



Fortune Wireless, Inc.

**Proposed New Cellular Antenna Tower  
Special Exception Use Application**

**Presented To: Plainfield Planning Commission &  
Town Council**

**Presented By: Ryan Whitley - Fortune Wireless**

**Filing Date: 7/24/24**

**Applicant:**

AT&T Mobility  
220 N. Meridian Street  
Indianapolis, IN 46204

**Applicant Site #.:**

IN1187

**Proposed Tower Location:**

2688 East Main Street  
Plainfield, IN 46168

<b>Parcel #:</b>	32-09-19-400-026-000-027
<b>Latitude:</b>	39.72086717
<b>Longitude:</b>	-86.35266856



Fortune Wireless, Inc.

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Fortune Wireless, Inc.

# TAB #1



Fortune Wireless, Inc.

7/24/24

Plainfield Planning Commission & Town Council  
206 W. Main Street  
Plainfield, IN 46168

RE: Letter of Intent/Special Exception Use Application for Authorization to Place and Construct a New Telecommunications Tower located at: 3688 East Main Street, Plainfield, IN 46168 on Parcel #:32-09-19-400-026-000-027 with the tower located at Latitude/ Longitude: (39.72086717, -86.35266856). The E-911 Address: (TBD)

Dear Members of the Plainfield Planning Commission & Town Council,

Please accept this Letter of Intent, along with the enclosed supporting documents, as the application from AT&T Mobility to place and construct a new 125' monopole tower (tower height – 120' + 5' lighting rod), within a 35' x 60' ground compound located on the back of the lot at the White House Motel.

AT&T is seeking authorization to place and construct a new cellular antenna tower as required by Section 4.6. Special Regulations for Wireless Telecommunications Facilities of the Plainfield Zoning Ordinance from the Plainfield Planning Commission and Town Council. The parcel on which the proposed new cellular antenna tower would be placed is currently zoned as General Commercial and currently the White House Motel is currently operating on the property. The proposed site is located off of Main Street approximately 1.0 mile west of Ronald Regan Parkway. This Letter of Intent will address the requirements set forth in the Plainfield Zoning Ordinance regarding the placement and construction of new cell towers in the City of Plainfield.

AT&T Mobility is trying to enhance its coverage and capacity so their network is able to provide more reliable, higher speed data & voice services to the residents, businesses and travelers along Main Street. AT&T will be the anchor tenant on the proposed new tower, with space available for at least two additional carriers to co-locate. The proposed tower would help improve wireless coverage and capacity in the area. In an effort to meet AT&T's and future carrier's goals of enhancing their networks, we are requesting that the Planning Commission approve the placement and installation of the proposed new 125' monopole tower.

The communication facility will not affect current traffic as this is an unmanned, unstaffed facility, and may only be visited once a month or as needed for servicing. Access to the facility will come off Main Street via the existing entrance to the White House Motel.

In conclusion, the communication facility will operate in a clean and quiet manner. The facility is unstaffed, completely automated and does not create air, water or noise pollution, unsanitary conditions, surface drainage problems, environmental nuisances, traffic congestion, threats to morality or public safety, or other objectionable characteristics offensive to the community. To the contrary, the facility will contribute to the improved safety, convenience, comfort and general welfare of the



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community by providing enhanced communications capabilities. Please review the completed application along with the required supporting documentation for a thorough project review and approval.

The following will address all areas of Plainfield Zoning Ordinance relating to wireless services.

### **Plainfield Zoning Ordinance Through Ord 15-2023 (Enacted 04-24-2023)**

#### **ARTICLE 4.6. SPECIAL REGULATIONS FOR WIRELESS TELECOMMUNICATIONS FACILITIES**

**A. APPLICATION.** Notwithstanding any other provision of this ordinance and in addition to other applicable provisions, wireless telecommunications facilities, when such are permitted by federal law and the laws of the state, shall be regulated and governed by the use regulations and requirements of this Article. However, this Article shall not apply nor be construed to apply to amateur radio operators who are licensed to operate a radio or transmitter by the Federal Communications Commission under Part 97 of the Federal Communications Commission's Rules.

#### **B. RESERVED**

#### **C. PROCEDURES.**

1. Wireless telecommunication facilities are hereby declared special exception uses in all districts contained in this ordinance.

- Please see AT&T's special exception use application below **(TAB 2 below)**

2. The applicant for a wireless telecommunication facility special exception shall demonstrate that they have exhausted all efforts to locate the proposed telecommunications antennas upon existing buildings or structures in the geographical area of the proposed telecommunications antennas. The applicant shall submit a Master Plan for its wireless telecommunication facilities throughout the town. The Master Plan shall demonstrate efforts to minimize the size and number of telecommunications antenna locations throughout the geographical area, taking into consideration existing technology.

- Please see Grid Map of Existing Towers on Which AT&T is Currently Located in the surrounding area **(TAB 4 below)**

3. The placement of telecommunications antennas upon existing telecommunications towers may be administratively approved by the Director of the Department of Planning and Zoning.

- N/A – A new tower is being proposed.

#### **D. DEVELOPMENT STANDARDS.**

1. In addition to complying with the requirements for a special exception use for the zoning district of the property, all wireless telecommunications facilities shall comply with the following additional requirements.

a. The maximum height of a telecommunications tower, including antenna array, shall not exceed 120 feet above grade.

- AT&T is proposing a 120' monopole tower with a 5' lighting rod. AT&T's equipment to be located at 115'. **(See Zoning Drawings – TAB 6 below)**

b. No new telecommunications towers shall be located within 5,000 feet from another telecommunications tower.



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- There is one tower located within 5000' (SBA tower). AT&T is requesting this provision be waived due to the fact that the SBA tower is located too close to one of the existing towers AT&T is currently on. **(Please see RF Statement of Need – TAB 3 below)**
- c. All guys and guy anchors shall be located within the buildable area of the lot and shall not be located within any front, side or rear yard setback or front, side or rear bufferyard setback and, in any event, no closer than five feet to any lot line.
  - A monopole is being proposed. No guy anchors will be used. The proposed tower will setback approximately 23'. **(See Zoning Drawings – TAB 6 below)**
- d. The base of a telecommunications tower shall be enclosed by security fencing.
  - A six foot chain link fence will enclose the facility. **(See Zoning Drawings – TAB 6 below)**
- e. Equipment buildings must be similar in color and character to the main or adjoining building or structure or blend with the landscaping and other surroundings immediately adjacent to the equipment building and shall be screened by a chain link or wrought iron fence with landscaping installed in compliance with the provisions of Article IV for Level 3 perimeter landscaping requirements.
  - AT&T is requesting that the landscaping requirements be waived as the facility is located behind an existing structure and will not be visible from the right-of-way. **(See Zoning Drawings – TAB 6 below)**
- f. All applications shall be reviewed by the Design Review Committee with the recommendations of the Design Review Committee becoming part of the record of the proceedings before the Board of Zoning Appeals and shall be considered by the Board of Zoning Appeals as conditions recommended to be imposed on the special exception use by the Board of Zoning Appeals if the special exception is granted and which conditions, if imposed, shall be satisfied before an improvement location permit is issued.
  - AT&T will abide by any conditions imposed by the Board of Zoning Appeals.
- g. A telecommunications tower shall be erected and operated in compliance with the most current Federal Communication Commission and Federal Aviation Administration rules and regulations and other applicable federal and state standards.
  - The proposed facility will comply with all rules and regulations set forth by the FAA and FCC as well as other applicable federal and state standards.
- h. A telecommunications tower must be:
  - 1) Used by three or more wireless communications providers; or
    - AT&T will be the anchor tenant on the proposed tower.
  - 2) Designed and built so as to be capable of use by three or more wireless communications providers including providers such as cellular or PCS providers using antenna arrays of nine to 12 antennas each within 15 vertical feet of each other with no more than three degrees of twist and sway at the top elevation and the owner of the telecommunications tower and the property on which it is located must certify to the town that the antenna is available for use by another wireless telecommunications provider on a reasonable and non-discriminatory basis and at a cost not exceeding the market value for the use of the facilities. If a portion of the telecommunications tower is to be leased to other wireless communications providers, the portions of the actual or proposed lease that demonstrate compliance with the requirements of this division shall be submitted with the application for special exception.
    - The proposed tower will be designed to accommodate two additional carrier's equipment.
- i. All telecommunications towers shall be of a tapering monopole construction, except that another type telecommunications tower may be allowed upon showing that the alternate type of



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telecommunications tower would cause less visual impact on surrounding property than a similar monopole structure.

- The proposed tower will be of a tapering monopole construction.

j. No lettering, symbols, images, trademarks, signs or advertising shall be placed on or affixed to any part of a telecommunications tower, antenna array or antenna, other than as required by FCC regulations regarding telecommunications tower registration or other applicable law.

- There will be no lettering, symbols, images, trademarks, signs or advertising affixed to the proposed tower.

k. The need for the requested site and the nature of any existing sites shall be documented and the manner in which the placement will promote the town telecommunications policies shall be demonstrated.

- Please see AT&T Radio Frequency Engineer's state of need for the proposed tower. **(TAB 3 below)**

l. Telecommunications towers shall be constructed to minimize potential safety hazards.

Telecommunications towers shall be constructed so as to meet or exceed the most recent EIA-222 standards, and prior to issuance of a building permit, the Building Inspector shall be provided with an engineer's certification that the telecommunications tower's design meets or exceeds those standards.

Guyed telecommunications towers shall be located in such a manner that if the telecommunications tower should fall along its longest dimension, the telecommunications tower will remain within the lot lines and avoid habitable structures, public streets, utility lines and other telecommunications towers.

m. Telecommunications towers and equipment buildings shall be located: to minimize their number, height and obtrusiveness; to minimize visual impacts on the surrounding area; and in accordance with the following town telecommunications policies:

1) Ensure that the height of telecommunications towers have the least visual impact and is no greater than required to achieve service area requirements and potential collocation, when visually appropriate;

- The proposed tower was designed to accommodate AT&T's RF network requirements.

2) Demonstrate that the selected site for a new telecommunications tower provides the least visual impact on residential areas or the public way and illustrate that the selected site provides the best opportunity to minimize the visual impact of the proposed facility;

- The tower is being proposed behind an existing structure which will significantly limit the visual impact of the facility from the public way. There are no residential areas in the vicinity.

3) Site telecommunications towers to minimize being visually solitary or prominent when viewed from residential areas or the public way. The telecommunications tower should be obscured by vegetation, treecover, topographic features and buildings or other structures to the maximum extent feasible;

- The tower is being proposed behind an existing structure which will significantly limit the visual impact of the facility from the public way. There are no residential areas in the vicinity.

4) Place telecommunications towers to ensure that historically significant landscapes are protected. The views of and vistas from architecturally or historically significant structures should not be impaired or diminished by the placement of telecommunications towers; and

- There are no historically significant landscapes or structures in the area.

5) The Board of Zoning Appeals may grant a special exception which does not fully comply with the telecommunications policies contained herein for telecommunications towers when the Board of Zoning Appeals determines that such a grant better accomplishes the telecommunications policies set out in



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this division than would a strict application of these telecommunication policies. Such deviations from the town telecommunications policy shall be no greater than necessary to accomplish those policies.

n. No signals or lights or illumination shall be permitted on telecommunications towers unless required by the Federal Communications Commission, the Federal Aviation Administration or the town.

- The proposed tower will not be lit as it is under 200' and not required to be lit by the FAA or FCC.

o. If any additions, changes or modifications are to be made to a telecommunications tower, the Building Inspector shall have the authority to require proof, through the submission of engineering and structural data, that the addition, change or modification conforms to structural wind load and all other requirements of the current Building Code adopted by the town.

- If any modifications are made to the tower, AT&T will provide any structural data requested by the Building Inspector.

p. Telecommunications towers which have not been used for a period of one year shall be removed. The last telecommunication service provider to use a telecommunications tower shall notify the Director or his or her designee within 30 days that use of a telecommunications tower has been discontinued.

- AT&T understands they will need to notify the Director if the tower will be decommissioned and the tower will need to be removed.

q. All telecommunications towers shall comply with all ordinances of the town not in conflict with this section.

- AT&T will comply with all ordinances of the town not in conflict with this section.

### **Final Statement & Conclusion**

- Per the site plans submitted of the proposed design of a galvanized tower and facilities, this proposed project will be designed, constructed, operated, and maintained so as to be harmonious and aesthetically appropriate with the existing or intended character of the general vicinity and that such use will not change the essential character of the area and the facility will permit reliable wireless telecommunication service for residents, businesses and travelers in this area of Plainfield. This facility will enhance communications, in the event of emergencies, including the use of E-911. Upward of 70% of all U.S. 9-1-1 calls are initiated on a mobile phone.
- The proposed project will not create excessive additional requirements, at public cost, for public facilities and services and will not be detrimental to the economic welfare of the community. To the contrary, the enhanced mobile service in the area will only help the area attract and maintain a thriving residential, agricultural and business climate.
- The proposed project will not involve uses, activities, processes, materials, equipment and conditions of operation that will be detrimental to any persons, property, or the general welfare by reason of excessive production of traffic, noise, smoke, fumes, glare or odors.

- **Attracting Businesses & Creating Jobs**

Building next generation network infrastructure will drive local economic development and job creation. *The deployment of 5G is expected to help create 2.2 million jobs, and approximately \$420 billion in annual GDP, spread across small, medium and large communities in the U.S. (Accenture, Smart Cities).* But even greater economic benefits will result when upgraded, revolutionary wireless communications are approved and deployed in every community. Small businesses, Fortune 500 companies and companies of all sizes



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require modern communications infrastructure. A robust network allows cities to be even more competitive as they work to attract more business and encourage entrepreneurship. Fast, reliable wireless internet connections allow people to more easily telecommute or participate in e-learning to build skills and earning power, and wireless technology enables e-commerce, supporting local retailers, restaurants, and other businesses.

➤ **Creating Opportunities for Underserved Populations**

Americans are increasingly connected to the digital world via smartphones and a range of other mobile devices. Just over one in ten American adults are “smartphone-only” internet users, meaning this is the sole device used to connect online. (Pew Research Center)  
Improvements in wireless infrastructure and 5G networks have the potential to reduce the digital divide and create opportunity by giving all populations access to reliable high-speed broadband and its benefits.

In conclusion, and in relation to Plainfield’s intent of their ordinance, we the applicant, believe we have demonstrated by providing this letter of intent along with related information and documentation to meet the criteria set forth in Plainfield’s ordinance. With the aforementioned we would respectfully request approval to place and construct the proposed cellular antenna tower, as we feel that we have provided adequate justification, along with a completed application and supporting documentation.

If you have any questions, please do not hesitate to contact me via email: [rwhitley@ffi.net](mailto:rwhitley@ffi.net) or my cell (317) 452-2222.

Respectfully,

**Ryan Whitley – Agent for AT&T Mobility**  
**Site Development Services**  
[Fortune Wireless, Inc.](#)  
**5511 W. 79<sup>th</sup> St.**  
**Indianapolis, IN 46268**



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# TAB #2



**Fortune Wireless, Inc.**

**BOARD OF ZONING APPEALS APPLICATION, FINDINGS OF FACT: SPECIAL  
EXCEPTION, SITE PLAN REVIEW APPLICATION, PROJECT CONTACT LISTING AND  
OWNER AUTHORIZATION**

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APPLICATIONS BEGIN ON NEXT PAGE]**



DEPARTMENT OF DEVELOPMENT SERVICES

BOARD OF ZONING APPEALS

Project Name:	AT&T NSB - IN1187		
Project Address/Location:	2688 East Main Street, Plainfield, IN 46168		
Existing use of property:	Motel		
Area (in acres):	2.1	Zoning:	GC - General Commercial

Request Type	
<input type="checkbox"/>	Appeal of Administrative Decision
<input type="checkbox"/>	<a href="#">Variance of Development Standards</a> to Section(s) _____ of the Plainfield Zoning Ordinance.
<input type="checkbox"/>	<a href="#">Variance of Use</a> in a _____ Zone (Section _____ of the Plainfield Zoning Ordinance) to allow _____.
<input checked="" type="checkbox"/>	<a href="#">Special Exception</a> in a <u>General Commercial</u> Zone (Section <u>4.6</u> of the Plainfield Zoning Ordinance) to allow <u>Wireless Communication Facility</u> .

(Note: Each type of request has its own specific Findings of Fact—click on the blue linked words.)

The undersigned, having been duly sworn on oath states the above information is true and correct as (s)he is informed and believes.

Signature of Applicant: [Signature] Date: 6/21/24

Printed Name & Title: Ryan Whitley - Fortune Wireless - Site Development Services - (Agent for AT&T)

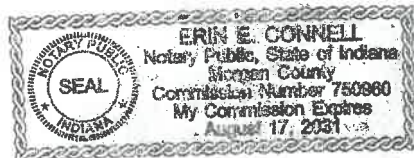
State of: Indiana )

County of: Marion ) SS:

Subscribed and sworn to before me this 21 day of June, 2024.

[Signature], Erin E. Connell  
Notary Public Signature Printed Name

Residing in Marion County My Commission expires 8/17/31





DEPARTMENT OF DEVELOPMENT SERVICES

Findings of Fact: Special Exception

Table with project details: Project Name (AT&T NSB - IN1187), Address/Location (2688 East Main Street, Plainfield, IN 46168), Docket Number.

FINDING

- 1. The Special Exception Use will not be injurious to the public health, safety, morals, and general welfare of the community because:
2. The proposed use will not injure or adversely affect the adjacent area or property values therein because:
3. The proposed use will be consistent with the character of the District, land uses authorized therein and the Town of Plainfield Comprehensive Plan because:

APPLICANT RESPONSE

Table with applicant responses corresponding to the findings, detailing the proposed cellular antenna tower's characteristics and location.

PLAINFIELD BOARD OF ZONING APPEALS

The VARIANCE is hereby APPROVED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

Blank lines for signatures or dates.



CIVIL/SITE-INFRASTRUCTURE PLAN REVIEW APPLICATION
Plainfield Engineering and Department of Public Works

TOWN OF PLAINFIELD
206 W. Main Street, Plainfield IN 46168
www.townofplainfield.com

IMPORTANT – APPLICANT TO COMPLETE ALL ITEMS. MARK WHERE APPLICABLE (PLEASE PRINT)

Project Name: AT&T 2022 NSB
Project Location: 2688 E. Main St., Plainfield, IN 46168
Date Submitted: 7/18/24

PROJECT CONTACTS

Project Developer/ Owner: AT&T Mobility
Address: 220 N. Meridian Street, Indianapolis, IN 46204
Contact Person: Amy Medina
Contact Number: 260.444.6700
Email Address: am760g@att.com
Design Engineer: Fortune Wireless - Adam Brown P.E.
Address: 5511 W. 79th Street, Indianapolis, IN 46268
Contact Person: Adam Brown
Contact Number: 847-417-0407
Email Address: abrown@ffi.net

SITE/INFRASTRUCTURE PLAN APPLICATION CHECKLIST

For a complete submittal, the following items must be included.

- 1. Review Fee (Residential: \$300.00 + \$20.00/unit; Non-Residential: \$300.00 + \$20.00 per acre). Check payable to the Town of Plainfield.
2. One complete full-size paper set of Civil/Site-Infrastructure plans with attached Plan Review Checklist and full-size set of most current Plainfield Town Standards, attached
3. Secondary plat for the site (primary plat if application for secondary has not been initiated)
4. Completed IDEM Permit Package(s) (Include letter requesting sewer and water allocation)
5. Completed Construction Stormwater General Permit Application for Erosion Control and Storm Water Pollution Prevention Plan Review. Go to http://www.operation-ms4.com/ to submit for MS4 Permit Review.
6. Proposed offsite easement where needed. Final approval will not occur prior to appropriate easements being recorded.

Signature of Applicant: Ryan W. Hill - Agent for AT&T
Date: 7/18/24

\*\*Site/Infrastructure Plan Review is scheduled twice a month on the Tuesday following the Town Council meetings scheduled for the 2nd and 4th Monday of each month. For a project to be placed on agenda for review, the COMPLETE submittal packet must be submitted by 4:00 p.m. Tuesday prior to the following Tuesday's Plan Review Meeting. Dates may change at the discretion of the plan review committee. \*\*

To obtain a set of Plainfield Town Standards and Specifications please visit our website at www.townofplainfield.com



# COMMON FORMS

## PROJECT CONTACT LISTING

### APPLICANT

Name:	AT&T Mobility
Street Address:	220 N. Meridian Street
City/Town:	Indianapolis
State, ZIP:	Indiana, 46204
Phone Number:	Amy Medina
E-Mail:	am760g@att.com

### OWNER

Name:	White House Motel, Inc.
Street Address:	2688 E. Main Street
City/Town:	Plainfield
State, ZIP:	Indiana, 46168
Phone Number:	317-839-9358
E-Mail:	whitehousehotel108@gmail.com

### ENGINEER

Name:	Fortune Wireless (Adam Brown)
Street Address:	5511 W. 79th Street
City/Town:	Indianapolis
State, ZIP:	Indiana, 46268
Phone Number:	847-417-0407
E-Mail:	abrown@ffi.net

### ARCHITECT

Name:	N/A
Street Address:	
City/Town:	
State, ZIP:	
Phone Number:	
E-Mail:	

### ATTORNEY

Name:	N/A
Street Address:	
City/Town:	
State, ZIP:	
Phone Number:	
E-Mail:	

### OTHER

Name:	Fortune Wireless (Ryan Whitley)
Street Address:	5511 W. 79th Street
City/Town:	Indianapolis
State, ZIP:	IN, 46268
Phone Number:	317-452-2222
E-Mail:	rwhitley@ffi.net

Of the persons above, is there a designated contact person?

<input type="checkbox"/>	Applicant
<input type="checkbox"/>	Engineer
<input type="checkbox"/>	Attorney

<input type="checkbox"/>	Owner
<input type="checkbox"/>	Architect
<input checked="" type="checkbox"/>	Other



# COMMON FORMS

## AUTHORIZATION FROM OWNER

The undersigned, Shailesh Patel, being the Owner of the property commonly known as White House Motel, Inc., hereby authorizes Fortune Wireless, LLC to file a (check all that apply):

- |  |   |   |  |
|--|---|---|--|
| <input type="checkbox"/> Zone Map Change | <input type="checkbox"/> Development Plan | <input type="checkbox"/> Primary Plat                 | <input type="checkbox"/> Secondary Plat        |
| <input type="checkbox"/> Vacation        | <input type="checkbox"/> Variance         | <input checked="" type="checkbox"/> Special Exception | <input type="checkbox"/> Administrative Appeal |

This consent shall remain in effect:

- |                                     |   |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | until revoked by a written statement filed with the Department of Development Services. |
| <input type="checkbox"/>            | until: _____  |

Signature	<u>Shailesh Patel</u>	Signature	
Printed	Shailesh Patel	Printed	
Title (if applicable):		Title (if applicable)	
Date:	<u>06/21/2024</u>	Date	

The undersigned, having been duly sworn on oath states the above information is true and correct as (s)he is informed and believes.

Signature of Applicant: Ryan Whitey Date: 6/21/24

Printed Name & Title: RYAN WHITEY - AGENT FOR AT&T

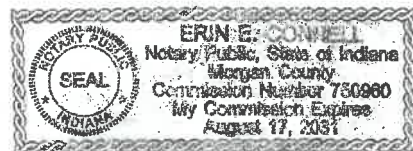
State of: Indiana )

County of: Marion ) SS:

Subscribed and sworn to before me this 21<sup>st</sup> day of June, 2024

Erin E. Connell, Erin E. Connell  
Notary Public Signature Printed Name

Residing in Morgan County My Commission expires 8/17/31





Fortune Wireless, Inc.

# TAB #3



**Fortune Wireless, Inc.**

**AT&T RF ENGINEER'S STATEMENT OF NEED FOR THE NEW TOWER AND  
LETTER STATING CO-LOCATION IS PERMITTED FROM AT&T**

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STATEMENTS BEGIN ON NEXT PAGE]**



3/13/2024

Plainfield Board of Zoning Appeals  
206 W Main St  
Plainfield, IN 46168

Re: AT&T Mobility Site at 2688 East Main Street  
Site ID: IN1187, FA Code: 15861975, Lat/Long: 39.720928, -86.352586

AT&T Mobility is working to build a new macro site at 2688 East Main Street. Important considerations for site selection are 1) the location's proximity to high user density near Main Street and 2) how it fits into the existing network. AT&T is aware of the existing SBA tower IN46582-A-1 (Lat/Long: 39.712128, -86.345994) but find it unsuitable for the following reasons:

1. The SBA tower is too close to existing AT&T Site IN0438 (Lat/Long: 39.7186, -86.3331), increasing potential for interference and overlapping coverage.
2. The SBA tower is challenged in covering the target area around Main Street. It is slightly shorter at 110' but also has lower ground elevation by about 15 feet. Lower effective height combined with further distance to Main Street limits coverage and offload where it is most needed.

Please allow the construction of a tower at 2688 East Main Street as it best complements our existing network. Details for AT&T neighbor sites can be found in Table 1. We currently have no further plans in the area. Thank you.

Site ID	FA Code	USID	Latitude	Longitude
IN0020	10024078	58811	39.71278	-86.3925
IN0173	10141215	117495	39.68661	-86.36476
IN0351	10050244	83647	39.6931	-86.32597
IN0438	10083647	1518	39.7186	-86.3331
IN0063	10023936	58846	39.7319	-86.33367

Table 1: Nearby AT&T mobility sites

Sincerely,

Justin Holderle  
Senior RAN Design Engineer  
AT&T Mobility Services LL



AT&T Mobility  
3811 Illinois Rd.  
Suite 100  
Fort Wayne, IN 46804

7/24/24

City of Plainfield  
206 W. Main Street  
Plainfield, IN 46168

**RE: Collocation Agreement- Future Carriers**

To whom it may concern,

This letter is being written to assure the **City of Plainfield** that **AT&T Mobility** will allow future carriers to collocate on the wireless telecommunications facility located at **2688 East Main Street, Plainfield, IN 46168**. AT&T designs all structures they build to allow for multiple carrier collocations.

This tower will be designed to accommodate a total of three (3) wireless communications carriers allowing for 35,000 square inches of wind load per carrier. AT&T will be the initial carrier with provision for two (2) additional carriers, (one at 105' and the second at 90' rad centers). In the event the tower isn't structurally capable of supporting the proposed structural loading of a carrier, structural modifications will be considered to accommodate their needs. If you have any questions, please feel free to contact me at [am760g@att.com](mailto:am760g@att.com).

Respectfully,

A handwritten signature in cursive script that reads "Amy Medina".

Amy Medina  
AT&T Lead Real Estate a& Construction  
PH: 260-444-6700  
E: [am760g@att.com](mailto:am760g@att.com)



Fortune Wireless, Inc.

# TAB #4



**Fortune Wireless, Inc.**

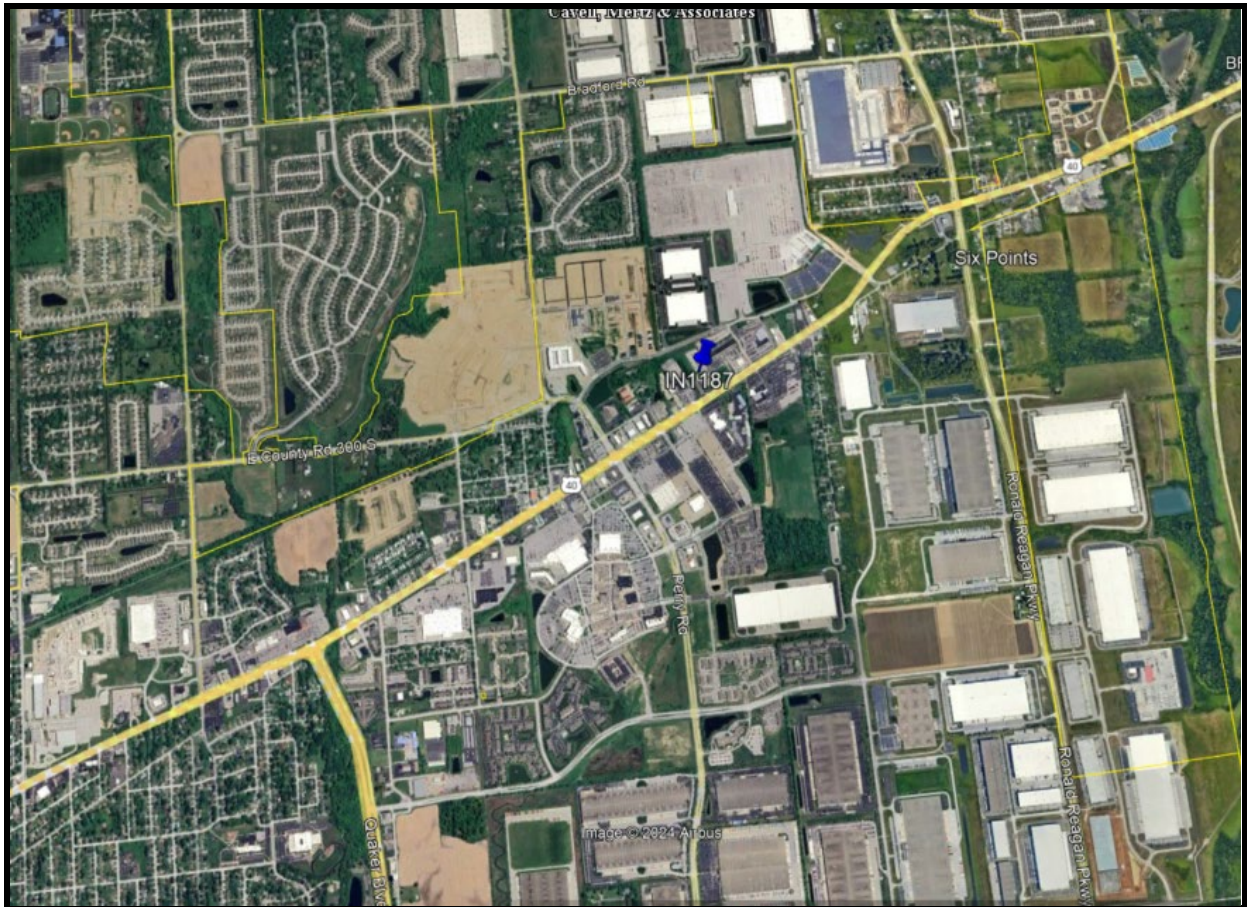
**MAPS - AREA MAP, PARCEL MAP, 0.25-MILE SEARCH RING FOR RF NETWORK REQUIREMENTS, ZONING MAP, FLOOD MAP, EXISTING TOWERS IN PLAINFIELD WITHIN 5000' (MAP SHOWING WHICH TOWERS AT&T IS CURRENTLY ON), RF PROPAGATION MAPS**

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MAPS BEGIN ON NEXT PAGE]**



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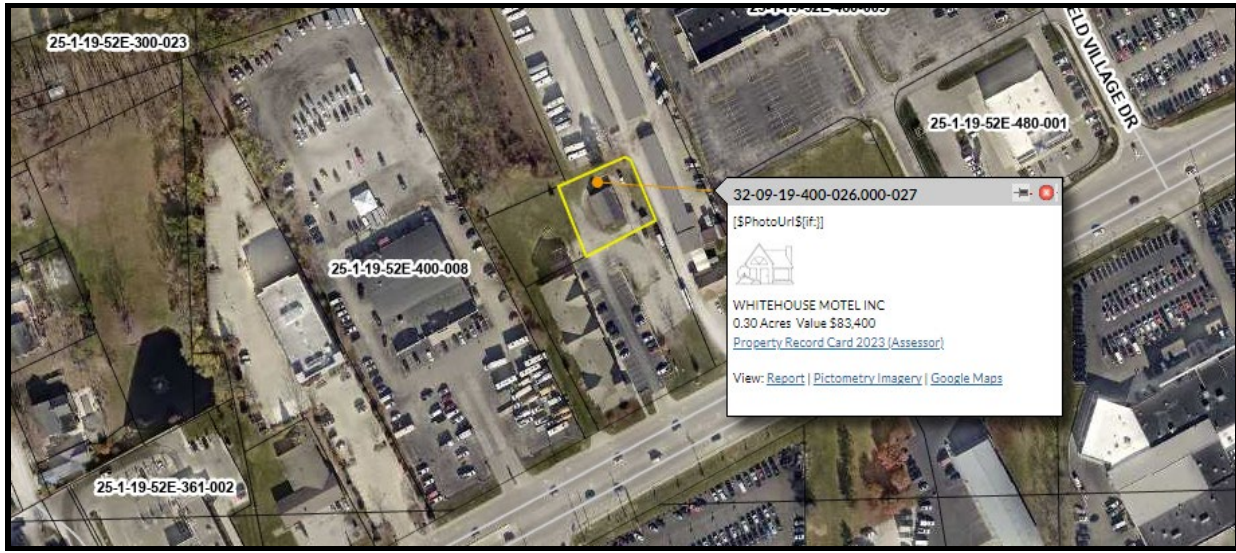
## AERIAL AREA MAP





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## PARCEL MAP

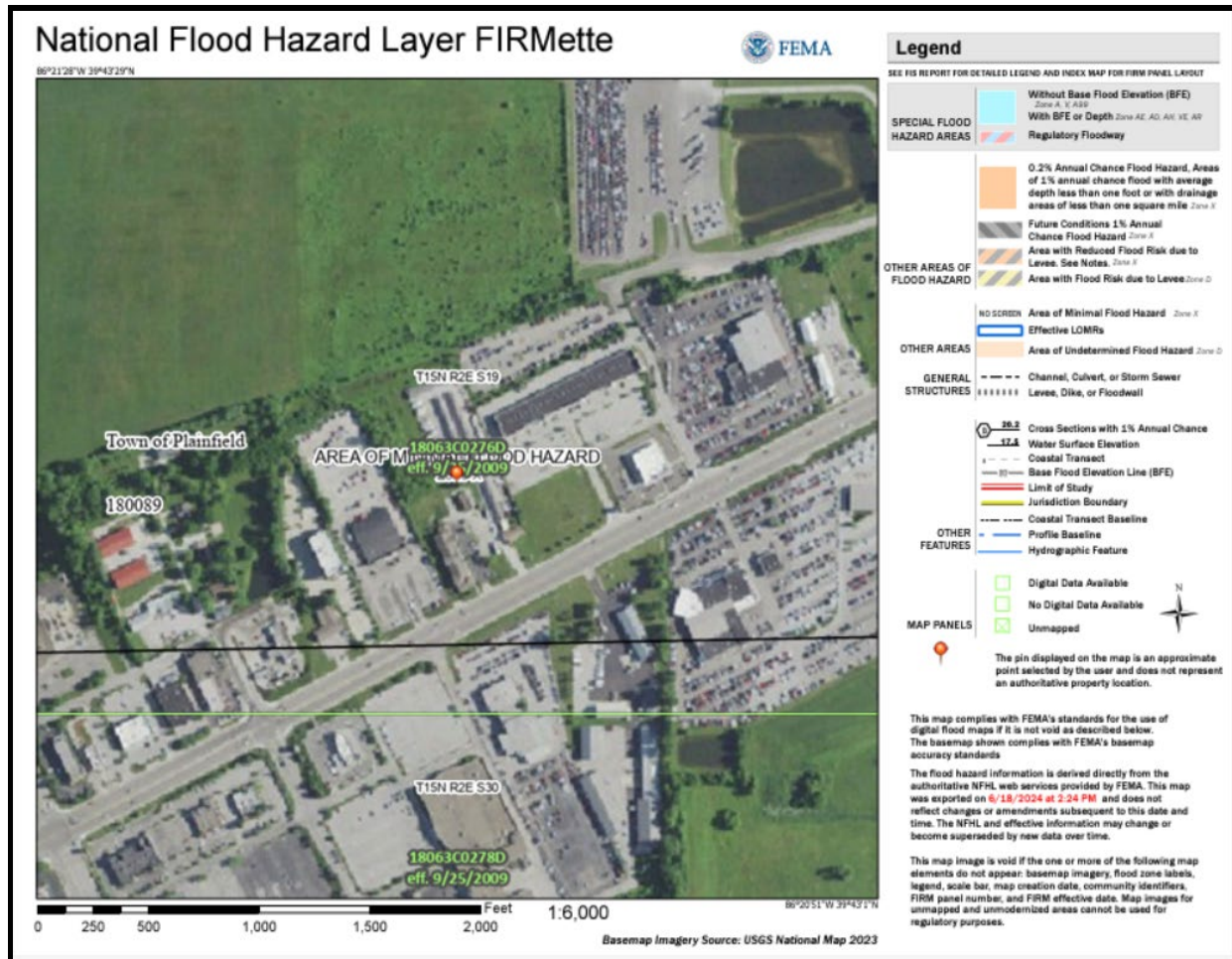






Fortune Wireless, Inc.

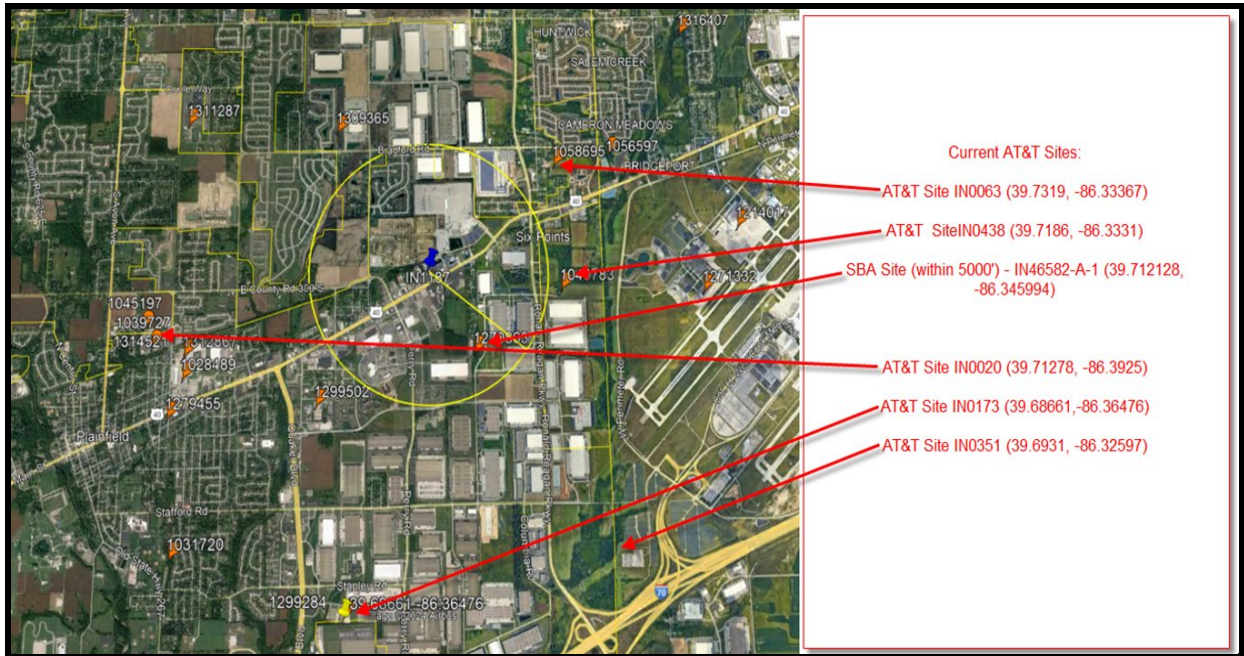
## FEMA FLOOD MAP





Fortune Wireless, Inc.

### GRID MAP OF EXISTING TOWERS AT&T IS LOCATED ON IN THE AREA





Fortune Wireless, Inc.

### EXISTING TOWER WITHIN 5000'

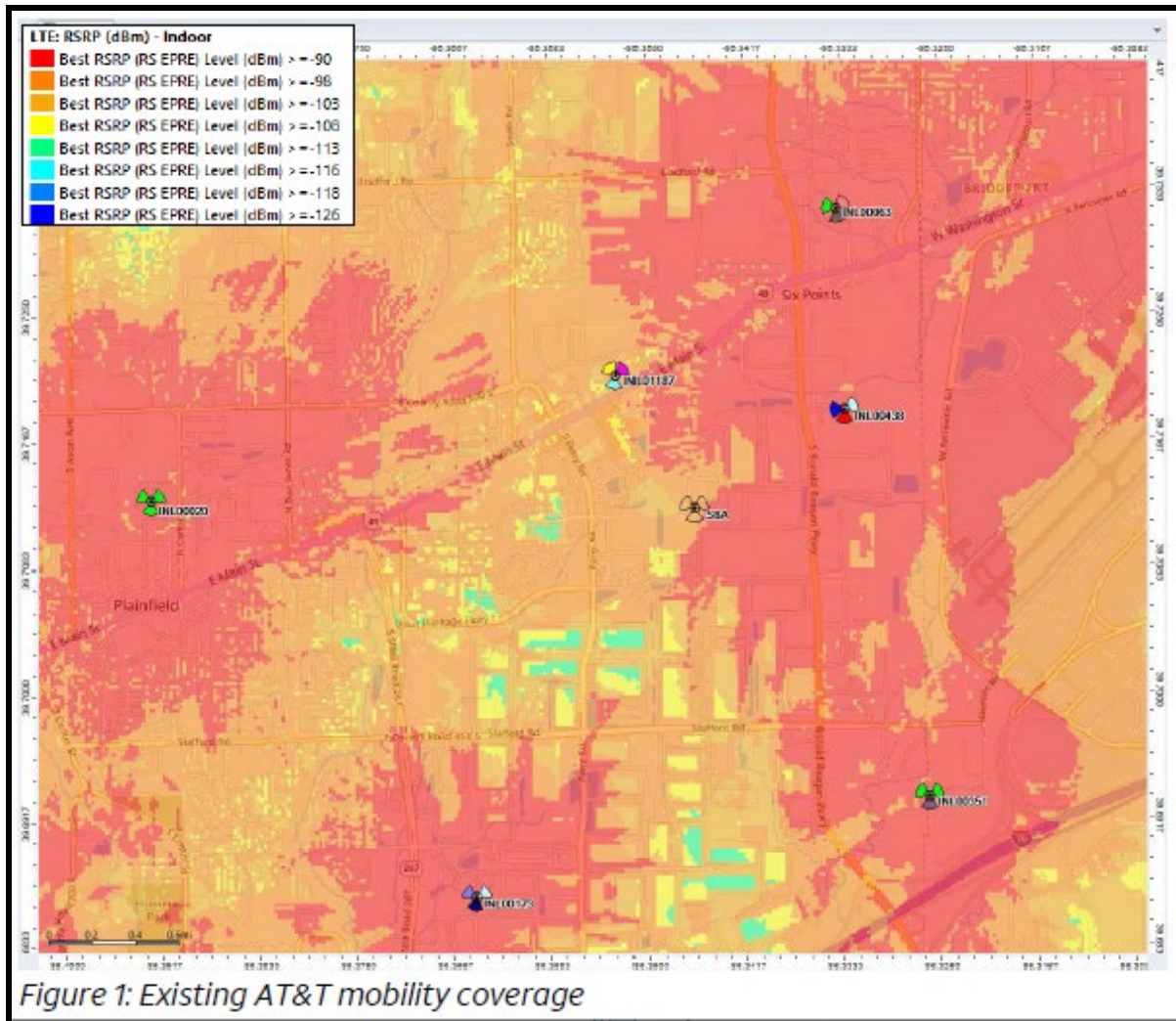






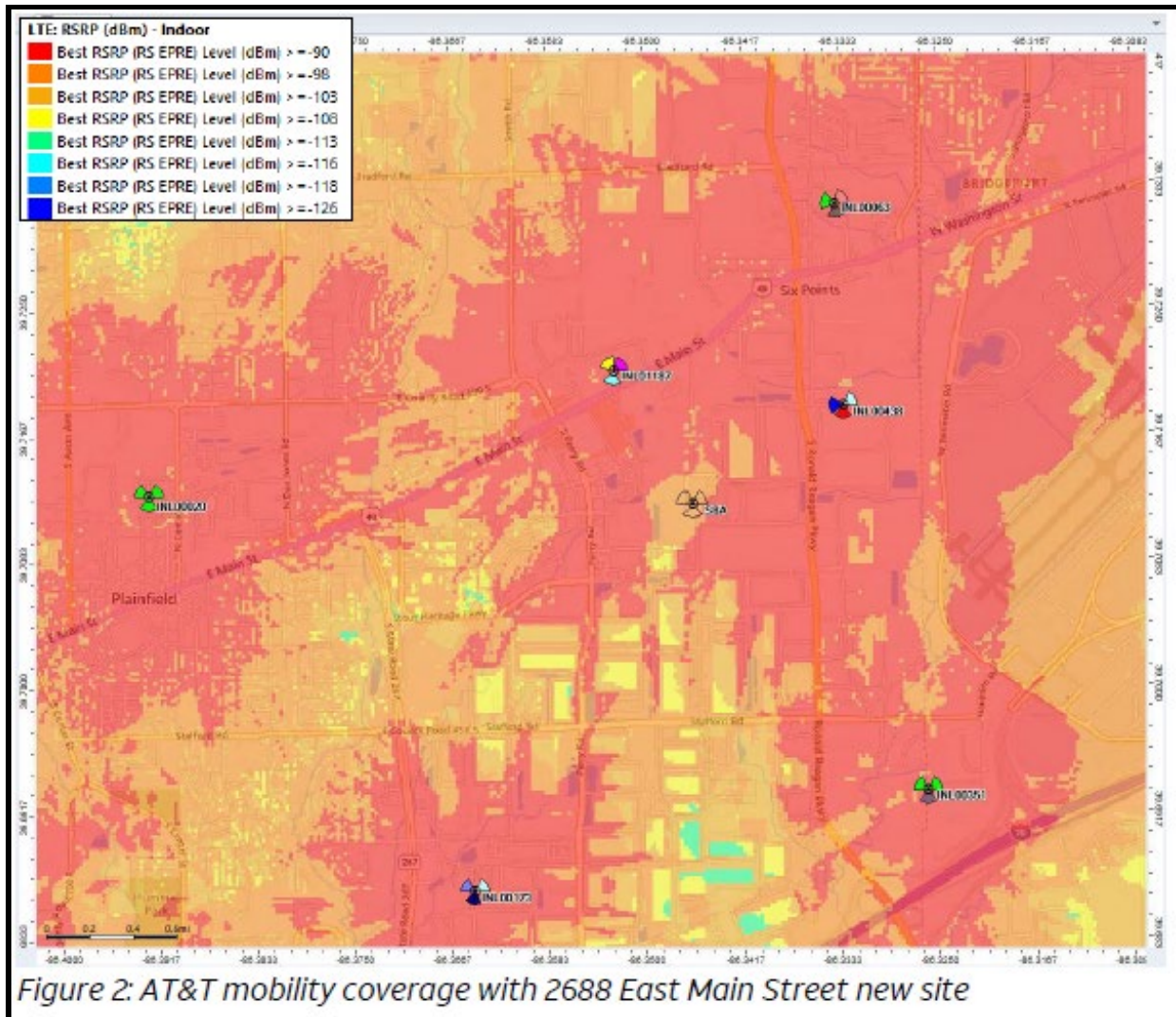
Fortune Wireless, Inc.

### RF PROPAGATION MAPS





Fortune Wireless, Inc.





Fortune Wireless, Inc.

**TAB #5**



Fortune Wireless, Inc.

**GEOTECHNICAL INVESTIGATION REPORT, TOWER & FOUNDATION DRAWINGS  
AND TOWER CALCULATIONS**

**[THE GEOTECHNICAL REPORT, TOWER & FOUNDATION DRAWINGS & TOWER CALCULATIONS TO  
BE PROVIDED PENDING ZONING APPROVAL]**



Fortune Wireless, Inc.

# TAB #6



Fortune Wireless, Inc.

## ZONING DRAWINGS

[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK,  
ZONING DRAWINGS BEGIN ON NEXT PAGE]

AERIAL PHOTO



THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.



**PROJECT: NSB/COLLO**  
**AT&T SITE ID: IN1187**  
**AT&T SITE NAME: IN1187**  
**2688 EAST MAIN STREET**  
**PLAINFIELD, IN 46168**  
**HENDRICKS COUNTY**

DRAWING INDEX

SHEET #:	SHEET TITLE	REV. #
TS-1	TITLE SHEET	0
C-1	OVERALL SITE PLAN	0
C-2	PROPOSED DETAILED COMPOUND PLAN	0
C-3	EQUIPMENT LAYOUT & WUC DETAILS	0
C-4	WUC PLATFORM DETAILS	0
C-5	GENERATOR DETAILS & SPECIFICATIONS	0
C-6	EQUIPMENT SITE DETAILS	0
C-7	SIGNAGE DETAILS	0
C-8	CONCRETE WORK DETAILS	0
C-9	FENCE DETAILS	0
T-1	TOWER ELEVATION, ANTENNA & CABLE PLANS	0
T-2	TOWER EQUIPMENT DETAILS & NOTES	0
T-3	TOWER EQUIPMENT DETAILS	0
T-4	ALPHA PLUMBING DIAGRAM	0
T-5	BETA PLUMBING DIAGRAM	0
T-6	GAMMA PLUMBING DIAGRAM	0
T-7	SECTOR FRAME	0
T-8	PIPE MOUNT ASSEMBLY	0
T-9	STAND-OFF	0
E-1	UTILITY PLAN	0
E-2	ELECTRICAL AC ONE-LINE DIAGRAM, DETAILS & NOTES	0
E-3	ELECTRICAL DETAILS	0
E-4	ELECTRICAL NOTES	0
G-1	GROUNDING SITE PLAN & NOTES	0
G-2	ANTENNA GROUNDING PLAN	0
G-3	GROUNDING DETAILS	0
N-1	GENERAL CONSTRUCTION NOTES	0
N-2	GENERAL CONSTRUCTION NOTES	0
N-3	LEGENDS AND ABBREVIATIONS	0
-	-	-
-	-	-



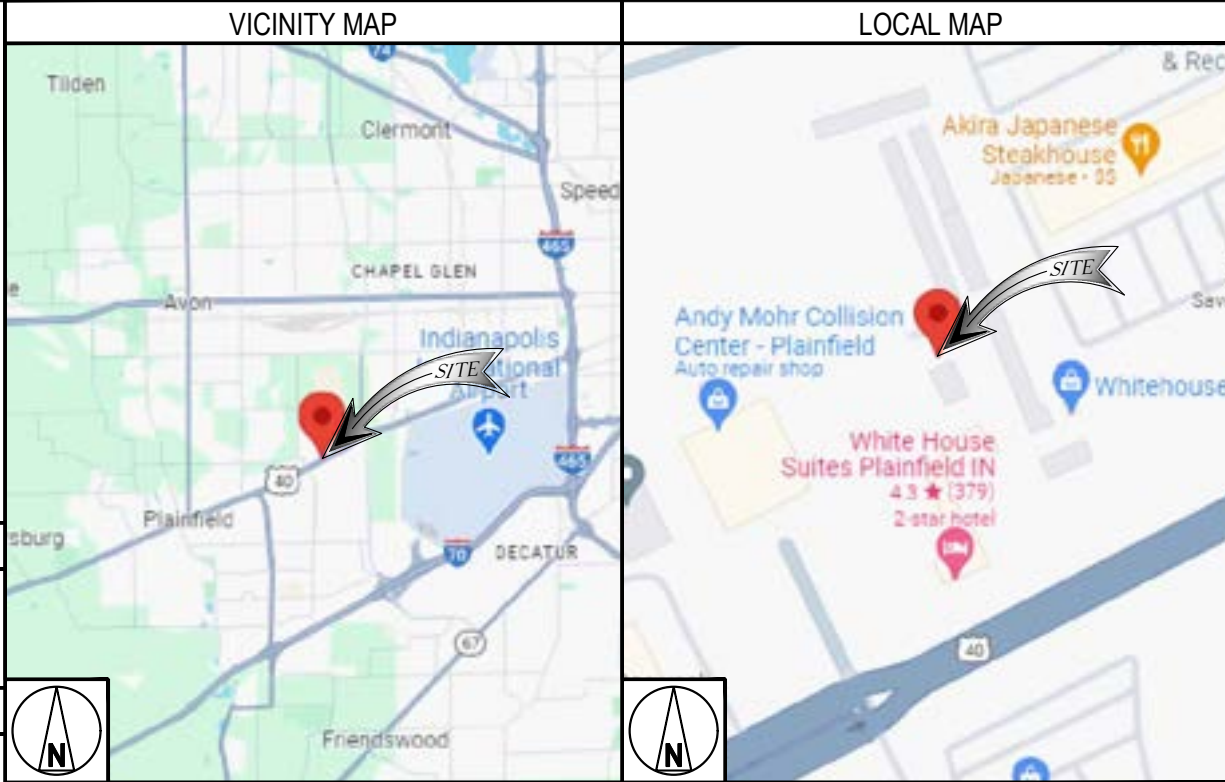
**FORTUNE WIRELESS INC.**  
 5511 WEST 79TH STREET  
 INDIANAPOLIS, IN 46268  
 (317) 532-1374

IN1187  
 AT&T FA#: 15861975  
 2688 EAST MAIN ST.  
 PLAINFIELD,  
 IN 46168  
 HENDRICKS COUNTY

PROJECT INFORMATION

LESSEE: AT&T  
 SITE ADDRESS: 2688 EAST MAIN STREET  
 PLAINFIELD, IN 46168  
 HENDRICKS COUNTY  
 SITE NAME: IN1187  
 SITE NUMBER: IN1187  
 FA NUMBER: 15861975  
 USID NUMBER: 325894  
 LATITUDE (NAD 83): 39° 43' 15.12" N (39.72086717)  
 LONGITUDE (NAD 83): 86° 21' 09.61" W (-86.35266856)  
 TOWER/GROUND OWNER: WHITEHOUSE MOTEL  
 2688 E MAIN ST  
 PLAINFIELD, IN 46168  
 MOUNT ANALYSIS: REFERENCE REPORT COMPLETED BY FORESITE GROUP  
 STRUCTURAL ANALYSIS: REFERENCE REPORT COMPLETED BY OTHERS  
 TOWER MODIFICATIONS: NO TOWER MODIFICATIONS NEEDED  
 LOCAL POWER COMPANY: DUKE ENERGY  
 LOCAL FIBER COMPANY: TBD  
 SITE ACQUISITION MANAGER: ERICSSON  
 CONSTRUCTION MANAGER: ERICSSON  
 LEAD ENGINEER: TBD

LOCATION MAPS



PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO PROPOSE AN ANTENNA INSTALLATION ON AN PROPOSED WIRELESS SITE.

GROUND SCOPE OF WORK:

- INSTALL (1) AT&T 3-BAY WUC CABINET ON PLATFORM
- INSTALL 30KW DIESEL GENERATOR WITH 190 GALLON TANK ON PLATFORM
- INSTALL POWER SERVICE TO WUC, COORDINATE WITH UTILITY PROVIDER
- INSTALL FIBER SERVICE TO WUC, COORDINATE WITH UTILITY PROVIDER

TOWER SCOPE OF WORK:

- INSTALL (1) SABRE C10899055 PIPE MOUNT ASSEMBLY
- INSTALL (3) SABRE C10841006C SECTOR FRAMES WITH (1) STIFF ARM EACH MOUNT
- INSTALL (4) SABRE C10114002DP 2' STAND-OFF
- INSTALL (6) KMW EPBQ-654L8H8-HG ANTENNAS
- INSTALL (3) ERICSSON AIR6472 B77G ANTENNAS
- INSTALL (3) ERICSSON 4478 B14 RADIOS
- INSTALL (3) ERICSSON 4490 B5/B12 RADIOS
- INSTALL (3) ERICSSON 4890 B25/B66 RADIOS
- INSTALL (2) RAYCAP DC9-48-60-24-8C-EV DEMARC BOXES
- INSTALL (6) DC TRUNKS
- INSTALL (2) FIBER TRUNKS

11"x17" PLOT WILL BE HALF SCALE  
 UNLESS OTHERWISE NOTED

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

THESE SITE PLANS ADHERE TO ALL OF THE REQUIREMENTS CALLED OUT IN THE JURISDICTION PLANNING AND ZONING FOR ANTENNAS AND SUPPORT STRUCTURES WHERE SITE IS LOCATED.



**UNDERGROUND SERVICE ALERT**  
**INDIANA UTILITY PROTECTION SERVICE**  
**1.800.382.5544**  
**811**  
 3 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

DRAWN BY: GNP

CHECKED BY: AJB

NO:	DATE:	ISSUE:
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0	02/21/24	FINAL CD



SHEET TITLE:

TITLE SHEET

SHEET NUMBER:

TS-1

DO NOT SCALE DRAWINGS

TOWER INFORMATION

OCCUPANCY LOAD: 0  
 STRUCTURE HEIGHT: 120'  
 CONSTRUCTION TYPE: 3B  
 OCCUPANCY GROUP: U

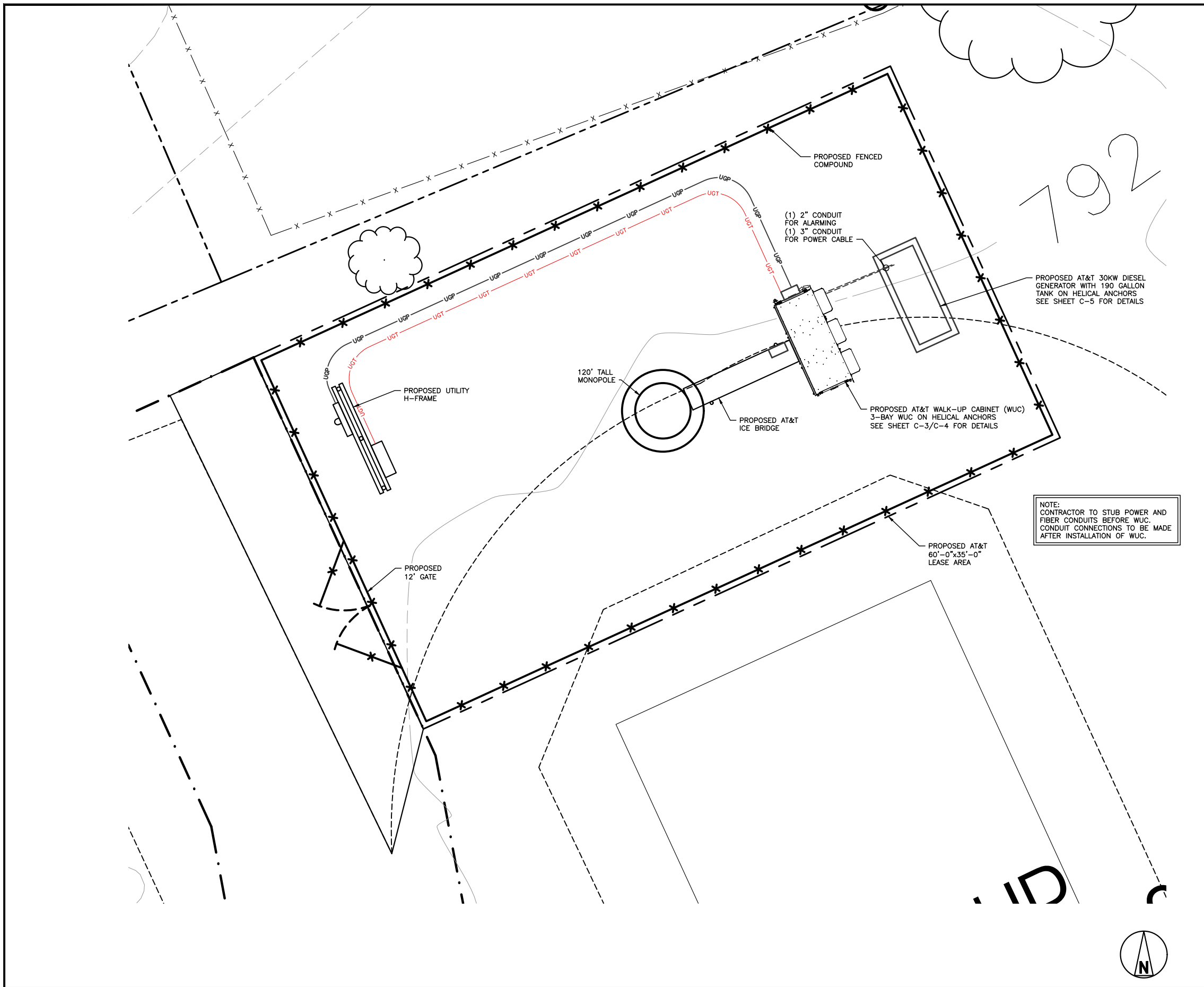
A/E CONTACT INFORMATION

ENGINEER: FORTUNE WIRELESS INC  
 5511 WEST 79TH STREET  
 INDIANAPOLIS, IN 46268  
 CONTACT: ADAM BROWN PE  
 (317) 532-1374

DRIVING DIRECTIONS







792

NOTE:  
CONTRACTOR TO STUB POWER AND  
FIBER CONDUITS BEFORE WUC.  
CONDUIT CONNECTIONS TO BE MADE  
AFTER INSTALLATION OF WUC.

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL INSTALL A POST WITH NUMBERS AT LEAST 3" IN HEIGHT, AND PLACED ON BOTH SIDES OF POST. THE ADDRESS NUMBERS SHALL BE DISPLAYED AT LEAST 48" ABOVE THE GROUND AND BE VISIBLE FROM EITHER DIRECTION ON THE MAIN ROAD/STREET.
3. CONTRACTOR TO REMOVE TREES & VEGETATION WITHIN LEASED AREA.

NOTES	2
PROPOSED FENCE	-----
PROPOSED LEASE AREA	-----
PROPOSED EASEMENT	-----
PROPOSED UNDERGROUND UTILITIES	---PA---
EXISTING PROPERTY LINE	---P---
PROPOSED ICE BRIDGE	-----

LEGEND	3
--------	---



**FORTUNE WIRELESS INC.**  
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INDIANAPOLIS, IN 46268  
(317) 532-1374

IN1187  
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2688 EAST MAIN ST.  
PLAINFIELD,  
IN 46168  
HENDRICKS COUNTY

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SHEET TITLE:  
**DETAILED COMPOUND PLAN**

SHEET NUMBER:  
**C-2**  
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0	02/21/24	FINAL CD

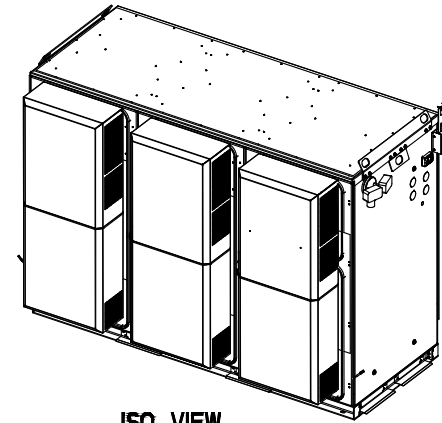
**FOR AT&T  
 REFERENCE  
 ONLY**



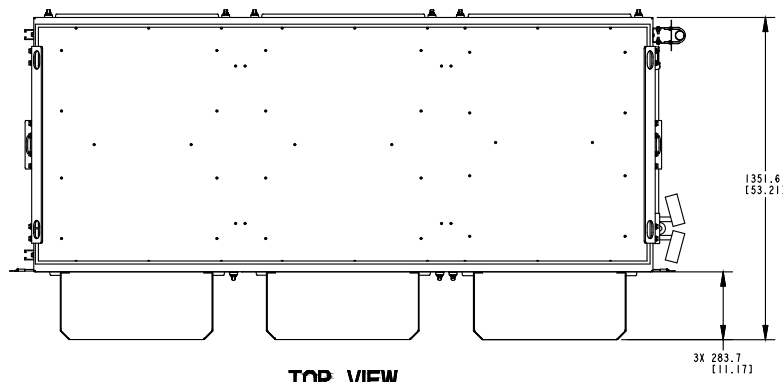
SHEET TITLE:  
**EQUIPMENT LAYOUT  
 & WUC DETAILS**

SHEET NUMBER:  
**C-3**

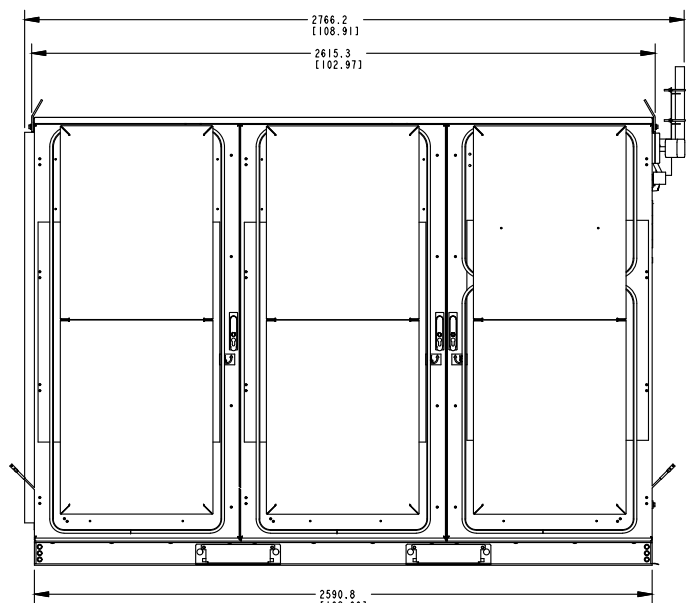
DO NOT SCALE DRAWINGS



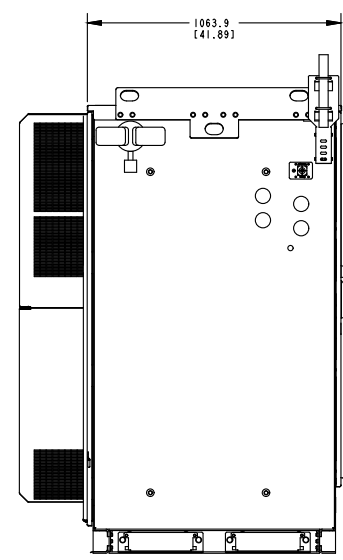
**ISO VIEW**



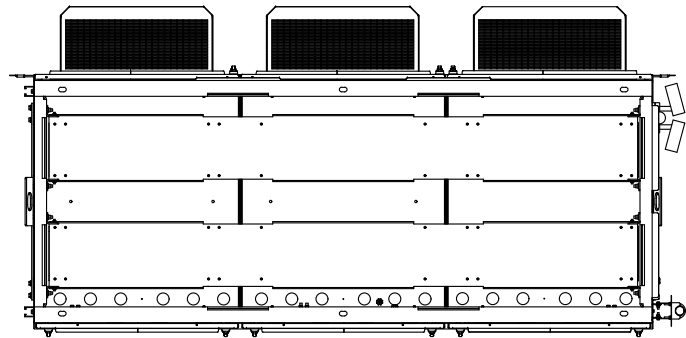
**TOP VIEW**



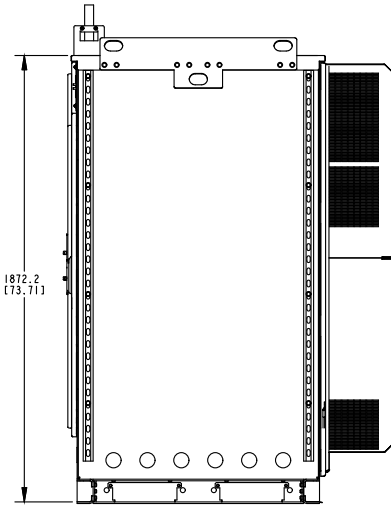
**FRONT VIEW**



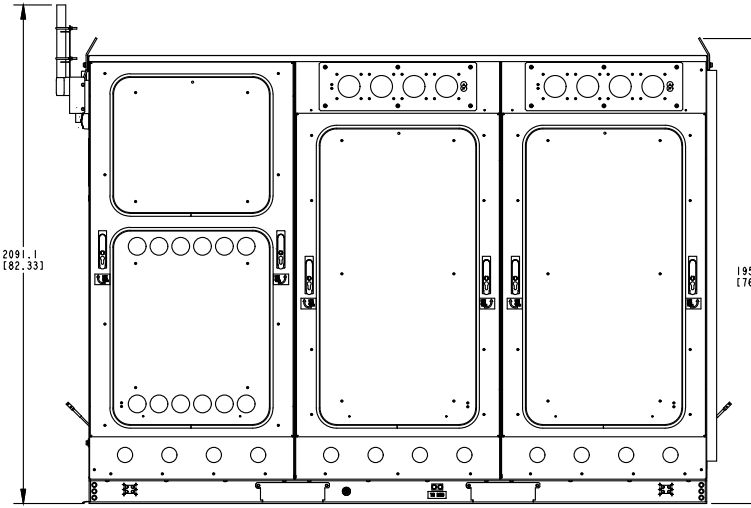
**RIGHT VIEW**



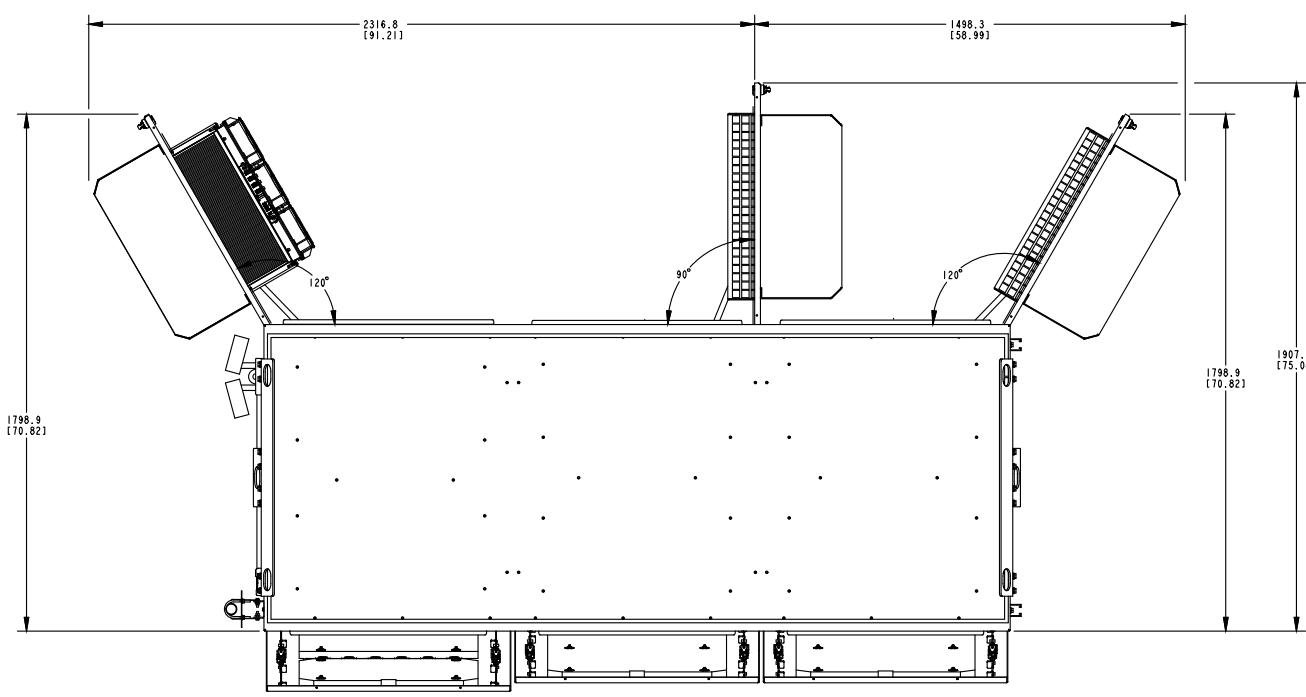
**BOTTOM VIEW**



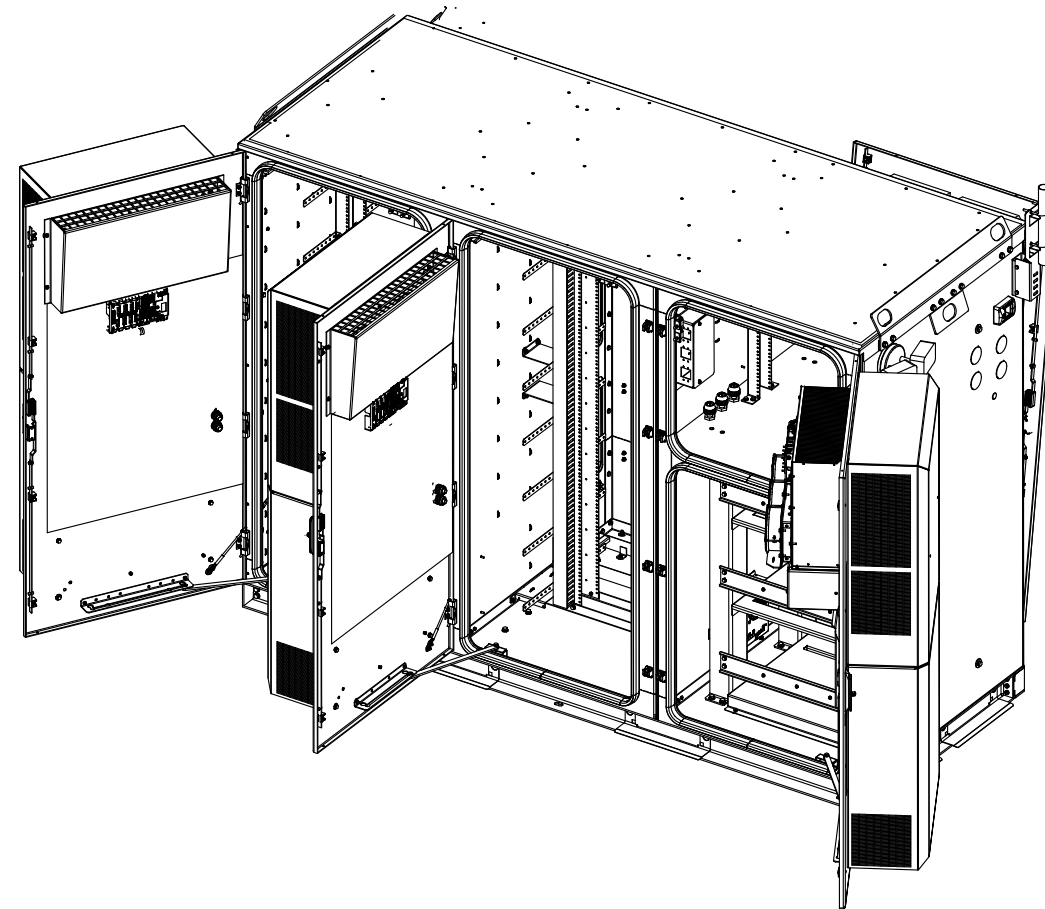
**LEFT VIEW**



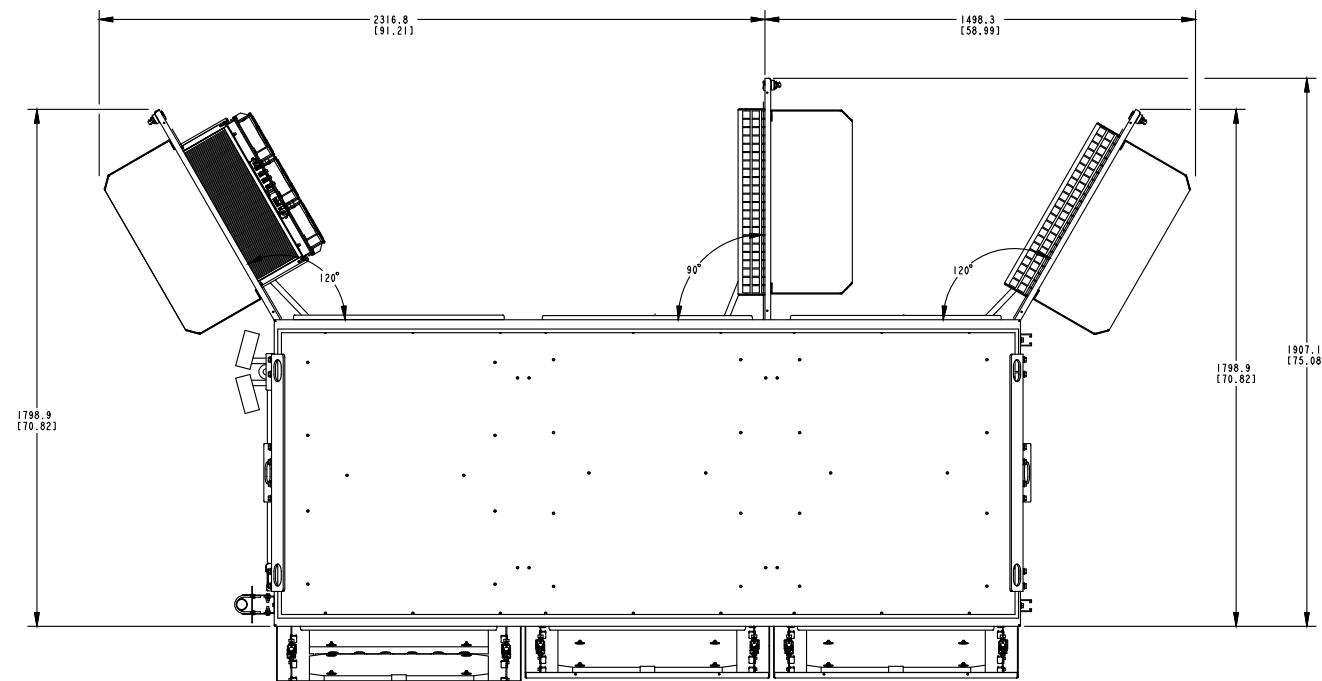
**REAR VIEW**



**TOP VIEW WITH OPEN DOOR**



ISO VIEW WITH OPEN DOOR



TOP VIEW WITH OPEN DOOR



**FORTUNE  
WIRELESS INC.**  
5511 WEST 79TH STREET  
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**FOR AT&T  
REFERENCE  
ONLY**

SHEET TITLE:

**WUC DETAILS**

SHEET NUMBER:

**C-4**

DO NOT SCALE DRAWINGS



**FORTUNE WIRELESS INC.**

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INDIANAPOLIS, IN 46268  
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0	02/21/24	FINAL CD

**FOR AT&T  
REFERENCE  
ONLY**

SHEET TITLE:

**GENERATOR DETAILS  
& SPECIFICATIONS**

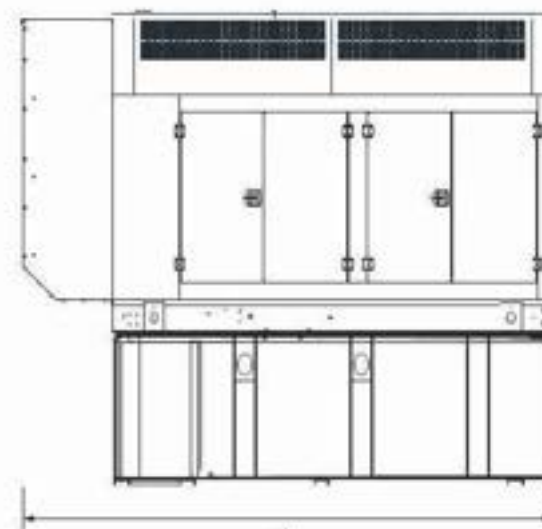
SHEET NUMBER:

**C-5**

DO NOT SCALE DRAWINGS

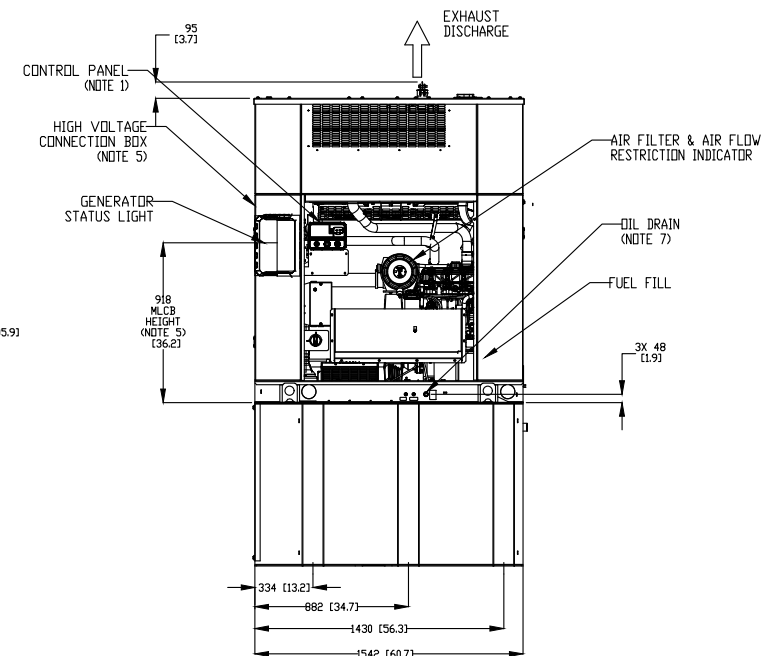
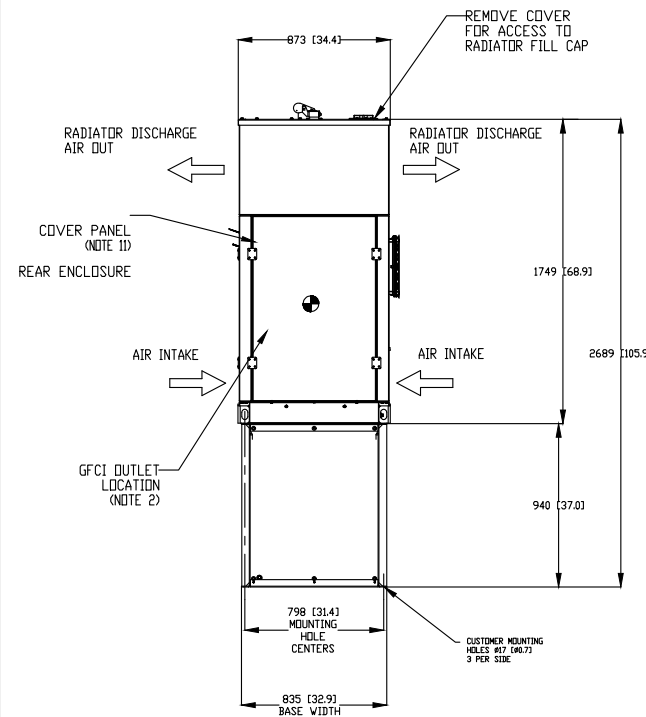
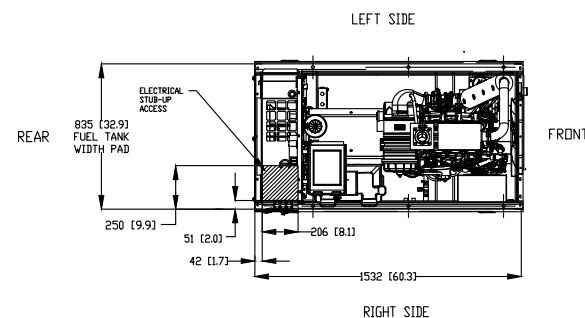
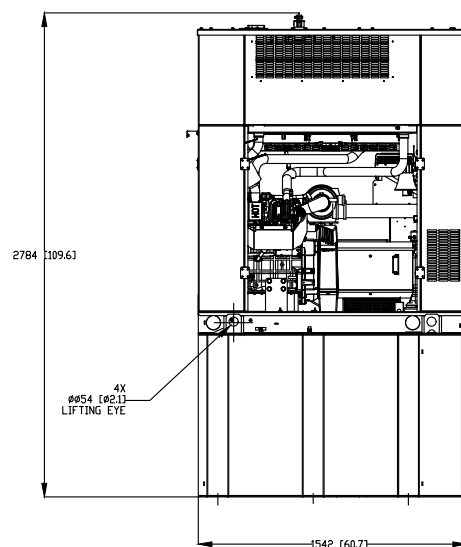
ITEM: DIESEL SINGLE PHASE GENERATOR  
 MANUFACTURER: GENERAC POWER SYSTEMS, INC.  
 GENERAC PART #: 7136-0  
 DESCRIPTION: 30kW; NON CALIFORNIA; DIESEL; OUTDOOR; 120/240VAC;  
 1PH; 2.2L ENG; 190 GAL TANK; L2A STEEL ENCLOSURE  
 AT&T NEQ: NEQ.20230

**SD030 | 2.2L | 30 kW**  
INDUSTRIAL DIESEL GENERATOR SET



**LEVEL 2 ACOUSTIC ENCLOSURE**

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg) Enclosure Only	
			Steel	Aluminum
No Tank	-	94.8 (2,408.9) x 38 (965.1) x 62 (1,573.9)		
21	54 (204)	94.8 (2,408.9) x 38 (965.1) x 75 (1,903)	460	291
52	132 (501)	94.8 (2,408.9) x 38 (965.1) x 87 (2,208.9)	(209)	(132)
84	211 (799)	94.8 (2,408.9) x 38 (965.1) x 99 (2,513.9)		
120	300 (1,135)	94.8 (2,408.9) x 38 (965.1) x 102.5 (2,602.9)		



**GENERATOR**

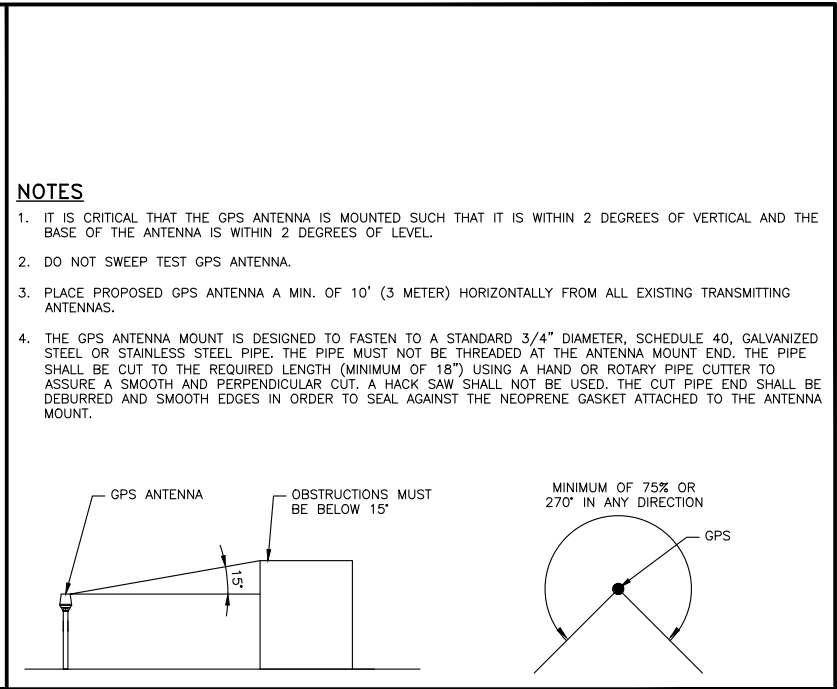
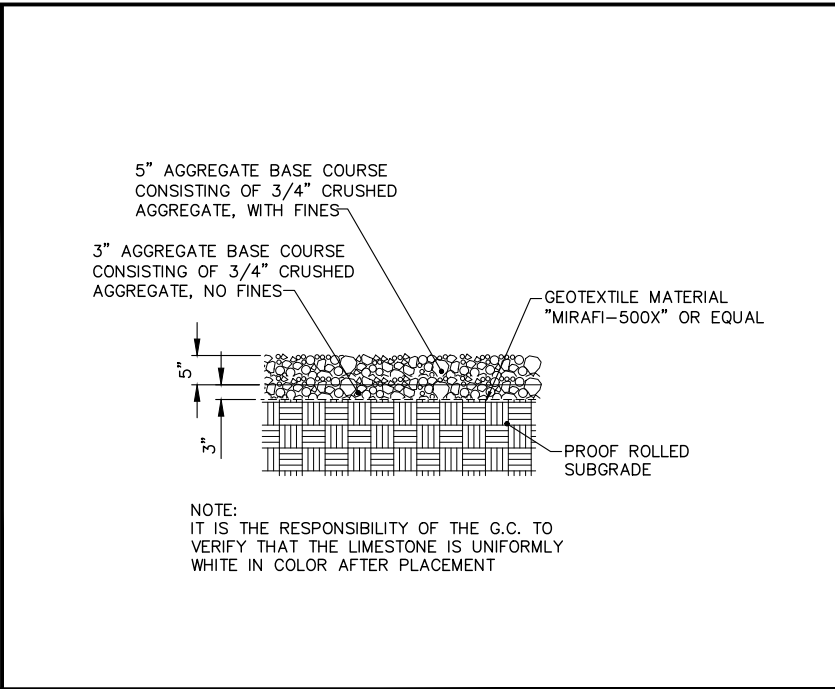
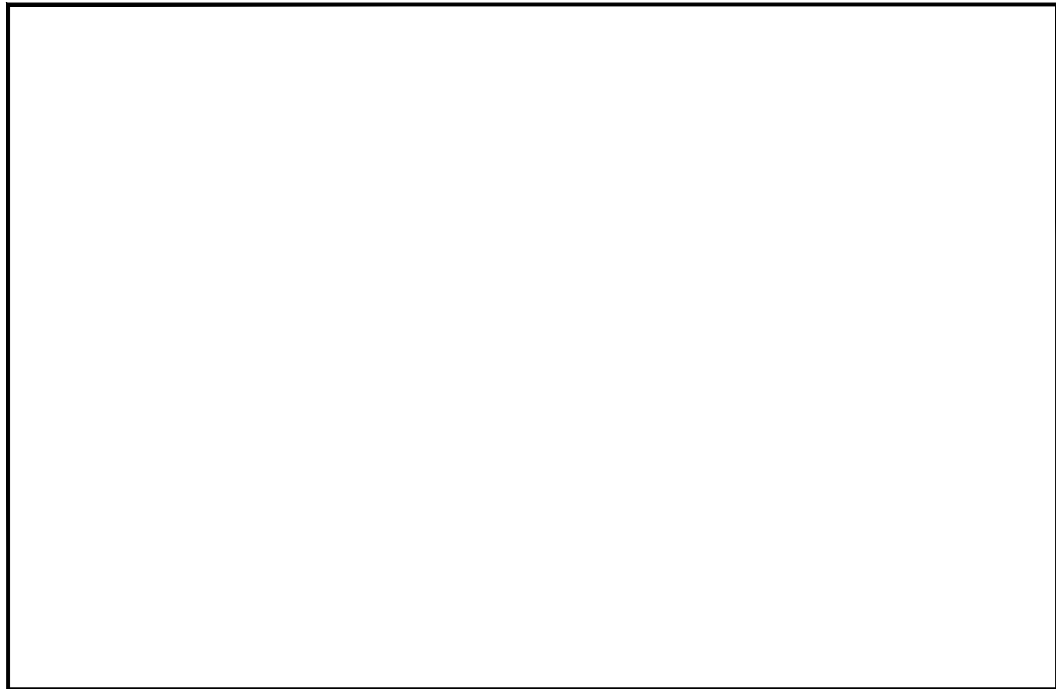
SCALE: N. T. S.

1  
C-5

**GENERATOR SPECIFICATIONS**

SCALE: N. T. S.

2  
C-5



**FORTUNE WIRELESS INC.**  
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DETAIL NOT USED

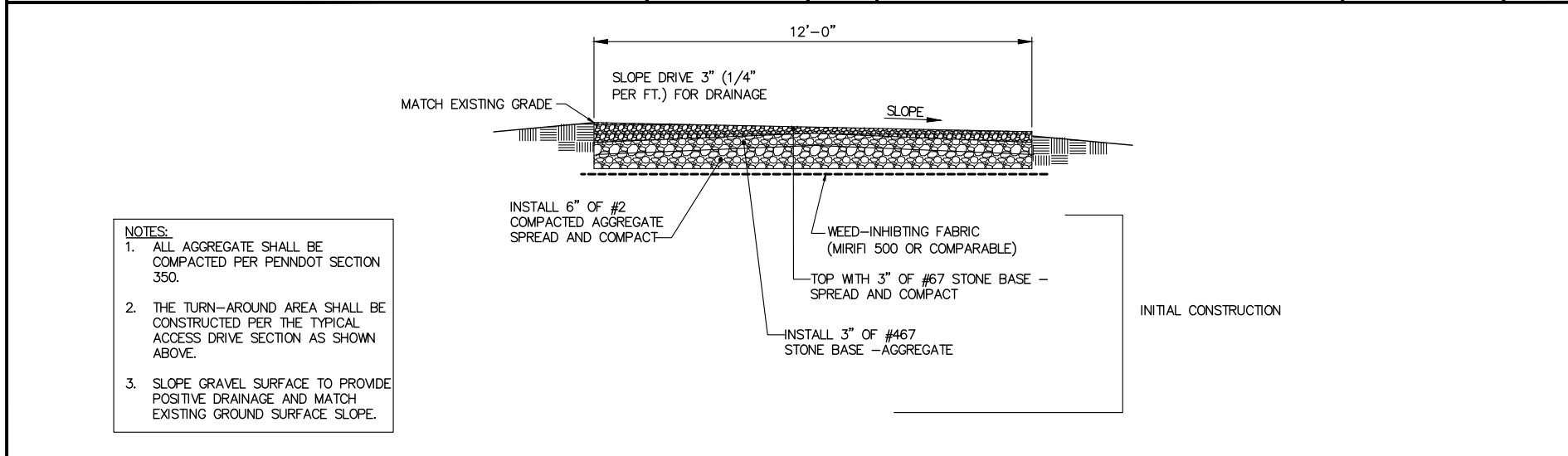
NO SCALE 1

SITE SURFACING DETAIL

NO SCALE 2

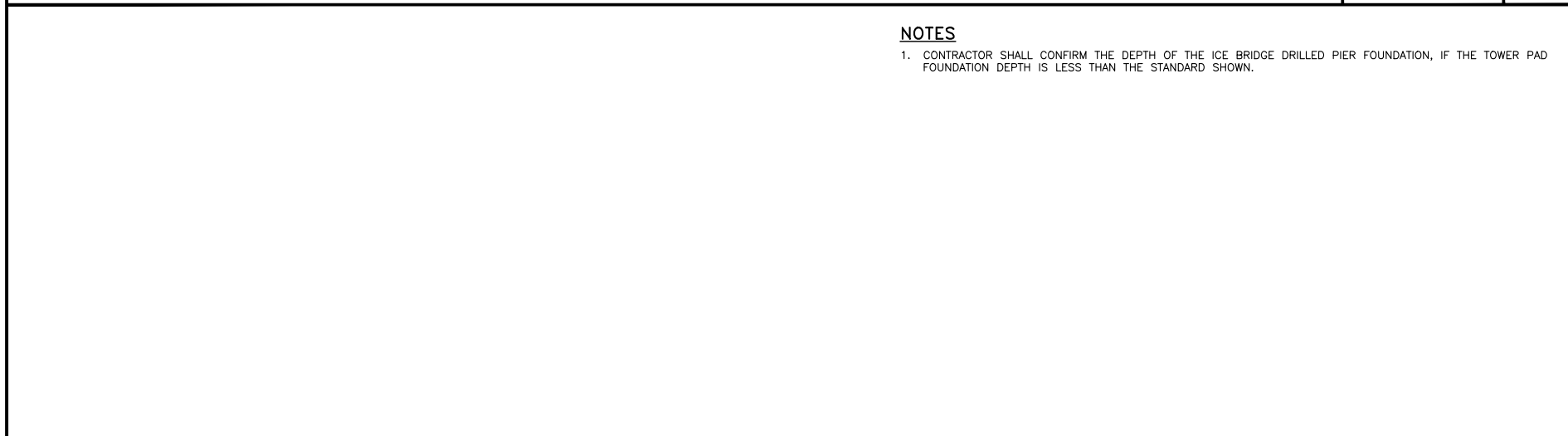
GPS SPECIFICATIONS

NO SCALE 3



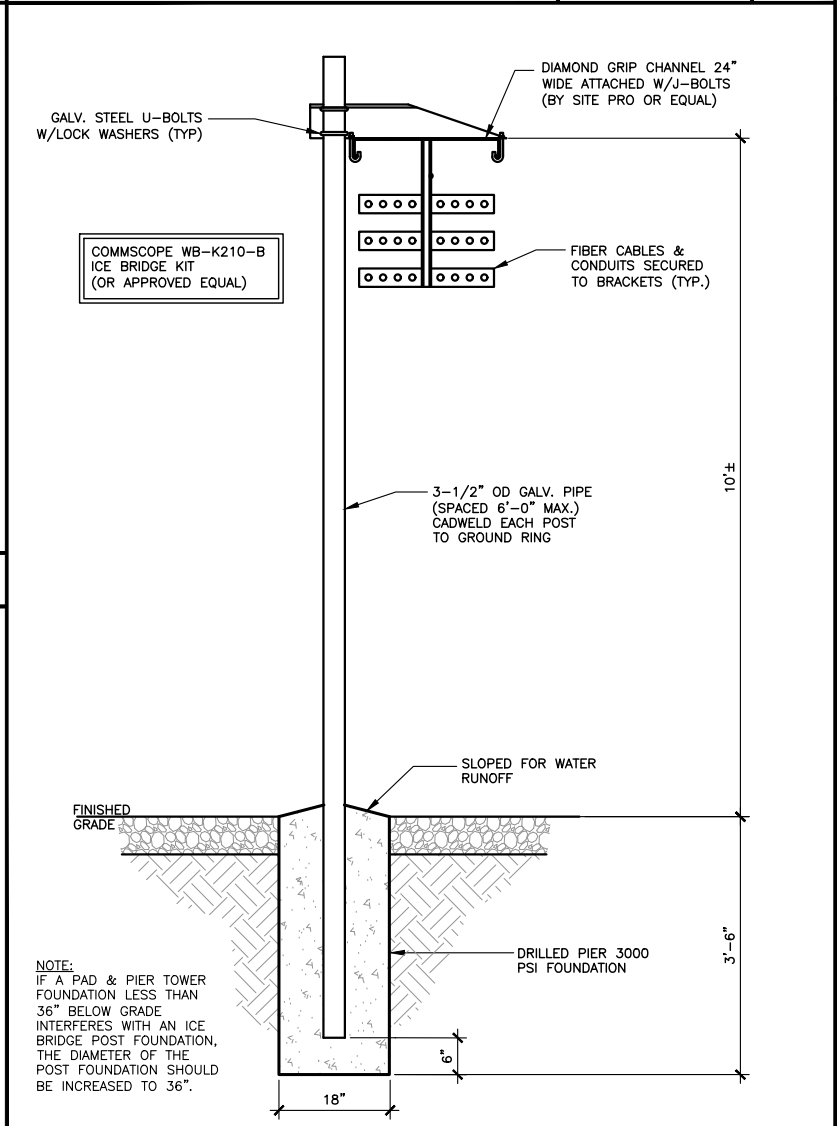
ACCESS DRIVE DETAIL

NO SCALE 4



ICE BRIDGE DETAIL NOTES

NO SCALE 5



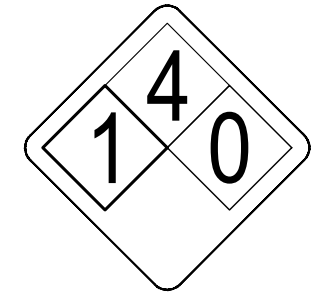
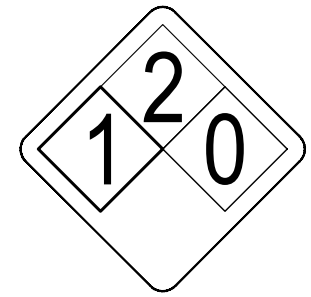
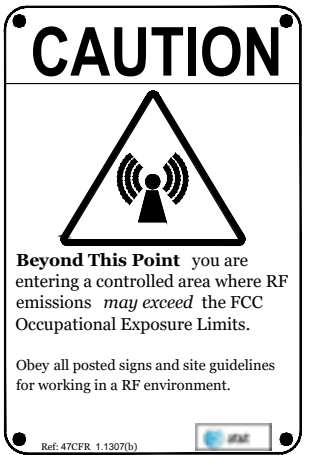
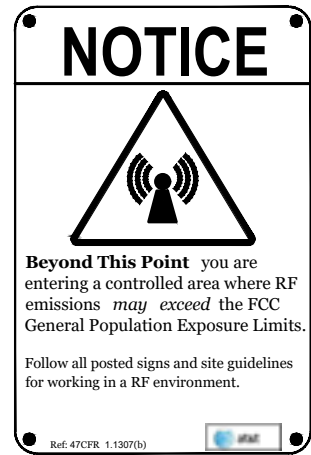
ICE BRIDGE DETAIL

NO SCALE 6



SHEET TITLE:  
**EQUIPMENT SITE DETAILS**

SHEET NUMBER:  
**C-6**  
DO NOT SCALE DRAWINGS



ALERTING SIGN  
(FOR CELL SITE BATTERIES)

ALERTING SIGN  
(FOR FUEL)

ALERTING SIGN  
(FOR PROPANE)



**FORTUNE WIRELESS INC.**  
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(317) 532-1374

IN1187  
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HENDRICKS COUNTY

DRAWN BY: **GNP**

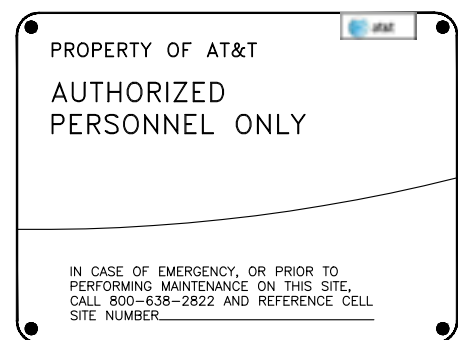
CHECKED BY: **AJB**

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ALERTING SIGN



ALERTING SIGN  
NO SCALE



INFO SIGN #4

ALERTING SIGN

INFORMATION

AT&T operates telecommunications antennas at this location. Remain at least 3 feet away from any antenna and obey all posted signs. Contact the owner(s) of the antenna(s) before working closer than 3 feet from the antenna. Contact AT&T at \_\_\_\_\_ prior to performing any maintenance or repairs near AT&T antennas. This is Site # \_\_\_\_\_. Contact the management office if this door/hatch/gate is found unlocked.

INFORMACION

En esta propiedad se ubican antenas de telecomunicaciones operadas por AT&T. Favor mantener una distancia de no menos de 3 pies y obedecer todos los avisos. Comuníquese con el propietario o los propietarios de las antenas antes de trabajar o caminar a una distancia menor de 3 pies de la antena. Comuníquese con AT&T \_\_\_\_\_ antes de realizar cualquier mantenimiento o reparaciones cerca de la antena de AT&T. Esta es la estación base número \_\_\_\_\_. Favor comunicarse con la oficina de la administración del edificio si esta puerta o compuerta se encuentra sin candado.

INFORMATION

- ON THE OUTSIDE OF THIS BUILDING
- BEHIND THIS PANEL
- ON THIS STRUCTURE

STAY BACK A MINIMUM OF 3 FEET FROM THESE ANTENNAS

Contact AT&T at \_\_\_\_\_ and follow their instructions prior to performing any maintenance or repairs closer than 3 feet from the antennas. This is AT&T site # \_\_\_\_\_

STAY BACK 3 FEET FROM ANTENNA

GENERAL SIGNAGE GUIDELINES

Structure Type	INFO SIGN #1	INFO SIGN #2	INFO SIGN #3	INFO SIGN #4	Striping	NOTICE SIGN	CAUTION SIGN
<b>Towers</b>							
Monopole/Monopine/Monopalm	entrance gates, shelter doors OR on the outdoor cabinets	climbing side of the Tower	On the side of Antennas	entrance gates, shelter doors OR on the outdoor cabinets			At the height of the first climbing step, min. 9ft above ground
SCE Towers/ Towers with high voltage	entrance gates, shelter doors OR on the outdoor cabinets	climbing side of the Tower	On the side of Antennas	entrance gates, shelter doors OR on the outdoor cabinets			At the height of the first climbing step, min. 9ft above ground
Light Poles / Flag Poles	entrance gates, shelter doors OR on the outdoor cabinets	on the pole, no less than 3ft below the Antenna and no less than 9ft above ground	On the side of Antennas	entrance gates, shelter doors OR on the outdoor cabinets			
Utility Wood Poles (JPA)	entrance gates, shelter doors OR on the outdoor cabinets	on the pole, no less than 3ft below the Antenna and no less than 9ft above ground	On the side of Antennas	entrance gates, shelter doors OR on the outdoor cabinets		If GP max value of MFE at antenna level is: 0-99% Notice sign; over 99% Caution sign at no less than 3ft below antenna and 9ft above ground	
Microcells mounted on non-JPA poles	entrance gates, shelter doors OR on the outdoor cabinets	on the pole, no less than 3ft below the Antenna and no less than 9ft above ground	On the side of Antennas	entrance gates, shelter doors OR on the outdoor cabinets		Notice or Caution sign at no less than 9ft above ground; only if the exposure exceeds 90% of the General Public exposure at 6ft above ground or at outside surface of adjacent buildings	
<b>Roof Tops</b>							
At all access points to the roof	X			X			
On Antennas	X		X	X			
Concealed Antennas	X	X		X			
antennas mounted facing outside the building	X	X		X			
antennas on support structure	X	X		X			
Roofview Graph:							
Radiation area is within 3ft from antenna	X	adjacent to each antenna		X			
Radiation area is beyond 3ft from antenna	X	adjacent to each antenna		X	diagonal, yellow striping as to Roofview graph		either Notice or Caution sign (based on Roofview results) at antennas/barrier
<b>Church Steeples</b>	Access to steeple	adjacent to antennas if antennas are concealed	On the side of Antennas	Access to steeple			Caution sign at the antennas
<b>Water Stations</b>	Access to ladder	adjacent to antennas if antennas are concealed	On the side of Antennas	Access to ladder			Caution sign beside Info sign #1, min. 9ft above ground

- Notes for Rooftop sites:
1. Either NOTICE or CAUTION signs need to be posted at each sector as close as possible to the outer edge of the striped off area or the outer antennas of the sector.
  2. If Roofview show: only blue = Notice Sign, blue and yellow = Caution Sign, only yellow = Caution Sign to be installed.
  3. Should the required striping area interfere with any structures or equipment (A/C, vents, roof hatch, doors, other antennas, dishes, etc.), please notify AT&T to modify the striping area, prior to starting the work

INFO SIGN #1

INFO SIGN #2

INFO SIGN #3

SIGNAGE GUIDELINES CHART

FOR AT&T REFERENCE ONLY

SHEET TITLE:  
**SIGNAGE DETAILS**

SHEET NUMBER:  
**C-7**  
DO NOT SCALE DRAWINGS

**PART 1 – GENERAL**

1.1 SCOPE:

- A. FORM WORK, REINFORCING STEEL, ACCESSORIES, CAST-IN PLACE CONCRETE, FINISHING, CURING AND TESTING FOR STRUCTURAL CONCRETE FOUNDATIONS.

1.2 REFERENCES:

- A. ACI (AMERICAN CONCRETE INSTITUTE)
  - 1. ACI 301 SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS.
  - 2. ACI 304 RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE.
  - 3. ACI 305 RECOMMENDED PRACTICE FOR HOT WEATHER CONCRETING.
  - 4. ACI 306 RECOMMENDED PRACTICE FOR COLD WEATHER CONCRETING.
  - 5. ACI 308 STANDARD PRACTICE FOR CURING CONCRETING.
  - 6. ACI 309 STANDARD PRACTICE FOR CONSOLIDATION OF CONCRETE.
  - 7. ACI 318 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
  - 8. ACI 347 RECOMMENDED PRACTICE FOR CONCRETE FORMWORK DRILL PIERS.
- B. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS). THE APPLICABLE STANDARDS OF THE AMERICAN SOCIETY FOR TESTING AND MATERIALS ARE LISTED IN THE ACI STANDARDS AND ARE A PART OF THIS SPECIFICATION.

**PART 2 – PRODUCTS**

2.1 REINFORCING MATERIALS:

- A. REINFORCING BARS: ASTM A615, GRADE 60, PROPOSED DEFORMED BILLET-STEEL BARS, PLAIN FINISH.
- B. FURNISH CHAIRS, BOLSTERS, BAR SUPPORTS, SPACERS AS REQUIRED FOR SUPPORT OF REINFORCING STEEL AND WIRE FABRIC.

2.2 CONCRETE MATERIALS:

- A. PORTLAND CEMENT SHALL BE TYPE II, CONFORMING TO ASTM C-150.
- B. AGGREGATE SHALL CONFORM TO ASTM C-33.
  - 1. FINE AGGREGATE SHALL BE UNIFORMLY GRADED, CLEAN SHARP, WASHED NATURAL, OR CRUSHED SAND, FREE FROM ORGANIC IMPURITIES.
  - 2. COARSE AGGREGATE SHALL BE NATURAL WASHED GRAVEL OR WASHED CRUSHED ROCK HAVING HARD, STRONG, DURABLE PIECES, FREE FROM ADHERENT COATINGS.
  - 3. MAXIMUM SIZE OF COARSE AGGREGATE SHALL BE 3/4 INCH IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM C-33 GRADATION SIZE NO. 67.
- C. WATER USED IN CONCRETE MIX SHALL BE POTABLE, CLEAN, AND FREE FROM OILS, ACIDS, SALTS, CHLORIDES, ALKALI, SUGAR, VEGETABLE, OR OTHER INJURIOUS SUBSTANCES.
- D. THE CONCRETE SHALL CONTAIN AN AIR-ENTRAINING ADMIXTURE COMPLYING WITH THE REQUIREMENTS OF ASTM C-260 AND ACI 212. 1R AND A WATER-REDUCING ADMIXTURE COMPLYING WITH THE REQUIREMENTS OF ASTM C-494 AND ACI 212. 1R. ADMIXTURES SHALL BE PURCHASED AND BATCHED IN LIQUID SOLUTION. THE USE OF CALCIUM CHLORIDE OR AN ADMIXTURE CONTAINING CALCIUM CHLORIDE IS PROHIBITED. ADMIXTURES SHALL BE OF THE SAME MANUFACTURER TO ASSURE COMPATIBILITY. ACCEPTABLE MANUFACTURERS ARE:
  - 1. W.R. GRACE
  - 2. SIKA CORP.
  - 3. MASTER BUILDERS
  - 4. EUCLID CHEMICAL CO.
  - 5. APPROVED EQUAL
- E. CURING COMPOUND SHALL CONFORM TO ASTM C309, TYPE I, ID, CLASS A AND B AND ASTM C171 AS APPLICABLE.

2.3 CONCRETE MIX:

- A. PROPORTION CONCRETE MIX IN ACCORDANCE WITH REQUIREMENTS OF ACI 301. THE STRENGTH OF CONCRETE SHALL BE AS INDICATED ON THE DRAWINGS. WHERE STRENGTH IS NOT CLEARLY INDICATED, CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI.
- B. THE CONCRETE MIX SHALL BE DESIGNED FOR A MAXIMUM SLUMP OF THREE INCHES (PLUS OR MINUS 1-INCH) AT THE POINT OF DISCHARGE. MIXES OF THE STIFFEST CONSISTENCY THAT CAN BE EFFICIENTLY PLACED SHALL BE USED.
- C. ALL CONCRETE SHALL BE TO SIX PERCENT (6%) AIR ENTRAINED (PLUS OR MINUS 1%).
- D. ALL STRUCTURAL CONCRETE SHALL CONTAIN A WATER-REDUCING AGENT.

**PART 3 – EXECUTION**

3.1 GENERAL:

- A. CONSTRUCT AND ERECT THE FORM WORK IN ACCORDANCE WITH ACI 301 AND ACI 347.
- B. COLD-WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH ACI 306.
- C. HOT-WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH ACI 305.

3.2 INSERTS, EMBEDDED COMPONENTS AND OPENINGS:

- A. CONTRACTOR SHALL CHECK ALL CIVIL, ARCHITECTURAL, STRUCTURAL AND ELECTRICAL DRAWINGS FOR OPENINGS, SLEEVES, ANCHOR BOLTS, INSERTS AND OTHER ITEMS TO BE BUILT INTO THE CONCRETE WORK.
- B. COORDINATE THE WORK OF OTHER SECTION IN FORMING AND SETTING OPENINGS, RECESSES, SLOTS, CHASES, ANCHORS, INSERTS AND OTHER ITEMS TO BE EMBEDDED.
- C. EMBEDDED ITEMS SHALL BE SET ACCURATELY IN LOCATION, ALIGNMENT, ELEVATION AND PLUMBNESS, LOCATE AND MEASURE FROM ESTABLISHED SURVEYED REFERENCE BENCHMARKS.

- D. EMBEDDED ITEMS SHALL BE ANCHORED INTO PLACE IN A MANNER TO PREVENT MOVEMENT DURING CONCRETE PLACEMENT AND CONSOLIDATION. COMPONENTS FORMING A PART OF A COMPLETE ASSEMBLY SHALL BE ALIGNED BEFORE ANCHORING INTO PLACE. PROVIDE TEMPORARY BRACING, ANCHORAGE, AND TEMPLATES AS REQUIRED TO MAINTAIN THE SETTING AND ALIGNMENT.

3.3 REINFORCEMENT PLACEMENT:

- A. PLACE REINFORCEMENT ACCORDING TO CHECKED AND RELEASED DRAWINGS AND IN ACCORDANCE WITH ACI 301 AND ACI 318.
- B. ACCURATELY POSITION, SUPPORT AND SECURE REINFORCEMENT AGAINST DISPLACEMENT FROM FORM WORK CONSTRUCTION OR CONCRETE PLACEMENT AND CONSOLIDATION. SUPPORT REINFORCING ON METAL CHAIRS, RUNNERS, BOLSTERS, SPACERS AND HANGERS.
- C. SPLICES OF REINFORCING BARS SHALL BE CLASS B UNLESS SHOWN OTHERWISE ON THE DRAWINGS. SPLICES SHALL BE STAGGERED. FULL DEVELOPMENT LENGTH SHALL BE PROVIDED ACROSS JOINTS.
- D. LOCATE REINFORCING TO PROVIDE CONCRETE COVER AND SPACING SHOWN ON THE DRAWINGS. MINIMUM COVER SHALL BE AS REQUIRED BY ACI 318.
- E. WELDING OF AND TO ANY REINFORCING MATERIALS INCLUDING TACK WELDING OF CROSSING BARS IS STRICTLY PROHIBITED.

3.4 CONCRETE PLACEMENT:

- A. PRIOR TO PLACING CONCRETE, THE FORMS AND REINFORCEMENT SHALL BE THOROUGHLY INSPECTED; ALL TEMPORARY BRACING, TIES AND CLEATS REMOVED; ALL OPENINGS FOR UTILITIES PROPERLY BOXED; ALL FORMS PROPERLY SECURED IN THEIR CORRECT POSITION AND MADE TIGHT. ALL REINFORCEMENT AND EMBEDDED ITEMS SHALL BE SECURED IN THEIR PROPER LOCATIONS. ALL OLD AND DRY CONCRETE AND DIRT SHALL BE CLEANED OFF AND ALL STANDING WATER AND OTHER FOREIGN MATERIAL REMOVED.
- B. PLACING CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301 AND ACI 304 AND SHALL BE CARRIED OUT AT SUCH A RATE THAT THE CONCRETE PREVIOUSLY PLACED IS STILL PLASTIC AND INTEGRATED WITH THE FRESHLY PLACED CONCRETE. CONCRETING ONCE STARTED, SHALL BE CARRIED ON AS A CONTINUOUS OPERATION UNTIL THE SECTION IS COMPLETED. NO COLD JOINTS SHALL BE ALLOWED.
- C. ALL CONCRETE SHALL BE THOROUGHLY CONSOLIDATED AND COMPACTED BY VIBRATION SPACING, RODDING, OR FORKING DURING THE OPERATION OF PLACING AND DEPOSITING IN ACCORDANCE WITH ACI 309. THE CONCRETE SHALL BE THOROUGHLY WORKED AROUND REINFORCEMENT, EMBEDDED ITEMS, AND INTO THE CORNER OF THE FORMS SO AS TO ELIMINATE ALL AIR AND STONE POCKETS.

3.5 FINISHING:

- A. FINISHING OF THE FLOOR SLABS SHALL BE IN ACCORDANCE WITH ACI 302.1 SECTION 7.2 WITH A MINIMUM OF THREE TROWELINGS. THE SLAB FINISH TOLERANCE AS MEASURED IN ACCORDANCE WITH ASTM E 1155 SHALL HAVE AN OVERALL TEST NUMBER FOR FLATNESS, FF= 20 AND FOR LEVEL. FL=15. THE MINIMUM LOCAL NUMBER FOR FLATNESS, FF= 15 AND FOR LEVEL FL=10.
- B. SURFACE OF FLOOR SLAB SHALL RECEIVE TWO COATS OF CLEAR SEALER/HARDENER.
- C. ABOVE GRADE WALL SURFACES SHALL HAVE A SMOOTH FORM FINISH AS DEFINED IN CHAPTER 10 OF ACI 301.

3.6 CURING:

- A. FRESHLY DEPOSITED CONCRETE SHALL BE PROTECTED FROM PREMATURE DRYING AND EXCESSIVELY HOT AND COLD TEMPERATURES AND SHALL BE MAINTAINED WITH MINIMUM MOISTURE LOSS AT A RELATIVELY CONSTANT TEMPERATURE FOR A PERIOD OF TIME NECESSARY FOR THE HYDRATION OF THE CEMENT AND PROPER HARDENING OF THE CONCRETE.
- B. CONCRETE SHALL BE KEPT CONTINUOUSLY MOIST AT LEAST OVERNIGHT, IMMEDIATELY FOLLOWING THE INITIAL CURING. BEFORE THE CONCRETE HAS DRIED, ADDITIONAL CURING SHALL BE ACCOMPLISHED BY ONE OF THE FOLLOWING MATERIALS OR METHODS:
  - 1. PONDING OR CONTINUOUS SPRINKLING.
  - 2. ABSORPTIVE MAT OR FABRIC KEPT CONTINUOUSLY WET.
  - 3. NON-ABSORPTIVE FILM (POLYETHYLENE) OVER PREVIOUSLY SPRINKLED SURFACE.
  - 4. SAND OR OTHER COVERING KEPT CONTINUOUSLY WET.
  - 5. CONTINUOUS STEAM (NOT EXCEEDING 150 F) OR VAPOR MIST BATH.
  - 6. SPRAYED-ON CURING COMPOUND APPLIED IN TWO COATS, SPRAYED IN PERPENDICULAR DIRECTION.
- C. THE FINAL CURING SHALL CONTINUE UNTIL THE CUMULATIVE NUMBER OF DAYS OR FRACTION THEREOF, NOT NECESSARILY CONSECUTIVE, DURING WHICH TEMPERATURE OF THE AIR IN CONTACT WITH CONCRETE IS ABOVE 50F HAS TOTALED SEVEN (7) DAYS. CONCRETE SHALL NOT BE PERMITTED TO FREEZE DURING THE CURING PERIOD. RAPID DRYING AT THE END OF THE CURING PERIOD SHALL BE PREVENTED.



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HENDRICKS COUNTY

DRAWN BY: **GNP**

CHECKED BY: **AJB**

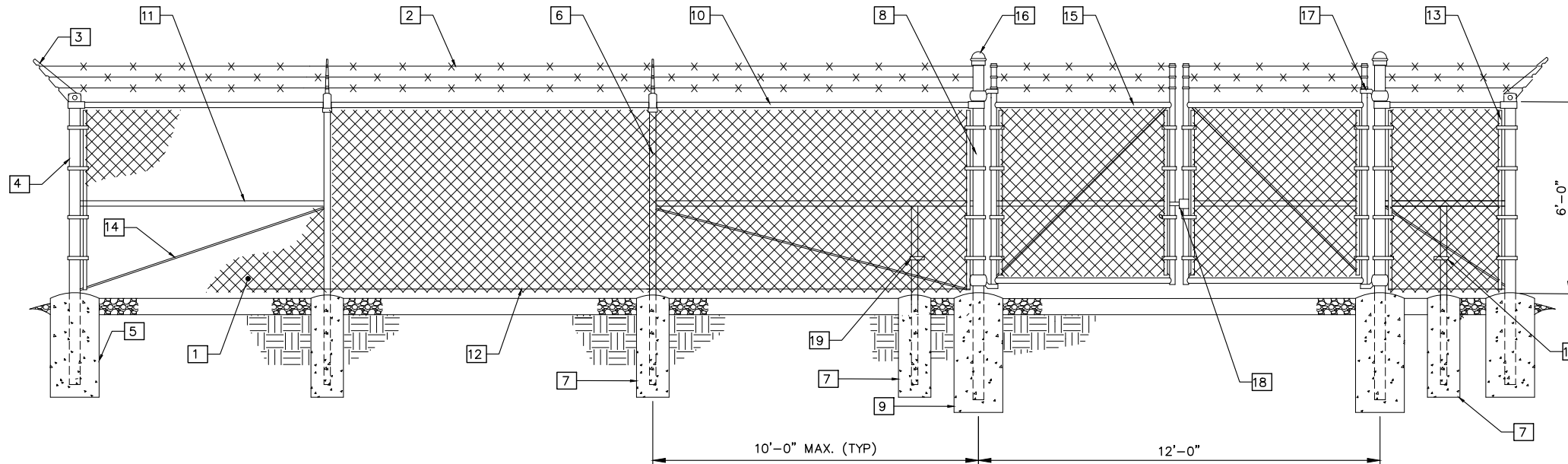
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A	02/06/24	REVIEW CD
0	02/21/24	FINAL CD



SHEET TITLE:  
**CONCRETE WORK NOTES**

SHEET NUMBER:  
**C-8**

DO NOT SCALE DRAWINGS



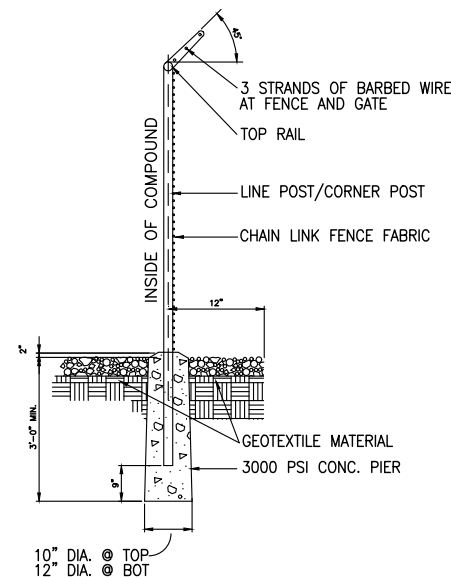
**1** **TYPICAL FENCE SECTION**  
SCALE: N.T.S.

**KEYNOTE LEGEND:**

- |   |   |
|---|---|
| <p><b>1</b> FABRIC: 6FT. HEIGHT, 9 GAUGE, 2" MESH, ASTM A392.</p> <p><b>2</b> BARBED WIRE: 12 GAUGE WIRE, 4 POINT (3 RUNS), FINISH TO MATCH FABRIC, ASTM A121.</p> <p><b>3</b> EXTENSION ARMS: STAMPED STEEL WITH MALLEABLE IRON BASE, FINISH TO MATCH FENCE FRAMEWORK, ASTM F626.</p> <p><b>4</b> END AND CORNER POSTS: 3"Ø PIPE SCH. 40 (GALV.) ASTM F1083</p> <p><b>5</b> CONCRETE FOUNDATION: 36"x12"Ø (3000 PSI)</p> <p><b>6</b> LINE POSTS: 2"Ø PIPE SCH. 40 (GALV.) ASTM F1083</p> <p><b>7</b> CONCRETE FOUNDATION: 36"x10"Ø (3000 PSI)</p> <p><b>8</b> GATE POSTS: 4"Ø PIPE SCH. 40 (GALV.) ASTM F1083</p> <p><b>9</b> CONCRETE FOUNDATION: 48"x12"Ø (3000 PSI)</p> <p><b>10</b> TOP RAIL &amp; BRACE RAIL: 1-1/2"Ø PIPE SCH. 40 (GALV.) ASTM F1083</p> | <p><b>11</b> MIDDLE RAILS: 1-1/2"Ø PIPE SCH. 40 (GALV.) ASTM F1083</p> <p><b>12</b> BOTTOM TENSION WIRE: 0.177"Ø METALLIC-COATED STEEL (GALV.), MARCELLED, ASTM A824</p> <p><b>13</b> TENSION BARS: 3/16"x3/4", FULL HEIGHT OF FABRIC, FINISH TO MATCH FENCE FRAMEWORK.</p> <p><b>14</b> TENSION ROD: 3/8"Ø WITH ADJ. TIGHTNER, FINISH TO MATCH FENCE FRAMEWORK.</p> <p><b>15</b> GATE FRAME: 2"Ø SCH. 40 (GALV.) ASTM F1083</p> <p><b>16</b> POST CAPS: PER POST DIAMETER.</p> <p><b>17</b> GATE HINGES: NON-LIFT-OFF TYPE, OFFSET TO PERMIT 180 DEGREE SWING.</p> <p><b>18</b> STRONG ARM GATE LATCH LOCK</p> <p><b>19</b> DUCK BILL OPEN GATE HOLDER. VERIFY LOCATION IN FIELD BEFORE INSTALLATION</p> |
|---|---|

**FENCE NOTES:**

- REFER TO PROJECT SPECIFICATIONS FOR INFORMATION NOT SHOWN IN THE DRAWING.
- FENCE FABRIC SHALL COMFORM TO CHAIN LINK FENCE MANUFACTURERS INSTITUTE (CLFMI) PRODUCT MANUAL.
- INSTALL FENCE IN COMPLIANCE WITH ASTM F 567.
- INSTALL SWING GATES IN COMPLIANCE WITH ASTM F 900.
- DO NOT BEGIN INSTALLATION AND ERECTION BEFORE FINAL GRADING IS COMPLETED, UNLESS OTHERWISE PERMITTED. INSTALL FENCING ON BOUNDARY LINES INSIDE OF PROPERTY LINE ESTABLISHED BY SURVEY.
- DRILL OR HAND-EXCAVATE (USING POST - HOLE DIGGER) HOLES FOR POSTS TO DIAMETERS AND SPACINGS INDICATED, IN FIRM, UNDISTURBED OR COMPACTED SOIL. IF NOT INDICATED ON DRAWINGS, EXCAVATE HOLES FOR EACH POST TO MINIMUM DIAMETER RECOMMENDED BY FENCE MANUFACTURER, BUT NOT LESS THAN (4) TIMES LARGEST GROSS-SECTION OF POST.
- REMOVE POST HOLE SPOILS FROM SITE. DO NOT SET SPOILS ON AGGREGATE WITHOUT ADEQUATE PROTECTION.
- PROTECT PORTION OF POSTS ABOVE GROUND FROM CONCRETE SPLATTER. PLACE CONCRETE AROUND POSTS AND VIBRATE OR TAMP FOR CONSOLIDATION. CHECK EACH POST FOR VERTICAL AND TOP ALIGNMENT AND HOLD IN POSITION DURING PLACEMENT AND FINISHING OPERATIONS, UNLESS OTHERWISE SHOWN, EXTEND CONCRETE FOOTING 1 INCH ABOVE GRADE AND TROWEL TO A CROWN TO SHED WATER.
- INSTALL BARBED WIRE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- APPLY FABRIC TO OUTSIDE OF FRAMEWORK.



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



**3** **STRONG ARM GATE LATCH**  
SCALE: N.T.S.



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A	02/06/24	REVIEW CD
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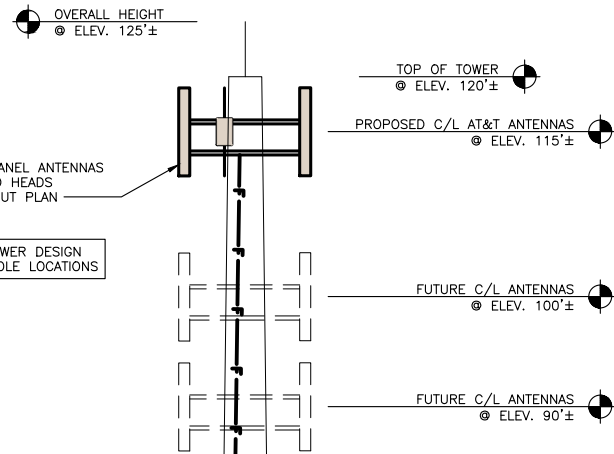


SHEET TITLE:

**FENCE DETAILS**

SHEET NUMBER:

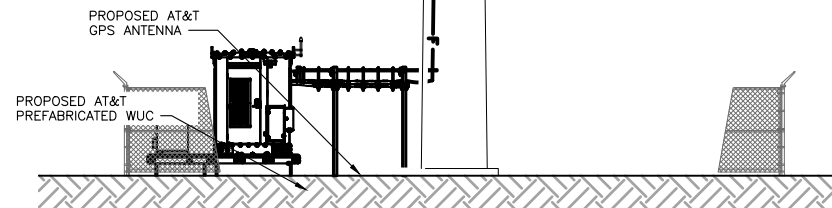
**C-9**



NOTE:  
CONTRACTOR TO REFER TO MOUNT ANALYSIS REPORT COMPLETED BY FORESITE GROUP & STRUCTURAL ANALYSIS COMPLETED BY OTHERS. FOR ALL TOWER, FOUNDATION AND/OR MOUNT MODIFICATIONS IF NEED PRIOR TO WORKING ON AND AROUND TOWER.

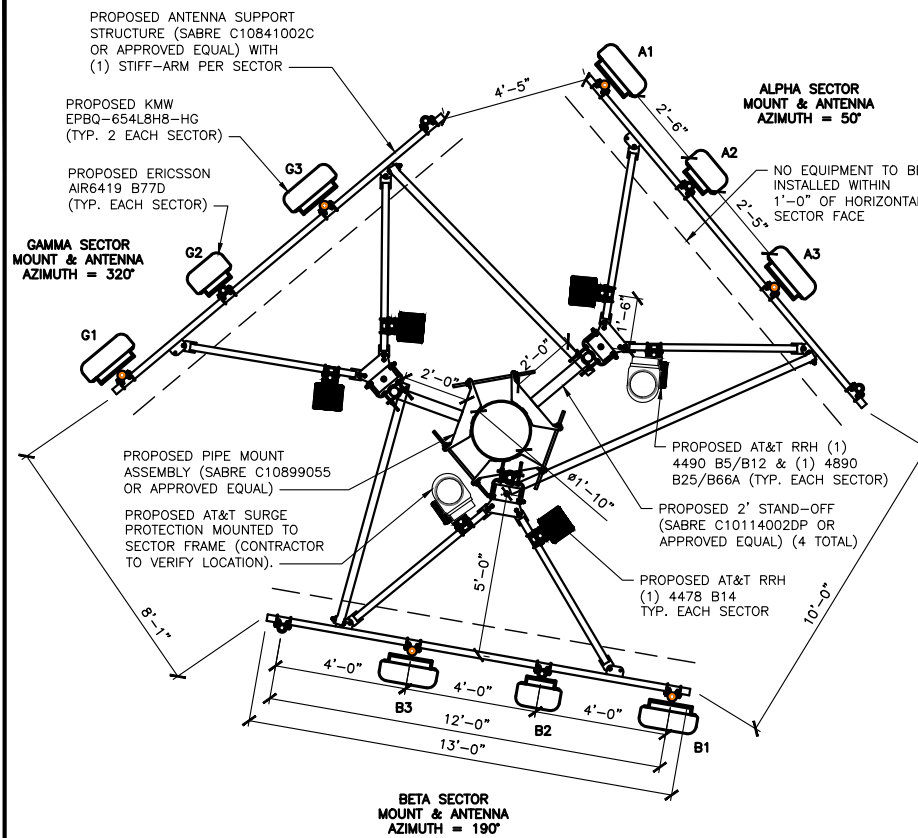
(2) PROPOSED FIBER TRUNKS,  
(6) PROPOSED DC POWER TRUNKS  
ROUTED UP INSIDE OF MONOPOLE TOWER

INSTALL (3) PC200-BLACK INNERDUCT CONDUITS FROM OUTSIDE BOTTOM PORT OPENING TO OUTSIDE TOP PORT OPENING IN THE FOLLOWING CONFIG:  
• (2) POWER TRUNKS PER INNERDUCT  
• (2) FIBER TRUNKS PER INNERDUCT  
SEE CABLE/FIBER ROUTING PLAN THIS SHEET



TOWER ELEVATION

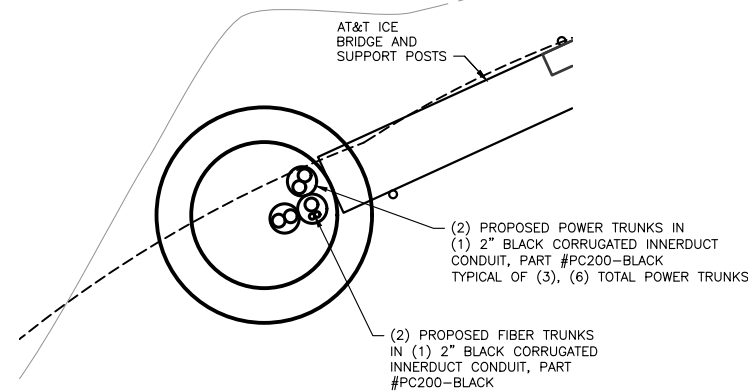
NO SCALE 1



NOTE:  
1. CONTRACTOR SHALL INSTALL DC/FIBER DEMARCATION BOX WITHIN 30 FEET FROM ALL RRH'S WITHIN RESPECTIVE SECTOR.  
2. CONTRACTOR SHALL INSTALL RADIO MOUNT PIPE 12" FROM BASE OF MOUNT AT TOWER.  
3. CONTRACTOR SHALL INSTALL SURGE PROTECTION ON CROSSOVER PLATES

ANTENNA LAYOUT PLAN

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



NOTE:  
2" INNERDUCT TO EXTEND OUTSIDE COAX PORTS AT TOP AND BOTTOM OF TOWER

CABLE/FIBER ROUTING PLAN

NO SCALE 3

NOT USED 4

1. TYPES AND SIZES OF THE ANTENNA CABLE ARE BASED ON ESTIMATED LENGTHS. PRIOR TO ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
2. CONTRACTOR SHALL VERIFY THE DOWN-TILT OF EACH ANTENNA WITH A DIGITAL LEVEL.
3. CONTRACTOR TO CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION. REFER TO "ANTENNA SYSTEM LABELING STANDARD" ND-00027, REFER TO THE LATEST VERSION.
4. ALL JUMPERS TO THE ANTENNAS FROM THE MAIN TRANSMISSION LINE WILL BE 1/2" DIA. LDF AND SHALL NOT EXCEED 6'-0".
5. ALL COAXIAL CABLE WILL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, AT DISTANCES NOT TO EXCEED 4'-0" OC.
6. CONTRACTOR MUST FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ANTENNAS, AND ALL OTHER EQUIPMENT.
7. WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF AMALGAMATING TAPE. WEATHERPROOFING SHALL BE COMPLETED IN STRICT ACCORDANCE WITH AT&T STANDARDS.
8. CONTRACTOR SHALL GROUND ALL EQUIPMENT, INCLUDING ANTENNAS, RET MOTORS, TMA'S, COAX CABLES, AND RET CONTROL CABLES AS A COMPLETE SYSTEM. GROUNDING SHALL BE EXECUTED BY QUALIFIED WIREMEN IN COMPLIANCE WITH MANUFACTURER'S SPECIFICATION AND RECOMMENDATION.
9. CONTRACTOR SHALL PROVIDE STRAIN-RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES, COAX CABLES, AND RET CONTROL CABLES. CABLE STRAIN-RELIEFS AND CABLE SUPPORTS SHALL BE APPROVED FOR THE PURPOSE. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
10. CONTRACTOR TO VERIFY THAT EXISTING COAX HANGERS ARE STACKABLE SNAP IN HANGERS. IF EXISTING HANGERS ARE NOT STACKABLE SNAP IN HANGERS THE CONTRACTOR SHALL REPLACE EXISTING HANGERS WITH NEW SNAP IN HANGERS IF APPLICABLE.

ANTENNA CABLE NOTES

5

PROPOSED EQUIPMENT:

QTY	PART #	ITEM
6	KMW EPBQ-654LBH8-HG	ANTENNAS
3	ERICSSON AIR6419 B77D	ANTENNAS
3	ERICSSON 4478 B14	RRHs
3	ERICSSON 4490 B5/B12	RRHs
3	ERICSSON 4890 B25/B66	RRHs
2	RAYCAP DC9-48-60-24-8C-EV	DC/FIBER DEMARCATION BOX
3	SABRE C10841006C (OR APPROVED EQUAL)	SECTOR FRAME
1	SABRE C10899055 (OR APPROVED EQUAL)	PIPE MOUNT ASSEMBLY
4	SABRE C10114002DP (OR APPROVED EQUAL)	STAND-OFF

PROJECT DESCRIPTION

6



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CHECKED BY: AJB

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A	02/06/24	REVIEW CD
0	02/21/24	FINAL CD



SHEET TITLE:  
**TOWER ELEVATION,  
ANTENNA & CABLE PLANS**

SHEET NUMBER:  
**T-1**

DO NOT SCALE DRAWINGS

ANTENNA REQUIREMENTS (VERIFY WITH CURRENT RFDS)										PROPOSED LTE/UMTS TRANSMISSION CABLES															
SECTOR	ANTENNA TYPE	ANTENNA AZIMUTH	FINAL NUMBER OF TMA'S	FINAL NUMBER OF RRH'S	TILT		CENTERLINE ELEVATION	DC9-48-60-24-8C-EV TO DC6 (DC POWER)			FROM DC6 TO RRH/TMA (DC POWER)			FROM LTE 9926 TO DC9-48-60-24-8C-EV (TELCO)			FROM DC6-48-60-18-8F TO RRH (TELCO)			FROM RRH TO ANTENNA (TELCO-CSR)			RET CABLES		
					MECH.	ELEC.		PART #	QTY.	LENGTH	PART #	QTY.	LENGTH	PART #	QTY.	LENGTH	PART #	QTY.	LENGTH	PART #	QTY.	LENGTH	PART #	QTY.	LENGTH
A1	KMW EPBQ-654L8 HB-HG	50°	-	1			115'	PWRT-604-S	3	150'	PWRT-208-LI	2	15'	RFFT-48SM-001	1	150'	FB-L98B-035-5000	2	15'	LDF4	8	5'/20'	ATCB-B01-005M	1	6.6'
A2	ERICSSON AIR6419 B77D	50°	-	-			115'				PWRT-208-LI	2	15'				FB-L98B-035-5000	1	15'	LDF4	-	5'/20'	ATCB-B01-005M	1	6.6'
A3	KMW EPBQ-654L8 HB-HG	50°	-	2			115'				PWRT-208-LI	2	15'				FB-L98B-035-5000	1	15'	LDF4	-	5'/20'	ATCB-B01-005M	1	6.6'
A4																									
B1	KMW EPBQ-654L8 HB-HG	190°	-	1			115'	PWRT-604-S	3	150'	PWRT-208-LI	2	15'	RFFT-48SM-001	1	150'	FB-L98B-035-5000	2	15'	LDF4	8	5'/20'	ATCB-B01-005M	1	6.6'
B2	ERICSSON AIR6419 B77D	190°	-	-			115'				PWRT-208-LI	2	15'				FB-L98B-035-5000	1	15'	LDF4	-	5'/20'	ATCB-B01-005M	1	6.6'
B3	KMW EPBQ-654L8 HB-HG	190°	-	2			115'				PWRT-208-LI	2	15'				FB-L98B-035-5000	1	15'	LDF4	-	5'/20'	ATCB-B01-005M	1	6.6'
B4																									
G1	KMW EPBQ-654L8 HB-HG	320°	-	1			115'				PWRT-208-LI	2	15'				FB-L98B-035-5000	2	15'	LDF4	8	5'/20'	ATCB-B01-005M	1	6.6'
G2	ERICSSON AIR6419 B77D	320°	-	-			115'				PWRT-208-LI	2	15'				FB-L98B-035-5000	1	15'	LDF4	-	5'/20'	ATCB-B01-005M	1	6.6'
G3	KMW EPBQ-654L8 HB-HG	320°	-	2			115'				PWRT-208-LI	2	15'				FB-L98B-035-5000	1	15'	LDF4	-	5'/20'	ATCB-B01-005M	1	6.6'
G4																									

PER FINAL RFDS DATED 01/10/2023 V01

REFER TO LATEST RFDS FROM AT&T PRIOR TO CONSTRUCTION

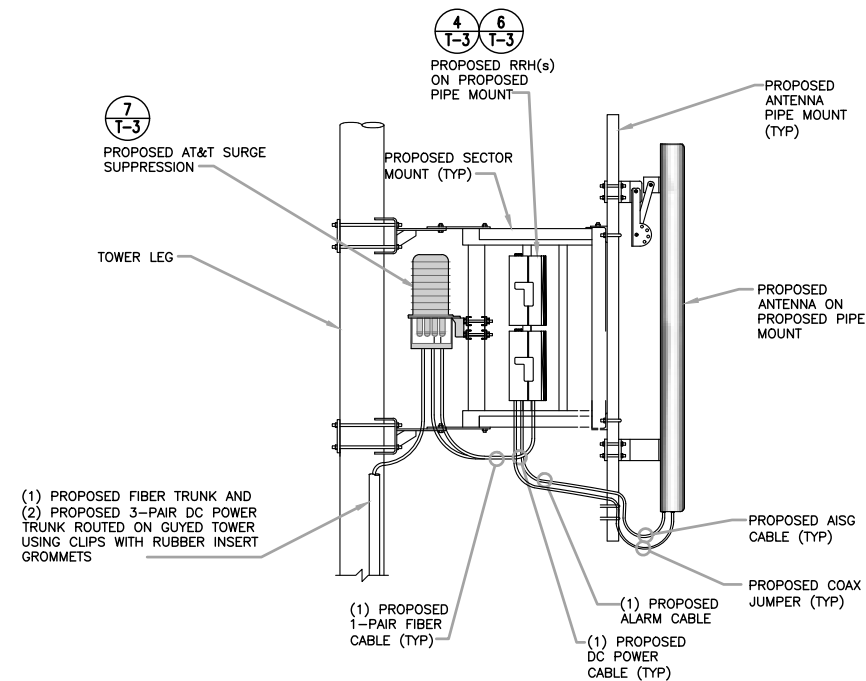


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HENDRICKS COUNTY

PROPOSED ANTENNA AND TRANSMISSION CABLES REQUIREMENT

1



LTE ANTENNA MOUNTING DETAIL

NO SCALE

2

DRAWN BY: GNP

CHECKED BY: AJB

NO:	DATE:	ISSUE:
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SHEET TITLE:

**TOWER EQUIPMENT  
DETAILS & NOTES**

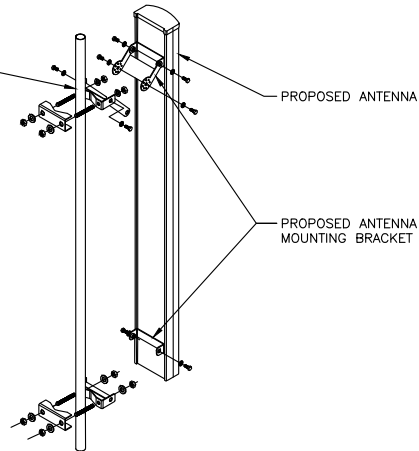
SHEET NUMBER:

**T-2**

DO NOT SCALE DRAWINGS

3

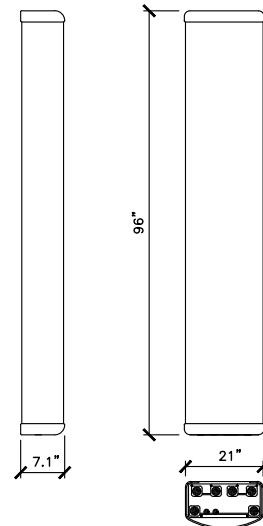
NEW ANTENNA MOUNTING PIPE SEE MOUNT ANALYSIS FOR DETAILS (TYP)



NOTE: MOUNTING OPTIONS ARE INCLUDED PRODUCTS WITH ANTENNA PURCHASE

**KMW ANTENNAS EPBQ-654L8H8-HG**

DIMENSIONS, HXWXD: 96"x21"x7.1"  
 SURVIVAL WIND SPEED: >150 MPH  
 WEIGHT, WITHOUT MOUNTING: 83.7 LBS.  
 CONNECTOR: (12) 4.3-10 DIN FEMALE  
 CONNECTOR POSITION: BOTTOM



ANTENNA MOUNTING DETAIL

NO SCALE

1

PROPOSED ANTENNA SPECIFICATIONS

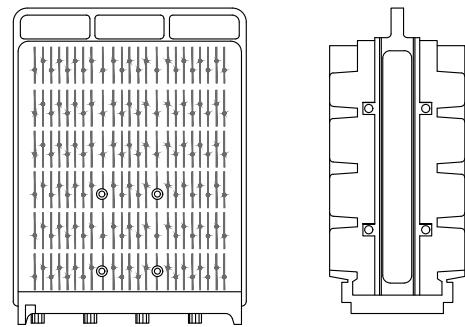
NO SCALE

2

DETAIL NOT USED

NO SCALE

3

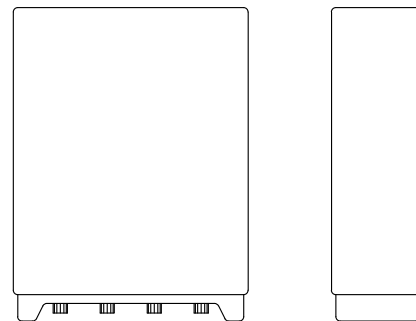


ERICSSON 4890 B25/B66  
 WEIGHT (WITHOUT MOUNTING HARDWARE): ±75 LBS  
 SIZE (HxWxD): 14.96x13.19x11.1 IN.

ERICSSON- RADIO 4890 B25/B66

NO SCALE

4

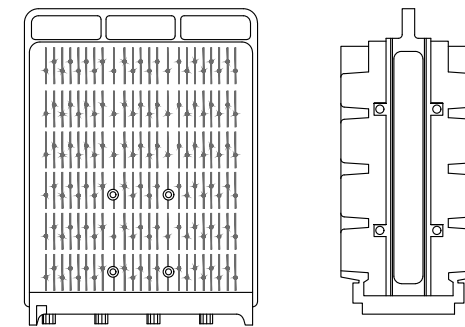


ERICSSON 4478 B14  
 WEIGHT (WITHOUT MOUNTING HARDWARE): 59.9 LBS  
 SIZE (HxWxD): 16.5x13.4x7.7 IN.

ERICSSON- RADIO 4478 B14

NO SCALE

5



ERICSSON 4490 B5/B12  
 WEIGHT (WITHOUT MOUNTING HARDWARE): ±73 LBS  
 SIZE (HxWxD): 14.96x13.19x10.43 IN.

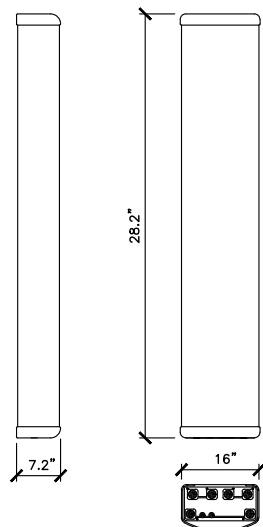
ERICSSON- RADIO 4490 B5/B12

NO SCALE

6

**ERICSSON ANTENNA AIR6419\_B77D**

DIMENSIONS, HXWXD: 28.2"x16"x7.2"  
 SURVIVAL WIND SPEED: >150 MPH  
 WEIGHT, WITHOUT MOUNTING: 66 LBS.



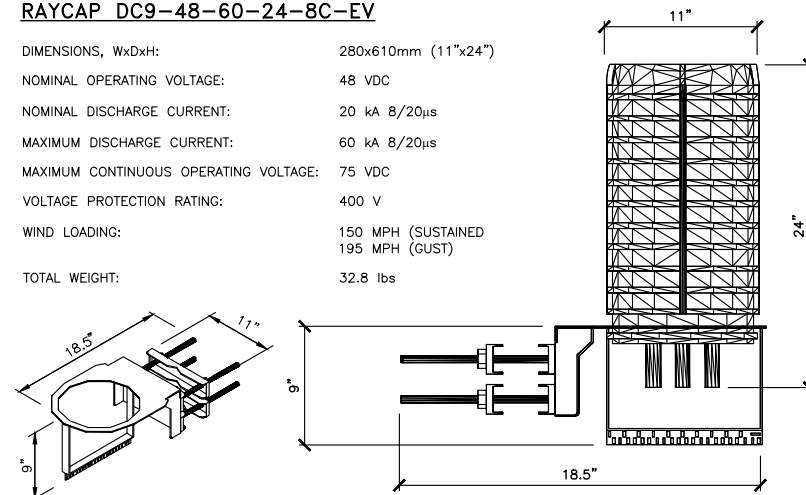
PROPOSED ANTENNA SPECIFICATIONS

NO SCALE

7

**RAYCAP DC9-48-60-24-8C-EV**

DIMENSIONS, WxDxH: 280x610mm (11"x24")  
 NOMINAL OPERATING VOLTAGE: 48 VDC  
 NOMINAL DISCHARGE CURRENT: 20 kA 8/20µs  
 MAXIMUM DISCHARGE CURRENT: 60 kA 8/20µs  
 MAXIMUM CONTINUOUS OPERATING VOLTAGE: 75 VDC  
 VOLTAGE PROTECTION RATING: 400 V  
 WIND LOADING: 150 MPH (SUSTAINED)  
 195 MPH (GUST)  
 TOTAL WEIGHT: 32.8 lbs



RAYCAP DC9-48-60-24-8C-EV

NO SCALE

8

DETAIL NOT USED

NO SCALE

9



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SHEET TITLE:

**DETAILED COMPOUND DEMO PLAN**

SHEET NUMBER:

**T-3**

DO NOT SCALE DRAWINGS



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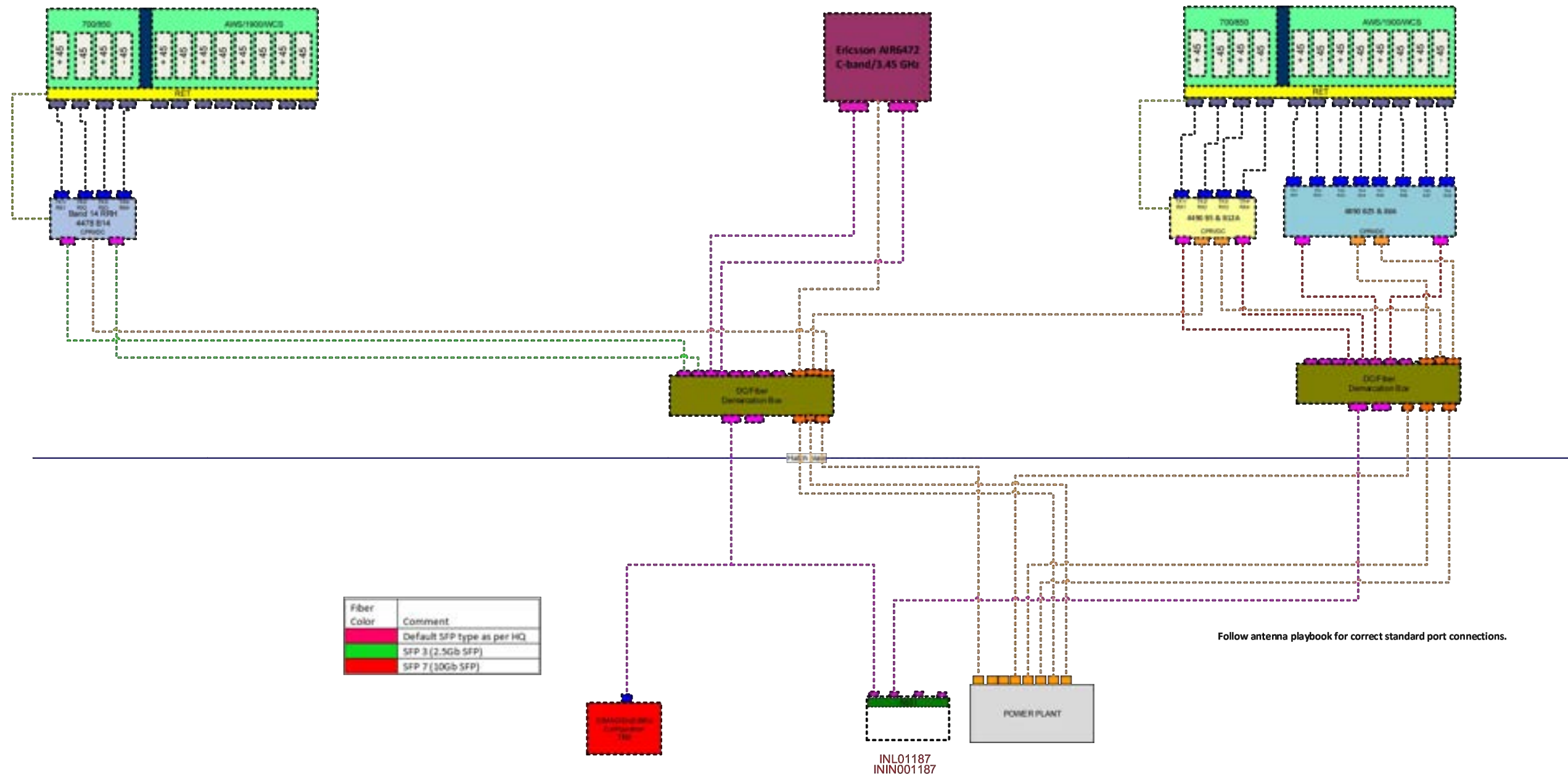
SHEET TITLE:  
**PLUMBING DIAGRAM  
 ALPHA SECTOR**

SHEET NUMBER:  
**T-4**

DO NOT SCALE DRAWINGS

Diagram - Sector: D  
 Diagram File Name: IN1187\_PROPOSED\_SECTOR\_A.vsd  
 Location Name: IN1187  
 Market: INDIANAPOLIS  
 Market Cluster: MICHIGANWISAMA

**IN1187\_PROPOSED\_SECTOR\_A**



INL01187  
 ININ001187



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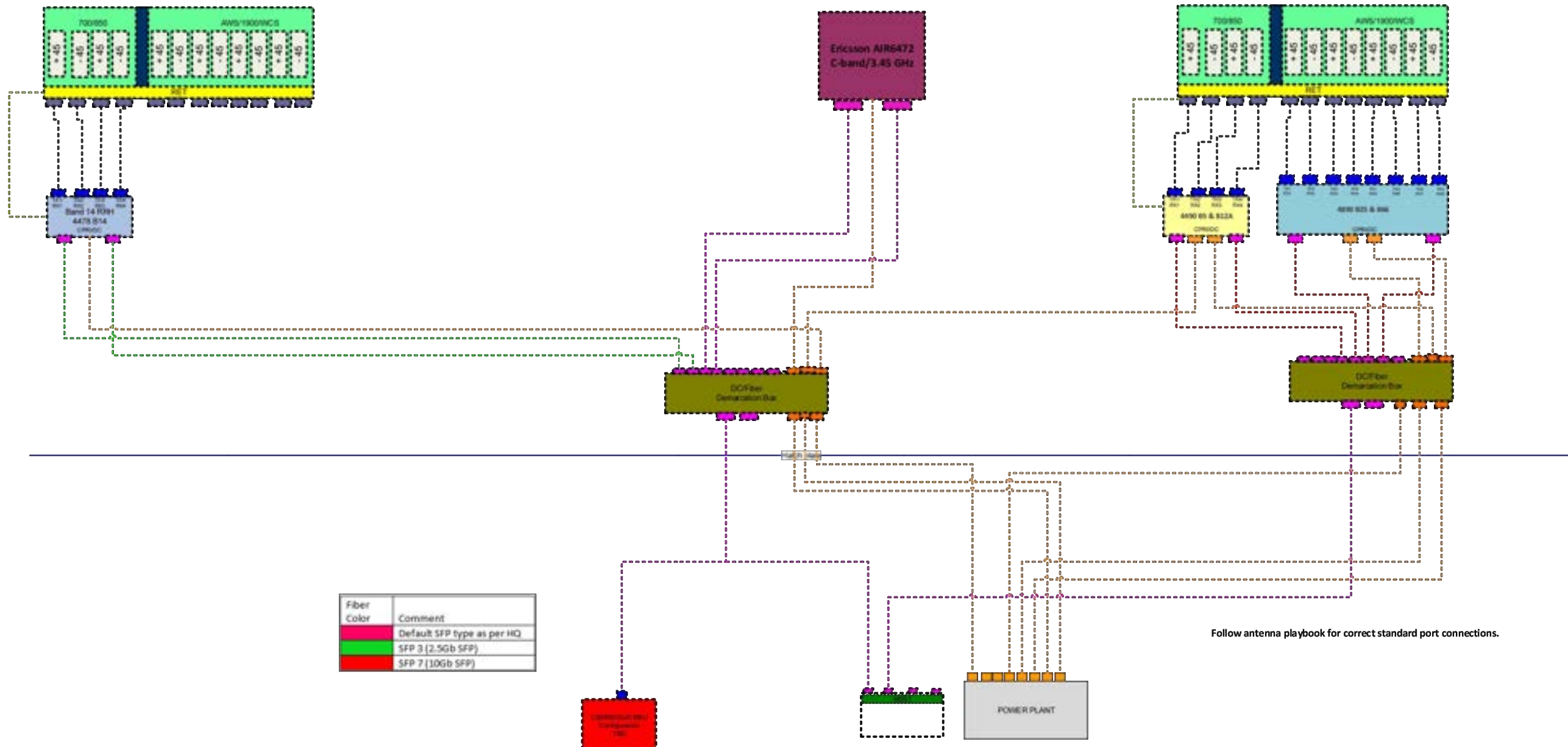
SHEET TITLE:  
**PLUMBING DIAGRAM  
 BETA SECTOR**

SHEET NUMBER:  
**T-5**

DO NOT SCALE DRAWINGS

Diagram - Sector: E Diagram File Name - IN1187\_PROPOSED\_SECTOR\_B.wpd Market - INDIANAPOLIS Market Cluster - MICHIGAN/INDIANA  
 Root File Name - INL01187 Location Name - IN1187

**IN1187\_PROPOSED\_SECTOR\_B**



Fiber Color	Comment
Purple	Default SFP type as per HQ
Green	SFP 3 (2.5Gb SFP)
Red	SFP 7 (10Gb SFP)



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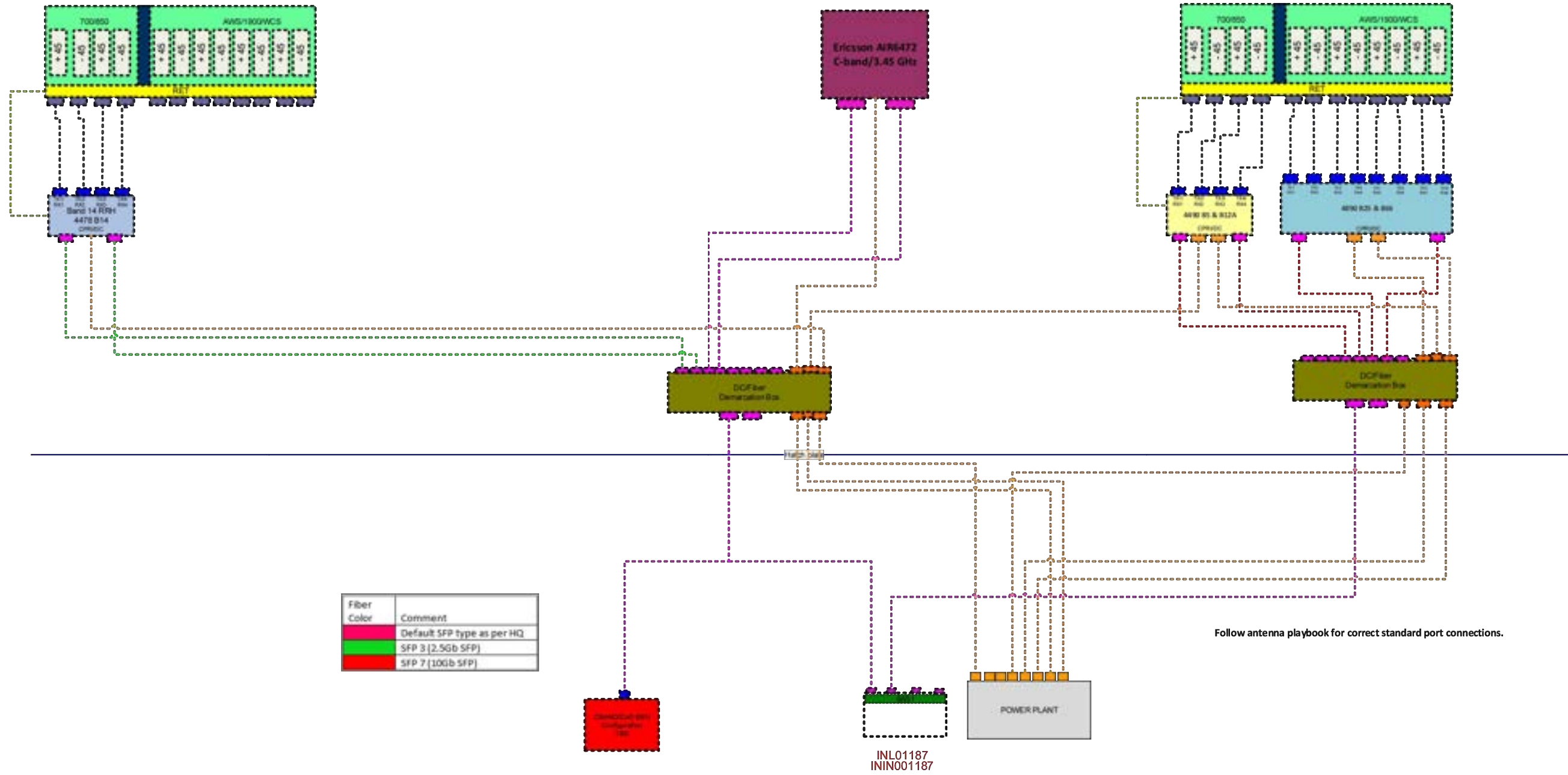
SHEET TITLE:  
**PLUMBING DIAGRAM  
 GAMMA SECTOR**

SHEET NUMBER:  
**T-6**

DO NOT SCALE DRAWINGS

Diagram - Sector: F  
 Root Site Name: INL01187  
 Diagram File Name: IN1187\_PROPOSED\_SECTOR\_C.vxd  
 Location Name: IN1187  
 Market: INDIANAPOLIS  
 Market Cluster: MICHIGAN/INDIANA

**IN1187\_PROPOSED\_SECTOR\_C**





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REFERENCE  
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SHEET TITLE:

**SECTOR FRAME**

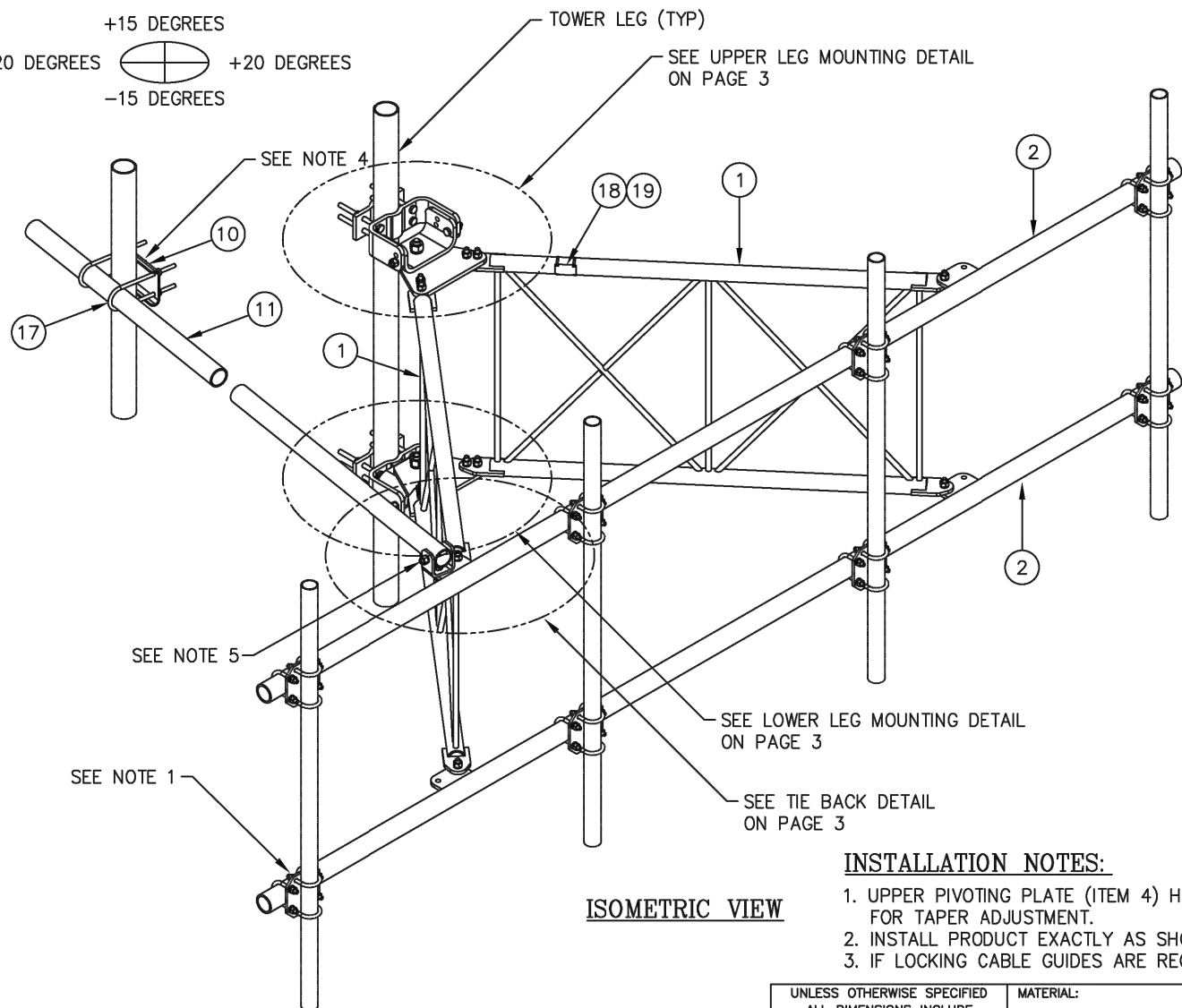
SHEET NUMBER:

**T-7**

DO NOT SCALE DRAWINGS

**TIEBACK ANGLE RANGE DETAIL**

+/- 15 DEGREES VERTICAL  
+/- 20 DEGREES HORIZONTAL  
+15 DEGREES  
-20 DEGREES    +20 DEGREES  
-15 DEGREES



**ISOMETRIC VIEW**

C10841006C 14' V-BOOM ASSEMBLY W/TIEBACK				
ITEM	QTY.	PART NO.	DESCRIPTION	WEIGHT
1.	2	CW01556	WELDMENT, STANDOFF ARM	192
2.	2	CW01553	WELDMENT, FACE PIPE	250
3.	2	CS03519	PLATE, ROTATING	35
4.	1	CS03110	PLATE, PIVOTING (UPPER)	16
5.	1	CS03111	PLATE, LEG CLAMP (UPPER)	17
6.	1	CS03112	PLATE, PIVOTING (LOWER)	14
7.	1	CS03113	PLATE, LEG CLAMP (LOWER)	17
8.	2	CS03114	PLATE, LEG CLAMP (BACK)	14
9.	1	CS00096	PLATE, TIEBACK SWIVEL	3
10.	1	CS03518	PLATE, TIEBACK CLAMP	5
11.	1	CS03969	PIPE, TIEBACK 2 7/8" O.D. X 0.203 X 12'-6	75
12.	2	C40026073	BOLT ASSEMBLY, 1 Ø X 3 A325	4
13.	8	C40140004	BOLT ASSEMBLY, 5/8 Ø X 8 A307	13
14.	1	C40026035	BOLT ASSEMBLY, 5/8 Ø X 5 A325	1
15.	12	C40026025	BOLT ASSEMBLY, 5/8 Ø X 2 1/2 A325	6
16.	5	C40026024	BOLT ASSEMBLY, 5/8 Ø X 2 1/4 A325	3
17.	2	C40034201	U-BOLT ASSEMBLY, 1/2 Ø X 3 7/16 C-C	3
18.	1	Z30992045	MOUNT CLASSIFICATION TAG C10841006C/C10841010C	1
19.	2	C40062103	STAINLESS STEEL SELF-LOCKING CABLE TIE	1
TOTAL WEIGHT				670

**PACKAGING NOTE**

CK00426-INCLUDES ITEM 1  
CK00430-STL INCLUDES ITEMS 2 & 11  
CK00430-HDW INCLUDES ITEMS 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18 & 19.

**INSTALLATION NOTES:**

- UPPER PIVOTING PLATE (ITEM 4) HAS THREE HOLES ON EACH SIDE AND UPPER LEG CLAMP PLATE (ITEM 5) HAS TWO HOLES ON EACH SIDE FOR TAPER ADJUSTMENT.
- INSTALL PRODUCT EXACTLY AS SHOWN IN DRAWING, WITH ALL BOLTS FACING UPWARDS.
- IF LOCKING CABLE GUIDES ARE REQUIRED THEY MUST BE PURCHASED SEPARATELY (SEE PAGE 4).

**NOTES:**

- MOUNTING PIPES & CROSSOVER PLATE KITS MUST BE PURCHASED SEPARATELY.
- QUANTITIES SHOWN IN LISTS OF MATERIAL ARE FOR ONE (1) V-BOOM ONLY.
- THIS V-BOOM WILL MOUNT TO THE FOLLOWING: 1 1/2"Ø TO 5 9/16"Ø ROUND LEG.
- TIEBACK MUST BE CONNECTED TO A RIGID MEMBER THAT PROVIDES ADEQUATE SUPPORT WITHIN THE LIMITS NOTED ABOVE IN THE TIEBACK ANGLE RANGE DETAIL UNLESS APPROVED BY THE ENGINEER OF RECORD.
- THE TIEBACK IS SHOWN IN THIS POSITION AS A DEFAULT. THIS TIEBACK CAN BE CONNECTED AT ANY (1) OF THE (4) POSITIONS ON THE TABS ON THE FACE PIPE.

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES		MATERIAL:	
TOLERANCES: FRACTIONS ± 1/16" ANGLES ± 1/2 DEG. DECIMALS ± .010"		TOLERANCES DO NOT APPLY TO RAW MATERIAL	
REV	DATE	DRW/CHK	DESCRIPTION
1	03/01/22	WRF/EK	REVISED DESIGN PER ENGINEERING

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INNOVATION DELIVERED

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14' V-BOOM ASSEMBLY W/TIEBACK (5' STANDOFF) W/NO ANTENNA MOUNTING PIPES			
DATE	06/10/21	SIZE	B
DRAWN BY	WRF	DRAWING NO.	C10841006C
CHECKED BY	EK	REV	1
		SCALE	None
		PAGE	1 OF 4



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SHEET TITLE:  
**PIPE MOUNT ASSEMBLY**

SHEET NUMBER:  
**T-8**

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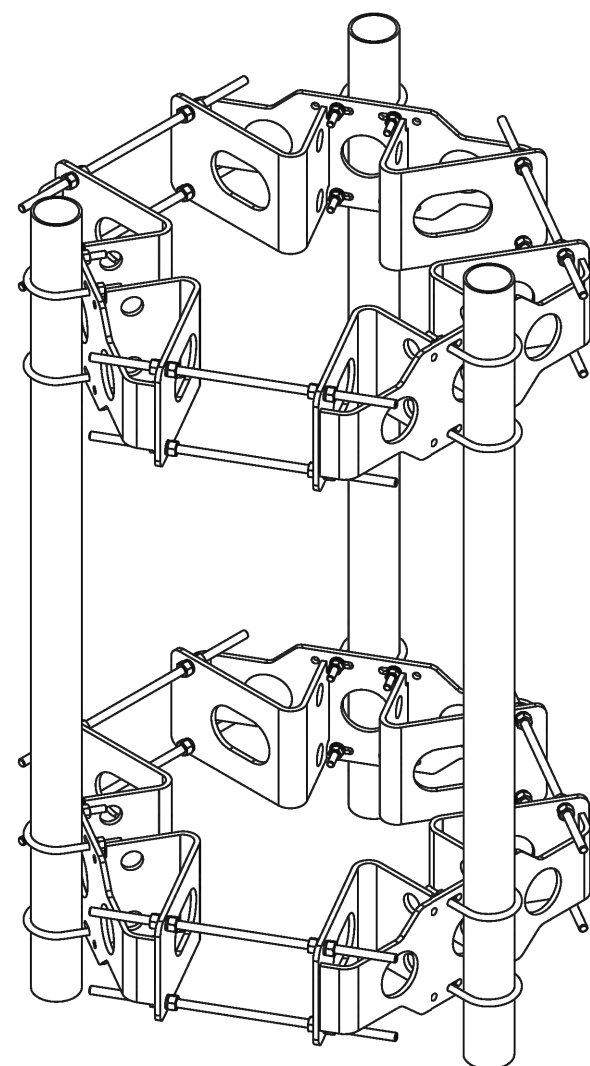


**C10899055 4 1/2" O.D. PIPE MOUNT ASSEMBLY**

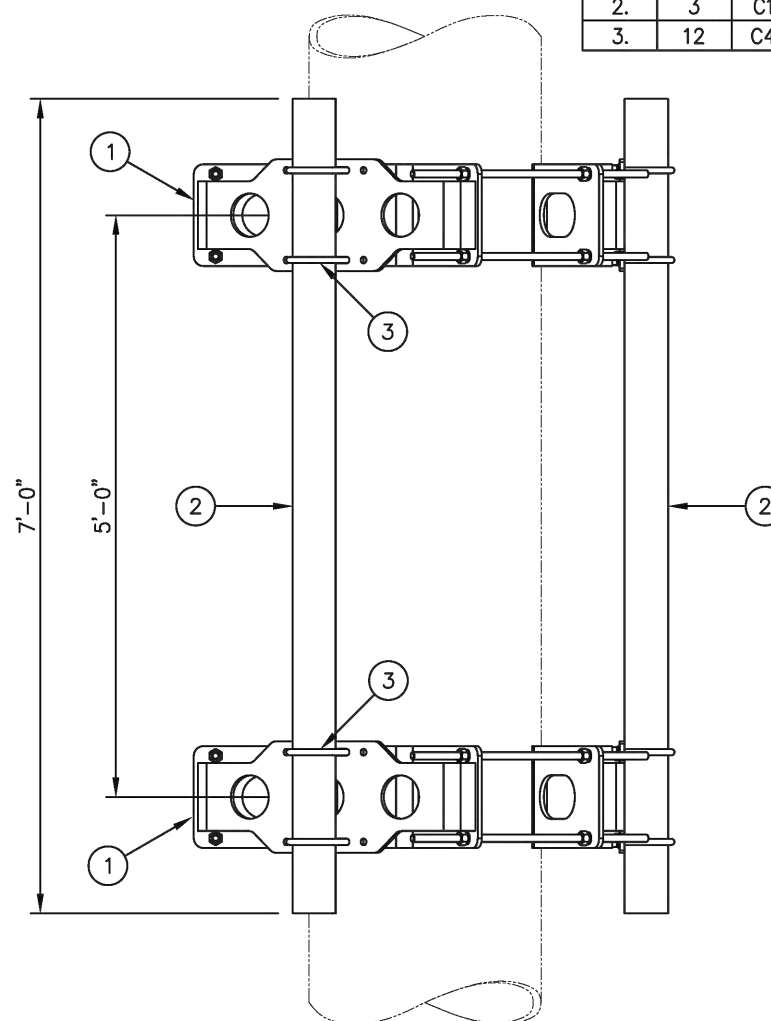
ITEM	QTY.	PART NO.	DESCRIPTION	WEIGHT
1.	2	C10112301	TRI-COLLAR BRACKET ASSEMBLY	660
2.	3	C10901407	PIPE, 4 1/2 O.D. X .237 X 7'-0	236
3.	12	C40034032	U-BOLT ASSEMBLY, 5/8 $\phi$ X 5 3/16 C-C	26
TOTAL WEIGHT				922

**NOTE:**

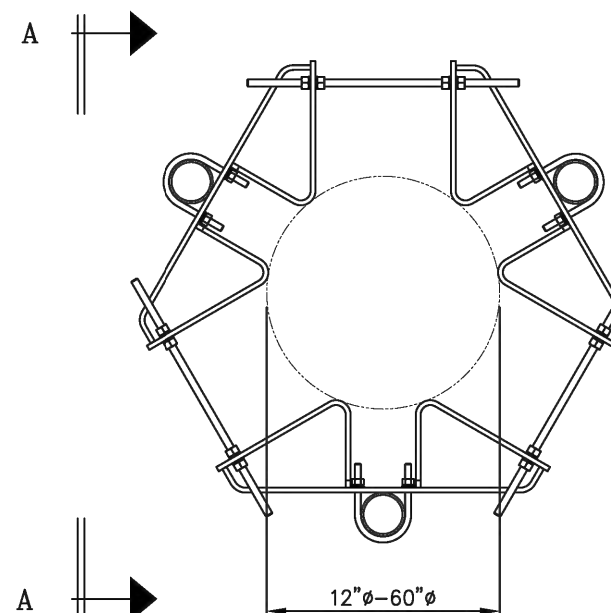
SEE DRAWING C10112301 FOR INSTALLATION OF TRI-COLLAR BRACKET ASSEMBLY



**ISOMETRIC VIEW**



**VIEW A-A**



**PLAN VIEW**

UNLESS OTHERWISE SPECIFIED  
 ALL DIMENSIONS INCLUDE  
 FINISHES AND ARE IN INCHES  
 TOLERANCES: FRACTIONS  $\pm 1/16"$   
 ANGLES  $\pm 1/2$  DEG.  
 DECIMALS  $\pm .010"$

MATERIAL:  
 TOLERANCES DO NOT APPLY  
 TO RAW MATERIAL



**4 1/2" O.D. PIPE MOUNT ASSEMBLY  
 FOR MONOPOLES  
 (FITS 12" TO 60" DIAMETER)**

REV	DATE	DRW/CHK	DESCRIPTION

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DATE	01/26/16	SIZE	B	DRAWING NO.	C10899055	REV	0
DRAWN BY	WRF	SCALE	None	PAGE	1	OF	1
CHECKED BY	DLW						



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SHEET TITLE:

**STAND-OFF**

SHEET NUMBER:

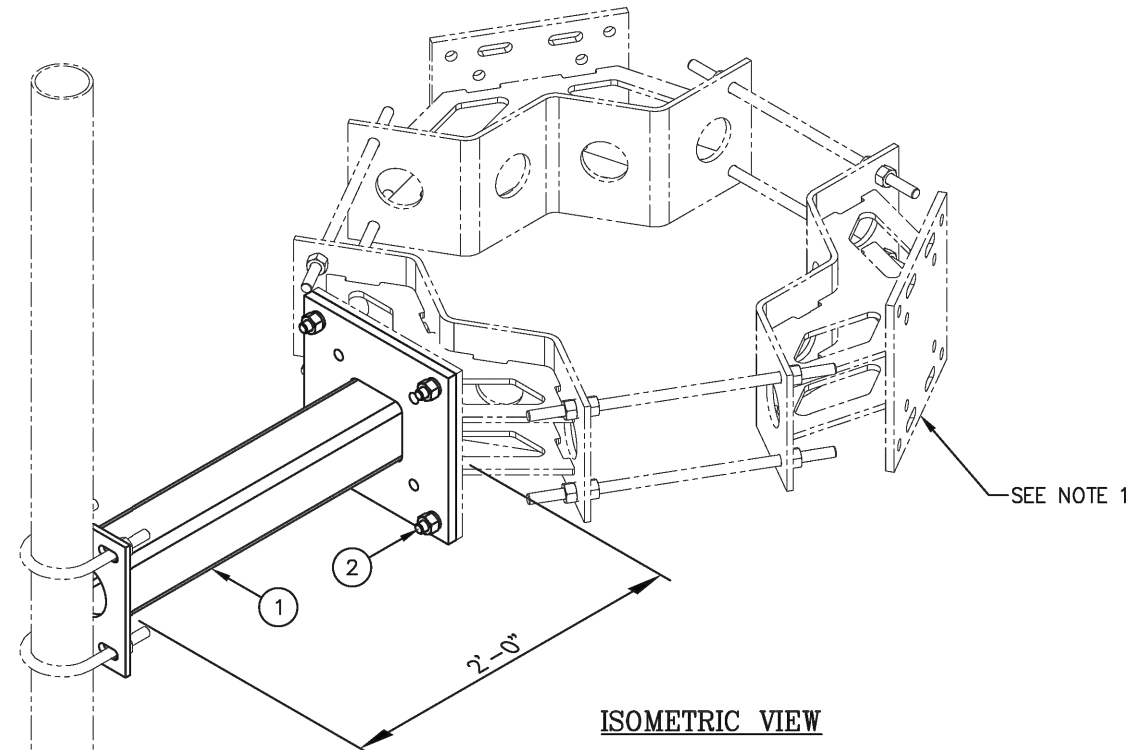
**T-9**

DO NOT SCALE DRAWINGS



**C10114002 2'-0 STANDOFF ARM**

ITEM	QTY.	PART NO.	DESCRIPTION	WEIGHT
1.	1	CW00018	WELDMNT, 2'-0 STANDOFF ARM	51
2.	4	C40026025	BOLT ASSEMBLY, 5/8 $\phi$ X 2 1/2 A325	2
TOTAL WEIGHT				53



2 3/8" - 4" O.D. MOUNTING PIPE  
 SEE NOTE 2

**NOTES:**

1. TRI-COLLAR MOUNTS ARE SHOWN TYPICAL AND MUST BE PURCHASED SEPARATELY.
2. 2 3/8" TO 4" O.D. MOUNTING PIPE & U-BOLTS MUST BE PURCHASED SEPARATELY.
3. QUANTITIES SHOWN ARE FOR ONE (1) STANDOFF ARM.

UNLESS OTHERWISE SPECIFIED  
 ALL DIMENSIONS INCLUDE  
 FINISHES AND ARE IN INCHES  
 TOLERANCES: FRACTIONS  $\pm 1/16"$   
 ANGLES  $\pm 1/2$  DEG.  
 DECIMALS  $\pm .010"$

MATERIAL:  
 TOLERANCES DO NOT APPLY  
 TO RAW MATERIAL

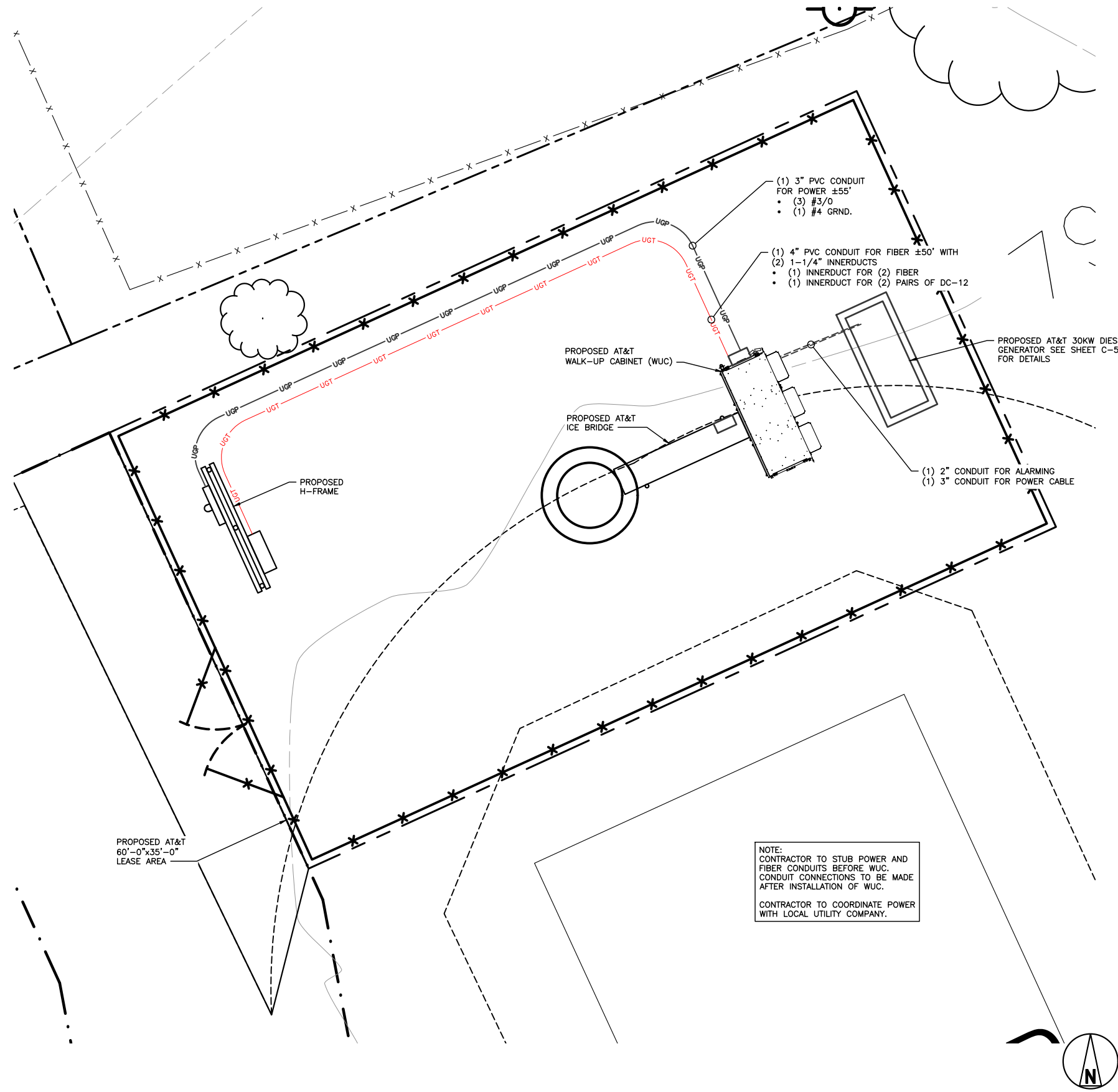


**2'-0 STANDOFF ARM**

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DATE	07/11/06	SIZE	DRAWING NO.	REV
DRAWN BY	WRF	B	C10114002	0
CHECKED BY	WMN		SCALE	PAGE
			None	1 OF 1

REV	DATE	DRWCHK	DESCRIPTION



1. THE CONDUIT ROUTING IS DIAGRAMMATICALLY SHOWN ON THE PLANS AND ARE ONLY APPROXIMATIONS. THE EXACT LOCATION AND ROUTING SHALL BE FIELD VERIFIED.
2. ALL ELECTRICAL EQUIPMENT AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED LAMICOID NAMEPLATES, INDICATING THE CIRCUITS ORIGINATION AND ALL EQUIPMENT TERMINATIONS.
3. CONTRACTOR SHALL PROVIDE STRAIN-RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES, COAX CABLES, AND RET CONTROL CABLES. CABLE STRAIN-RELIEFS, CABLE SUPPORTS SHALL BE APPROVED FOR THE PURPOSE. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
4. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS, AND CIRCUIT CONDUCTORS, AS REQUIRED FOR A COMPLETED SYSTEM AND SHALL BE IN COMPLIANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
5. ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT NATIONAL ELECTRIC CODE (NEC) OR AS REQUIRED BY THE LOCAL JURISDICTION, WHICHEVER IS THE MOST STRINGENT.
6. CONTRACTOR SHALL COORDINATE WITH POWER AND TELEPHONE COMPANIES, AND PROVIDE ALL MATERIALS REQUIRED, AND PROVIDE TRENCH, BACKFILL & SITE RESTORATION. DEPTH OF CONDUITS PER N.E.C., LOCAL JURISDICTION AND POWER & TELE COMPANY, WHICH EVER IS MORE STRINGENT.



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**NOTES**

2

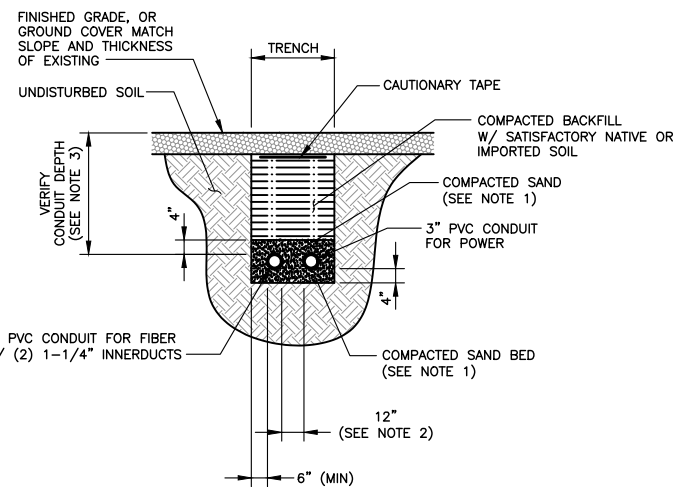
ABOVE GROUND TELCO	— AGT — AGT — AGT — AGT —
ABOVE GROUND POWER	— AGP — AGP — AGP — AGP —
ABOVE GROUND TELCO/POWER	— AGT/P — AGT/P —
OVERHEAD POWER	— OHP — OHP —
OVERHEAD UTILITIES	— OHU — OHU —
UNDERGROUND DUCT	— UGD — UGD — UGD — UGD —
UNDERGROUND POWER	— UGP — UGP — UGP —
UNDERGROUND TELCO	— UGT — UGT — UGT —



SHEET TITLE:  
**UTILITY PLAN**

SHEET NUMBER:  
**E-1**  
 DO NOT SCALE DRAWINGS

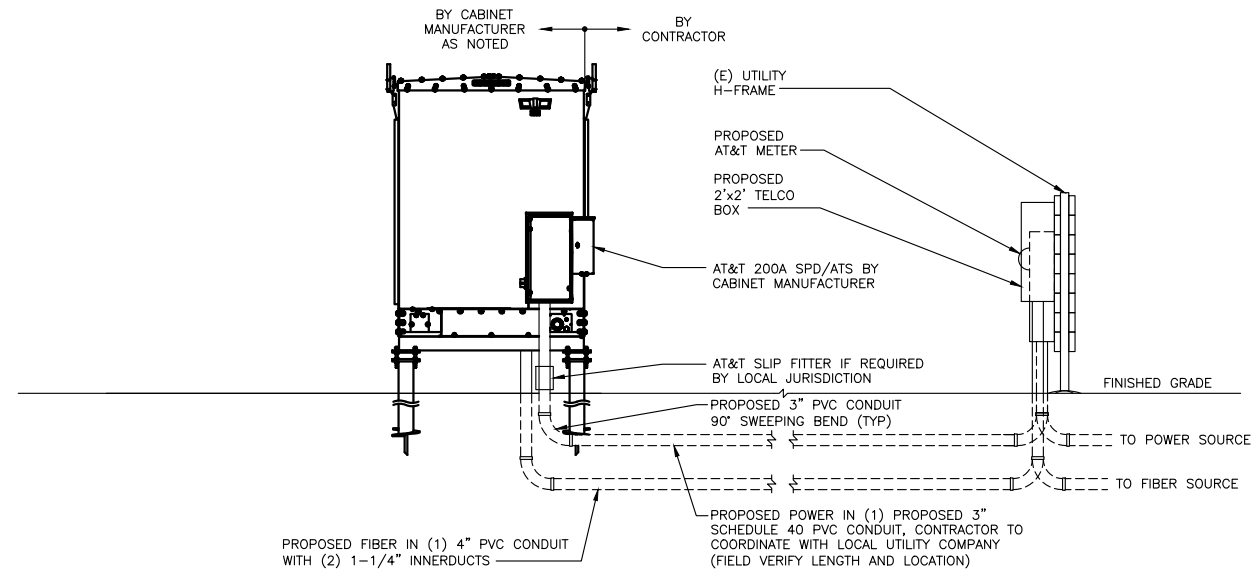




- NOTES:**
- LEAN CONCRETE, RED-COLORED TOP, MAY BE USED IN PLACE OF COMPACTED SAND.
  - PROVIDE 12" MIN SEPARATION BETWEEN FIBER AND POWER CONDUITS.
  - CONDUIT DEPTH VARIES PER INSPECTION REQUIREMENTS:  
INSIDE COMPOUND WITH NO INSPECTION: 24"  
DEPTH WITH INSPECTIONS: 36"
  - CONDUIT SIZE, TYPE, QUANTITY, AND SEPARATION DIMENSIONS SHALL BE VERIFIED WITH LOCAL UTILITY PROVIDER REQUIREMENTS.

TYPICAL UTILITY TRENCH DETAIL

1



PROPOSED FIBER IN (1) 4" PVC CONDUIT WITH (2) 1-1/4" INNERDUCTS

PROPOSED POWER IN (1) PROPOSED 3" SCHEDULE 40 PVC CONDUIT, CONTRACTOR TO COORDINATE WITH LOCAL UTILITY COMPANY (FIELD VERIFY LENGTH AND LOCATION)

POWER RISER DIAGRAM

NO SCALE

2

- ALL UNDERGROUND CONDUITS SHALL BE SCH 40 PVC. EXCEPT THAT ELBOWS AND RISERS SHALL BE RMC ALL UNDERGROUND ELBOWS SHALL BE SWEEPING BENDS. 2'-0" MINIMUM SHALL BE REQUIRED.
- THE TELEPHONE SERVICE CABLES SHOULD BE INSTALLED IN RIGID METAL CONDUIT, (10'-0") TEN FEET IN LENGTH BEFORE ENTERING A SHELTER OR BUILDING PER AT&T STANDARD TP-76416.
- TWO CONDUITS ARE SHOWN IN DETAIL 2, ALTHOUGH MULTIPLE CONDUITS CAN BE PLACED IN THE SAME TRENCH. A MINIMUM SEPARATION IS REQUIRED PER THE LOCAL JURISDICTIONS AND UTILITY COMPANIES. IN ALL OTHER CASES, USE THE TYP UTILITIES TRENCH DETAIL ON THIS SHEET TO MAINTAIN MINIMUM SPACING BETWEEN THE EXTERIOR WALL TO EXTERIOR WALL SEPARATION OF CONDUITS.
- CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
- TRENCHING SAFETY: INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS.
- ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE NATIONAL ELECTRIC CODE (NEC) OR AS REQUIRED BY THE LOCAL JURISDICTION.

NO SCALE

NOTES

3



**FORTUNE WIRELESS INC.**

5511 WEST 79TH STREET  
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(317) 532-1374

IN1187  
AT&T FA#: 15861975  
2688 EAST MAIN ST.  
PLAINFIELD,  
IN 46168  
HENDRICKS COUNTY

DRAWN BY: **GNP**

CHECKED BY: **AJB**

NO:	DATE:	ISSUE:
A	02/06/24	REVIEW CD
0	02/21/24	FINAL CD



SHEET TITLE:

**ELECTRICAL DETAILS**

SHEET NUMBER:

**E-3**

DO NOT SCALE DRAWINGS

PART 1 - GENERAL

1.1 GENERAL CONDITIONS:

- A. CONTRACTOR SHALL INSPECT THE EXISTING SITE CONDITIONS PRIOR TO SUBMITTING BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTORS FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
- B. THE CONTRACTOR SHALL OBTAIN PERMITS, LICENSES, MAKE ALL DEPOSITS, AND PAY ALL FEES REQUIRED FOR THE CONSTRUCTION PERFORMANCE FOR THE WORK UNDER THIS SECTION.
- C. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF ALL SYSTEMS AND COMPONENTS COVERED UNDER THIS SECTION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS. DRAWING SHALL NOT BE SCALED TO DETERMINE DIMENSIONS.

1.2 LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES.

- A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, AND ALL APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES. CONDUIT BENDS SHALL BE THE RADIUS BEND FOR THE TRADE SIZE OF CONDUIT IN COMPLIANCE WITH THE LATEST EDITIONS OF NEC.

1.3 REFERENCES:

- A. THE PUBLICATIONS LISTED BELOW ARE PART OF THIS SPECIFICATION. EACH PUBLICATION SHALL BE THE LATEST REVISION AND ADDENDUM IN EFFECT ON THE DATE. THIS SPECIFICATION IS ISSUED FOR CONSTRUCTION UNLESS OTHERWISE NOTED. EXCEPT AS MODIFIED BY THE REQUIREMENT SPECIFIED HEREIN OR THE DETAILS OF THE DRAWINGS, WORK INCLUDED IN THIS SPECIFICATION SHALL CONFORM TO THE APPLICABLE PROVISION OF THESE PUBLICATIONS.

- 1. ANSI/IEEE (AMERICAN NATIONAL STANDARDS INSTITUTE)
- 2. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)
- 3. ICEA (INSULATED CABLE ENGINEERS ASSOCIATION)
- 4. NEMA (NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION)
- 5. NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
- 6. OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)
- 7. UL (UNDERWRITERS LABORATORIES INC.)
- 8. AT&T GROUNDING AND BONDING STANDARDS TP-76416

1.4 SCOPE OF WORK

- A. WORK UNDER THIS SECTION SHALL CONSIST OF FURNISHING ALL LABOR, MATERIAL, AND ASSOCIATED SERVICES REQUIRED TO COMPLETE REQUIRED CONSTRUCTION AND BE OPERATIONAL.
- B. ALL ELECTRICAL EQUIPMENT UNDER THIS CONTRACT SHALL BE PROPERLY TESTED, ADJUSTED, AND ALIGNED BY THE CONTRACTOR.
- C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATING, DRAINING, TRENCHES, BACKFILLING, AND REMOVAL OF EXCESS DIRT.
- D. THE CONTRACTOR SHALL FURNISH TO THE OWNER WITH CERTIFICATES OF A FINAL INSPECTION AND APPROVAL FROM THE INSPECTION AUTHORITIES HAVING JURISDICTION.
- E. THE CONTRACTOR SHALL PREPARE A COMPLETE SET OF AS-BUILT DRAWINGS, DOCUMENT ALL WIRING EQUIPMENT CONDITIONS, AND CHANGES WHILE COMPLETING THIS CONTRACT. THE AS-BUILT DRAWINGS SHALL BE SUBMITTED AT COMPLETION OF THE PROJECT.

PART 2 - PRODUCTS

2.1 GENERAL:

- A. ALL MATERIALS AND EQUIPMENT SHALL BE UL LISTED, NEW, AND FREE FROM DEFECTS.
- B. ALL ITEMS OF MATERIALS AND EQUIPMENT SHALL BE ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION AS SUITABLE FOR THE USE INTENDED.
- C. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
- D. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 10,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PER THE GOVERNING JURISDICTION.

2.2 MATERIALS AND EQUIPMENT:

A. CONDUIT:

- 1. RIGID METAL CONDUIT (RMC) SHALL BE HOT-DIPPED GALVANIZED INSIDE AND OUTSIDE INCLUDING ENDS AND THREADS AND ENAMELED OR LACQUERED INSIDE IN ADDITION TO GALVANIZING.
- 2. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL BE UL LISTED.
- 3. CONDUIT CLAMPS, STRAPS AND SUPPORTS SHALL BE STEEL OR MALLEABLE IRON. ALL FITTINGS SHALL BE COMPRESSION AND CONCRETE TIGHT TYPE. GROUNDING BUSHINGS WITH INSULATED THROATS SHALL BE INSTALLED ON ALL CONDUIT TERMINATIONS.
- 4. NONMETALLIC CONDUIT AND FITTINGS SHALL BE SCHEDULE 40 PVC. INSTALL USING SOLVENT-CEMENT-TYPE JOINTS AS RECOMMENDED BY THE MANUFACTURER.

B. CONDUCTORS AND CABLE:

- 1. CONDUCTORS AND CABLE SHALL BE FLAME-RETARDANT, MOISTURE AND HEAT RESISTANT THERMOPLASTIC, SINGLE CONDUCTOR, COPPER, TYPE THHN/THWN-2, 600 VOLT, SIZE AS INDICATED, #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR USED.
- 2. #10 AWG AND SMALLER CONDUCTOR SHALL BE SOLID OR STRANDED AND #8 AWG AND LARGER CONDUCTORS SHALL BE STRANDED.
- 3. SOLDERLESS, COMPRESSION-TYPE CONNECTORS SHALL BE USED FOR TERMINATION OF ALL STRANDED CONDUCTORS.
- 4. STRAIN-RELIEF SUPPORTS GRIPS SHALL BE HUBBELL KELLEMS OR APPROVED EQUAL. CABLES SHALL BE SUPPORTED IN ACCORDANCE WITH THE NEC AND CABLE MANUFACTURER'S RECOMMENDATIONS.
- 5. ALL CONDUCTORS SHALL BE TAGGED AT BOTH ENDS OF THE CONDUCTOR, AT ALL PULL BOXES, J-BOXES, EQUIPMENT AND CABINETS AND SHALL BE IDENTIFIED WITH APPROVED PLASTIC TAGS (ACTION CRAFT, BRADY, OR APPROVED EQUAL).
- C. DISCONNECT SWITCHES:
- 1. DISCONNECT SWITCHES SHALL BE HEAVY DUTY, DEAD-FRONT, QUICK-MAKE, QUICK-BREAK, EXTERNALLY OPERABLE, HANDLE LOCKABLE AND INTERLOCK WITH COVER IN CLOSED POSITION, RATING AS INDICATED, UL LABELED FURNISHED IN NEMA 3R ENCLOSURE, PROVIDE IF SHOWN ON PLANTS, SQUARE-D OR ENGINEER APPROVED EQUAL.
- D. CHEMICAL ELECTROLYTIC GROUNDING SYSTEM: PROVIDE ONLY IF SHOWN ON DRAWINGS

- 1. INSTALL CHEMICAL GROUNDING AS REQUIRED. THE SYSTEM SHALL BE ELECTROLYTIC MAINTENANCE FREE ELECTRODE CONSISTING OF RODS WITH A MINIMUM #2 AWG CU EXOTHERMICALLY WELDED PIGTAIL, PROTECTIVE BOXES, AND BACKFILL MATERIAL. MANUFACTURER SHALL BE LYNCOLE XIT GROUNDING ROD TYPES K2-(\*)CS OR K2L-(\*)CS (\*) LENGTH AS REQUIRED.

- 2. GROUND ACCESS BOX SHALL BE A POLYPLASTIC BOX FOR NON-TRAFFIC APPLICATIONS, INCLUDING BOLT DOWN FLUSH COVER WITH "BREATHING" HOLES, XIT MODEL #XB-22. ALL DISCONNECT SWITCHES AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED LAMICOID NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS ID NUMBERING, AND THE ELECTRICAL POWER SOURCE.
- 3. BACKFILL MATERIAL SHALL BE LYNCONITE AND LYNCOLE GROUNDING GRAVEL.

E. SYSTEM GROUNDING:

- 1. ALL GROUNDING COMPONENTS SHALL BE TINNED AND GROUNDING CONDUCTOR SHALL BE #2 AWG BARE, SOLID, TINNED, COPPER. ABOVE GRADE GROUNDING CONDUCTORS SHALL BE INSULATED WHERE NOTED.
- 2. GROUNDING BUSES SHALL BE BARE, TINNED, ANNEALED COPPER BARS OF RECTANGULAR CROSS SECTION. STANDARD BUS BARS MGB, SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. THEY SHALL NOT BE FABRICATED OR MODIFIED IN THE FIELD. ALL GROUNDING BUSES SHALL BE IDENTIFIED WITH MINIMUM 3/4" LETTERS BY WAY OF STENCILING OR DESIGNATION PLATE.
- 3. CONNECTORS SHALL BE HIGH-CONDUCTIVITY, HEAVY DUTY, LISTED AND LABELED AS GROUNDING CONNECTORS FOR THE MATERIALS USED. USE TWO-HOLE COMPRESSION LUGS WITH HEAT SHRINK FOR MECHANICAL CONNECTIONS. INTERIOR CONNECTIONS USE TWO-HOLE COMPRESSION LUGS WITH INSPECTION WINDOW AND CLEAR HEAT SHRINK.
- 4. EXOTHERMIC WELDED CONNECTIONS SHALL BE PROVIDED IN KIT FORM AND SELECTED FOR THE SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS TO BE CONNECTED.
- 5. GROUND RODS SHALL BE COPPER-CLAD STEEL WITH HIGH-STRENGTH STEEL CORE AND ELECTROLYTIC-GRADE COPPER OUTER SHEATH, MOLTEN WELDED TO CORE, 5/8"x10'-0". ALL GROUNDING RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES.
- 6. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS IN COMPLIANCE WITH THE AT&T SPECIFICATIONS AND NEC. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULLBOXES, DISCONNECT SWITCHES, STARTERS, AND EQUIPMENT CABINETS.
- F. OTHER MATERIALS:
- 6. THE CONTRACTOR SHALL PROVIDE OTHER MATERIALS, THOUGH NOT SPECIFICALLY DESCRIBED, WHICH ARE REQUIRED FOR A COMPLETELY OPERATIONAL SYSTEM AND PROPER INSTALLATION OF THE WORK.
- 7. PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR REQUIRED BY NEC.
- G. PANELS AND LOAD CENTERS:
- 1. ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN.

PART 3 - EXECUTION

3.1 GENERAL:

- A. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- B. EQUIPMENT SHALL BE TIGHTLY COVERED AND PROTECTED AGAINST DIRT OR WATER, AND AGAINST CHEMICAL OR MECHANICAL INJURY DURING INSTALLATION AND CONSTRUCTION PERIODS.

3.2 LABOR AND WORKMANSHIP:

- A. ALL LABOR FOR THE INSTALLATION OF MATERIALS AND EQUIPMENT FURNISHED FOR THE ELECTRICAL SYSTEM SHALL BE INSTALLED BY EXPERIENCED WIREMEN, IN A NEAT AND WORKMAN-LIKE MANNER.
- B. ALL ELECTRICAL EQUIPMENT SHALL BE ADJUSTED, ALIGNED AND TESTED BY THE CONTRACTOR AS REQUIRED TO PRODUCE THE INTENDED PERFORMANCE.
- C. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED EQUIPMENT, REMOVE ALL LABELS AND ANY DEBRIS, CRATING OR CARTONS AND LEAVE THE INSTALLATION FINISHED AND READY FOR OPERATION.

3.3 COORDINATION:

- A. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRICAL ITEMS WITH THE OWNER-FURNISHED EQUIPMENT DELIVERY SCHEDULE TO PREVENT UNNECESSARY DELAYS IN THE TOTAL WORK.

3.4 INSTALLATION:

A. CONDUIT:

- 1. ALL ELECTRICAL WIRING SHALL BE INSTALLED IN CONDUIT AS SPECIFIED. NO CONDUIT OR TUBING OF LESS THAN 3/4 INCH TRADE SIZE.
- 2. PROVIDE RIGID PVC SCHEDULE 80 CONDUITS FOR ALL RISERS, RMC OTHERWISE NOTED. EMT MAY BE INSTALLED FOR EXTERIOR CONDUITS WHERE NOT SUBJECT TO PHYSICAL DAMAGE.
- 3. INSTALL SCHEDULE 40 PVC CONDUIT WITH A MINIMUM COVER OF 24" UNDER ROADWAYS, PARKING LOTS, STREETS, AND ALLEYS. CONDUIT SHALL HAVE A MINIMUM COVER OF 18" IN ALL OTHER NON-TRAFFIC APPLICATIONS.
- 4. USE GALVANIZED FLEXIBLE STEEL CONDUIT WHERE DIRECT CONNECTION TO EQUIPMENT WITH MOVEMENT, VIBRATION, OR FOR EASE OF MAINTENANCE. USE LIQUID TIGHT FLEXIBLE METAL CONDUIT FOR OUTDOOR APPLICATIONS. INSTALL GALVANIZED FLEXIBLE STEEL CONDUIT AT ALL POINTS OF CONNECTION TO EQUIPMENT MOUNTED ON SUPPORT TO ALLOW FOR EXPANSION AND CONTRACTION.
- 5. A RUN OF CONDUIT BETWEEN BOXES OR EQUIPMENT SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF THREE QUARTER-BENDS. CONDUIT BEND SHALL BE MADE WITH THE UL LISTED BENDER OR FACTORY 90 DEGREE ELBOWS MAY BE USED.
- 6. FIELD FABRICATED CONDUITS SHALL BE CUT SQUARE WITH A CONDUIT CUTTING TOOL AND REAMED TO PROVIDE A SMOOTH INSIDE SURFACE.
- 7. PROVIDE INSULATED GROUNDING BUSHING FOR ALL CONDUITS.
- 8. CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL CONDUITS DURING CONSTRUCTION. TEMPORARY OPENINGS IN THE CONDUIT SYSTEM SHALL BE PLUGGED OR CAPPED TO PREVENT ENTRANCE OF MOISTURE OR FOREIGN MATTER. CONTRACTOR SHALL REPLACE ANY CONDUITS CONTAINING FOREIGN MATERIALS THAT CANNOT BE REMOVED.
- 9. ALL CONDUITS SHALL BE SWABBED CLEAN BY PULLING AN APPROPRIATE SIZE MANDREL THROUGH THE EQUIPMENT BEFORE INSTALLATION OF CONDUCTORS OR CABLES. CONDUIT SHALL BE FREE OF DIRT AND DEBRIS.
- 10. INSTALL PULL STRINGS IN ALL CLEAN EMPTY CONDUITS. IDENTIFY PULL STRINGS AT EACH END.
- 11. INSTALL 2" HIGHLY VISIBLE AND DETECTABLE TAPE 12" ABOVE ALL UNDERGROUND CONDUITS AND CONDUCTORS.
- 12. CONDUITS SHALL BE INSTALLED IN SUCH A MANNER AS TO INSURE AGAINST COLLECTION OF TRAPPED CONDENSATION.
- 13. PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS TO ALLOW FOR RACEWAYS AND CABLES TO BE ROUTED THROUGH THE BUILDING. DO NOT PENETRATE STRUCTURAL MEMBERS. SLEEVES AND/OR PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE EFFECTIVELY SEALED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE WALL OR STRUCTURE. FIRE STOPS AT FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE, FIRE, AND FUMES. ALL MATERIAL SHALL BE

UL APPROVED FOR THIS PURPOSE.

B. CONDUCTORS AND CABLE:

- 1. ALL POWER WIRING SHALL BE COLOR CODED AS FOLLOWS:

DESCRIPTION	208/240/120 VOLT SYSTEMS
PHASE A	BLACK
PHASE B	RED
PHASE C	BLUE
NEUTRAL	WHITE
GROUNDING	GREEN

- 2. SPLICES SHALL BE MADE ONLY AT OUTLETS, JUNCTION BOXES, OR ACCESSIBLE RACEWAY CONDUITS APPROVED FOR THIS PURPOSE.
- 3. PULLING LUBRICANTS SHALL BE UL APPROVED. CONTRACTOR SHALL USE NYLON OR HEMP ROPE FOR PULLING CONDUCTOR OR CABLES INTO THE CONDUIT.

- 4. CABLES SHALL BE NEATLY TRAINED, WITHOUT INTERLACING, AND BE OF SUFFICIENT LENGTH IN ALL BOXES & EQUIPMENT TO PERMIT MAKING A NEAT ARRANGEMENT. CABLES SHALL BE SECURED IN A MANNER TO AVOID TENSION ON CONDUCTORS OR TERMINALS. CONDUCTORS SHALL BE PROTECTED FROM MECHANICAL INJURY AND MOISTURE. SHARP BENDS OVER CONDUIT BUSHINGS IS PROHIBITED. DAMAGED CABLES SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

C. DISCONNECT SWITCHES:

- 1. INSTALL DISCONNECT SWITCHES LEVEL AND PLUMB. CONNECT TO WIRING SYSTEM AND GROUNDING SYSTEM AS INDICATED.

D. GROUNDING:

- 1. ALL METALLIC PARTS OF ELECTRICAL EQUIPMENT WHICH DO NOT CARRY CURRENT SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING MANUFACTURER, AT&T GROUNDING AND BONDING STANDARDS TP-76416, ND-00135, AND THE NATIONAL ELECTRICAL CODE.

- 2. PROVIDE ELECTRICAL GROUNDING AND BONDING SYSTEM INDICATED WITH ASSEMBLY OF MATERIALS, INCLUDING GROUNDING ELECTRODES, BONDING JUMPERS AND ADDITIONAL ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION.

- 3. ALL GROUNDING CONDUCTORS SHALL PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND WITH GRADUAL BEND AS REQUIRED. GROUNDING CONDUCTORS SHALL NOT BE LOOPED OR SHARPLY BENT. ROUTE GROUNDING CONNECTIONS AND CONDUCTORS TO GROUND IN THE SHORTEST AND STRAIGHTEST PATHS POSSIBLE TO MINIMIZE TRANSIENT VOLTAGE RISES.

- 4. BUILDINGS AND/OR NEW TOWERS GREATER THAN 75 FEET IN HEIGHT AND WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM. THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 AWG COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). SEE STANDARD 6.3.2.2.

- 5. TIGHTEN GROUNDING AND BONDING CONNECTORS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES FOR CONNECTORS AND BOLTS. WHERE MANUFACTURER'S TORQUING REQUIREMENTS ARE NOT AVAILABLE, TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUE VALUES SPECIFIED IN UL TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.

- 6. CONTRACTOR SHALL VERIFY THE LOCATIONS OF GROUNDING TIE-IN-POINTS TO THE EXISTING GROUNDING SYSTEM. ALL UNDERGROUND GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- 7. ALL GROUNDING CONNECTIONS SHALL BE INSPECTED FOR TIGHTNESS. EXOTHERMIC WELDED CONNECTIONS SHALL BE APPROVED BY THE INSPECTOR HAVING JURISDICTION BEFORE BEING PERMANENTLY CONCEALED.

- 8. APPLY CORROSION-RESISTANT FINISH TO FIELD CONNECTIONS AND PLACES WHERE FACTORY APPLIED PROTECTIVE COATINGS HAVE BEEN DESTROYED. USE KOPR-SHIELD ANTI-OXIDATION COMPOUND ON ALL COMPRESSION GROUNDING CONNECTIONS.

- 9. A SEPARATE, CONTINUOUS, INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN ALL FEEDER AND BRANCH CIRCUITS.

- 10. BOND ALL INSULATED GROUNDING BUSHINGS WITH A BARE #6 AWG GROUNDING CONDUCTOR TO A GROUND BUS.

- 11. DIRECT BURIED GROUNDING CONDUCTORS SHALL BE INSTALLED AT A NOMINAL DEPTH OF 36" MINIMUM BELOW GRADE, OR 6" BELOW THE FROST LINE, USE THE GREATER OF THE TWO DISTANCES.

- 12. ALL GROUNDING CONDUCTORS EMBEDDED IN OR PENETRATING CONCRETE SHALL BE INSTALLED IN SCHEDULE 40 PVC CONDUIT.

- 13. THE INSTALLATION OF CHEMICAL ELECTROLYTIC GROUNDING SYSTEM IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. REMOVE SEALING TAPE FROM LEACHING AND BREATHING HOLES. INSTALL PROTECTIVE BOX FLUSH WITH GRADE.

- 14. DRIVE GROUND RODS UNTIL TOPS ARE A MINIMUM DISTANCE OF 36" DEPTH OR 6" BELOW FROST LINE, USING THE GREATER OF THE TWO DISTANCES.

- 15. IF COAX ON THE ICE BRIDGE IS MORE THAN 6 FT. FROM THE GROUNDING BAR AT THE BASE OF THE TOWER, A SECOND GROUNDING BAR WILL BE NEEDED AT THE END OF THE ICE BRIDGE, TO GROUND THE COAX CABLE GROUNDING KITS AND IN-LINE ARRESTORS.

- 16. CONTRACTOR SHALL REPAIR, AND/OR REPLACE, EXISTING GROUNDING SYSTEM COMPONENTS DAMAGED DURING CONSTRUCTION AT THE CONTRACTORS EXPENSE.

3.5 ACCEPTANCE TESTING:

- A. CERTIFIED PERSONNEL USING CERTIFIED EQUIPMENT SHALL PERFORM REQUIRED TESTS AND SUBMIT WRITTEN TEST REPORTS UPON COMPLETION.

- B. WHEN MATERIAL AND/OR WORKMANSHIP IS FOUND NOT TO COMPLY WITH THE SPECIFIED REQUIREMENTS, THE NON-COMPLYING ITEMS SHALL BE REMOVED FROM THE PROJECT SITE AND REPLACED WITH ITEMS COMPLYING WITH THE SPECIFIED REQUIREMENTS PROMPTLY AFTER RECEIPT OF NOTICE FOR NON-COMPLIANCE.

C. TEST PROCEDURES:

- 1. ALL FEEDERS SHALL HAVE INSULATION TESTED AFTER INSTALLATION, BEFORE CONNECTION TO DEVICES. THE CONDUCTORS SHALL TEST FREE FROM SHORT CIRCUITS AND GROUNDS. TESTING SHALL BE FOR ONE MINUTE USING 1000V DC. PROVIDE WRITTEN DOCUMENTATION FOR ALL TEST RESULTS.
- 2. PRIOR TO ENERGIZING CIRCUITRY, TEST WIRING DEVICES FOR ELECTRICAL CONTINUITY AND PROPER POLARITY CONNECTIONS.
- 3. MEASURE AND RECORD VOLTAGES BETWEEN PHASES AND BETWEEN PHASE CONDUCTORS AND NEUTRALS. SUBMIT A REPORT OF MAXIMUM AND MINIMUM VOLTAGES.
- 4. PERFORM GROUNDING TEST TO MEASURE GROUNDING RESISTANCE OF GROUNDING SYSTEM USING THE IEEE STANDARD 3-POINT "FALL-OF-POTENTIAL" METHOD. PROVIDE PLOTTED TEST VALUES AND LOCATION SKETCH. NOTIFY THE ENGINEER IMMEDIATELY IF MEASURED VALUE IS OVER 5 OHMS.



FORTUNE WIRELESS INC.

5511 WEST 79TH STREET INDIANAPOLIS, IN 46268 (317) 532-1374

IN1187 AT&T FA#: 15861975 2688 EAST MAIN ST. PLAINFIELD, IN 46168 HENDRICKS COUNTY

DRAWN BY: GNP

CHECKED BY: AJB

NO:	DATE:	ISSUE:
A	02/06/24	REVIEW CD
0	02/21/24	FINAL CD



SHEET TITLE:

ELECTRICAL NOTES

SHEET NUMBER:

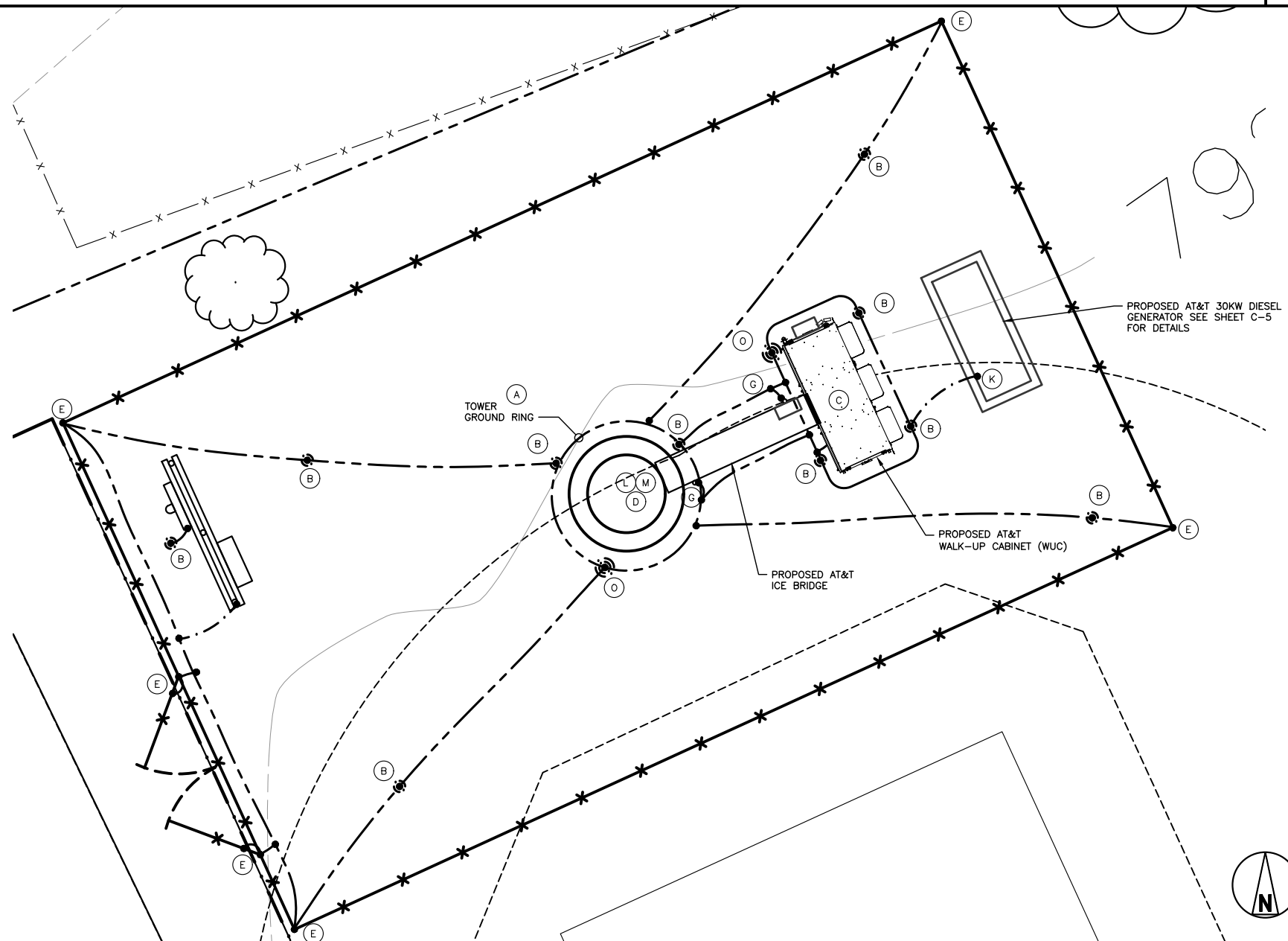
E-4

DO NOT SCALE DRAWINGS

- GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY. FOR GROUNDING DETAILS SEE DRAWINGS G-3
- TESTING SHALL BE PERFORMED AT ALL SITES WHERE MODIFICATIONS OR ADDITIONS ARE MADE TO THE EXISTING GROUNDING SYSTEM AND SHALL BE IN ACCORDANCE WITH AT&T GROUNDING AND BONDING STANDARDS TP-76416. THE CONTRACTOR SHALL SUPPLY AT&T WITH RESULTS FROM PRE-CONSTRUCTION AND POST-CONSTRUCTION OHM TESTING (GROUNDING) RESULTS AND BE IN COMPLIANCE WITH AT&T GROUNDING AND BONDING STANDARDS TP-76416.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE A "FALL OF POTENTIAL" TEST ON THE PROPOSED SUPPLEMENTAL GROUNDING FIELD PRIOR TO FINAL CONNECTION OF THE GROUNDING SYSTEM TO EQUIPMENT. THE TEST SHALL BE PERFORMED BY A QUALIFIED AND CERTIFIED TESTING AGENT, PROVIDE INDEPENDENT TEST RESULTS TO THE PROJECT MANAGER FOR REVIEW. THE GROUNDING SYSTEM RESISTANCE TO EARTH GROUNDING SHALL NOT EXCEED (5) OHMS. IF THE GROUNDING TEST EXCEEDS THE MAXIMUM OF (5) OHMS, THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ADDITIONAL GROUNDING RODS AND CONNECTIONS AS REQUIRED TO MEET THE (5) OHMS' MAXIMUM.
- THE INSPECTOR HAVING JURISDICTION SHALL INSPECT ALL GROUNDING CONNECTIONS FOR TIGHTNESS. EXOTHERMIC WELDED CONNECTIONS SHALL BE APPROVED BEFORE BEING PERMANENTLY CONCEALED.
- FOR ALL CONNECTIONS TO THE GROUNDING RING, SEE THE SHELTER MANUFACTURER'S DRAWINGS.
- WHEN AN EXISTING METER RACK IS BEING UTILIZED AND A NEW METER IS INSTALLED IN THE EXISTING METER RACK, THE GROUNDING RODS, AND GROUNDING CONDUCTORS OF THE EXISTING GROUNDING RING, SHALL BE EXTENDED TO THE PROPOSED GROUNDING RING AND BECOME A COMPLETE GROUNDING SYSTEM.
- CONTRACTOR SHALL GROUND ALL EQUIPMENT INCLUDING ANTENNAS, RET MOTORS, TMA'S, COAX CABLES AND RET CONTROL CABLES AS A COMPLETE SYSTEM. GROUNDING SHALL BE EXECUTED BY QUALIFIED WIREMEN IN COMPLIANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
- FOR GROUNDING INSTALLATIONS WHICH HAVE A LIMITED AREA AND IS BEING REQUIRED TO BE INSTALLED WITHIN THE LEASE AREA ONLY, THE GROUNDING RING CONDUCTORS CAN BE INSTALLED UNDER THE CABINET FOOTINGS.
- MAIN GROUNDING CONDUCTORS SHALL BE ROUTED AND BONDED TO ALL EFFECTIVE GROUNDING PATHS IN ACCORDANCE WITH AT&T GROUNDING AND BONDING SPECIFICATION 6.8.2 STATED IN TP-76416. THE NEW GROUNDING SYSTEM SHALL BE BONDED (2 PLACES) TO ALL EXISTING GROUNDING SYSTEMS, INCLUDING BUT NOT LIMITED TO BUILDING STEEL STRUCTURE, LIGHTNING PROTECTION SYSTEMS, BUILDING MAIN GROUNDING SYSTEM AND/OR MAIN WATER SUPPLY IF APPLICABLE.
- BUILDINGS AND/OR NEW TOWERS GREATER THAN 75 FEET IN HEIGHT AND THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 AWG COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). SEE AT&T GROUNDING AND BONDING STANDARDS TP-76416 SPECIFICATION 6.3.2.2.
- CONNECTIONS TO THE BURIED GROUND RING SHALL BE EXOTHERMICALLY WELDED BY A CERTIFIED TECHNICIAN. CONNECTIONS TO ABOVE GROUND UNITS SHALL BE MADE WITH EXOTHERMIC WELD, WHERE PRACTICAL, OR WITH 2 HOLE CONNECTIONS.
- GROUND WIRE SHALL HAVE A MINIMUM BEND RADIUS OF 8" AND >90°.
- ALL MECHANICAL GROUND CONNECTION SHALL HAVE AN ANTIOXIDANT COMPOUND APPLIED PRIOR TO INSTALLATION.

NOTES

1



GROUNDING SITE PLAN

NOT TO SCALE

3

- TOWER GROUND RING:** THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS. (ATT-TP-76416 7.5.1)
- GROUND ROD:** UL LISTED COPPER CLAD STEEL, MINIMUM 3/4" DIAMETER BY EIGHT FEET LONG. ALL GROUND RODS MAY BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR. (ATT-TP-76416 1.4 / 2.2.3.10)
- WALK UP CABINET GROUND BAR:** POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO TOWER GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS AND TO HELICAL ANCHORS WITH (2) #2 SOLID TINNED COPPER CONDUCTORS. (ATT-TP-76416 7.6.7)
- TOWER EXIT GROUND BAR:** MECHANICALLY SECURE THE GROUND BAR DIRECTLY TO TOWER WITH STAINLESS STEEL MOUNTING MATERIAL. CONTRACTOR TO VERIFY THAT THE STRUCTURE IS PROPERLY GROUNDED TO THE TOWER GROUND RING. (ATT-TP-76416 7.5.5)
- FENCE AND GATE GROUNDING:** METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS. (ATT-TP-76416 7.12.2.2)
- EXTERIOR UNIT BONDS:** METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE TOWER GROUND RING. (ATT-TP-76416 7.12.2)
- ICE BRIDGE SUPPORTS:** EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING. (ATT-TP-76416 7.4.2.6)
- DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICES CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR (CRGB) PER AT&T-TP-76300 SECTION H 6 AND AT&T-TP-76416 FIGURE 7-11 REQUIREMENTS.
- GENERATOR GROUND BAR:** EXTEND (2) #2 AWG SOLID TINNED BOND FROM GENERATOR GROUND BAR TO WUC GROUND BAR.
- TOWER TOP GROUNDING BAR:** MECHANICALLY BOND GROUND BAR TO STRUCTURE.
- ANTENNA GROUND BAR:** #2 AWG SOLID TINNED COPPER BOND TO TOWER TOP GROUND BAR.
- INSPECTION TEST WELL:** SEE DETAIL 3, SHEET G-3

**CONDUIT NOTE:**  
ALL CONDUIT RUNS SHALL BE INSTALLED IN A NEAT AND ORDERLY FASHION AS DICTATED BY EXISTING CONDITIONS

**VERTICAL GROUND LEADS IN PVC SLEEVES NOTE:**  
ALL VERTICAL #2 GROUND LEADS SHALL BE SLEEVED IN PVC CONDUIT (OR FLEX CONDUIT PER MARKET REQUIREMENTS) FROM BUS BARS AND ALL GROUNDING ITEMS DOWN TO EXTERIOR GROUND RING/HALO. PROVIDE WATER SEALTIGHT AT TOP OF CONDUIT.

GROUNDING KEYED NOTES

2

SYMBOL	DESCRIPTION
⊙	3/4" x 10' COPPER CLAD STEEL GROUND ROD
⊕	3/4" x 10' COPPER CLAD TEST WELL GROUND ROD W/INSPECTION SLEEVE
•	EXOTHERMIC WELD (CADWELD) (UNLESS OTHERWISE NOTED)
⊠	EXOTHERMIC WELD (CADWELD) WITH INSPECTION SLEEVE

LEGEND

4



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IN 46168  
HENDRICKS COUNTY

DRAWN BY: **GNP**

CHECKED BY: **AJB**

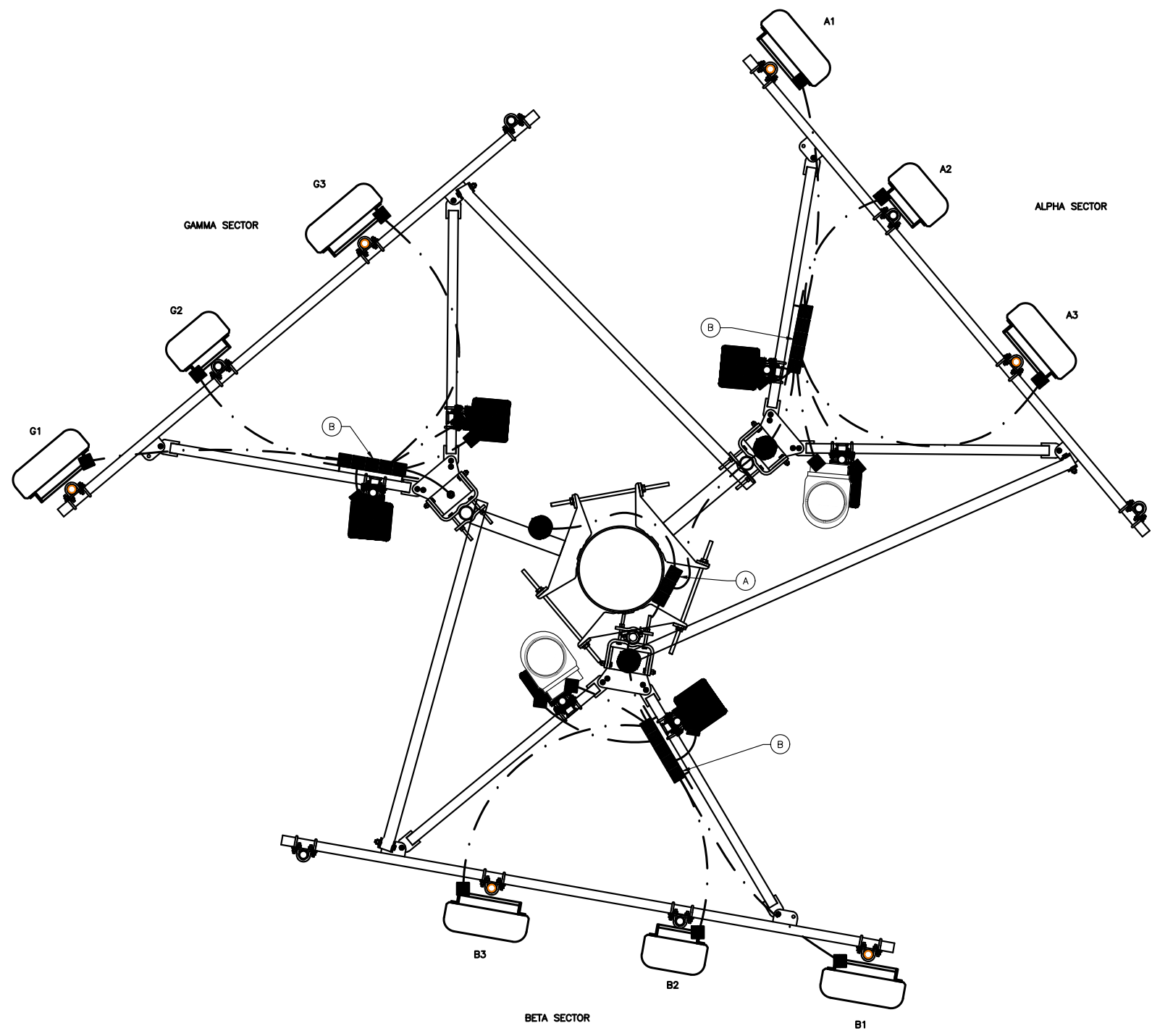
NO:	DATE:	ISSUE:
A	02/06/24	REVIEW CD
0	02/21/24	FINAL CD



SHEET TITLE:  
**GROUNDING SITE PLAN & NOTES**

SHEET NUMBER:  
**G-1**

DO NOT SCALE DRAWINGS



1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
2. CONTRACTOR SHALL HAVE A COMPLETE UNDERSTANDING OF THE CONTENTS OF AT&T STANDARD TP-76416.
3. ALL INSTALLATIONS SHALL BE FIELD VERIFIED.
4. TOWER GROUNDING BAR: EXTEND (2) #2 AWG TINNED CU WIRE FROM BURIED GROUND RING UP TO THE TOWER GROUND BAR AND MAKE A MECHANICAL CONNECTION. SECURE GROUND BAR DIRECTLY TO TOWER WITH STAINLESS STEEL MOUNTING MATERIAL.
5. ANTENNA GROUNDING BAR: ANDREW CORPORATION PART #UGBKIT-0424-T MOUNT GROUND BAR DIRECTLY TO TOWER. SECURE TO TOWER WITH STAINLESS STEEL MOUNTING MATERIAL.
6. GROUNDING BAR: LOCATED CLOSE TO GRADE LOCK BOX TESSCO PART #351546: INSTALL PER MANUFACTURER GUIDELINES.
7. EXOTHERMIC OR COMPRESSION CONNECTION FOR PIPE MOUNT TO ANTENNA ROUTE CONDUCTOR TO NEAREST GROUNDING BAR SO THE GROUNDING CONDUCTORS PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND. USE #2 AWG SOLID TINNED COPPER CONDUCTOR. GROUNDING CONNECTION SHALL BE LOCATED AT THE TOP 2" OF PIPE.
8. ALL GROUNDING CONDUCTORS SHALL BE #2 AWG COPPER TINNED UNLESS NOTED OTHERWISE.
9. ALL GROUNDING CONDUCTORS SHALL PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND WITH GRADUAL BEND AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
10. KOPR-SHIELD ANTI-OXIDATION COMPOUND SHALL BE USED ON ALL COMPRESSION GROUNDING CONNECTIONS.
11. ALL EXOTHERMIC CONNECTIONS SHALL BE INSTALLED UTILIZING THE PROPER CONNECTION/MOLD AND MATERIALS FOR THE PARTICULAR APPLICATION.
12. ALL BOLTED GROUNDING CONNECTIONS SHALL BE INSTALLED WITH AN EXTERNAL TOOTHED LOCK WASHER. GROUNDING BUS BARS MAY HAVE PRE-PUNCHED HOLES OR TAPPED HOLES. ALL HARDWARE SHALL BE SECURITY TORQUE HARDWARE 3/8" STAINLESS STEEL.
13. EXTERNAL GROUNDING CONDUCTOR SHALL NOT BE INSTALLED OR ROUTED THROUGH HOLES IN ANY METAL OBJECTS, CONDUITS, OR SUPPORTS TO PRECLUDE ESTABLISHING A MAGNETIC CHOKE POINT.
14. PLASTIC CLIPS SHALL BE USED TO FASTEN AND SUPPORT GROUNDING CONDUCTORS. FERROUS METAL CLIPS WHICH COMPLETELY SURROUND THE GROUNDING CONDUCTOR SHALL NOT BE USED.
15. IF COAX ON ICE BRIDGE IS MORE THAT 6" FROM THE GROUND BAR AT THE BASE OF THE TOWER, A SECOND GROUND BAR WILL BE NEEDED AT THE END OF THE ICE BRIDGE RUN TO GROUND THE COAX. GROUND KIT AND THE IN-LINE SURGE ARRESTORS (SURGE ARRESTORS INSTALLED BY LUCCENT ONLY HAVE 6" GROUND TAILS).
16. CONTRACTOR SHALL REPAIR/PLACE EXISTING GROUNDING SYSTEM COMPONENTS DAMAGED DURING CONSTRUCTION AT THE CONTRACTORS EXPENSE.

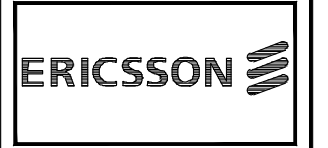
NOTES 2

- (A) TOWER TOP GROUNDING BAR: MECHANICALLY BOND GROUND BAR TO STRUCTURE.
- (B) ANTENNA GROUND BAR: #2 AWG SOLID TINNED COPPER BOND TO TOWER TOP GROUND BAR.

KEY NOTES 3

- EXOTHERMIC TYPE CONNECTION
- COMPRESSION TYPE CONNECTION
- GROUNDING CONDUCTOR
- GROUNDING BAR

LEGEND 4



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SHEET TITLE:  
**ANTENNA GROUNDING PLAN**

SHEET NUMBER:  
**G-2**  
DO NOT SCALE DRAWINGS

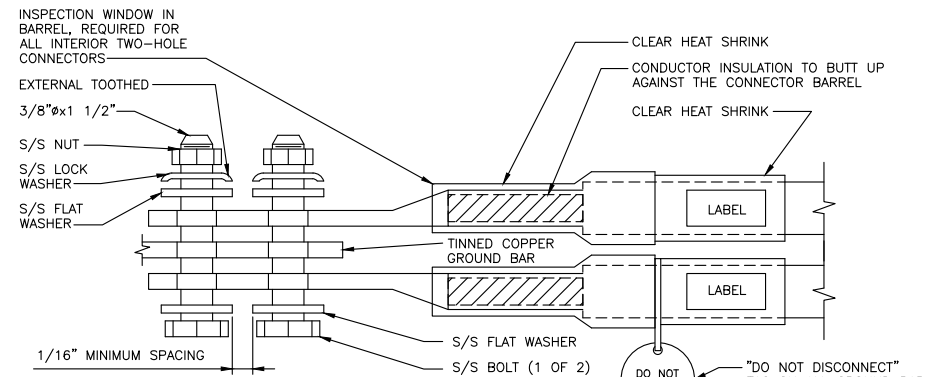
ANTENNA GROUNDING PLAN

NO SCALE

1

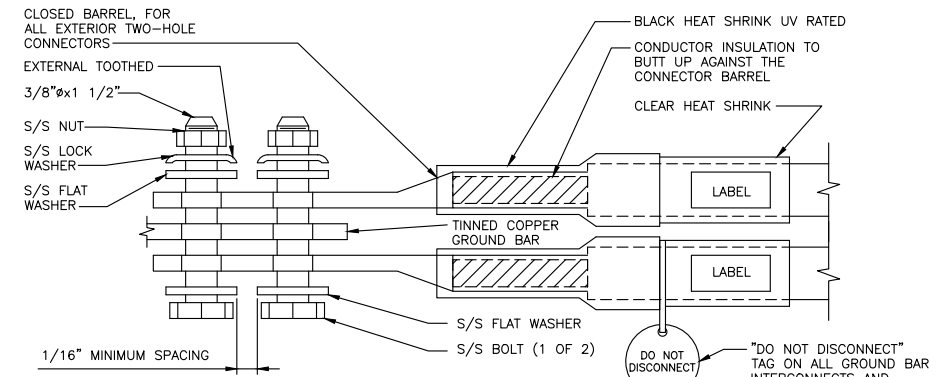
LEGEND

4



**NOTES:**

- EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
- ALL GROUND BARS SHALL BE STAMPED IN TO THE METAL "IF STOLEN DO NOT RECYCLE." THE CONTRACTOR SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "N", "I") WITH 1" HIGH LETTERS.
- ALL HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
- FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUND BUS.
- NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE. INSTALL BLACK HEAT-SHRINKING TUBE, 600 VOLT INSULATION, ON ALL GROUND TERMINATIONS. THE INTENT IS TO WEATHERPROOF THE COMPRESSION CONNECTION.
- SUPPLIED AND INSTALLED BY CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED, PROVIDING 50% SPARE CONNECTION POINTS.
- ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).
- BOLTS SHALL BE MADE "SNUG-TIGHT" PLUS 1/4 TURN.



**NOTES:**

- EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
- ALL GROUND BARS SHALL BE STAMPED IN TO THE METAL "IF STOLEN DO NOT RECYCLE." THE CONTRACTOR SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "N", "I") WITH 1" HIGH LETTERS.
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- SUPPLIED AND INSTALLED BY CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED, PROVIDING 50% SPARE CONNECTION POINTS.
- ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).
- BOLTS SHALL BE MADE "SNUG-TIGHT" PLUS 1/4 TURN.

**INTERIOR TWO HOLE LUG DETAIL**

NO SCALE

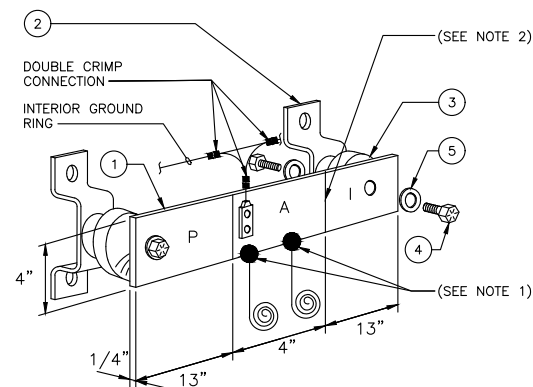
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**EXTERIOR TWO HOLE LUG DETAIL**

NO SCALE

2

NEWTON INSTRUMENT COMPANY, INC. BUTNER, N.C.			
NO	REQUIRED	PART NUMBER	DESCRIPTION
1	1	1/4"x4"x30"	SOLID GROUND BAR
2	2	A-6056	WALL MOUNTING BRACKET
3	2	3061-4	INSULATORS
4	4	3012-1	5/8"-11x1" H.H.C.S.
5	4	3015-8	5/8" LOCKWASHER



**(MGB) REFERENCE GROUNDING BAR DETAIL**

NO SCALE

3

**EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION**

**SECTION "P" - SURGE PROTECTORS**

- (EC) CELL REFERENCE GROUND BAR (IF COLLOCATED)
- (EC) GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
- (EC) TELCO GROUND BAR (#2 AWG)
- (EC) COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (3/0)
- (EC) FIBER GROUND BAR (#2 AWG)
- (EC) POWER ROOM REFERENCE GROUND BAR (#2 AWG)
- (AT&T) RECTIFIER FRAMES

**SECTION "A" - SURGE ABSORBERS**

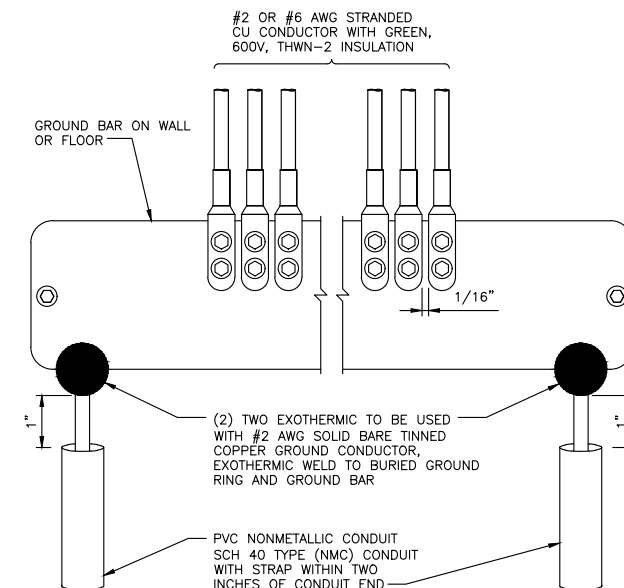
- (EC) INTERIOR GROUND RING (#2 AWG)
- (EC) EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
- (EC) METALLIC COLD WATER PIPE (IF AVAILABLE) (1/0 AWG)
- (EC) BUILDING STEEL (IF AVAILABLE) (1/0 AWG)

**SECTION "I" - ISOLATED GROUND ZONE**

- (AT&T) ALL ISOLATED GROUND REFERENCE
- (AT&T) GROUND WINDOW BAR

**DETAIL NOTES:**

- EXOTHERMICALLY WELD #2 AWG BARE TINNED SOLID COPPER CONDUCTOR TO GROUND BAR. ROUTE CONDUCTOR TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
- THE INSTALLER SHALL USE PERMANENT MARKER TO DRAW THE LINE BETWEEN SECTION AND LABEL EACH SECTION ("P", "A", "I") WITH 1" HIGH LETTERS



**GROUNDING BAR DETAIL**

NO SCALE

4



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SHEET TITLE:

**GROUNDING DETAILS**

SHEET NUMBER:

**G-3**

DO NOT SCALE DRAWINGS

**GENERAL CONSTRUCTION**

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:  
GENERAL CONTRACTOR – GC AS ASSIGNED BY OWNER  
CONTRACTOR: (CONSTRUCTION)  
OWNER – AT&T
2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND AT&T PROJECT SPECIFICATIONS.
3. GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE ENGINEER PRIOR TO PROCEEDING.
10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFIRM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
11. GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
12. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMAN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
13. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. CONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
14. WORK PREVIOUSLY COMPLETED IS REPRESENTED BY LIGHT SHADED LINES AND NOTES. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
15. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
16. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
17. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
18. GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.
19. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
20. THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
21. THE GENERAL CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2-A OR 2-A10-B AND WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.
22. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.
23. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
24. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
25. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.
26. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUNDING. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
27. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE-APPROVED BY THE LOCAL JURISDICTION.
28. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
29. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
30. CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.

31. CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
32. THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE, AND IS NOT FOR HUMAN HABITAT (NO HANDICAP ACCESS REQUIRED).
33. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY AT&T TECHNICIANS.
34. NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
35. ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST REVISION AT&T MOBILITY GROUNDING STANDARD "TECHNICAL SPECIFICATION FOR CONSTRUCTION OF GSM/GPRS WIRELESS SITES" AND "TECHNICAL SPECIFICATION FOR FACILITY GROUNDING". IN CASE OF A CONFLICT BETWEEN THE CONSTRUCTION SPECIFICATION AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
36. CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
37. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
38. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
39. NO WHITE STROBE LIGHTS ARE PERMITTED. LIGHTING IF REQUIRED, WILL MEET FAA STANDARDS AND REQUIREMENTS.
40. ALL COAXIAL CABLE INSTALLATIONS TO FOLLOW MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

**ANTENNA MOUNTING**

41. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA-222 OR APPLICABLE LOCAL CODES.
42. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.
43. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
44. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
45. ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
46. CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
47. ALL UNUSED PORTS ON ANY ANTENNAS SHALL BE TERMINATED WITH A 50-OHM LOAD TO ENSURE ANTENNAS PERFORM AS DESIGNED.
48. PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB. ANTENNA AZIMUTHS SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN +/- 5% AS DEFINED BY THE RFDS. ANTENNA DOWNTILTS SHALL BE WITHIN +/- 0.5% AS DEFINED BY THE RFDS. REFER TO ND-00246.
49. JUMPERS FROM THE TMA'S MUST TERMINATE TO OPPOSITE POLARIZATION'S IN EACH SECTOR.
50. CONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO AT&T.
51. TMA'S SHALL BE MOUNTED ON PIPE DIRECTLY BEHIND ANTENNAS AS CLOSE TO ANTENNA AS FEASIBLE IN A VERTICAL POSITION.
52. ANTENNAS SHALL HAVE A 4'-0" MIN CENTER TO CENTER HORIZONTAL SEPARATION.

**TORQUE REQUIREMENTS**

53. ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
54. ALL RF CONNECTIONS, GROUNDING HARDWARE AND ANTENNA HARDWARE SHALL HAVE A TORQUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.  
A. RF CONNECTION BOTH SIDES OF THE CONNECTOR.  
B. GROUNDING AND ANTENNA HARDWARE ON THE NUT SIDE STARTING FROM THE THREADS TO THE SOLID SURFACE. EXAMPLE OF SOLID SURFACE: GROUND BAR, ANTENNA BRACKET METAL.
55. ALL 8M ANTENNA HARDWARE SHALL BE TIGHTENED TO 9 LB-FT (12 NM).
56. ALL 12M ANTENNA HARDWARE SHALL BE TIGHTENED TO 43 LB-FT (58 NM).
57. ALL GROUNDING HARDWARE SHALL BE TIGHTENED UNTIL THE LOCK WASHER COLLAPSES AND THE GROUNDING HARDWARE IS NO LONGER LOOSE.
58. ALL DIN TYPE CONNECTIONS SHALL BE TIGHTENED TO 18-22 LB-FT (24.4 - 29.8 NM).
59. ALL N TYPE CONNECTIONS SHALL BE TIGHTENED TO 15-20 LB-IN (1.7 - 2.3 NM).

**FIBER & POWER CABLE MOUNTING**

60. THE FIBER OPTIC TRUNK CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY. WHEN INSTALLING FIBER OPTIC TRUNK CABLES INTO A CABLE TRAY SYSTEM, THEY SHALL BE INSTALLED INTO AN INTER DUCT AND A PARTITION BARRIER SHALL BE INSTALLED BETWEEN THE 600 VOLT CABLES AND THE INTER DUCT IN ORDER TO SEGREGATE CABLE TYPES. OPTIC FIBER TRUNK CABLES SHALL HAVE APPROVED CABLE RESTRAINTS EVERY (60) SIXTY FEET AND SECURELY FASTENED TO THE CABLE TRAY SYSTEM. NFPA 70 (NEC) ARTICLE 770 RULES SHALL APPLY.
61. THE TYPE TC-ER CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY AND SHALL BE SECURED AT INTERVALS NOT EXCEEDING (6) SIX FEET, AN EXCEPTION; WHERE TYPE TC-ER CABLES ARE NOT SUBJECT TO PHYSICAL DAMAGE, CABLES SHALL BE PERMITTED TO MAKE A TRANSITION BETWEEN CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY WHICH ARE SERVING UTILIZATION EQUIPMENT OR DEVICES, A DISTANCE (6) SIX FEET SHALL NOT BE EXCEEDED WITHOUT CONTINUOUS SUPPORTING. NFPA 70 (NEC) ARTICLES 336 AND 392 RULES SHALL APPLY.
62. WHEN INSTALLING OPTIC FIBER TRUNK CABLES OR TYPE TC-ER CABLES INTO CONDUITS, NFPA 70 (NEC) ARTICLE 300 RULES SHALL APPLY.

**COAXIAL CABLE NOTES**

63. TYPES AND SIZES OF THE ANTENNA CABLE ARE BASED ON ESTIMATED LENGTHS. PRIOR TO ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
62. CONTRACTOR SHALL VERIFY THE DOWN-TILT OF EACH ANTENNA WITH A DIGITAL LEVEL.
63. CONTRACTOR SHALL CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION. REFER TO "ANTENNA SYSTEM LABELING STANDARD" ND-00027 LATEST VERSION.
64. ALL JUMPERS TO THE ANTENNAS FROM THE MAIN TRANSMISSION LINE SHALL BE 1/2" DIA. LDF AND SHALL NOT EXCEED 6'-0".
65. ALL COAXIAL CABLE SHALL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, AT DISTANCES NOT TO EXCEED 4'-0" OC.
66. CONTRACTOR SHALL FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ANTENNAS, AND ALL OTHER EQUIPMENT.
67. CONTRACTOR SHALL WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF AMALGAMATING TAPE. WEATHERPROOFING SHALL BE COMPLETED IN STRICT ACCORDANCE WITH AT&T STANDARDS.

**GENERAL CABLE AND EQUIPMENT NOTES**

68. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ANTENNA, TMAS, DIPLEXERS, AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.
69. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S RECOMMENDATIONS.
70. CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.
71. ALL OUTDOOR RF CONNECTORS/CONNECTIONS SHALL BE WEATHERPROOFED, EXCEPT THE RET CONNECTORS, USING BUTYL TAPE AFTER INSTALLATION AND FINAL CONNECTIONS ARE MADE. BUTYL TAPE SHALL HAVE A MINIMUM OF ONE-HALF TAPE WIDTH OVERLAP ON EACH TURN AND EACH LAYER SHALL BE WRAPPED THREE TIMES. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING. BUTYL BLEEDING IS NOT ALLOWED.
72. IF REQUIRED TO PAINT ANTENNAS AND/OR COAX:  
A. TEMPERATURE SHALL BE ABOVE 50° F.  
B. PAINT COLOR MUST BE APPROVED BY BUILDING OWNER/LANDLORD.  
C. FOR REGULATED TOWERS, FAA/FCC APPROVED PAINT IS REQUIRED.  
D. DO NOT PAINT OVER COLOR CODING OR ON EQUIPMENT MODEL NUMBERS.
73. ALL CABLES SHALL BE GROUNDED WITH COAXIAL CABLE GROUND KITS. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS.  
A. GROUNDING AT THE ANTENNA LEVEL.  
B. GROUNDING AT MID LEVEL, TOWERS WHICH ARE OVER 200'-0", ADDITIONAL CABLE GROUNDING REQUIRED.  
C. GROUNDING AT BASE OF TOWER PRIOR TO TURNING HORIZONTAL.  
D. GROUNDING OUTSIDE THE EQUIPMENT SHELTER AT ENTRY PORT.  
E. GROUNDING INSIDE THE EQUIPMENT SHELTER AT THE ENTRY PORT.

74. ALL PROPOSED GROUND BAR DOWNLEADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUND BAR DOWNLEADS A MINIMUM DISTANCE OF 4'-0" BELOW GROUND BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.
75. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ANTENNA AND THE COAX CONFIGURATION IS THE CORRECT MAKE AND MODELS, PRIOR TO INSTALLATION.
76. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S SPECIFICATION & RECOMMENDATIONS.
77. ANTENNA CONTRACTOR SHALL FURNISH AND INSTALL A 12'-0" T-BOOM SECTOR ANTENNA MOUNT, IF APPLICABLE, INCLUDING ALL HARDWARE.

**SAFETY ENFORCEMENT**

- SAFETY IS OF PARAMOUNT CONCERN TO BOTH SITE WORKERS AND THE PUBLIC.
78. CONSTRUCTION WORK PRESENTS UNIQUE THREATS TO HEALTH AND SAFETY. THE CONTRACTOR IS 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 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. THE CONTRACTOR 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.
  79. 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.
  80. 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.
  81. 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 70, AND LOCAL SAFETY GUIDELINES AND AT ALL TIMES SHALL CONFORM TO THE MOST RESTRICTIVE OF THESE STANDARDS TO ENSURE A SAFE WORKPLACE.



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CHECKED BY: **AJB**

NO:	DATE:	ISSUE:
A	02/06/24	REVIEW CD
0	02/21/24	FINAL CD



SHEET TITLE:  
**GENERAL CONSTRUCTION NOTES**

SHEET NUMBER:  
**N-1**

DO NOT SCALE DRAWINGS

**PART 1 – GENERAL**

CLEARING, GRUBBING, STRIPPING, EROSION CONTROL, SURVEY, LAYOUT, SUBGRADE PREPARATION AND FINISH GRADING AS REQUIRED TO COMPLETE THE PROPOSED WORK SHOWN IN THESE PLANS.

**1.1 REFERENCES:**

- A. DOT (STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION-CURRENT EDITION).
- B. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS).
- C. OSHA (OCCUPATION SAFETY AND HEALTH ADMINISTRATION).

**1.2 INSPECTION AND TESTING:**

- A. FIELD TESTING OF EARTHWORK COMPACTION AND CONCRETE CYLINDERS SHALL BE PERFORMED BY CONTRACTORS INDEPENDENT TESTING LAB. THIS WORK TO BE COORDINATE BY THE CONTRACTOR.
- B. ALL WORK SHALL BE INSPECTED AND RELEASED BY THE GENERAL CONTRACTOR WHO SHALL CARRY OUT THE GENERAL INSPECTION OF THE WORK WITH SPECIFIC CONCERN TO PROPER PERFORMANCE OF THE WORK AS SPECIFIED AND/OR CALLED FOR ON THE DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REQUEST TIMELY INSPECTIONS PRIOR TO PROCEEDING WITH FURTHER WORK THAT WOULD MAKE PARTS OF WORK INACCESSIBLE OR DIFFICULT TO INSPECT.

**1.3 SITE MAINTENANCE AND PROTECTION:**

- A. PROVIDE ALL NECESSARY JOB SITE MAINTENANCE FROM COMMENCEMENT OF WORK UNTIL COMPLETION OF THE SUBCONTRACT.
  - B. AVOID DAMAGE TO THE SITE AND TO EXISTING FACILITIES, STRUCTURES, TREES, AND SHRUBS DESIGNATED TO REMAIN. TAKE PROTECTIVE MEASURES TO PREVENT EXISTING FACILITIES THAT ARE NOT DESIGNATED FOR REMOVAL FROM BEING DAMAGED BY THE WORK.
  - C. KEEP SITE FREE OF ALL PONDING WATER.
  - D. PROVIDE EROSION CONTROL MEASURES IN ACCORDANCE WITH STATE DOT AND EPA REQUIREMENTS.
  - E. PROVIDE AND MAINTAIN ALL TEMPORARY FENCING, BARRICADES, WARNING SIGNALS AND SIMILAR DEVICES NECESSARY TO PROTECT AGAINST THEFT FROM PROPERTY DURING THE ENTIRE PERIOD OF CONSTRUCTION. REMOVE ALL SUCH DEVICES UPON COMPLETION OF THE WORK.
  - F. EXISTING UTILITIES: DO NOT INTERRUPT EXISTING UTILITIES SERVING FACILITIES OCCUPIED BY THE OWNER OR OTHERS, EXCEPT WHEN PERMITTED IN WRITING BY THE ENGINEER AND THEN ONLY AFTER ACCEPTABLE TEMPORARY UTILITY SERVICES HAVE BEEN PROVIDED.
1. PROVIDE A MINIMUM 48 HOURS NOTICE TO THE ENGINEER AND RECEIVE WRITTEN NOTICE TO PROCEED BEFORE INTERRUPTING ANY UTILITY SERVICE.

**PART 2 – PRODUCTS**

- 2.1 SUITABLE BACKFILL: ASTM D2321 (CLASS I, II, III OR IVA) FREE FROM FROZEN LUMPS, REFUSE, STONES OR ROCKS LARGER THAN 3 INCHES IN ANY DIMENSION OR OTHER MATERIAL THAT MAY MAKE THE INORGANIC MATERIAL UNSUITABLE FOR BACKFILL.
- 2.2 NONPOROUS GRANULAR EMBANKMENT AND BACKFILL: ASTM D2321 (CLASS III, IVA OR IVB) COARSE AGGREGATE. FREE FROM FROZEN LUMPS, REFUSE, STONES OR ROCKS LARGER THAN 3 INCHES IN ANY DIMENSION OR OTHER MATERIAL THAT MAY MAKE THE INORGANIC MATERIAL UNSUITABLE FOR BACKFILL.
- 2.3 POROUS GRANULAR EMBANKMENT AND BACKFILL: ASTM D2321 (CLASS IA, IB OR II) COARSE AGGREGATE FREE FROM FROZEN LUMPS, REFUSE, STONES OR ROCKS LARGER THAN 3 INCHES IN ANY DIMENSION OR OTHER MATERIAL THAT MAY MAKE THE INORGANIC MATERIAL UNSUITABLE FOR BACKFILL.
- 2.4 SELECT STRUCTURAL FILL: GRANULAR FILL MATERIAL MEETING THE REQUIREMENTS OF ASTM E850-95. FOR USE AROUND AND UNDER STRUCTURES WHERE STRUCTURAL FILL MATERIAL ARE REQUIRED.
- 2.5 GRANULAR BEDDING AND TRENCH BACKFILL: WELL-GRADED SAND MEETING THE GRADATION REQUIREMENTS OF ASTM D2487 (SE OR SW-SM).
- 2.6 COARSE AGGREGATE FOR ACCESS ROAD SUBBASE COURSE SHALL CONFORM TO ASTM D2940.
- 2.7 UNSUITABLE MATERIAL: HIGH AND MODERATELY PLASTIC SILTS AND CLAYS (LL>45), MATERIAL CONTAINING REFUSE, FROZEN LUMPS, DEMOLISHED BITUMINOUS MATERIAL, VEGETATIVE MATTER, WOOD, STONES IN EXCESS OF 3 INCHES IN ANY DIMENSION, AND DEBRIS AS DETERMINED BY THE CONSTRUCTION MANAGER. TYPICAL THESE WILL BE SOILS CLASSIFIED BY ASTM AS PT, MH, CH, OH, ML, AND OL.
- 2.8 GEOTEXTILE FABRIC: MIRAFI 500X OR ENGINEER APPROVED EQUAL.
- 2.9 PLASTIC MARKING TAPE: SHALL BE ACID AND ALKALI RESISTANT POLYETHYLENE FILM SPECIFICALLY MANUFACTURED FOR MARKING AND LOCATING UNDERGROUND UTILITIES, 6 INCHES WIDE WITH A MINIMUM THICKNESS OF 0.004 INCH. TAPE SHALL HAVE MINIMUM STRENGTH OF 1500 PSI IN BOTH DIRECTIONS AND MANUFACTURED WITH INTEGRAL CONDUCTORS, FOIL BACKING OR OTHER MEANS TO ENABLE DETECTION BY A METAL DETECTOR WHEN BURIED UP TO 3 FEET DEEP. THE METALLIC CORE OF THE TAPE SHALL BE ENCASED IN A PROTECTIVE JACKET OR PROVIDED WITH OTHER MEANS TO PROTECT IT FROM CORROSION. TAPE COLOR SHALL BE RED FOR ELECTRIC UTILITIES AND ORANGE FOR TELECOMMUNICATION UTILITIES.

**PART 3 – EXECUTION**

**3.1 GENERAL:**

- A. BEFORE STARTING GENERAL SITE PREPARATION ACTIVITIES, INSTALL EROSION AND SEDIMENT CONTROL MEASURES. THE WORK AREA SHALL BE CONSTRUCTED AND MAINTAINED IN SUCH CONDITION THAT IN THE EVENT OF RAIN THE SITE WILL BE DRAINED AT ANY TIME.
  - B. BEFORE ALL SURVEY, LAYOUT, STAKING, AND MARKING ESTABLISH AND MAINTAIN ALL LINES, GRADES, ELEVATIONS AND BENCHMARKS NEEDED FOR EXECUTION OF THE WORK.
  - C. CLEAR AND GRUB THE AREA WITHIN THE LIMITS OF THE SITE. REMOVE TREES, BRUSH, STUMPS, RUBBISH AND OTHER DEBRIS AND VEGETATION RESTING ON OR PROTRUDING THROUGH THE SURFACE OF THE SITE AREA TO BE CLEARED.
1. REMOVE THE FOLLOWING MATERIALS TO A DEPTH OF NO LESS THAN 12 INCHES BELOW THE ORIGINAL GROUND SURFACE: ROOTS, STUMPS, AND OTHER DEBRIS, BRUSH, AND REFUSE EMBEDDED IN OR PROTRUDING THROUGH THE GROUND SURFACE, RAKE, DISK OR PLOW THE AREA TO A DEPTH OF NO LESS THAN 6 INCHES, AND REMOVE TO A DEPTH OF 12 INCHES ALL ROOTS AND OTHER DEBRIS THEREBY EXPOSED.
2. REMOVE TOPSOIL MATERIAL COMPLETELY FROM THE SURFACE UNTIL THE SOIL NO LONGER MEETS THE DEFINITION OF TOPSOIL. AVOID MIXING TOPSOIL WITH SUBSOIL OR OTHER UNDESIRABLE MATERIALS.

- 3. EXCEPT WHERE EXCAVATION TO GREATER DEPTH IS INDICATED, FILL DEPRESSIONS RESULTING FROM CLEARING, GRUBBING AND DEMOLITION WORK COMPLETELY WITH SUITABLE FILL.
- D. REMOVE FROM THE SITE AND DISPOSE IN AN AUTHORIZED LANDFILL ALL DEBRIS RESULTING FROM CLEARING AND GRUBBING OPERATIONS. BURNING WILL NOT BE PERMITTED.
- E. PRIOR TO EXCAVATING, THOROUGHLY EXAMINE THE AREA TO BE EXCAVATED AND/OR TRENCHED TO VERIFY THE LOCATIONS OF FEATURES INDICATED ON THE DRAWINGS AND TO ASCERTAIN THE EXISTENCE AND LOCATION OF ANY STRUCTURE, UNDERGROUND STRUCTURE, OR OTHER ITEM NOT SHOWN THAT MIGHT INTERFERE WITH THE PROPOSED CONSTRUCTION. NOTIFY THE CONSTRUCTION MANAGER OF ANY OBSTRUCTIONS THAT WILL PREVENT ACCOMPLISHMENT OF THE WORK AS INDICATED ON THE DRAWINGS.
- F. SEPARATE AND STOCK PILE ALL EXCAVATED MATERIALS SUITABLE FOR BACKFILL. ALL EXCESS EXCAVATED AND UNSUITABLE MATERIALS SHALL BE DISPOSED OF OFF-SITE IN A LEGAL MANNER.

**3.2 BACKFILL:**

- A. AS SOON AS PRACTICAL, AFTER COMPLETING CONSTRUCTION OF THE RELATED STRUCTURE, INCLUDING EXPIRATION OF THE SPECIFIED MINIMUM CURING PERIOD FOR CAST-IN-PLACE CONCRETE, BACKFILL THE EXCAVATION WITH APPROVED MATERIAL TO RESTORE THE REQUIRED FINISHED GRADE.
1. PRIOR TO PLACING BACKFILL AROUND STRUCTURES, ALL FORMS SHALL BE REMOVED AND THE EXCAVATION CLEANED OF ALL TRASH, DEBRIS, AND UNSUITABLE MATERIALS.
2. BACKFILL BY PLACING AND COMPACTING SUITABLE BACKFILL MATERIAL OR SELECT GRANULAR BACKFILL MATERIAL WHEN REQUIRED IN UNIFORM HORIZONTAL LAYERS OF NO GREATER THAN 8 INCHES LOOSE THICKNESS AND COMPACTED. WHERE HAND OPERATED COMPACTORS ARE USED, THE FILL MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 4 INCHES IN LOOSE DEPTH AND COMPACTED.
3. WHENEVER THE DENSITY TESTING INDICATES THAT THE CONTRACTOR HAS NOT OBTAINED THE SPECIFIED DENSITY, THE SUCCEEDING LAYER SHALL NOT BE PLACED UNTIL THE SPECIFICATION REQUIREMENTS ARE MET UNLESS OTHERWISE AUTHORIZED BY THE GEOTECHNICAL ENGINEER. THE CONTRACTOR SHALL TAKE WHATEVER APPROPRIATE ACTION IS NECESSARY, SUCH AS DISKING AND DRYING, ADDING WATER, OR INCREASING THE COMPACTIVE EFFORT TO MEET THE MINIMUM COMPACTION REQUIREMENTS.
- B. THOROUGHLY COMPACT EACH LAYER OF BACKFILL TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS PROVIDED BY THE STANDARD PROCTOR TEST, ASTM D 698.

**3.3 TRENCH EXCAVATION:**

- A. UTILITY TRENCHES SHALL BE EXCAVATED TO THE LINES AND GRADES SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE GENERAL CONTRACTOR. PROVIDE SHORING, SHEETING AND BRACING AS REQUIRED TO PREVENT CAVING OR SLOUGHING OF THE TRENCH WALLS.
- B. EXTEND THE TRENCH WIDTH A MINIMUM OF 6 INCHES BEYOND THE OUTSIDE EDGE OF THE OUTERMOST CONDUIT.
- C. WHEN SOFT YIELDING, OR OTHERWISE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, BACKFILL AT THE REQUIRED TRENCH TO A DEPTH OF NO LESS THAN 12 INCHES BELOW THE REQUIRED ELEVATION AND BACKFILL WITH GRANULAR BEDDING MATERIAL.

**3.4 TRENCH BACKFILL:**

- A. PROVIDE GRANULAR BEDDING MATERIAL IN ACCORDANCE WITH THE DRAWINGS AND THE UTILITY REQUIREMENTS.
- B. NOTIFY THE GENERAL CONTRACTOR 24 HOURS IN ADVANCE OF BACKFILLING.
- C. CONDUCT UTILITY CHECK TESTS BEFORE BACKFILLING. BACKFILL AND COMPACT TRENCH BEFORE ACCEPTANCE TESTING.
- D. PLACE GRANULAR TRENCH BACKFILL UNIFORMLY ON BOTH SIDES OF THE CONDUITS IN 6 INCH UNCOMPACTED LIFTS UNTIL 12 INCHES OVER THE CONDUITS. SOLIDLY RAM AND TAMP BACKFILL INTO SPACE AROUND CONDUITS.
- E. PROTECT CONDUIT FROM LATERAL MOVEMENT, IMPACT DAMAGE, OR UNBALANCED LOADING.
- F. ABOVE THE CONDUIT EMBEDMENT ZONE, PLACE AND COMPACT SATISFACTORY BACKFILL MATERIAL IN 8 INCH MAXIMUM LOOSE THICKNESS LIFTS TO RESTORE THE REQUIRED FINISHED SURFACE GRADE.
- G. COMPACT FINAL TRENCH BACKFILL TO A DENSITY EQUAL TO OR GREATER THAN THAT OF THE EXISTING UNDISTURBED MATERIAL IMMEDIATELY ADJACENT TO THE TRENCH BUT NO LESS THAN A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS PROVIDED BY THE STANDARD PROCTOR TEST, ASTM D 698.

**3.5 AGGREGATE ACCESS ROAD:**

- A. CLEAR, GRUB, STRIP AND EXCAVATE FOR THE ACCESS ROAD TO THE LINES AND GRADES INDICATED ON THE DRAWINGS. SCARIFY TO A DEPTH OF 6 INCHES AND PROOF-ROLL. ALL HOLES, RUTS, SOFT PLACES AND OTHER DEFECTS SHALL BE CORRECTED.
  - B. THE ENTIRE SUBGRADE SHALL BE COMPACTED TO NOT LESS THAN 95 PERCENT OF THE MAXIMUM DRY DENSITY AS PROVIDED BY THE MODIFIED PROCTOR TEST, ASTM D 1557.
  - C. AFTER PREPARATION OF THE SUBGRADE IS COMPLETE THE GEOTEXTILE FABRIC (MIRAFI 500X) SHALL BE INSTALLED TO THE LIMITS INDICATED ON THE DRAWINGS BY ROLLING THE FABRIC OUT LONGITUDINALLY ALONG THE ROADWAY. THE FABRIC SHALL NOT BE DRAGGED ACROSS THE SUBGRADE. PLACE THE ENTIRE ROLL IN A SINGLE OPERATION, ROLLING OUT AS SMOOTHLY AS POSSIBLE.
1. OVERLAPS PARALLEL TO THE ROADWAY WILL BE PERMITTED AT THE CENTERLINE AND AT LOCATIONS BEYOND THE ROADWAY SURFACE WIDTH (I.E. WITHIN THE SHOULDER WIDTH) ONLY. NO LONGITUDINAL OVERLAPS SHALL BE LOCATED BETWEEN THE CENTERLINE AND THE SHOULDER. PARALLEL OVERLAPS SHALL BE A MINIMUM OF 3 FEET WIDE.
2. TRANSVERSE (PERPENDICULAR TO THE ROADWAY) OVERLAPS AT THE END OF A ROLL SHALL OVERLAP IN THE DIRECTION OF THE AGGREGATE PLACEMENT (PREVIOUS ROLL ON TOP) AND SHALL HAVE A MINIMUM LENGTH OF 3 FEET.
3. ALL OVERLAPS SHALL BE PINNED WITH STAPLES OR NAILS A MINIMUM OF 10 INCHES LONG TO INSURE POSITIONING DURING PLACEMENT OF AGGREGATE. PIN LONGITUDINAL SEAMS AT 25 FOOT CENTERS AND TRANSVERSE SEAMS EVERY 5 FEET.
- D. THE AGGREGATE BASE AND SURFACE COURSES SHALL BE CONSTRUCTED IN LAYERS NOT MORE THAN 4 INCH (COMPACTED) THICKNESS. AGGREGATE TO BE PLACED ON GEOTEXTILE FABRIC SHALL BE END-DUMPED ON THE FABRIC FROM THE FREE END OF THE FABRIC OR OVER PREVIOUSLY PLACED AGGREGATE. THE FIRST LIFT SHALL BE BLADED DOWN TO A THICKNESS OF 8 INCHES PRIOR TO COMPACTION. AT NO TIME SHALL EQUIPMENT, EITHER TRANSPORTING THE AGGREGATE OR GRADING THE AGGREGATE, BE PERMITTED ON THE ROADWAY WITH LESS THAN 4 INCHES OF MATERIAL COVERING THE FABRIC.
  - E. THE AGGREGATE SHALL BE IMMEDIATELY COMPACTED TO NOT LESS THAN 95 PERCENT OF THE MAXIMUM DRY DENSITY AS PROVIDED BY THE MODIFIED PROCTOR TEST, ASTM D 1557 WITH A TAMPING ROLLER, OR WITH A PNEUMATIC-TIRED ROLLER, OR WITH A VIBRATORY MACHINE OR ANY COMBINATION OF THE ABOVE. THE TOP LAYER SHALL BE GIVEN A FINAL ROLLING WITH A THREE-WHEEL OR TANDEM ROLLER.

**3.6 FINISH GRADING:**

- A. PERFORM ALL GRADING TO PROVIDE POSITIVE DRAINAGE AWAY FROM STRUCTURES AND SMOOTH, EVEN SURFACE DRAINAGE OF THE ENTIRE AREA WITHIN THE LIMITS OF CONSTRUCTION. GRADING SHALL BE COMPATIBLE WITH ALL SURROUNDING TOPOGRAPHY AND STRUCTURES.
- B. UTILIZE SATISFACTORY FILL MATERIAL RESULTING FROM THE EXCAVATION WORK IN THE CONSTRUCTION OF FILLS, EMBANKMENTS AND FOR REPLACEMENT OF REMOVED UNSUITABLE MATERIALS.
- C. ACHIEVE FINISHED GRADE BY PLACING A MINIMUM OF 4 INCHES OF 1/2" – 3/4" CRUSHED STONE ON TOP SOIL STABILIZER FABRIC.
- D. REPAIR ALL ACCESS ROADS AND SURROUNDING AREAS USED DURING THE COURSE OF THIS WORK TO THEIR ORIGINAL CONDITION.

**3.7 ASPHALT PAVING ROAD:**

- A. SECTION 400 – STATE DOT FLEXIBLE PAVEMENT.
- B. SECTION 400 – STATE DOT BITUMINOUS CONCRETE COURSES.
- C. DIVISION 400 – STATE DOT BITUMINOUS PAVEMENTS.

**APPLICABLE BUILDING CODES AND STANDARDS**

CONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

**BUILDING CODES:**

INTERNATIONAL BUILDING CODE (IBC 2018), LATEST ADDITION ADOPTED BY STATE  
 NATIONAL ELECTRICAL CODE (NEC 2017), LATEST ADDITION AS ADOPTED BY LOCAL BUILDING AUTHORITY AND BY STATE  
 NFPA 70 – NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) – (2017 EDITION),  
 NFPA 101 – LIFE SAFETY CODE – (2017 EDITION),  
 NFPA 780 – LIGHTNING PROTECTION CODE – (2017 EDITION)

CONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:  
 AMERICAN CONCRETE INSTITUTE (ACI) 318-08, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE & COMMENTARY  
 AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), STEEL CONSTRUCTION MANUAL, THIRTEENTH EDITION  
 TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:  
 TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM  
 IEEE 1100 (LATEST EDITION) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT

IEEE C62.41, RECOMMENDED PRACTICES ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY "C3" AND "HIGH SYSTEM EXPOSURE")

TELCORDIA GR-1275, GENERAL INSTALLATION REQUIREMENTS

TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS

ANSI T1.311, FOR TELECOM – DC POWER SYSTEMS – TELECOM, ENVIRONMENTAL PROTECTION

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.



**FORTUNE WIRELESS INC.**  
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 INDIANAPOLIS, IN 46268  
 (317) 532-1374

IN1187  
 AT&T FA#: 15861975  
 2688 EAST MAIN ST.  
 PLAINFIELD,  
 IN 46168  
 HENDRICKS COUNTY

DRAWN BY: **GNP**

CHECKED BY: **AJB**

NO:	DATE:	ISSUE:
A	02/06/24	REVIEW CD
0	02/21/24	FINAL CD



SHEET TITLE:  
**GENERAL CONSTRUCTION NOTES**

SHEET NUMBER:  
**N-2**

DO NOT SCALE DRAWINGS



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SHEET TITLE:

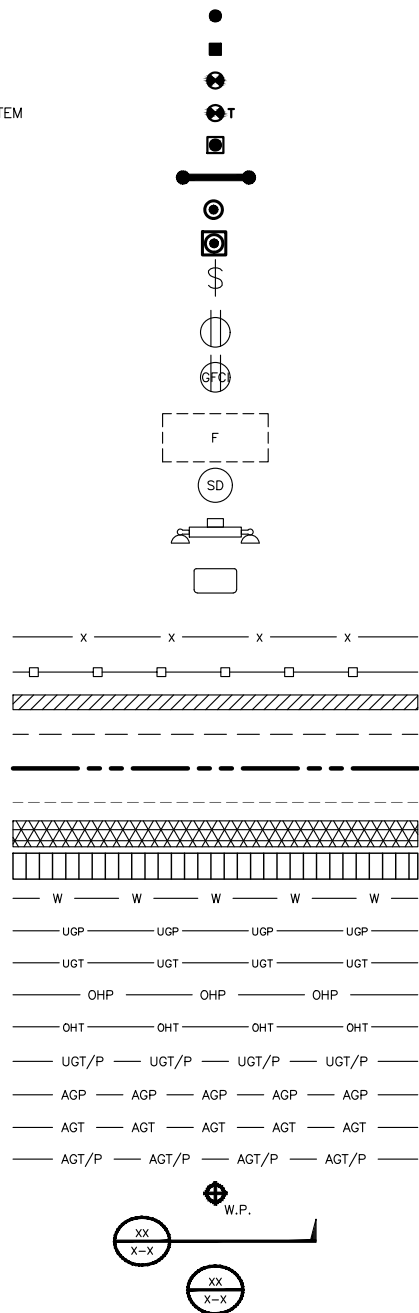
**LEGENDS & ABBREVIATIONS**

SHEET NUMBER:

**N-3**

DO NOT SCALE DRAWINGS

EXOTHERMIC CONNECTION  
 MECHANICAL CONNECTION  
 CHEMICAL ELECTROLYTIC GROUNDING SYSTEM  
 TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM  
 EXOTHERMIC WITH INSPECTION SLEEVE  
 GROUNDING BAR  
 GROUND ROD  
 TEST GROUND ROD WITH INSPECTION SLEEVE  
 SINGLE POLE SWITCH  
 DUPLEX RECEPTACLE  
 DUPLEX GFCI RECEPTACLE  
 FLUORESCENT LIGHTING FIXTURE  
 (2) TWO LAMPS 48-T8  
 SMOKE DETECTION (DC)  
 EMERGENCY LIGHTING (DC)  
 SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW  
 LED-1-25A400/51K-SR4-120-PE-DBBTXD



LEGEND

1

AB ANCHOR BOLT	INT INTERIOR
ABV ABOVE	LB(S) POUND(S)
AC ALTERNATING CURRENT	LF LINEAR FEET
ADDL ADDITIONAL	MAS MASONRY
AFF ABOVE FINISHED FLOOR	MAX MAXIMUM
AFG ABOVE FINISHED GRADE	MB MACHINE BOLT
AIC AMPERAGE INTERRUPTION CAPACITY	MECH MECHANICAL
ALUM ALUMINUM	MFR MANUFACTURER
ALT ALTERNATE	MGB MASTER GROUND BAR
ANT ANTENNA	MIN MINIMUM
APPROX APPROXIMATE	MISC MISCELLANEOUS
ARCH ARCHITECTURAL	MTL METAL
ATS AUTOMATIC TRANSFER SWITCH	MTS MANUAL TRANSFER SWITCH
AWG AMERICAN WIRE GAUGE	MW MICROWAVE
BATT BATTERY	(N) NEW
BLDG BUILDING	NEC NATIONAL ELECTRIC CODE
BLK BLOCK	NO.(#) NUMBER
BLKG BLOCKING	NTS NOT TO SCALE
BM BEAM	OC ON CENTER
BTC BARE TINNED COPPER CONDUCTOR	OPNG OPENING
BOF BOTTOM OF FOOTING	(P) PROPOSED
CAB CABINET	P/C PRECAST CONCRETE
CANT CANTILEVERED	PCS PERSONAL COMMUNICATION SERVICES
CEC CALIFORNIA ELECTRIC CODE	PCU PRIMARY CONTROL UNIT
CHG CHARGING	PRC PRIMARY RADIO CABINET
CLG CEILING	PP POLARIZING PRESERVING
CLR CLEAR	PSF POUNDS PER SQUARE FOOT
COL COLUMN	PSI POUNDS PER SQUARE INCH
COMM COMMON	PT PRESSURE TREATED
CONC CONCRETE	PWR POWER CABINET
CONSTR CONSTRUCTION	QTY QUANTITY
DBL DOUBLE	RAD RADIUS
DC DIRECT CURRENT	RECT RECTIFIER
DEPT DEPARTMENT	REF REFERENCE
DF DOUGLAS FIR	REINF REINFORCEMENT
DIA DIAMETER	REQ'D REQUIRED
DIAG DIAGONAL	RET REMOTE ELECTRIC TILT
DIM DIMENSION	RMC RIGID METALLIC CONDUIT
DWG DRAWING	RRH REMOTE RADIO HEAD
DWL DOWEL	RRU REMOTE RADIO UNIT
(E) EXISTING	RWY RACEWAY
EA EACH	SCH SCHEDULE
EC ELECTRICAL CONDUCTOR	SHT SHEET
EL ELEVATION	SIAD SMART INTEGRATED DEVICE
ELEC ELECTRICAL	SIM SIMILAR
EMT ELECTRICAL METALLIC TUBING	SPEC SPECIFICATION
ENG ENGINEER	SQ SQUARE
EQ EQUAL	SS STAINLESS STEEL
EXP EXPANSION	STD STANDARD
EXT EXTERIOR	STL STEEL
FAB FABRICATION	STRUCT STRUCTURAL
FF FINISH FLOOR	TEMP TEMPORARY
FG FINISH GRADE	THK THICKNESS
FIF FACILITY INTERFACE FRAME	TMA TOWER MOUNTED AMPLIFIER
FIN FINISH(ED)	TN TOE NAIL
FLR FLOOR	TOA TOP OF ANTENNA
FDN FOUNDATION	TOC TOP OF CURB
FOC FACE OF CONCRETE	TOF TOP OF FOUNDATION
FOM FACE OF MASONRY	TOP TOP OF PLATE (PARAPET)
FOS FACE OF STUD	TOS TOP OF STEEL
FOW FACE OF WALL	TOW TOP OF WALL
FS FINISH SURFACE	TVSS TRANSIENT VOLTAGE SUPPRESSION SYSTEM
FT FOOT	TYP TYPICAL
FTG FOOTING	UG UNDERGROUND
GA GAUGE	UL UNDERWRITERS LABORATORY
GEN GENERATOR	UNO UNLESS NOTED OTHERWISE
GFCI GROUND FAULT CIRCUIT INTERRUPTER	UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
GLB GLUE LAMINATED BEAM	UPS UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
GLV GALVANIZED	VIF VERIFIED IN FIELD
GPS GLOBAL POSITIONING SYSTEM	W WIDE
GND GROUND	W/ WITH
GSM GLOBAL SYSTEM FOR MOBILE	WD WOOD
HDR HEADER	W.P. WORK POINT
HGR HANGER	WP WEATHERPROOF
HVAC HEAT/VENTILATION/AIR CONDITIONING	WT WEIGHT
HT HEIGHT	
IGR INTERIOR GROUND RING	
IN INCH	

ABBREVIATIONS

2

NOT USED

3