	04/02/26	TJS
5	REVISED PER COMMENTS	05/13/26	PP
6	REVISED PER NEW TEMPLATE/ ISSUED FOR PERMIT	07/29/26	GD

SITE #IL1502-A
MDG LOC# 5000348752
FUZE ID: 17495287

176 &
HALIGUS - A

MT. THABOR ROAD
CRYSTAL LAKE, IL 60014
McHENRY COUNTY

DRAWN BY:	GAD
CHECKED BY:	TAZ
DATE:	06/24/26
PROJECT #:	170-121

SHEET TITLE
GEN TANK
CUT-SHEET
(REFERENCE ONLY)

SHEET NUMBER
REF-1A

EHRESMANN ENGINEERING

4400 West 31st St – Yankton, SD 57078
Phone: (605) 665-7532 Fax: (605) 665-9780
http://www.ehresmannengineering.com
E-Mail: e.heine@ehresmannengineering.com

TowerNorth Development
2400 Ansys Drive
Suite 102
Canonsburg, PA 15317

March 25, 2026

Subject: 125' Ehresmann Engineering Monopole
Site: IL1502-A 176 & Haligus
EE JO#: 119971

As requested, we have designed and can furnish a 125' Ehresmann Engineering monopole, as outlined above, to be located at:

Address: Mt Thabor Rd
Crystal Lake, IL 60014

Coordinates: 42-14-58.366 N
88-24-14.908 W

The monopole was designed as follows:

- In accordance with the Telecommunications Industry Association TIA-222-I Standard
- 107 mph wind with no ice (3-Sec Gust)
- 47 mph wind with 0.96" ice (3-Sec Gust)
- 60 mph wind with no ice (service)
- Risk Category II
- Exposure Category C
- Topographic Factor: Method 1

Design loading was included as outlined on stamped drawing #119971S-01. All opinions outlined in this letter are valid only if an Ehresmann Engineering monopole is furnished and installed, and provided the foundation is adequately designed so as not to be the failure point in the event of failure.

It has been requested that this proposed structure be designed for a fall zone radius of 50'. We will attempt to satisfy this requirement by designing the pole with the point of maximum stress (theoretical failure point) in the upper portion of the pole. For this pole, that location is above the slip joint at approximate elevation 84.5' measured from the top of the base plate.

In the unlikely event of failure, we would expect the pole to buckle at the point of maximum stress and "fold over" onto the portion below. This would cause the pole to most likely fall within a radius of 50' from the base of the pole.

However, please note that "fall zone" is a term not defined in the standards listed above. Our approach to the fall zone design, as described in the preceding paragraphs, is our best attempt to meet what we believe to be the intent of the fall zone request. Current code does not address failure mechanics. Stringent standards are utilized for the design of antenna supporting structures, but it is difficult or impossible to predict the behavior of a failing structure. Physics of a fall during a wind event may place all or part of the pole section outside of the intended fall zone if rupture occurs. Additionally, nonstructural components and appurtenances may break free from the structure and fall outside of the requested fall zone.

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

Regards,

Eric Heine

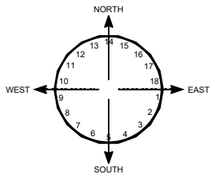
Eric Heine

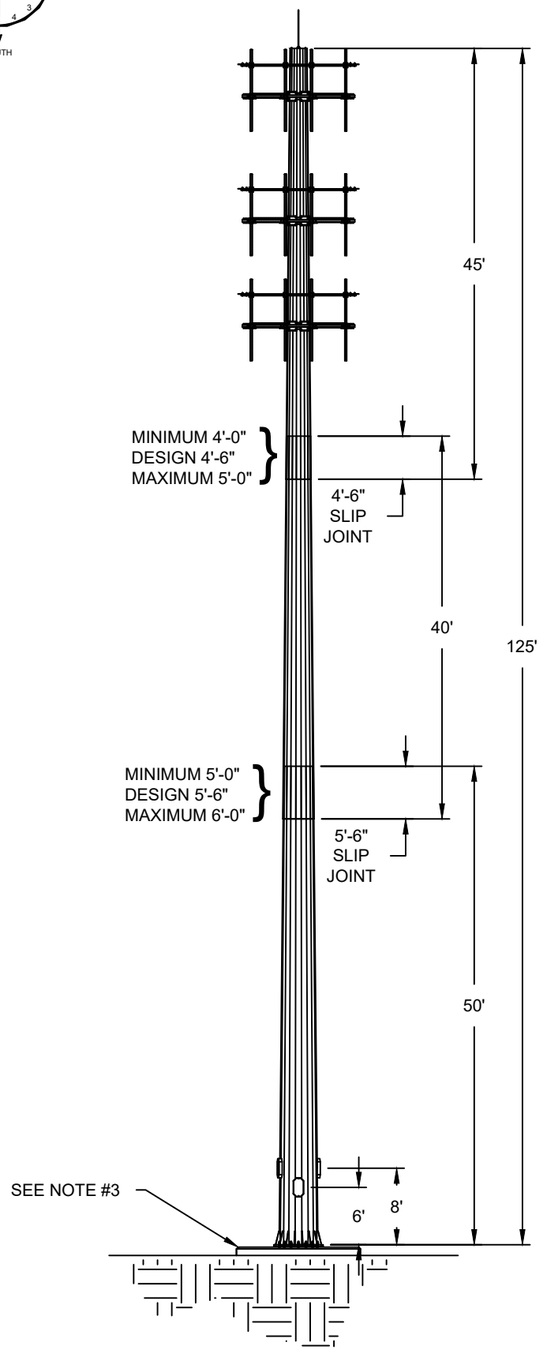


License Expires: 11-30-2026

Firm License Number: 184.005810 - COA

VSE Project Number: U1408.0665.262





MONOPOLE DESIGN CRITERIA
DESIGN PER TIA-222-I

WIND DESIGN CRITERIA
107 MPH WIND & NO ICE (3-SEC GUST)
47 MPH WIND & 0.96" ICE (3-SEC GUST)
60 MPH WIND & NO ICE (SERVICE)
GROUND ELEVATION (ASL): 918.3'
RISK CATEGORY II
EXPOSURE CATEGORY C
TOPOGRAPHIC FACTOR: METHOD 1
TOPOGRAPHIC FEATURE: N/A
CREST HEIGHT: 0
SLOPE DISTANCE (L) : N/A
DISTANCE FROM CREST (X) : N/A

SEISMIC DESIGN CRITERIA
EQUIVALENT LATERAL FORCE PROCEDURE
SEISMIC DESIGN CATEGORY: B
SITE CLASS: DEFAULT
Ss= 0.14 g
S_1= 0.066 g
S_{MS}= 0.18 g
S_{M1}= 0.14 g
T_L= 12

NOTES:

1. ORIENT V-NOTCH ON TOP OF TEMPLATE AND REFERENCE TAB ON BASE PLATE @0°
2. STAMP"119971" ON TOP OF BASE PLATE (NEAR NORTH TAB)
3. POLE FOUNDATION DESIGNED BY OTHERS. ANCHOR RODS ARE TO PROJECT 12" ABOVE TOP OF CONCRETE (60" EMBEDMENT IN CONCRETE BASED ON 72" ANCHOR RODS). IT IS THE FOUNDATION DESIGNER'S RESPONSIBILITY TO DESIGN THE STEEL FOUNDATION REINFORCEMENT AND/OR ANCHOR CONFINING REINFORCEMENT SUCH THAT THE PROVIDED ANCHORAGE EMBED IS SUFFICIENT FOR THEIR DESIGN AND ADEQUATE FOR OVERALL POLE/FOUNDATION DESIGN.

SITE INFORMATION:

COORDINATES: LATITUDE: 42° 14' 58.366" N
LONGITUDE: 88° 24' 14.908" W
ADDRESS: MT THABOR RD
CRYSTAL LAKE, IL 60014
COUNTY: MCHENRY

DESIGN LOADING:

ELEV.	ITEM	FEEDLINES
125'	LIGHTNING ROD 5/8X4'	
120'	35,000 SQ IN X KA (KA = 0.8)(MAX WEIGHT = 4,500 LBS)	(8) 1-5/8 (INSIDE POLE)
120'	MOUNT (30 SQ FT)(KA = 1.0)	
107'	30,000 SQ IN X KA (KA = 0.8)(MAX WEIGHT = 4,500 LBS)	(8) 1-5/8 (INSIDE POLE)
107'	MOUNT (30 SQ FT)(KA = 1.0)	
96'	20,000 SQ IN X KA (KA = 0.8)(MAX WEIGHT = 4,000 LBS)	(8) 1-5/8 (INSIDE POLE)
96'	MOUNT (30 SQ FT)(KA = 1.0)	

MAXIMUM BASE MOMENT & FORCES		
MOMENT (KIP-FT)	SHEAR (KIPS)	AXIAL (KIPS)
2633	26	48

POLE DATA					
POLE 65 KSI 18 SIDED					
ELEV.	WALL THICKNESS	TAPER	TUBE LENGTH	TOP DIA.	BASE DIA.
80' - 125'	3/16"	.224"/FT.	45'	21"	31 1/8"
44'-6" - 84'-6"	5/16"	.224"/FT.	40'	29 11/16"	38 11/16"
0' - 50'	3/8"	.224"/FT.	50'	36 3/4"	48"

ANCHOR BOLT DATA:
(18x) 1 3/4"Ø F1554 GRADE 105 KSI
X 6'-0" LG ON A 55"Ø BOLT CIRCLE
TEMPLATE O.D. = Ø60" A36

BASE PLATE DATA:
62"Ø, 1 3/4" THICK, ROUND
ASTM A572 50 KSI

(18x) 7/16" THICK X 6" WIDE X 17" TALL GUSSETS
ASTM A572 65 KSI

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VSE Project Number: U1408.0665.262

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REV	DESCRIPTION	DATE
6	DRAWING CREATED	3/24/26
5		
4		
3		
2		
1		

DRAW BY:	BRH
CHCK BY:	GAM
ENG APR.	
MFG APR.	
Q.C.	

DRAWING NAME:
125' MONOPOLE

SITE ADDRESS:
MT THABOR RD
CRYSTAL LAKE, IL 60014

SITE NAME:
IL1502-A
176 & HALIGUS

JOB. NO. 119971

SHEET NO. S-01 REV NO.

VERSION 2.0

GENERAL:
Ehresmann Engineering (EE) designs and manufactures steel towers/poles and tower components to the most stringent industry standards, and uses the highest quality materials. However, certain hazards are inherent in tower work. For this reason, it is imperative that erection of towers and installation of tower components be accomplished in a safe and workmanlike manner, and only by experienced and professional contractors. Unless the customer specifies otherwise in writing, or unless otherwise noted in our design documents or on our installation drawings, design of and/or fabrication of items by Ehresmann Engineering shall meet the conditions outlined in these notes.

1. All tower designs and/or work shall be in accordance with TIA-222-I, “Structural Standard for Antenna Supporting Structures, Antennas and Small Wind Turbine Support Structures” or as otherwise specified in writing by the customer.
2. Purchasers shall verify the installation is in conformance with all local, state, and federal requirements. This also includes requirements for obstruction marking and lighting.
3. If towers, tower components, mounts, foundations or modification materials are not Installed in accordance with Ehresmann Engineering installation drawings and specifications, then all designs are considered invalid, and EE disclaims any responsibility for said design and/or certification.
4. The purchaser shall be responsible to inspect condition of underground anchors prior to work on towers, and to furnish any and all soils reports, where required.
5. All items must be inventoried at the time of delivery to the job site/storage facility. Any shortages reported after this delivery will be the responsibility of the Contractor/Owner.
6. Any problems that occur with scheduling, transportation, delivery, foundation installation, erection or any items furnished by EE must be reported immediately to allow EE time to take corrective measures. EE will make every effort to repair/replace necessary items in an expedited manner and/or will pursue corrective measures in the most economical way possible at our discretion. However, under no circumstances will EE pay for or be responsible for any down time or expenses incurred due to down time.
7. EE will make every effort to deliver materials at the requested time. However, we cannot and will not be responsible for delays caused by breakdowns, weather and/or other factors out of our control once the materials have left our facility. We strongly suggest that cranes, tower crews, etc... not be scheduled until delivery is verified to be on time. EE will not be responsible for any costs incurred due to these possible delays.
8. Any and all permits, licenses, or payment of taxes required for construction are the sole responsibility of the purchaser.
9. Manufacturer Assistance: Contractors / Erectors may contact Ehresmann Engineering at (605) 665-7532 for questions on design, materials, or installation regarding items furnished by Ehresmann Engineering.
10. Ehresmann Engineering is available, upon request, to supervise installation and/or completion of modifications, or to provide on-site inspection after project completion.
11. Although rare, excessive deflection can occasionally occur in canister poles and concealment/shrouded structures at low wind speeds. Since the phenomenon is influenced by many factors and variables, it is generally unpredictable. Therefore, it is the tower/pole owner's responsibility to periodically observe the structure for excessive deflection and any resulting damage or affects on the structure or its connections. In the event of excessive deflection or movement of the structure, Ehresmann Engineering is to be notified immediately. Modifications to the structure may be required at the owner's expense.

**Please also reference site specific design documents and drawings for additional notes.

Anchor Rod Tightening:
Prior to placing anchor rods in the concrete, it is recommended that an anchor rod rotation capacity test be run with at least one anchor rod. This test may be run in a Skidmore-Wilhelm device or in a mockup of the base plate using a small piece of plate with one hole of equivalent grade, thickness, and finish. The test consists of steps 2 through 12 as outlined below and adapted as necessary for the mock set-up. It is recommended that the nut be rotated at least to the required rotation as given in step 12. After the test, the nuts should be removed and all threads (rod and nut) inspected for damage. Once the anchor rod is removed from the test plate, the nuts shall again be turned onto the rod well past the location of the leveling nut and backed off by one worker using an ordinary wrench with no cheater bar. The threads are considered damaged if more than minimal effort is required to turn the nut. Please note that nuts should be turned onto ALL anchor rods and backed of with minimal effort as outlined above to verify threads of ALL anchor rods and nuts prior to placement in concrete.

Recommended Steps for Anchor Rod Tightening:
1. Verify proper position of anchor rods.
2. Verify that all nuts can be turned onto the rods well past the elevation of the bottom of the leveling nut and backed off by one worker using an ordinary wrench without a cheater bar.
3. If threads of anchor rods were lubricated more than 24 hours before placing the leveling nut or have been wet since they were lubricated, the exposed threads of the anchor rods
should be relubricated (Beeswax and toilet-ring wax have been shown to provide good lubrication).
4. Place leveling nuts on anchor rods and level.
5. Place leveling nut washers.
6. Set pole or tower legs.
7. Plumb pole or legs and/or level base plates.
8. Place top nut washers.
9. Threads and bearing surfaces of the top nuts should be lubricated, placed and tightened to the snug-tight condition in a star pattern.
10. Tighten leveling nuts to the snug-tight condition in a star pattern.
11. Mark the reference position of the top nut in the snug-tight condition with a suitable marking on one flat with a corresponding reference mark on the base plate at each bolt.
12. Top nuts shall be rotated, with the leveling nut secured, an additional 1/3 turn for anchor rods 1.5 in. or less in diameter and an additional 1/6 turn for anchor rod diameters greater than 1.5" per TIA-222-I section 4.9.9.
13. Locking nuts are to be installed over all top nuts when tightening is completed.

Erection / Installation:
When installing items provided by Ehresmann Engineering, the contractor (person performing the erection or modification) shall comply with the following:

1. All structural work shall be performed in relatively calm weather, with wind velocities not exceeding 15 MPH at any height of the tower. Additionally it is recommended that work be completed in accordance with ANSI/TIA-322 and ANSI/ASSE A10.48.
2. All structural work shall be performed by a competent and reputable contractor with experience in similar tower work.
3. Our drawings indicate the major operations to be performed, but do not show every field condition that may be encountered. Prior to beginning work, the contractor should survey the job thoroughly to eliminate future field problems.
4. It is the contractor’s sole responsibility to determine the erection procedure and sequence to insure the stability and safety of the tower and adequacy of temporary or
incomplete connections during construction.
5. All nuts for bearing type connections shall be tightened to a "snug tight" condition as defined by AISC. All nuts for direct tension/fully pre-tensioned or slip critical connections (except anchor rod nuts) shall be tightened per the ‘turn-of-the-nut’ method in accordance with AISC.
6. It shall be the contractor's responsibility to ensure that all practices and procedures used during assembly, installation and erection work required on the tower or foundations do not endanger the safety of any personnel nor the structural integrity of the tower.

Erection / Installation(contd):

7. The contractor shall use only safe and workmanlike procedures when modifying a tower.
8. The contractor shall not correct any errors in manufacturing or design without special permission and written instructions from Ehresmann Engineering. This means straightening, relocation or reaming of bolt holes, drifting or any other application of force to make the members fit. (This restriction does not apply to diagonal members designed for initial tension or specific ‘draw’.) The contractor shall immediately notify Ehresmann Engineering through the appropriate channels to effect correction.
9. The contractor shall immediately notify Ehresmann Engineering of any material which is damaged during erection or installation. The contractor shall not correct or substitute any member damaged during installation without written consent and instructions from Ehresmann Engineering.
10. The contractor shall refrain from exerting excessive forces on the tower or on modification material during installation. Tower member design does not include stresses due to erection since erection equipment and conditions are unknown. Our design assumes that the services of competent and qualified personnel will be utilized to develop proper procedures and rigging plans. Our design also assumes that competent and qualified personnel will be hired to perform the work.
11. All field-punched holes shall be touched up with cold galvanizing. Under no circumstances shall the torching of holes be allowed.
12. All factory installed bracing placed within monopole tube sections is to remain in place until erection is complete. Do not remove bracing without prior consultation with EE.
13. In accordance with TIA-222-I Section 13.3.5, all slip splices shall be jacked together to obtain a tight, even joint. The jacking force shall be applied regardless of the design length of the slip splice & the length obtained during initial fit up. The jacking force shall be increased until no additional movement of the joint occurs.

Structural Steel & Hardware:
1. All fabricated steel shall have a minimum yield strength of 36 ksi. Use of higher strength steel for some members/items will be noted in design documents or drawings as applicable.
2. All fabricated steel shall be hot dip galvanized per ASTM A123.
3. All structural fasteners shall be ASTM F3125 Gr. A325 unless specified otherwise.
4. U-Bolts to be ASTM A36, A572 Gr. 50, or A193 Gr. B7 depending on size and application. Reference site specific drawings for additional details.
5. Step Bolts to be ASTM A449
6. All hardware shall be hot dip galvanized per ASTM A153 or ASTM F2329.
7. Welded connections shall conform to the latest revision of the American Welding Society, A.W.S. D1.1.
8. All structural components shall be verified for proper assembly by the field crew prior to installation.

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ENGINEER STAMP:

LICENSED STRUCTURAL ENGINEER
JOEL R. HARTMAN
081.008484
STATE OF ILLINOIS

License Expires: 11-30-2026

Firm License Number: 184.005810 - COA

VSE Project Number: U1408.0665.262

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REV	DESCRIPTION	DATE
6	DRAWING CREATED	3/24/26
5		
4		
3		
2		
1		

DRAW BY:	BRH
CHCK BY:	GAM
ENG APR.	
MFG APR.	
Q.C.	

DRAWING NAME:
STANDARD TOWER NOTES

SITE ADDRESS:
MT THABOR RD
CRYSTAL LAKE, IL 60014

SITE NAME:
IL1502-A
176 & HALIGUS

JOB. NO. 119971

SHEET NO. S-02 | REV NO.

SPECIAL INSPECTION STATEMENT IN ACCORDANCE WITH IBC SECTION 1704.3

VERIFICATION AND TESTING SHALL BE COMPLETED AS FOLLOWS:

STRUCTURAL STEEL CONSTRUCTION (MONOPOLE STRUCTURE):

INSPECTION OF HIGH-STRENGTH BOLTED CONNECTIONS:

- VERIFY IDENTIFICATION MARKINGS/GRADE, QTY AND SIZE OF BOLTS, NUTS & WASHERS
- VISUALLY INSPECT SNUG-TIGHT BOLTED JOINTS TO VERIFY ALL PLIES IN CONTACT AND LOCK-WASHERS COMPRESSED
- VERIFY PROPER TIGHTENING OF PRETENSIONED CONNECTIONS USING TURN-OF-NUT METHOD WITH MATCHMARKING

INSTALLATION VERIFICATION:

- VERIFY PROPER INSTALLATION/ERECTION OF MONOPOLE PER DESIGN SPECIFICATIONS UPON COMPLETION OF INSTALLATION.
  VERIFICATION TO INCLUDE THE FOLLOWING:
  - MINIMUM SLIP JOINT OVERLAPS
  - STRUCTURE PLUMB IN ACCORDANCE WITH TIA-222
  - MAXIMUM CLEAR DISTANCE BETWEEN TOP OF FOUNDATION AND LEVELING NUT

VERIFICATION OF ALL ITEMS AS OUTLINED ABOVE SHALL BE BASED ON DESIGN SPECIFICATIONS AND INSTALLATION DETAILS AS COMPLETED BY EHRESMANN ENGINEERING.

SPECIAL INSPECTOR SHALL IDENTIFY AND DOCUMENT RESULTS OF ALL INSPECTIONS AND MATERIAL TESTING AS OUTLINED. INSPECTION REPORTS SHALL BE SUBMITTED AS SOON AS POSSIBLE UPON COMPLETION OF INSPECTION BUT NO MORE THAN 5 WORKING DAYS UNLESS OTHERWISE AGREED BY PROJECT OWNER.

DEVIATION OR NON-COMPLIANCE SHALL BE CORRECTED BY CONTRACTOR. ANY DEVIATIONS NOT CORRECTED ARE TO BE CLEARLY IDENTIFIED IN FINAL REPORTS AND EHRESMANN ENGINEERING SHOULD BE NOTIFIED IMMEDIATELY FOR CONSULTATION.

THE PROJECT OWNER OR AN AGENT OF THE OWNER IS RESPONSIBLE FOR SCHEDULING AND FUNDING ALL SPECIAL INSPECTION SERVICES.

SPECIAL INSPECTIONS REQUIRED:

STRUCTURAL STEEL:	CONTINUOUS	PERIODIC
HIGH-STRENGTH BOLTS		X

STRUCTURAL OBSERVATION	NOT REQUIRED

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LICENSED STRUCTURAL ENGINEER
JOEL R. HARTMAN
081.008484
STATE OF ILLINOIS

License Expires: 11-30-2026

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REV	DESCRIPTION	DATE
6	DRAWING CREATED	3/24/26
5		
4		
3		
2		
1		

DRAW BY:	BRH
CHCK BY:	GAM
ENG APR.	
MFG APR.	
Q.C.	

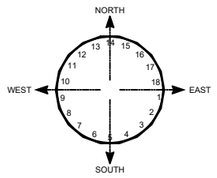
DRAWING NAME:
125' MONOPOLE SPECIAL INSPECTION STATEMENT

SITE ADDRESS:
MT THABOR RD
CRYSTAL LAKE, IL 60014

SITE NAME:
IL1502-A
176 & HALIGUS

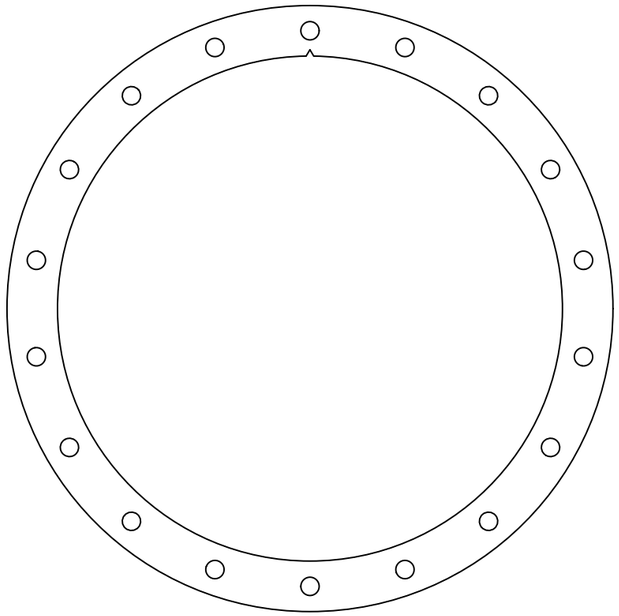
JOB. NO. 119971

SHEET NO. S-03 | REV NO.



WELDMENT	PART	QTY	DESCRIPTION	WEIGHT
	119971	2	1/4" ANCHOR BOLT TEMPLATE X Ø 60" O.D. (Ø55"; B.C.)	116
	578384	18	Ø1 3/4" X 6' LG ANCHOR BOLT KIT (ASSEMBLED)	568
	---	108	1 3/4" HEAVY HEX NUT. A536 (GALV.)	---
	---	36	1 3/4" FLAT WASHER. F436 (GALV.)	---

BLACK IRON WT = 684#



ANCHOR RODS ARE TO PROJECT 12" ABOVE TOP OF CONCRETE (60" EMBEDMENT IN CONCRETE).
IT IS THE FOUNDATION DESIGNER'S RESPONSIBILITY TO DESIGN THE STEEL FOUNDATION REINFORCEMENT AND / OR ANCHOR CONFINING REINFORCEMENT SUCH THAT THE PROVIDED ANCHORAGE EMBED IS SUFFICIENT FOR THEIR DESIGN AND ADEQUATE FOR OVERALL POLE / FOUNDATION DESIGN.

NOTES:

1. V-NOTCH INDICATES CENTERLINE FLAT #14. (NORTH)

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ENGINEER STAMP:



License Expires: 11-30-2026

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VSE Project Number: U1408.0665.262

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REV	DESCRIPTION	DATE
0	DRAWING CREATED	3/24/26

DRAW BY:	BRH
CHCK BY:	GAM
ENG APR.	
MFG APR.	
Q.C.	

DRAWING NAME:
ANCHOR BOLT & TEMPLATE
STANDARD INSTALLATION

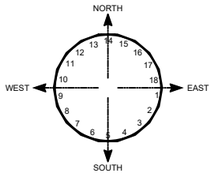
SITE ADDRESS:
MT THABOR RD
CRYSTAL LAKE, IL 60014

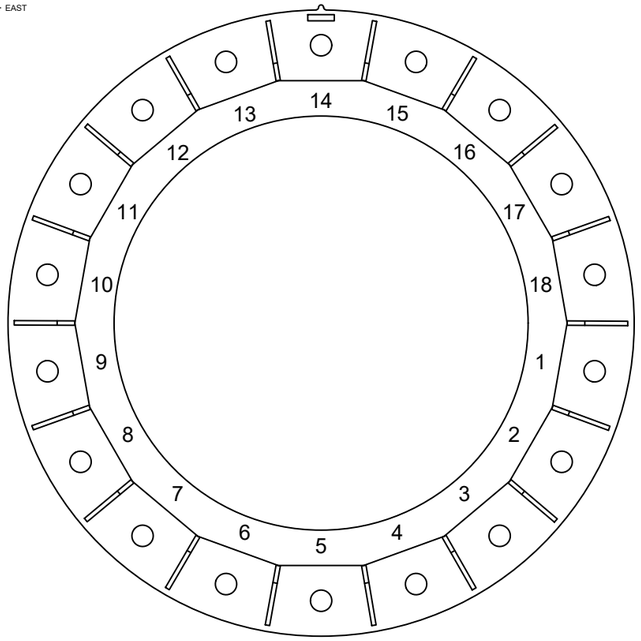
SITE NAME:
IL1502-A
176 & HALIGUS

JOB. NO. 119971

SHEET NO. S-04 | REV NO.

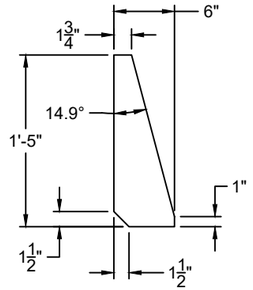
VERSION 2.0





PLAN VIEW

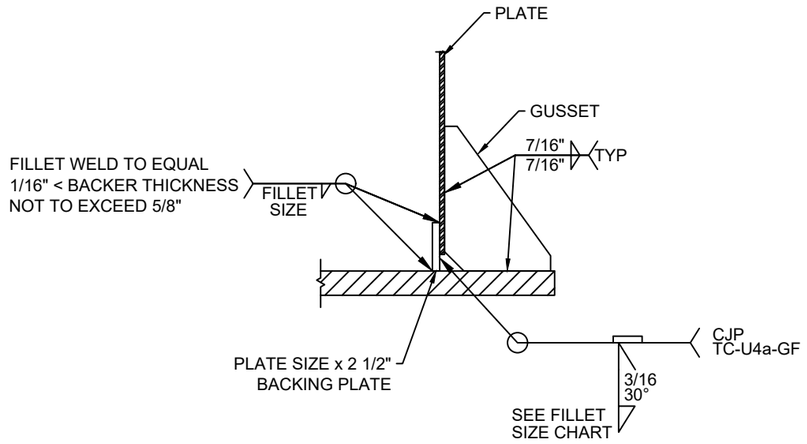
PRE-HEAT	
THICKNESS OF THICKEST PART AT POINT OF WELDING	MIN. PREHEAT AND INTERPASS TEMPERATURE
1/8" TO 3/4" INCL.	32°
OVER 3/4" THRU 1 1/2" INCL.	50°
OVER 1 1/2" THRU 2 1/2" INCL.	150°
OVER 2 1/2" INCL.	225°



pl5a
GUSSET
7/16" PLATE A572 65 KSI
QTY (18)

WELDMENT	PART	QTY	DESCRIPTION	WEIGHT
SEC1		1	MONOPOLE 50' SECTION	---
	119971	1	PLATE,BASE, 1 3/4" X 62"OD,A572 (FY-50)	---
	PL01	2	PLATE,BACKER, 3/8" X 2 1/2" X 6'-1 7/8" LG	---
	PL05A	18	PLATE,GUSSET, 7/16" X 6" X 17" LG	149

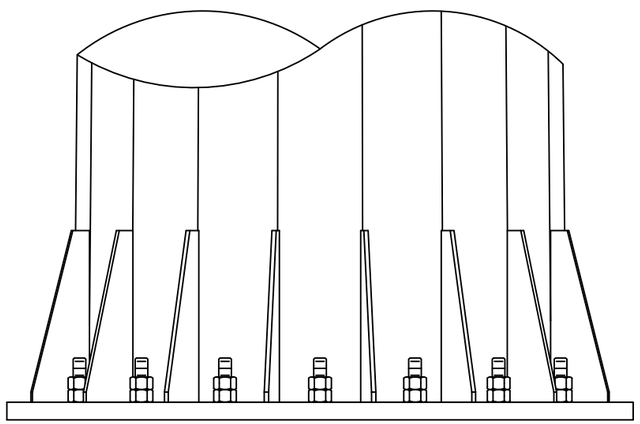
BLACK IRON WT = 149#



BASE CROSS SECTION

NOTES:

1. LOCATE GUSSETS AS SHOWN. GUSSETS ARE TO RADIATE OUTWARD FROM THE CENTER OF THE MONOPOLE.
2. ALL WELD ELECTRODES/WIRE TO BE E80 (80 KSI YIELD).



ELEVATION PLAN

FILLET SIZE CHART (PER TIA Q9.0)

3/16" to 1/2" PLATE
V = 9/16"
H = 5/16"

5/8" PLATE
V = 11/16"
H = 3/8"



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ENGINEER STAMP:



License Expires: 11-30-2026

Firm License Number: 184.005810 - COA

VSE Project Number: U1408.0665.262

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REV	DESCRIPTION	DATE
A	DRAWING CREATED	3/24/26

DRAW BY:	BRH
CHCK BY:	GAM
ENG APR.	
MFG APR.	
Q.C.	

DRAWING NAME:
BASE PLATE &
GUSSET WELD

SITE ADDRESS:
MT THABOR RD
CRYSTAL LAKE, IL 60014

SITE NAME:
IL1502-A
176 & HALIGUS

JOB. NO. 119971

SHEET NO. S-05 | REV NO.

VERSION 2.0

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

Aeronautical Study No.
2025-AGL-16342-OE

Issued Date: 12/29/2025

TOWERNORTH DEVELOPMENT, LLC
ELIZABETH RUTKOWSKI
2400 Ansys Drive
Suite 102
Canonsburg, PA 15317

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

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

Structure: Monopole 176 & Haligus, IL1502-A
County, State: McHenry, Illinois

Collected Point(s):

Label	Latitude	Longitude	SE	DET AGL	AMSL
pt-1	42-14-58.37N	88-24-14.91W	919 Ft	129 Ft	1048 Ft

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

Emissions from this site must be in compliance with the parameters set by collaboration between the FAA and telecommunications companies and reflected in the FAA 5G C band compatibility evaluation process (such as power, frequencies, and tilt angle). Operational use of this frequency band is not objectionable provided the Wireless Providers (WP) obtain and adhere to the parameters established by the FAA 5G C band compatibility evaluation process. **Failure to comply with this condition will void this determination of no hazard.**

See attachment for additional condition(s) or information.
Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M Change 1.

This determination expires on 06/29/2027 unless:

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

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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

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

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

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

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

If we can be of further assistance, please contact our office at 1-817-222-5954, or timothy.m.waychoff@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2025-AGL-16342-OE.

Signature Control No: 687645703-688167194 (DNE)
Timothy Waychoff
Specialist

Attachment(s)
Additional Information
Case Description
Frequency Data
Map(s)

cc: FCC

The FAA recognizes emissions in the 3.7-3.98 GHz band at this location will result in Electromagnetic Interference (EMI) as described in Airworthiness Directives (AD) 2021-23-12 and 2021-23-13. NAS services including airport and helicopter operations within a radius of 42 NM will be impacted by 5G RF emissions. Operational use of this frequency band is not objectionable provided the Wireless Providers obtain and adhere to the parameters established by the FAA 5G C band compatibility evaluation process.

Part 77 authorizes the FAA to evaluate a structure or object's potential electromagnetic effects on air navigation, communication facilities, and other surveillance systems. It also authorizes study of impact on arrival, departure, and en route procedures for aircraft operating under visual or instrument flight rules, as well as the impact on airport traffic capacity at existing public use airports. Broadcast in the 3.7 to 3.98 GHz frequency (5G C band) currently causes errors in certain aircraft radio altimeters and the FAA has determined they cannot be relied upon to perform their intended function when experiencing interference from wireless broadband operations in the 5G C band. The FAA has adopted Airworthiness Directives for all transport and commuter category aircraft equipped with radio altimeters that prohibit certain operations when in the presence of 5G C band.

This determination of no hazard is based upon those mitigations implemented by the FAA and operators of transport and commuter category aircraft, and helicopters operating in the vicinity of your proposed location. It is also based on telecommunication industry and FAA collaboration on acceptable power levels and other parameters as reflected in the FAA 5G C band evaluation process.

The FAA 5G C band compatibility evaluation is a data analytics system used by FAA to evaluate operational hazards related to aircraft design. The FAA 5G C band compatibility evaluation process refers to the process in which the telecommunication companies and the FAA have set parameters, such as power output, locations, frequencies, and tilt angles for antenna that mitigate the hazard to aviation. As the telecommunication companies and FAA refine the tools and methodology, the allowable frequencies and power levels may change in the FAA 5G C band compatibility evaluation process. Therefore, your proposal will not have a substantial adverse effect on the safe and efficient use of the navigable airspace by aircraft provided the equipment and emissions are in compliance with the parameters established through the FAA 5G C band compatibility evaluation process.

Any future changes that are not consistent with the parameters listed in the FAA 5G C band compatibility evaluation process will void this determination of no hazard.

Proposed new structure. Submitting for ASN.

Frequency Data for ASN 2025-AGL-16342-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
6	7	GHz	42	dBW
6	7	GHz	55	dBW
10	11.7	GHz	42	dBW
10	11.7	GHz	55	dBW
17.7	19.7	GHz	42	dBW
17.7	19.7	GHz	55	dBW
21.2	23.6	GHz	42	dBW
21.2	23.6	GHz	55	dBW
614	698	MHz	1000	W
614	698	MHz	2000	W
698	806	MHz	1000	W
746	757	MHz	1000	W
776	787	MHz	1000	W
806	824	MHz	500	W
806	901	MHz	500	W
824	849	MHz	500	W
835	845	MHz	1000	W
845	849	MHz	1000	W
851	866	MHz	500	W
869	894	MHz	500	W
880	890	MHz	1000	W
891.5	894	MHz	1000	W
896	901	MHz	500	W
901	902	MHz	7	W
929	932	MHz	3500	W
930	931	MHz	3500	W
931	932	MHz	3500	W
932	932.5	MHz	17	dBW
935	940	MHz	1000	W
940	941	MHz	3500	W
1670	1675	MHz	500	W
1710	1755	MHz	500	W
1710	1720	MHz	1640	W
1720	1730	MHz	1640	W
1850	1910	MHz	1640	W
1850	1990	MHz	1640	W
1880	1885	MHz	1640	W
1930	1990	MHz	1640	W
1960	1965	MHz	1640	W
1990	2025	MHz	500	W
2110	2200	MHz	500	W
2110	2120	MHz	1640	W

2120	2130	MHz	1640	W
2305	2360	MHz	2000	W
2305	2310	MHz	2000	W
2345	2360	MHz	2000	W
2496	2690	MHz	500	W
3700	3980	MHz	1640	W
3700	3720	MHz	1640	W
3720	3740	MHz	1640	W
3740	3760	MHz	1640	W
3760	3780	MHz	1640	W
3780	3800	MHz	1640	W
3800	3820	MHz	1640	W

TOPO Map for ASN 2025-AGL-16342-OE



Sectional Map for ASN 2025-AGL-16342-OE



UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION
ANTENNA STRUCTURE REGISTRATION

OWNER: TowerNorth Development, LLC

FCC Registration Number (FRN): 0023077357

ATTN: Michael Hammer **TowerNorth Development, LLC** **2400 Ansys Drive** **Suite 102** **Cannonsburg, PA 15317**	**Antenna Structure Registration Number** **1332920** **Issue Date** **03/13/2026**
Location of Antenna Structure **Mt Thabor Road** **Crystal Lake, IL 60014** **County: MCHENRY**	**Ground Elevation (AMSL)** **280.1 meters** **Overall Height Above Ground (AGL)** **39.3 meters**
Latitude **Longitude** **42- 14- 58.4 N** **088- 24- 15.0 W** **NAD83**	**Overall Height Above Mean Sea Level (AMSL)** **319.4 meters**
Center of Array Coordinates **N/A**	**Type of Structure** **MTOWER** **Monopole**
Painting and Lighting Requirements: **FAA Chapters NONE** **Conditions:**	

This registration is effective upon completion of the described antenna structure and notification to the Commission. **YOU MUST NOTIFY THE COMMISSION WITHIN 5 DAYS OF COMPLETION OF CONSTRUCTION OR CANCELLATION OF YOUR PROJECT, please file FCC Form 854.** To file electronically, connect to the antenna structure registration system by pointing your web browser to https://www.fcc.gov/antenna-structure-registration. Electronic filing is required. Use purpose code "NT" for notification of completion of construction; use purpose code "CA" to cancel your registration.

The Antenna Structure Registration is not an authorization to construct radio facilities or transmit radio signals. It is necessary that all radio equipment on this structure be covered by a valid FCC license or construction permit.

You must immediately provide a copy of this Registration to all tenant licensees and permittees sited on the structure described on this Registration (although not required, you may want to use Certified Mail to obtain proof of receipt), and *display* your Registration Number at the site. See reverse for important information about the Commission's Antenna Structure Registration rules.

Reference Copy

You must comply with all applicable FCC obstruction marking and lighting requirements, as set forth in Part 17 of the Commission's Rules (47 C.F.R. Part 17). These rules include, but are not limited to:

- ***Posting the Registration Number:*** The Antenna Structure Registration Number must be displayed in a conspicuous place so that it is readily visible near the base of the antenna structure. Materials used to display the Registration Number must be weather-resistant and of sufficient size to be easily seen at the base of the antenna structure. Exceptions exist for certain historic structures. See 47 C.F.R. 17.4(g)-(h).

- ***Inspecting lights and equipment:*** The obstruction lighting must be observed at least every 24 hours in order to detect any outages or malfunctions. Lighting equipment, indicators, and associated devices must be inspected at least once every three months.

- ***Reporting outages and malfunctions:*** When any top steady-burning light or a flashing light (in any position) burns out or malfunctions, the outage must be reported to the nearest FAA Flight Service Station, unless corrected within 30 minutes. The FAA must again be notified when the light is restored. The owner must also maintain a log of these outages and malfunctions.

- ***Maintaining assigned painting:*** The antenna structure must be repainted as often as necessary to maintain good visibility.

- ***Complying with environmental rules:*** If you certified that grant of this registration would not have a significant environmental impact, you must nevertheless maintain all pertinent records and be ready to provide documentation supporting this certification and compliance with the rules, in the event that such information is requested by the Commission pursuant to 47 C.F.R. 1.1307(d).

- ***Updating information:*** The owner must notify the FCC of proposed modifications to this structure; of any change in ownership; or, within 30 days of dismantlement of the structure.

Copies of the Code of Federal Regulations (which contain the FCC's antenna structure registration rules, 47 C.F.R Part 17) are available from the Government Printing Office (GPO). To purchase CFR volumes, call (202) 512-1800. For GPO Customer Service, call (202) 512-1803. For additional FCC information, consult the Antenna Homepage on the internet at https://www.fcc.gov/antenna-structure-registration or call (877) 480-3201 (TTY 717-338-2824).

Reference Copy

ULS License

3.7 GHz Service License - WRNE600 - Cellco Partnership

Call Sign	WRNE600	Radio Service	PM - 3.7 GHz Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA003 - Chicago, IL	Channel Block	A5
Submarket	0	Associated Frequencies (MHz)	003780.00000000-003800.00000000
3.7 GHz License Type	Final	3.7 GHz Linked License	

Dates

Grant	07/23/2021	Expiration	07/23/2036
Effective	07/23/2021	Cancellation	

Buildout Deadlines

1st	07/23/2029	2nd	07/23/2033

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

ECIP Information

ECIP Flag

Small Carrier or Tribal Nation Transaction		Rural-Focused Transaction	

ECIP Dates

5-Year Holding Period Begins		5-Year Holding Period Ends	

Required Operational Filing Dates

IORN Operation Begin Date	FORN Deadline Date	FORN Filed Date

Licensee

FRN	0003290673	Type	General Partnership

Licensee

ULS License

3.7 GHz Service License - WRNE603 - Cellco Partnership

Call Sign	WRNE603	Radio Service	PM - 3.7 GHz Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA003 - Chicago, IL	Channel Block	B3
Submarket	0	Associated Frequencies (MHz)	003840.00000000-003860.00000000
3.7 GHz License Type	Final	3.7 GHz Linked License	

Dates

Grant	07/23/2021	Expiration	07/23/2036
Effective	07/23/2021	Cancellation	

Buildout Deadlines

1st	07/23/2029	2nd	07/23/2033

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

ECIP Information

ECIP Flag

Small Carrier or Tribal Nation Transaction		Rural-Focused Transaction	

ECIP Dates

5-Year Holding Period Begins		5-Year Holding Period Ends	

Required Operational Filing Dates

IORN Operation Begin Date	FORN Deadline Date	FORN Filed Date

Licensee

FRN	0003290673	Type	General Partnership

Licensee

Cellco Partnership
5055 North Point Pkwy, NP2NE Network Engineering
Alpharetta, GA 30022
ATTN Regulatory

P:(770)797-1070
E:licensingcompliance@verizonwireless.com

Contact

Verizon
Sarah Trosch
1300 I St NW - Suite 500 East
Washington, DC 20005

P:(202)515-2453
E:sarah.trosch@verizon.com

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Sex

ULS License

AWS (1710-1755 MHz and 2110-2155 MHz) License - WQGA952 - Cellco Partnership

Call Sign	WQGA952	Radio Service	AW - AWS (1710-1755 MHz and 2110-2155 MHz)
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	BEA064 - Chicago-Gary-Kenosha, IL-IN-WI	Channel Block	B
Submarket	0	Associated Frequencies (MHz)	001720.00000000-001730.00000000 002120.00000000-002130.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	12/21/2021	Expiration	11/29/2036
Effective	12/21/2021	Cancellation	

Buildout Deadlines

1st	2nd

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd	08/31/2021

ECIP Information

ECIP Flag

Small Carrier or Tribal Nation Transaction	Rural-Focused Transaction

ECIP Dates

5-Year Holding Period Begins	5-Year Holding Period Ends

Required Operational Filing Dates

IORN Operation Begin Date	FORN Deadline Date	FORN Filed Date

Licensee

FRN 0003290673 Type General Partnership

Licensee

Cellco Partnership
5055 North Point Pkwy, NP2NE Network Engineering
Alpharetta, GA 30022

P:(770)797-1070
F:(770)797-1036
E:LicensingCompliance@VerizonWireless.com

Contact

Cellco Partnership
Licensing Manager
5055 North Point Pkwy, NP2NE Network Engineering
Alpharetta, GA 30022

P:(770)797-1070
F:(770)797-1036
E:LicensingCompliance@VerizonWireless.com

Ownership and Qualifications

Radio Service Type Mobile

Regulatory Status Common Carrier Interconnected Yes

Alien Ownership

The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications

The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits

This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity Sex

ULS License

Cellular License - KNKA200 - Chicago SMSA LP

Call Sign	KNKA200	Radio Service	CL - Cellular
Status	Active	Auth Type	Regular

Market

Market	CMA003 - Chicago, IL	Channel Block	B
Submarket	0	Phase	2

Dates

Grant	09/30/2025	Expiration	11/06/2035
Effective	09/30/2025	Cancellation	

Five Year Buildout Date

10/25/1999

ECIP Information

ECIP Flag

Small Carrier or Tribal Nation Transaction	Rural-Focused Transaction

ECIP Dates

5-Year Holding Period Begins	5-Year Holding Period Ends

Required Operational Filing Dates

IORN Operation Begin Date	FORN Deadline Date	FORN Filed Date

Control Points

2	500 W. Dove Road, TARRANT, Southlake, TX P: (800)264-8820

Licensee

FRN	0002846962	Type	Limited Partnership

Licensee

Chicago SMSA LP
5055 North Point Pkwy, NP2NE Network Engineering
Alpharetta, GA 30022
ATTN Licensing Manager

P:(770)797-1070
F:(770)797-1036
E:LicensingCompliance@VerizonWireless.com

Contact

Verizon Wireless
Licensing Manager
5055 North Point Pkwy, NP2NE Network Engineering
Alpharetta, GA 30022
ATTN Regulatory

P:(770)797-1070
F:(770)797-1036
E:LicensingCompliance@VerizonWireless.com

Ownership and Qualifications

Radio Service Type	Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

Alien Ownership

Is the applicant a foreign government or the representative of any foreign government?	No
Is the applicant an alien or the representative of an alien?	No
Is the applicant a corporation organized under the laws of any foreign government?	No
Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	No
Is the applicant directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof, or by any corporation organized under the laws of a foreign country?	**Yes**
If the answer to the above question is 'Yes', has the applicant received a ruling(s) under Section 310(b)(4) of the Communications Act with respect to the same radio service involved in this application?	**Yes**

Basic Qualifications

The Applicant answered "No" to each of the Basic Qualification questions.

Demographics

Race

Ethnicity

Sex

ULS License

3.7 GHz Service License - WRNE599 - Cellco Partnership

Call Sign	WRNE599	Radio Service	PM - 3.7 GHz Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA003 - Chicago, IL	Channel Block	A4
Submarket	0	Associated Frequencies (MHz)	003760.00000000-003780.00000000
3.7 GHz License Type	Final	3.7 GHz Linked License	

Dates

Grant	07/23/2021	Expiration	07/23/2036
Effective	07/23/2021	Cancellation	

Buildout Deadlines

1st	07/23/2029	2nd	07/23/2033

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

ECIP Information

ECIP Flag

Small Carrier or Tribal Nation Transaction		Rural-Focused Transaction	

ECIP Dates

5-Year Holding Period Begins		5-Year Holding Period Ends	

Required Operational Filing Dates

IORN Operation Begin Date	FORN Deadline Date	FORN Filed Date

Licensee

FRN	0003290673	Type	General Partnership

Licensee

Cellco Partnership
5055 North Point Pkwy, NP2NE Network Engineering
Alpharetta, GA 30022
ATTN Regulatory

P:(770)797-1070
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Contact

Verizon
Sarah Trosch
1300 I St NW - Suite 500 East
Washington, DC 20005

P:(202)515-2453
E:sarah.trosch@verizon.com

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Sex

ULS License

AWS (1710-1755 MHz and 2110-2155 MHz) License - WQGB264 - Cellco Partnership

Call Sign	WQGB264	Radio Service	AW - AWS (1710-1755 MHz and 2110-2155 MHz)
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	CMA003 - Chicago, IL	Channel Block	A
Submarket	0	Associated Frequencies (MHz)	001710.00000000-001720.00000000 002110.00000000-002120.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	01/13/2022	Expiration	11/29/2036
Effective	01/13/2022	Cancellation	

Buildout Deadlines

1st	2nd

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd	09/10/2021

ECIP Information

ECIP Flag

Small Carrier or Tribal Nation Transaction	Rural-Focused Transaction

ECIP Dates

5-Year Holding Period Begins	5-Year Holding Period Ends

Required Operational Filing Dates

IORN Operation Begin Date	FORN Deadline Date	FORN Filed Date

Licensee

FRN	0003290673	Type	General Partnership

Licensee

Cellco Partnership
5055 North Point Pkwy, NP2NE Network Engineering
Alpharetta, GA 30022

P:(770)797-1070
F:(770)797-1036
E:LicensingCompliance@VerizonWireless.com

Contact

Cellco Partnership
Licensing Manager
5055 North Point Pkwy, NP2NE Network Engineering
Alpharetta, GA 30022

P:(770)797-1070
F:(770)797-1036
E:LicensingCompliance@VerizonWireless.com

Ownership and Qualifications

Radio Service Type	Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

Alien Ownership

Is the applicant a foreign government or the representative of any foreign government?	No
Is the applicant an alien or the representative of an alien?	No
Is the applicant a corporation organized under the laws of any foreign government?	No
Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	No
Is the applicant directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof, or by any corporation organized under the laws of a foreign country?	**Yes**
If the answer to the above question is 'Yes', has the applicant received a ruling(s) under Section 310(b)(4) of the Communications Act with respect to the same radio service involved in this application?	**Yes**

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Sex

ULS License

3.7 GHz Service License - WRNE602 - Cellco Partnership

Call Sign	WRNE602	Radio Service	PM - 3.7 GHz Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA003 - Chicago, IL	Channel Block	B2
Submarket	0	Associated Frequencies (MHz)	003820.00000000-003840.00000000
3.7 GHz License Type	Final	3.7 GHz Linked License	

Dates

Grant	07/23/2021	Expiration	07/23/2036
Effective	07/23/2021	Cancellation	

Buildout Deadlines

1st	07/23/2029	2nd	07/23/2033

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

ECIP Information

ECIP Flag

Small Carrier or Tribal Nation Transaction		Rural-Focused Transaction	

ECIP Dates

5-Year Holding Period Begins		5-Year Holding Period Ends	

Required Operational Filing Dates

IORN Operation Begin Date	FORN Deadline Date	FORN Filed Date

Licensee

FRN	0003290673	Type	General Partnership

Licensee

Cellco Partnership
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Contact

Verizon
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1300 I St NW - Suite 500 East
Washington, DC 20005

P:(202)515-2453
E:sarah.trosch@verizon.com

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Sex

ULS License

700 MHz Upper Band (Block C) License - WQJQ691 - Cellco Partnership

Call Sign	WQJQ691	Radio Service	WU - 700 MHz Upper Band (Block C)
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	REA003 - Great Lakes	Channel Block	C
Submarket	0	Associated Frequencies (MHz)	000746.00000000-000757.00000000 000776.00000000-000787.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	09/20/2019	Expiration	06/13/2029
Effective	12/02/2024	Cancellation	

Buildout Deadlines

1st	06/13/2013	2nd	06/13/2019

Discontinuance Dates

1st		2nd	

Notification Dates

1st	06/20/2013	2nd	06/17/2019

ECIP Information

ECIP Flag

Small Carrier or Tribal Nation Transaction		Rural-Focused Transaction	

ECIP Dates

5-Year Holding Period Begins		5-Year Holding Period Ends	

Required Operational Filing Dates

IORN Operation Begin Date	FORN Deadline Date	FORN Filed Date

Licensee

FRN	0003290673	Type	General Partnership

Licensee

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Ownership and Qualifications

Radio Service Type	Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Sex

ULS License

3.7 GHz Service License - WRNE596 - Cellco Partnership

Call Sign	WRNE596	Radio Service	PM - 3.7 GHz Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA003 - Chicago, IL	Channel Block	A1
Submarket	0	Associated Frequencies (MHz)	003700.00000000-003720.00000000
3.7 GHz License Type	Combo	3.7 GHz Linked License	

Dates

Grant	07/23/2021	Expiration	07/23/2036
Effective	07/23/2021	Cancellation	

Buildout Deadlines

1st	07/23/2029	2nd	07/23/2033

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

ECIP Information

ECIP Flag

Small Carrier or Tribal Nation Transaction	Rural-Focused Transaction

ECIP Dates

5-Year Holding Period Begins	5-Year Holding Period Ends

Required Operational Filing Dates

IORN Operation Begin Date	FORN Deadline Date	FORN Filed Date

Licensee

FRN	0003290673	Type	General Partnership

Licensee

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Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Sex

ULS License

3.7 GHz Service License - WRNE598 - Cellco Partnership

Call Sign	WRNE598	Radio Service	PM - 3.7 GHz Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA003 - Chicago, IL	Channel Block	A3
Submarket	0	Associated Frequencies (MHz)	003740.00000000-003760.00000000
3.7 GHz License Type	Combo	3.7 GHz Linked License	

Dates

Grant	07/23/2021	Expiration	07/23/2036
Effective	07/23/2021	Cancellation	

Buildout Deadlines

1st	07/23/2029	2nd	07/23/2033

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

ECIP Information

ECIP Flag

Small Carrier or Tribal Nation Transaction		Rural-Focused Transaction	

ECIP Dates

5-Year Holding Period Begins		5-Year Holding Period Ends	

Required Operational Filing Dates

IORN Operation Begin Date	FORN Deadline Date	FORN Filed Date

Licensee

FRN	0003290673	Type	General Partnership

Licensee

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Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Sex

ULS License

3.7 GHz Service License - WRNE597 - Cellco Partnership

Call Sign	WRNE597	Radio Service	PM - 3.7 GHz Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA003 - Chicago, IL	Channel Block	A2
Submarket	0	Associated Frequencies (MHz)	003720.00000000-003740.00000000
3.7 GHz License Type	Combo	3.7 GHz Linked License	

Dates

Grant	07/23/2021	Expiration	07/23/2036
Effective	07/23/2021	Cancellation	

Buildout Deadlines

1st	07/23/2029	2nd	07/23/2033

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

ECIP Information

ECIP Flag

Small Carrier or Tribal Nation Transaction	Rural-Focused Transaction

ECIP Dates

5-Year Holding Period Begins	5-Year Holding Period Ends

Required Operational Filing Dates

IORN Operation Begin Date	FORN Deadline Date	FORN Filed Date

Licensee

FRN	0003290673	Type	General Partnership

Licensee

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Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Sex

ULS License

3.7 GHz Service License - WRNE601 - Cellco Partnership

Call Sign	WRNE601	Radio Service	PM - 3.7 GHz Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA003 - Chicago, IL	Channel Block	B1
Submarket	0	Associated Frequencies (MHz)	003800.00000000-003820.00000000
3.7 GHz License Type	Final	3.7 GHz Linked License	

Dates

Grant	07/23/2021	Expiration	07/23/2036
Effective	07/23/2021	Cancellation	

Buildout Deadlines

1st	07/23/2029	2nd	07/23/2033

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

ECIP Information

ECIP Flag

Small Carrier or Tribal Nation Transaction		Rural-Focused Transaction	

ECIP Dates

5-Year Holding Period Begins		5-Year Holding Period Ends	

Required Operational Filing Dates

IORN Operation Begin Date	FORN Deadline Date	FORN Filed Date

Licensee

FRN	0003290673	Type	General Partnership

Licensee

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P:(202)515-2453
E:sarah.trosch@verizon.com

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Sex

ULS License

PCS Broadband License - KNLF207 - Cellco Partnership

Call Sign	KNLF207	Radio Service	CW - PCS Broadband
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	MTA003 - Chicago	Channel Block	B
Submarket	11	Associated Frequencies (MHz)	001870.00000000-001885.00000000 001950.00000000-001965.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	06/09/2025	Expiration	06/23/2035
Effective	06/09/2025	Cancellation	

Buildout Deadlines

1st	2nd

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

ECIP Information

ECIP Flag

Small Carrier or Tribal Nation Transaction		Rural-Focused Transaction	

ECIP Dates

5-Year Holding Period Begins		5-Year Holding Period Ends	

Required Operational Filing Dates

IORN Operation Begin Date	FORN Deadline Date	FORN Filed Date

Licensee

FRN	0003290673	Type	General Partnership

Licensee

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5055 North Point Pkwy, NP2NE Network Engineering
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ATTN Regulatory

P:(770)797-1070
F:(770)797-1036
E:LicensingCompliance@VerizonWireless.com

Ownership and Qualifications

Radio Service Type	Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

Alien Ownership

Is the applicant a foreign government or the representative of any foreign government?	No
Is the applicant an alien or the representative of an alien?	No
Is the applicant a corporation organized under the laws of any foreign government?	No
Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	No
Is the applicant directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof, or by any corporation organized under the laws of a foreign country?	**Yes**
If the answer to the above question is 'Yes', has the applicant received a ruling(s) under Section 310(b)(4) of the Communications Act with respect to the same radio service involved in this application?	**Yes**

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Sex

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Contact

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P:(202)515-2453
E:sarah.trosch@verizon.com

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Sex

Su

Radio Frequency Exposure
FCC Compliance Assessment
Pre-Activation

SITE INFORMATION			
Site Name	**176 & Haligus - A**	**Multi-Licensee/Carrier Facility**	**NO**
Site ID	**5037470**	**Is Verizon a Significant RFE Contributor in Co-Locator Areas Requiring Mitigation?**	**NO**
Street Address	**TBD Mt Thabor Road**		
City, State, Zip	**Crystal Lake, IL 60014**		
Structure Type	**Monopole**		
Broadcast (AM/FM/TV) Co-Locators	**NO**	**Assessment Date**	**10/08/25**
Total # Access Points	**1**	**Assessment Purpose**	**NEW SITE**
Original Report Date	**10/08/25**	**# Total Report Revisions**	**0**
RFE Compliance Status	**SITE COMPLIANT AS DESIGNED (no additional mitigation required)**	**Report Revision Date**	**N/A**

VERIZON'S HIGHEST RF EMISSIONS IN ACCESSIBLE AREAS FOR THIS SITE
BELOW the General Population MPE limit

VENDOR INFORMATION			
Company name: Telnet Inc. Company Address: 7630 Standish Place, Rockville, MD 20855	**Assessor name:** Ahmed Al Jubouri	**Phone**	(301) 840 7110 ext. 188
		Mobile	832 773 3229
		Email	ahmed.jubouri@telnet-inc.com

RFE assessment summary

Description of all Compliance Requirements(s):
N/A.

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1. Site Mitigation Details

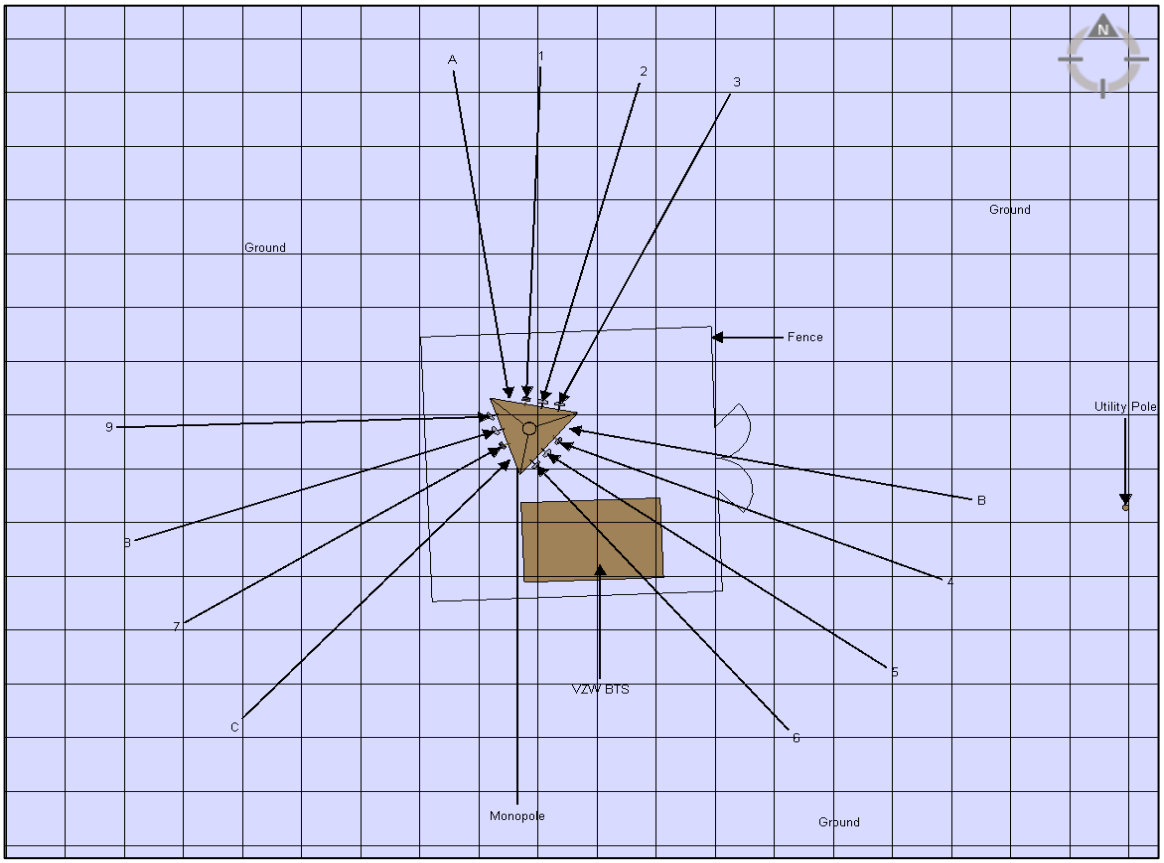
Final Compliant Configuration	SAFETY GUIDELINES	NOTICE	CAUTION	WARNING	NOC INFO	BARRIER/MARKER	
							
	Quantity	Quantity	Quantity	Quantity	Quantity		
Pole	[#]	[#]	[#]	[#]	[#]	☐	[Insert the barrier info]
Alpha	[#]	[#]	[#]	[#]	[#]	☐	
Beta	[#]	[#]	[#]	[#]	[#]	☐	
Gamma	[#]	[#]	[#]	[#]	[#]	☐	

Additional mitigation details:
N/A.

RF Safety Plan			
Internal RFSP Required	NO	External RFSP Letter Required	NO

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Proposed Signage Diagram



Items to be removed

Existing Signs

Proposed Signs

Existing Barriers

Proposed Barriers

N/A.

NOC Information	Guidelines	Notice	Caution	Warning
				

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2. Power mitigation details

Site Redesign Data (if Engineering Services requested)

N/A.

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3. Antenna Inventory [RF Design/Power Settings]

Requestor Point of Contact

Market:	**IL**	**Name:**	**Suresh, Varun**
		Email:	**varun.suresh@verizonwireless.com**

a. Initial Antenna Inventory

ID	Carrier NAME	Antenna manufacturer	Antenna Model	Mech Tilt	Elec Tilt	Azimuth (°)	ACL (ft)	Antenna Aperture (ft)	Frequency Band	TDD/FDD	System loss	Configured Radio power (W)	Tx Count	Gain (dBd)	ERP (dBm)
1	VZW	JMA	AIR6419	0	0	10	120	2.35	L-Sub6	TDD	0.0	320	1	22.35	77.40
2	VZW	JMA	AIR3283	0	2	10	120	4.00	2100	FDD	0.5	60	4	21.01	74.31
2	VZW	Ericsson	AIR3283	0	2	10	120	4.00	1900	FDD	0.5	60	4	20.41	73.71
3	VZW	Ericsson	MX04FIT865-03E	0	2 to 12	10	120	8.00	700	FDD	0.5	60	4	13.95	67.25
3	VZW	Ericsson	MX04FIT865-03E	0	2 to 12	10	120	8.00	850	FDD	0.5	60	4	14.75	68.05
4	VZW	JMA	AIR6419	0	0	130	120	2.35	L-Sub6	TDD	0.0	320	1	22.35	77.40
5	VZW	JMA	AIR3283	0	2	130	120	4.00	2100	FDD	0.5	60	4	21.01	74.31
5	VZW	Ericsson	AIR3283	0	2	130	120	4.00	1900	FDD	0.5	60	4	20.41	73.71
6	VZW	Ericsson	MX04FIT865-03E	0	2 to 12	130	120	8.00	700	FDD	0.5	60	4	13.95	67.25
6	VZW	Ericsson	MX04FIT865-03E	0	2 to 12	130	120	8.00	850	FDD	0.5	60	4	14.75	68.05
7	VZW	JMA	AIR6419	0	0	230	120	2.35	L-Sub6	TDD	0.0	320	1	22.35	77.40
8	VZW	JMA	AIR3283	0	2	230	120	4.00	2100	FDD	0.5	60	4	21.01	74.31
8	VZW	Ericsson	AIR3283	0	2	230	120	4.00	1900	FDD	0.5	60	4	20.41	73.71
9	VZW	Ericsson	MX04FIT865-03E	0	2 to 12	230	120	8.00	700	FDD	0.5	60	4	13.95	67.25
9	VZW	Ericsson	MX04FIT865-03E	0	2 to 12	230	120	8.00	850	FDD	0.5	60	4	14.75	68.05

b. Site Redesign Data (if Engineering Services requested)

N/A.

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c. Table: Z-Heights

Z-height represents the distance from the nearest walking surface to the centerline of the antenna.

Ant Num	Analyzed Elevations (Z)		
	ANT	Utility Pole	Ground
1	4.0	95.0	120.0
2	4.0	95.0	120.0
3	4.0	95.0	120.0
4	4.0	95.0	120.0
5	4.0	95.0	120.0
6	4.0	95.0	120.0
7	4.0	95.0	120.0
8	4.0	95.0	120.0
9	4.0	95.0	120.0

Abbreviations:		
PH: Penthouse FE: Fire Exit EQ: Equipment Cabinet ACL: Antenna Centerline	PU: Public Utility Pole PLS: Public Lighting Structure TCS: Traffic Control Structure MRPA: Maximum (Vendor) Radio Power Available	AR: Adjacent Roof ASR: Adjacent Sloped Roof LR/UR: Lower Roof/Upper Roof

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4. Accessible Areas Assessment

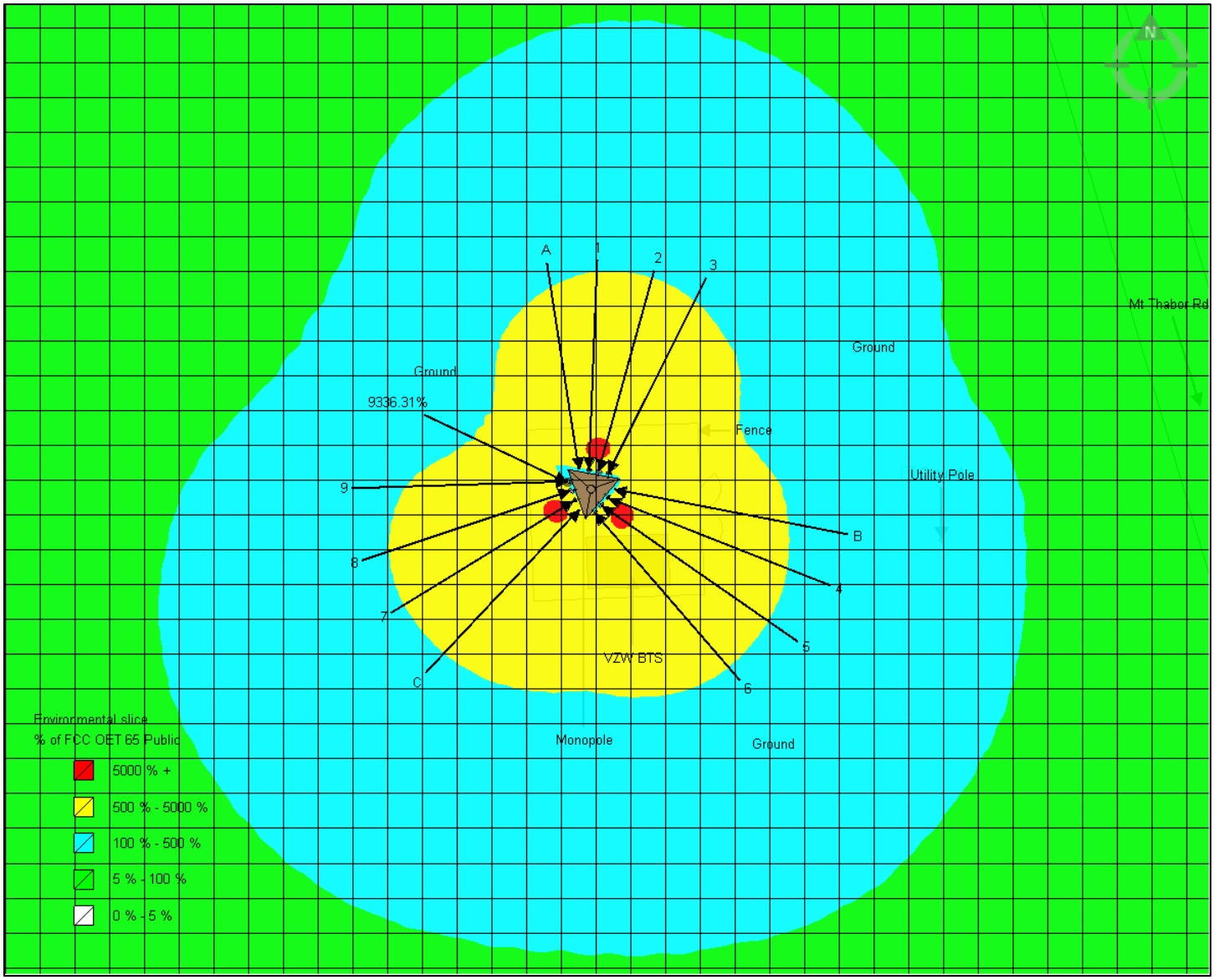
Accessible Area	Distance to antenna (ft)			
	Alpha	Beta	Gamma	Delta
Rooftop located on top of adjacent building	N/A	N/A	N/A	N/A
Accessible areas (porch, fire escape) located on the side of the building	N/A	N/A	N/A	N/A
Buildings with Windows or open-air features (i.e. parking garage)	N/A	N/A	N/A	N/A
Building side with no accessible areas	N/A	N/A	N/A	N/A
Light Pole	N/A	N/A	N/A	N/A
Utility Pole with accessible objects on Pole (Transformers, splicing boxes, etc)	N/A	N/A	N/A	N/A
Utility Pole with no accessible objects (only crossarms and wires)	N/A	90’	N/A	N/A
Other _____ (fill in the type of object)	N/A	N/A	N/A	N/A

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5. Prediction Modeling: Verizon Transmitters

Are the areas being modeled ONLY accessible to persons trained to work in an RF environment (Occupational Area)?	**YES**

Reference Plane: 116 Feet (Antennas Level)

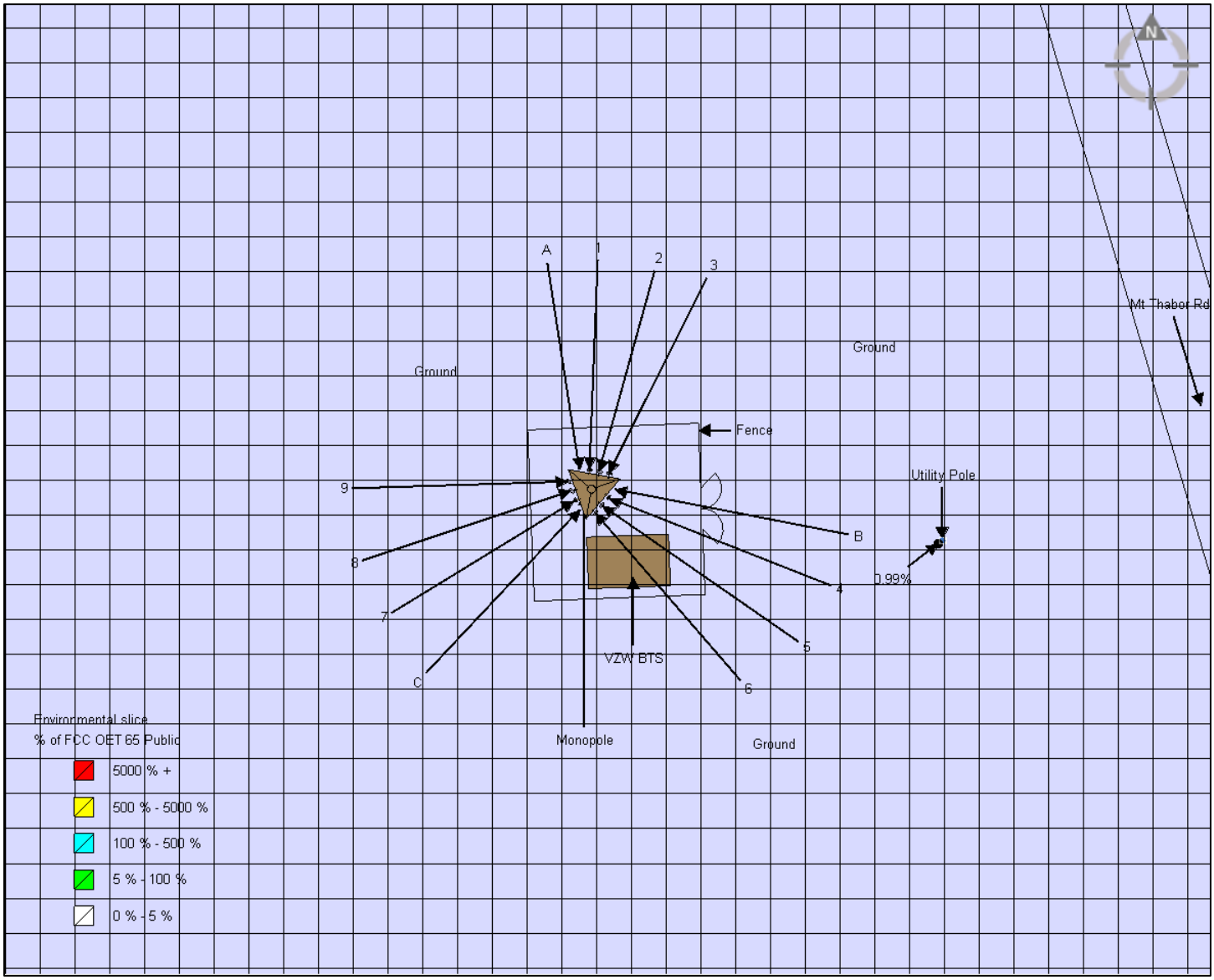


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6. Prediction Modeling: Verizon Transmitters

Are the areas being modeled ONLY accessible to persons trained to work in an RF environment (Occupational Area)?	**NO**

Reference Plane: 25 Feet (Utility Pole Level)

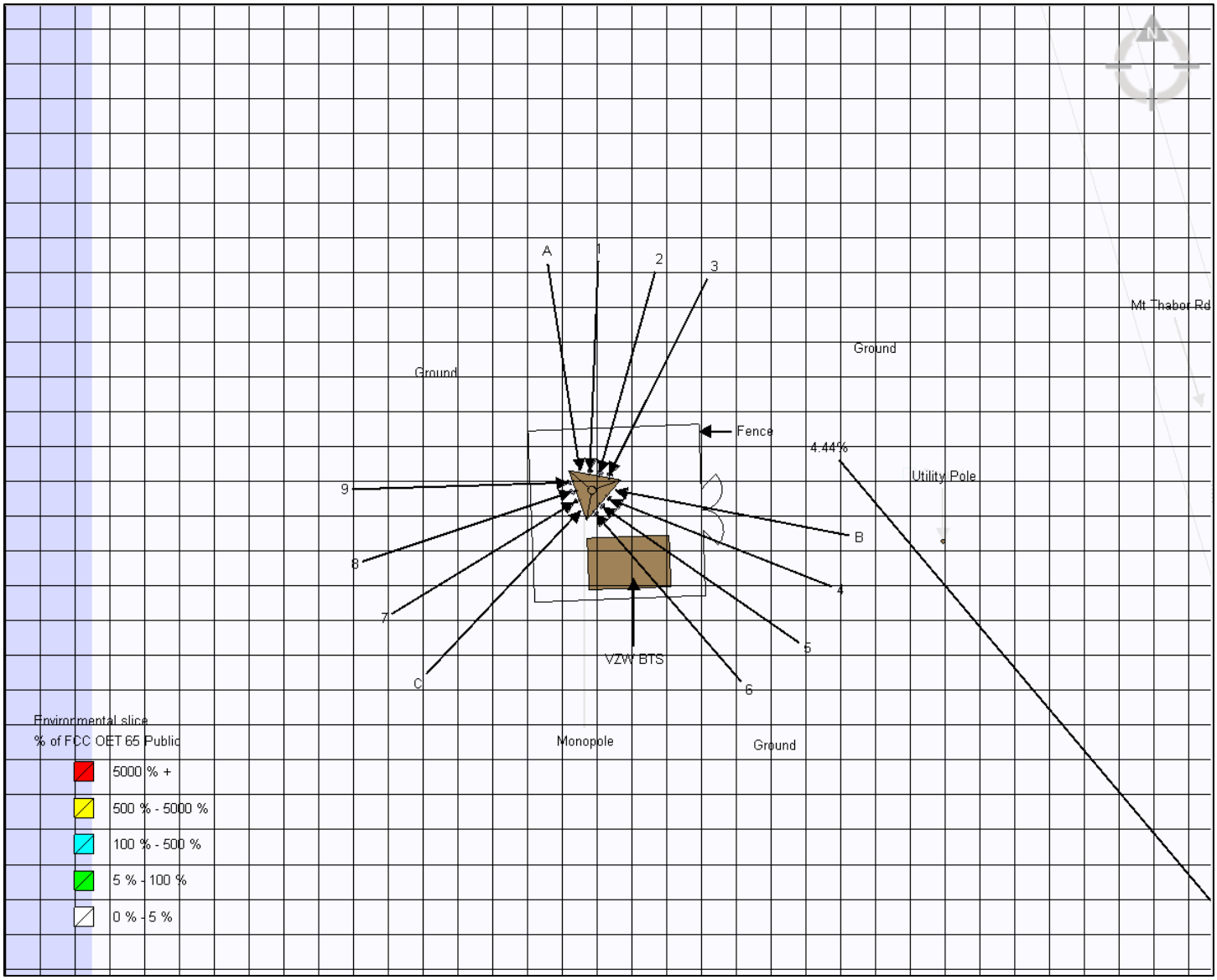


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7. Prediction Modeling: Verizon Transmitters

Are the areas being modeled ONLY accessible to persons trained to work in an RF environment (Occupational Area)?	**NO**

Reference Plane: Ground Level

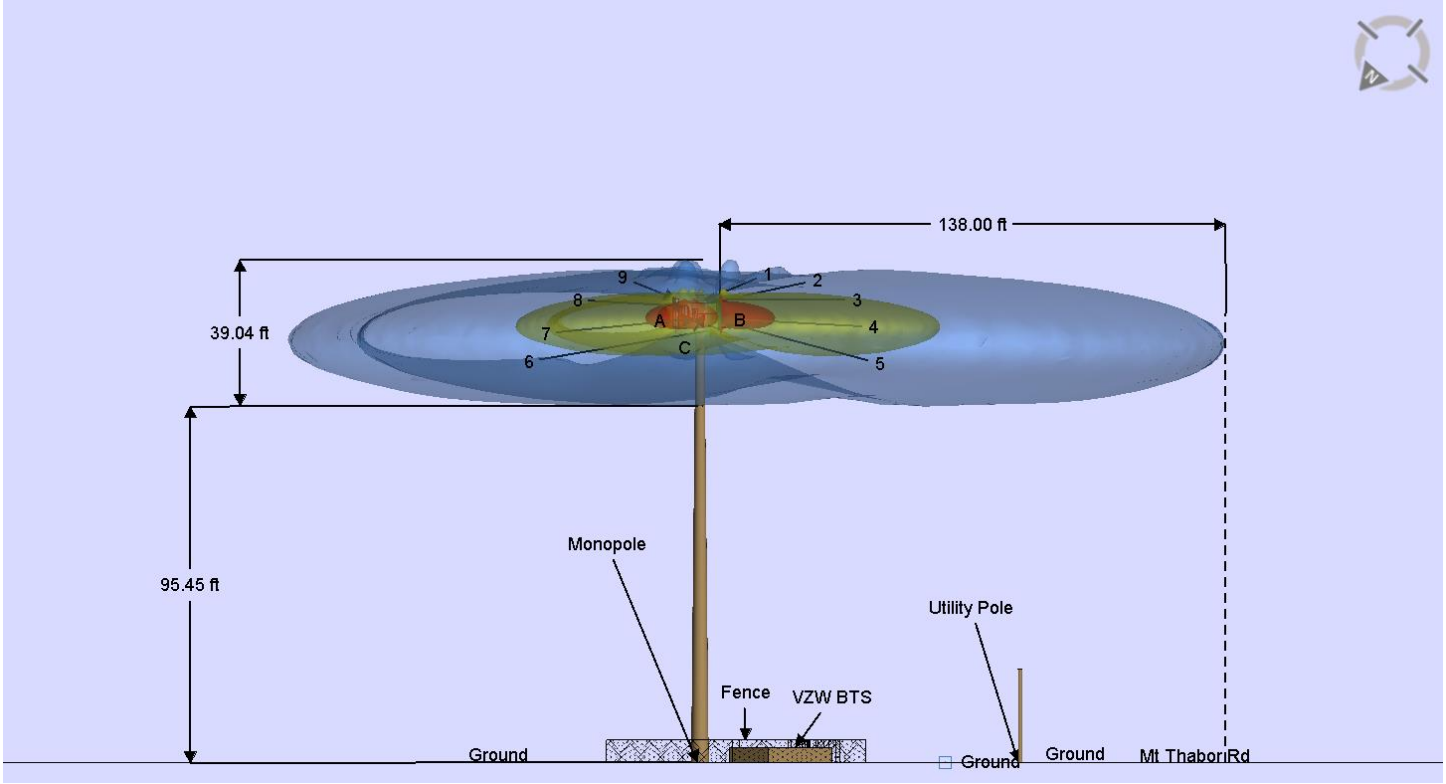


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8. Prediction Modeling: Verizon Transmitters

Are the areas being modeled ONLY accessible to persons trained to work in an RF environment (Occupational Area)?	**YES**

Reference Plane: Elevation View Level



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9. Predicted Emissions and Conclusions

This section details simulated 3D exclusion zones and emissions levels at specified points of interest. Result values are provided as a percentage of the Standard used standard (unless otherwise specified).

Site Information			
Verizon's Max % MPE Measured (General Population (GP))	N/A	**Verizon's Max % MPE (Predictive – GP)**	4.44%

Environmental Slice data				
Environmental slice name	**Contributing operator**	**Averaging scheme**	**Max value**	**Unit**
Antenna	VZW	21 point (6 ft range, 0.3 ft samples)	9336.31	% of FCC OET 65 Public
Utility Pole	VZW	21 point (6 ft range, 0.3 ft samples)	0.99	% of FCC OET 65 Public
Ground	VZW	21 point (6 ft range, 0.3 ft samples)	4.44	% of FCC OET 65 Public

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10. Predicted Emissions Conclusions

a. RFE Evaluation Results Narrative:

Based on data provided for this MPE modeling, this site has been determined to be compliant upon implementation of proposed mitigation.

Elevation Summary	Predictive max. General Population MPE level (%)					
	VZW Sectors			All Carrier Sectors		
	Alpha	Beta	Gamma	Alpha	Beta	Gamma
Antenna	**>100%**	**>100%**	**>100%**			
Utility Pole	**<100%**	**<100%**	**<100%**			
Ground	**<100%**	**<100%**	**<100%**			

Installed access control

b. Potential Co-locator Areas: Verizon Responsibility

The following table represents potential co-locators for which Verizon is a 5% General Population MPE (1% Occupational MPE) contributor (5% ring).

AT&T	T-Mobile	Dish	Other (name)	Unknown	Other
☐	☐	☐	☐	☐	Insert Co-Locator
					Insert Co-Locator
					Insert Co-Locator
					Insert Co-Locator

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11. Appendices

a. Preparer Certification
b. Reviewer Certification
c. Ixus software details
d. FCC Rules & Regulations
e. OSHA Requirements
f. RF Signage
g. Physical Barriers
h. Indicative Markers
i. Photos

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a. Preparer Certification

I, Amani Al Harbi, the preparer of this report, am fully aware of and familiar with the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation. I am also fully aware of and familiar with Verizon Wireless's RFE Compliance Analysis policy (RFE CAP) and Signage & Demarcation policy I have reviewed this Radio Frequency Exposure Assessment report and believe it to be both true and accurate to the best of my knowledge.

Amani Al Harbi

b. Reviewer Certification

I, Ahmed Al Jubouri, the reviewer and approved of this report, am fully aware of and familiar with the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation. I am also fully aware of and familiar with Verizon Wireless's RFE Compliance Analysis policy (RFE CAP) and Signage & Demarcation policy. I have reviewed this Radio Frequency Exposure Assessment report and believe it to be both true and accurate to the best of my knowledge.

Ahmed Al Jubouri

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c. Vendor assessment summary

This section provides details of the installation that the compliance assessment is performed for. Information about the compliance assessor and calculation software used are included.

Compliance assessor

Site RF assessor			
Company name: Telnet	7630 Standish Place Rockville, MD 20855 United States	**Phone**	(301) 840 7110 ext. 188
		Mobile	832 773 3229
		Email	ahmed.jubouri@telnet-inc.com
Assessor name:		Ahmed Al Jubouri	

Compliance simulation software

The IXUS electromagnetic field (EMF) calculation software was used to assess all the RF field levels presented in this study. IXUS (https://ixusapp.com/) is a software product of Alphawave Mobile Network Products (Pty) Ltd, who specialize in electromagnetic software and systems. The IXUS software uses a fast and accurate EMF calculation tool that allows for the determination of RF field strength in the vicinity of radio communication base stations and transmitters. At its core, the IXUS EMF calculation module implements field evaluation techniques detailed in the ITU-T K.61, CENELEC 50383, and IEC62232 specifications. The calculation of EMF results at any point in 3-D space is achieved by either a synthetic ray tracing technique, a conservative cylindrical envelope method, or through full-wave EM simulation results obtained from a computational electromagnetic software tool.

The selection of the solution method is determined by the specific antenna being considered. In addition, a conservative and verified modelling technique for 5G beamforming antennas in IXUS is used. The simulation accuracy of the IXUS calculation module has been verified extensively with full-wave EM simulations.

IXUS version number: version number 4.15.1

Compliance exposure standard: Standard used.

Spatial averaging scheme for exclusion zones: 21 Point.

Required Modelling Assumptions: 100% Duty Cycle is used for all TDD & FDD carriers.

Additional Modelling Assumptions: N/A.

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d. Other Compliance Report Details

Verizon Wireless has contracted with [Telnet Inc.], an independent Radio Frequency consulting firm, to conduct a **Radio Frequency Exposure (RFE) FCC Compliance Assessment** of the [**176 & Haligus - A**] RF transmitter (Antenna) location (Site). The following report contains a detailed summary of the Radio Frequency environment for the Site as it relates to the Federal Communications Commission (FCC) RFE rules and Occupational Safety & Health Administration (OSHA) Rules and Regulations.

Compliance status	
Site Compliance: Compliant	Compliance certificate comments: N/A.

The following compliance implementations are required for compliance at this site:

Proposed mitigations	
Proposed implementation:	N/A
Other Notes	N/A
Other notes:	N/A

Structure	
Physical Description	**Antennas are mounted on a Monopole.**
Total Analyzed Elevations (All Accessible Levels)	Following 4 levels were analyzed: • Antennas (Avg: 116'- 122') • Utility Pole (Avg: 25'- 31') • Ground (Avg: 0'- 6') • Elevation View (Mid Zone Avg)

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e. FCC Rules & Regulations

The Federal Communications Commission (FCC) has established safety guidelines relating to RF exposure (RFE) from wireless facilities (Sites). The FCC developed those standards, known as Maximum Permissible Exposure (MPE) limits, in consultation with numerous other federal agencies, including the Environmental Protection Agency, the Food and Drug Administration, and the Occupational Safety and Health Administration. The standards were developed by expert scientists and engineers after extensive reviews of the scientific literature related to RF biological effects. The FCC explains that its standards "incorporate prudent margins of safety." The following is an overview of the FCC requirements:

Maximum Permissible Exposure Limit Classifications	
Occupational/Controlled Environment An area where RF exposure may occur with persons who are aware of the potential for exposure as a condition of employment (e.g., telecommunications workers) or specific activity and can exercise control over their exposure. This category includes RF-trained workers who know how to work in an RF environment.	General Population/Uncontrolled Environment An area where RF exposure may occur with persons who are **unaware** of the potential for exposure and who **have no control** over their exposure. This category is composed of the general public, including untrained workers.

Limits for Occupational/Controlled Exposure		
Frequency Range (MHz)	**Power Density (S) (mW/cm^2)**	**Averaging Time (minutes) $\|E\|^2$, $\|H\|^2$, or S**
300-1500	f/300	6
1500-100,000	5	6
Limits for General Population/Uncontrolled Exposure		
Frequency Range (MHz)	**Power Density (S) (mW/cm^2)**	**Averaging Time (minutes) $\|E\|^2$, $\|H\|^2$, or S**
300-1500	f/1500	30
1500-100,000	1	30
f = frequency in MHz		

Significant Contribution to the RF Environment
In general, when the exposure limits specified in § 1.1310 of this part are exceeded in an accessible area due to the emissions from multiple fixed RF sources, actions necessary to bring the area into compliance or preparation of an Environmental Assessment (EA) as specified in § 1.1311 of this part are the shared responsibility of all licensees whose RF sources produce, at the area in question, levels that exceed 5% of the applicable exposure limit proportional to power. However, a licensee demonstrating that its facility was not the most recently modified or newly-constructed facility at the site establishes a rebuttable presumption that such licensee should not be liable in an enforcement proceeding relating to the period of non-compliance. Field strengths must be squared to be proportional to SAR or power density. Specifically, these compliance requirements apply if the square of the electric or magnetic field strength exposure level applicable to a particular RF source exceeds 5% of the square of the electric or magnetic field strength limit at the area in question where the levels due to multiple fixed RF sources exceed the exposure limit.

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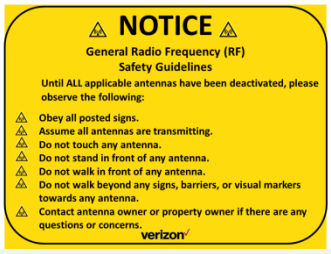
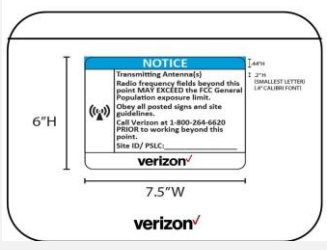
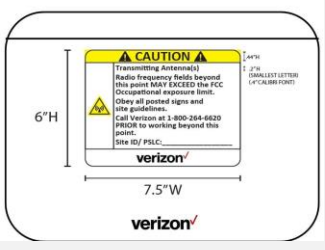
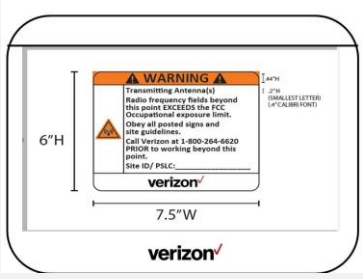
f. Occupational Safety and Health Administration (OSHA) Requirements

A formal adopter of FCC Standards, OSHA stipulates that those in the Occupational classification must complete training in the following: RF Safety, RF Awareness, and Utilization of Personal Protective Equipment. OSHA also provides options for Hazard Prevention and Control:

Hazard Prevention	Control
Utilization of good equipment	Employ Lockout/Tag out
Enact control of hazard areas	Utilize personal alarms & protective clothing
Limit exposures	Prevent access to hazardous locations
Employ medical surveillance and accident response	Develop or operate an administrative control program

g. RF Signage

RFE Signage is signs meeting certain specifications that Verizon installs to inform people about an RFE source in an area accessible by people where the applicable MPE limit is exceeded. Per OSHA requirements, all signs shall be furnished with rounded or blunt corners and shall be free from sharp edges, burrs, splinters, or other sharp projections. The ends or heads of bolts or other fastening devices shall be located in such a way that they do not constitute a hazard.

GUIDELINES	Category Two - Notice	Category Three - Caution	Category Four – Warning or Danger
This sign will inform anyone of the basic precautions to follow when entering an area with transmitting radiofrequency equipment.	This sign indicates that RF emissions may exceed the FCC General Population MPE limit. • Sign Color Blue • Sign Signal Word "Notice"	This sign indicates that RF emissions may exceed the FCC Occupational MPE limit. • Sign Color Yellow • Sign Signal Word "Caution"	This sign indicates that RF emissions may exceed at least 10x the FCC Occupational MPE limit. • Sign Color Orange or Red • Sign Signal Word "Warning" or "Danger" Red "DANGER" signs must be installed (in addition to the orange warning signs) in Areas where immediate and serious injury will occur on contact with an Antenna. No access to category four areas unless a reduction in category occurs.
			

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Category One - Information	
Information signs are used as a means to provide contact information for any questions or concerns. They will include specific cell site identification information and the Verizon Wireless Network Operations Center phone number. • Sign Color Green • Sign Signal Word "Information"	

Signs for Category Two through Four must have the following:

- Appropriate signal word, associated color {i.e., {DANGER" (red), "WARNING" (orange), "CAUTION," (yellow) "NOTICE" (blue)};
- RF energy advisory symbol;
- An explanation of the RF source;
- Behavior necessary to comply with the exposure limits; and
- Up-to-date contact information.

h. Physical Barriers

Physical barriers are human-made structural obstacles installed at a Site that:

- demarcate RFE Category boundaries; are installed above ground;
- possess enough structural integrity to withstand normal environmental forces (e.g., wind, rain, snow, ice); and
- are typically 39 to 42 inches in height so as not to pose a tripping hazard.
- **Example**: chain-connected stanchions

i. Indicative Markers

Indicative Markers are another type of barrier that Verizon uses. Indicative markers are:

- objects that indicate a position, place, or route; are typically placed on the ground;
- and demarcate RFE Category boundaries.

Verizon frequently uses Indicative Markers in warmer climates where there is little snow or debris accumulation that would impede their visibility.

Example: paint stripes

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