

**EXPEDITED**  
**MONTGOMERY COUNTY HISTORIC PRESERVATION COMMISSION**  
**STAFF REPORT**

<b>Address:</b>	15021 Dufief Mill Road, Gaithersburg	<b>Meeting Date:</b>	1/19/2022
<b>Resource:</b>	Master Plan Site #25/2 <i>Maple Spring Barns</i>	<b>Report Date:</b>	1/12/2022
<b>Applicant:</b>	Tahicia Tucker, Cline LLC	<b>Public Notice:</b>	1/5/2022
<b>Review:</b>	HAWP	<b>Tax Credit:</b>	No
<b>Permit Number:</b>	978609	<b>Staff:</b>	Michael Kyne
<b>PROPOSAL:</b> Installation of new telecommunications equipment			

**STAFF RECOMMENDATION:**

☒ Approve  
☐ Approve with conditions

**ARCHITECTURAL DESCRIPTION:**

**SIGNIFICANCE:** Master Plan Site #25/2, *Maple Springs Barns*  
**STYLE:** Early 20<sup>th</sup> Century Agricultural Facility (Dairy)  
**DATE:** c. 1918-42

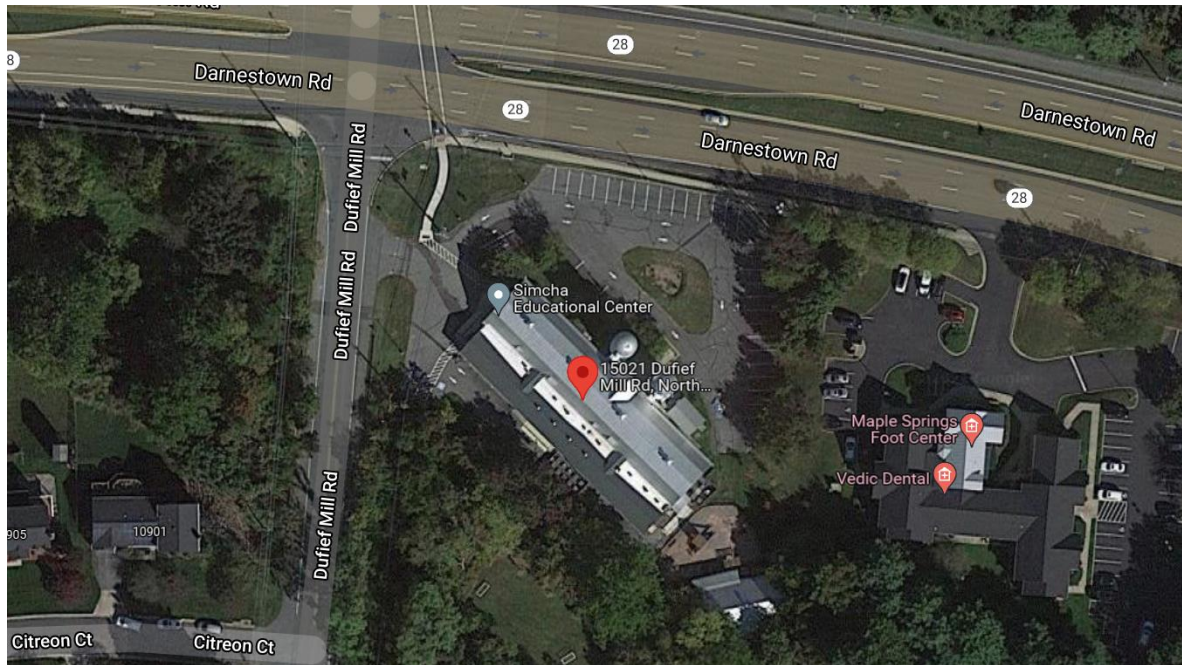
Excerpt from *Places from the Past*:

A prime example of an early 20th century, state of the art agricultural facility, Maple Spring Farm was once one of the leading dairy operations in the State of Maryland. The primary structure is the 19-bay long dairy barn (1942), with gambrel roof punctuated by four metal ventilators. The barn is highly visible on this section of well-traveled Darnestown Road in the densely populated Gaithersburg-Rockville area. The collection of outbuildings, built between c1918 and 1942, date from the heyday of specialized large-scale dairy farming.

Maple Spring Farm was recognized in the metropolitan region as a model dairy operation with its mechanized milking parlor, sanitary concrete interiors, and above average milk production. The 355-acre, 110- cow farm was owned and operated by Thomas Moore Garrett, a statewide agricultural leader who served as a director of the Farm Bureau, the Soil Conservation Board, and the Southern States Cooperative, and was a charter member of the Maryland-Virginia Milk Producers Association, established in 1920.

Other important agricultural structures include two terra cotta silos, a concrete block milk house, a two-story horse barn, one story wagon house/granary, and an

equipment building. Still standing on an adjacent lot is the associated residence, located at the heart of a medical facility at 10810 Darnestown Road.



*Fig. 1: Subject property.*

### **PROPOSAL:**

The subject property is located at the eastern corner of Dufief Mill Road and Darnestown Road. The eastmost (rightmost, as viewed from the public right-of-way of Dufief Mill Road, and leftmost, as viewed from the public right-of-way of Darnestown Road) and adjacent CMU storage building at the subject property currently serve as collocations for telecommunications equipment.

The applicant proposes to modify the existing telecommunications equipment, installing three new antennas, three new Remote Radio Units (RRUs), and two new 6x12 hybrid cables. Three existing Tower Mounted Amplifiers (TMAs) will be replaced with three new TMAs, and all unused cables and equipment will be removed.

Staff notes that the installation of the existing telecommunications equipment and silo alterations, including the extension of both silos by 11', were approved with conditions at the June 13, 2007 HPC meeting. The conditions relevant to this application are:

- The antennae will be flush-mounted or concealed within the extended silo.
- The cables will be installed at the rear and configured to look like silo elevator.

Staff finds the current proposal consistent with the previous conditions of approval, as the proposed new antennae/brackets will be flush-mounted to the extended silo in the same manner as the existing, and the proposed new cables will be installed within the existing cable channel at the rear of the silo, utilizing the same approximate entry ports at the rear of the CMU storage building.

**APPLICABLE GUIDELINES:**

IV. The Expedited Staff Report format may be used on the following type of cases:

2. Modifications to a property, which do not significantly alter its visual character.

**Montgomery County Code; Chapter 24A-8**

- (b) The commission shall instruct the director to issue a permit, or issue a permit subject to such conditions as are found to be necessary to ensure conformity with the purposes and requirements of this chapter, if it finds that:
  - (1) The proposal will not substantially alter the exterior features of an historic site or historic resource within an historic district; or
  - (2) The proposal is compatible in character and nature with the historical, archeological, architectural or cultural features of the historic site or the historic district in which an historic resource is located and would not be detrimental thereto or to the achievement of the purposes of this chapter; or
  - (3) The proposal would enhance or aid in the protection, preservation and public or private utilization of the historic site or historic resource located within an historic district in a manner compatible with the historical, archeological, architectural or cultural value of the historic site or historic district in which an historic resource is located; or
  - (4) The proposal is necessary in order that unsafe conditions or health hazards be remedied; or
  - (5) The proposal is necessary in order that the owner of the subject property not be deprived of reasonable use of the property or suffer undue hardship; or
  - (6) In balancing the interests of the public in preserving the historic site or historic resource located within an historic district, with the interests of the public from the use and benefit of the alternative proposal, the general public welfare is better served by granting the permit.
- (c) It is not the intent of this chapter to limit new construction, alteration or repairs to any 1 period or architectural style.

***Secretary of Interior's Standards for Rehabilitation***

The Secretary of the Interior defines rehabilitation as “the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features, which convey its historical, cultural, or architectural values.” The *Standards* are as follows:

2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

**STAFF RECOMMENDATION:**

Staff recommends that the Commission **approve** the HAWP application under the Criteria for Issuance in Chapter 24A-8(b), (1) & (2), having found that the proposal will not substantially alter the exterior features of the historic resource and is compatible in character with the purposes of Chapter 24A;

and with the *Secretary of the Interior's Standards for Rehabilitation* #2 and #9;

and with the general condition that the applicant shall present an electronic set of drawings, if applicable, to Historic Preservation Commission (HPC) staff for review and stamping prior to submission for the Montgomery County Department of Permitting Services (DPS) building permits;

and with the general condition that final project design details, not specifically delineated by the Commission, shall be approved by HPC staff or brought back to the Commission as a revised HAWP application at staff's discretion;

and with the general condition that the applicant shall notify the Historic Preservation Staff if they propose to make any alterations to the approved plans. Once the work is completed the applicant will contact the staff person assigned to this application at 301-563-3400 or [michael.kyne@montgomeryplanning.org](mailto:michael.kyne@montgomeryplanning.org) to schedule a follow-up site visit.



FOR STAFF ONLY:

HAWP# \_\_\_\_\_

DATE ASSIGNED \_\_\_\_\_

# APPLICATION FOR HISTORIC AREA WORK PERMIT

HISTORIC PRESERVATION COMMISSION  
301.563.3400

**APPLICANT:**Name: Tahicia TuckerE-mail: ttucker@clinellc.comAddress: 750 W Center St Suite 301City: West Bridgewater Zip: 02379Daytime Phone: (410) 999-5093

Tax Account No.: \_\_\_\_\_

**AGENT/CONTACT (if applicable):**

Name: \_\_\_\_\_

E-mail: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ Zip: \_\_\_\_\_

Daytime Phone: \_\_\_\_\_

Contractor Registration No.: \_\_\_\_\_

**LOCATION OF BUILDING/PREMISE:** MIHP # of Historic Property \_\_\_\_\_Is the Property Located within an Historic District? X Yes/District Name Maple Spring Barns   No/Individual Site Name \_\_\_\_\_

Is there an Historic Preservation/Land Trust/Environmental Easement on the Property? If YES, include a map of the easement, and documentation from the Easement Holder supporting this application.

Are other Planning and/or Hearing Examiner Approvals /Reviews Required as part of this Application? (Conditional Use, Variance, Record Plat, etc.?) If YES, include information on these reviews as supplemental information.

Building Number: 15021 Street: Dufief Mill RdTown/City: Gaithersburg Nearest Cross Street: Darnestown RdLot: P2 Block: V Subdivision: \_\_\_\_\_ Parcel: \_\_\_\_\_**TYPE OF WORK PROPOSED: See the checklist on Page 4 to verify that all supporting items for proposed work are submitted with this application. Incomplete Applications will not be accepted for review. Check all that apply:**

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> New Construction   | <input type="checkbox"/> Deck/Porch          | <input type="checkbox"/> Shed/Garage/Accessory Structure                           |
| <input type="checkbox"/> Addition           | <input type="checkbox"/> Fence               | <input type="checkbox"/> Solar   |
| <input type="checkbox"/> Demolition         | <input type="checkbox"/> Hardscape/Landscape | <input type="checkbox"/> Tree removal/planting                                     |
| <input type="checkbox"/> Grading/Excavation | <input type="checkbox"/> Roof                | <input type="checkbox"/> Window/Door   |
|   |  | <input checked="" type="checkbox"/> Other: <u>Install (3) new telecom antennas</u> |

I hereby certify that I have the authority to make the foregoing application, that the application is correct and accurate and that the construction will comply with plans reviewed and approved by all necessary agencies and hereby acknowledge and accept this to be a condition for the issuance of this permit.

Tahicia Tucker12/28/2021

Signature of owner or authorized agent

Date

**HAWP APPLICATION: MAILING ADDRESSES FOR NOTIFYING**  
**[Owner, Owner's Agent, Adjacent and Confronting Property Owners]**

<b>Owner's mailing address</b>  Chabad Lubavitch of Upper Montgomery County 11520 Darnestown RD Gaithersburg MD 20878	<b>Owner's Agent's mailing address</b>
<b>Adjacent and confronting Property Owners mailing addresses</b>	
15001 Dufief Mill Road Gaithersburg, MD	10900 Citreon Court Gaithersburg, MD 20878
10901 Citreon Court Gaithersburg, MD 20878	Washington Woods HOA C/O Property Management People 955 Russell Avenue STE A Gaithersburg, MD 20879

**Description of Property:** Please describe the building and surrounding environment. Include information on significant structures, landscape features, or other significant features of the property:

This is a Silo.

**Description of Work Proposed:** Please give an overview of the work to be undertaken:

Install three new antennas, install three new RRUs, remove and replace three existing TMAs with three new TMAs, install two new 6x12 hybrid cables and remove all unused cables and equipment .

Work Item 1: \_\_\_\_\_

Description of Current Condition:

Proposed Work:

Work Item 2: \_\_\_\_\_

Description of Current Condition:

Proposed Work:

Work Item 3: \_\_\_\_\_

Description of Current Condition:

Proposed Work:

# **HISTORIC AREA WORK PERMIT CHECKLIST OF APPLICATION REQUIREMENTS**

	Required Attachments						
Proposed Work	I. Written Description	2. Site Plan	3. Plans/ Elevations	4. Material Specifications	5. Photographs	6. Tree Survey	7. Property Owner Addresses
New Construction	*	*	*	*	*	*	*
Additions/ Alterations	*	*	*	*	*	*	*
Demolition	*	*	*		*		*
Deck/Porch	*	*	*	*	*	*	*
Fence/Wall	*	*	*	*	*	*	*
Driveway/ Parking Area	*	*		*	*	*	*
Grading/Excavation/ Landscaping	*	*		*	*	*	*
Tree Removal	*	*		*	*	*	*
Siding/ Roof Changes	*	*	*	*	*		*
Window/ Door Changes	*	*	*	*	*		*
Masonry Repair/ Repoint	*	*	*	*	*		*
Signs	*	*	*	*	*		*

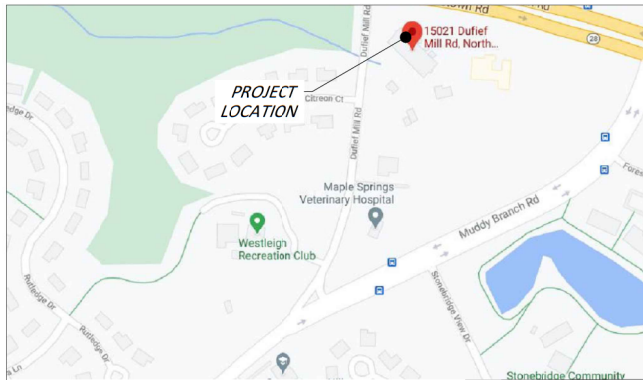
## PROJECT INFORMATION

**SITE NAME:** STEINBURG-GAITHERSBURG  
**SITE NUMBER:** 7WAN115D  
**SITE ADDRESS:** 15021 DUFIEF MILL RD.  
 GAITHERSBURG, MD 20878  
**COUNTY:** MONTGOMERY  
**MUNICIPALITY:** GAITHERSBURG  
**ZONING:** R-200  
**LATITUDE:** 39.10277777  
**LONGITUDE:** -77.22333330  
**TYPE OF SITE:** SILO  
**STRUCTURE HEIGHT:** 61'-0" AGL  
**ANTENNA CENTER:** 53'-0" AGL  
**GROUND ELEVATION:** ± 377'-0" AMSL  
**BUILDING OWNER NAME:** CHABAD LUBAVITCH OF MONTGOMERY COUNTY  
**BUILDING OWNER ADDRESS:** 11520 DARNESTOWN RD.  
 GAITHERSBURG, MD 20878  
**APPLICANT:** T-MOBILE NORTHEAST, LLC  
 12050 BALTIMORE AVENUE  
 BELTSVILLE, MARYLAND 20705  
**APPLICANT PHONE:** (240) 264-8600  
**APPLICANT FAX:** (240) 264-8610  
**BUILDING CODES:** 2018 IBC W/2015 AMENDMENTS  
 CHAPTER 8 MONTGOMERY COUNTY CODE  
 20156 NFPA 101 LIFE SAFETY CODE  
 CHAPTER 35 IBC 2016 REFERENCED STANDARDS  
**ELECTRICAL CODES:** 2018 NATIONAL ELECTRICAL CODE  
 MONTGOMERY COUNTY CODE CHAPTER 17  
 NFPA 70



DPS BATCH STAMPING

# T-Mobile NORTHEAST LLC



VICINITY MAP  
N.T.S.

**SITE NAME:** STEINBURG-GAITHERSBURG  
**SITE ID:** 7WAN115D  
**ADDRESS:** 15021 DUFIEF MILL RD.  
 GAITHERSBURG, MD 20853

**TECHNOLOGY:** 67D02C INDOOR  
**MODIFICATION:** L600\_5G POPs



LOCATION MAP  
N.T.S.

## PROJECT DIRECTORY

**ENGINEERING FIRM:**  
 CENTERLINE COMMUNICATIONS  
 750 WEST CENTER ST., SUITE 301  
 WEST BRIDGEWATER, MA 02379  
 PHILIP BURTNER (610) 730-5430

**CARRIER:**  
 T-MOBILE NORTHEAST, LLC  
 12050 BALTIMORE AVENUE  
 BELTSVILLE, MARYLAND 20705  
 PHONE: (240) 264-8600  
 FAX: (240) 264-8610



Know what's below.  
Call before you dig.

## GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSE OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T-MOBILE REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

## SCOPE OF WORK

1. INSTALL THREE NEW ANTENNAS.
2. INSTALL THREE NEW RUS.
3. REMOVE AND REPLACE THREE EXISTING TMAs W/THREE NEW TMAs.
4. INSTALL TWO NEW 6X12 HYBRID CABLES.
5. REMOVE ALL UNUSED CABLES AND EQUIPMENT.
6. REMOVE EXISTING ELECTRICAL PANEL.
7. INSTALL NEW 3-PHASE ELECTRICAL PANEL.

## DRAWING INDEX

NO.	DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES, RF NOTES, CABLING NOTES
A-1	OVERALL SITE PLAN
A-2	EQUIPMENT LAYOUT PLANS
A-3	SOUTHEAST ELEVATION
A-4	ANTENNA PLANS & SCHEDULE
A-5	EQUIPMENT & MOUNTING DETAILS
E-1	GROUNDING DETAILS & ONE LINE DIAGRAM

## DRAWING SCALE NOTES:

THESE DRAWINGS ARE FORMATTED TO BE FULL SIZE AT 22"x34". 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.

**T-Mobile  
NORTHEAST LLC**

T-MOBILE NORTHEAST, LLC  
 12050 BALTIMORE AVENUE  
 BELTSVILLE, MARYLAND 20705  
 PHONE: (240) 264-8600  
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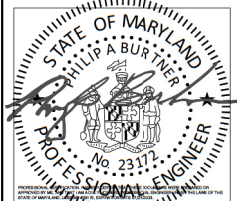


750 W CENTER ST. SUITE 301  
 WEST BRIDGEWATER, MA 02379  
 PHONE: 781.713.4725

## REVISIONS

REV	DATE	DESCRIPTION	BY
0	11/02/21	ISSUED FOR PERMIT	RC
C	11/02/21	ELECTRICAL UPGRADE	RC
D	09/20/21	REV. PER CLIENT COMMENTS	RC
B	09/02/21	ISSUED FOR REVIEW	RC
A	04/05/21	ISSUED FOR REVIEW	TRF

DESIGNED BY: TPT APPROVED BY: MK



**DATE: 11/02/2021**  
 PHILIP A. BURTNER, P.E.  
 MARYLAND PROFESSIONAL ENGINEER  
 LICENSE #23172

IT IS A VIOLATION OF LAW FOR ANY PERSON WHOSE NAME IS LISTED HEREIN TO SIGN ANY DOCUMENT UNDER THE SIGNATURE OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT UNLESS SOLELY AUTHORIZED BY THE ENGINEER IN WRITING. THE ENGINEER DISCLAIMS ALL LIABILITY ASSOCIATED WITH THE REUSE, ALTERATION OR MODIFICATION OF THE CONTENTS HEREIN.

**SITE NAME:**  
 STEINBURG-GAITHERSBURG

**SITE ID:**  
 7WAN115D

**SITE ADDRESS:**  
 15021 DUFIEF MILL RD.  
 GAITHERSBURG, MD 20878

**SHEET TITLE:**  
 TITLE SHEET

**DRAWING:**  
 T-1

RF NOTES

1. ACTUAL LENGTHS SHALL BE DETERMINED PER SITE CONDITION BY SUBCONTRACTOR

2. THE DESIGN IS BASED ON RF DATA SHEETS, SIGNED AND APPROVED.

3. RADIO SIGNAL CABLE AND RACEWAY SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC, NFPA 70), CHAPTER 8.

4. ALL SPECIFIED MATERIAL FOR EACH LOCATION (E.G. OUT DOORS-OCCUPIED, INDOORS-UNOCCUPIED, PLENUMS, RISER SHAFTS, ETC.) SHALL BE APPROVED, LISTED, OR LABELED AS REQUIRED BY THE NEC.

5. RADIO SIGNAL CABLE SHALL BE SUPPORTED AT MINIMUM OF EVERY THREE (3) FEET EXCEPT INSIDE MONOPOLES OR MONOPOLES WHERE CABLE AND CONNECTOR MANUFACTURERS SUPPORT RECOMMENDATIONS SHALL BE FOLLOWED. MANUFACTURER RECOMMENDATION CABLES SUPPORT ACCESSORIES SHALL BE USED.

6. THE OUTDOOR CABLE SUPPORT SYSTEM SHALL BE PROVIDED WITH AN ICE SHIELD TO SUPPORT AND PROTECT ANTENNA CABLE RUNS.

7. DRIP LOOPS SHALL BE REQUIRED ON ALL OUTSIDE CABLES. CABLES SHALL BE SLOPED AWAY FROM BUILDING OR OUTDOOR BTS CABINETS TO PREVENT WATER FROM ENTERING THROUGH THE COAXIAL CABLE PORT.

8. ALL FEEDER LINE AND JUMPER CONNECTORS SHALL BE 7/16 DIN CABLE CONNECTORS THAT MEET IP68 STANDARDS.

9. 7/16 DIN CONNECTORS REQUIRE NO ADDITIONAL WEATHER PROOFING IN INDOOR APPLICATIONS IF INSTALLED AND TORQUED PROPERLY. IN OUTDOOR APPLICATIONS WEATHER PROOFING IS REQUIRED AND THE FOLLOWING PROCEDURE SHOULD BE FOLLOWED.

10. USING WEATHERPROOFING KIT APPROVED BY CABLE MANUFACTURER AND CONTRACTOR START TAPE APPROXIMATELY 5 INCHES FROM THE CONNECTOR, AND WRAP 2 INCHES TOWARD THE CONNECTOR, THEN REVERSE THE TAPE SO THAT THE STICKY SIDE IS UP. TAPE OVER THE CONNECTOR OR SURGE ARRESTOR UNTIL THREE (3) TO FOUR (4) INCHES BEYOND THE CONNECTOR AND REVERSE AGAIN WITH THE STICKY SIDE DOWN FOR ANOTHER INCH OR TWO, PASS THE BUTYL RUBBER AND FINISH WITH A FINAL LAYER OF TAPE.

11. ANTENNAS SHALL BE PAINTED WHEN REQUIRED, BY THE LANDLORD OR AUTHORITY OF HAVING JURISDICTION IN ACCORDANCE WITH ANTENNA MANUFACTURERS' SURFACES PREPARATION AND PAINTING REQUIREMENTS.

12. CABLE SHIELDS AND TOWER CONDUITS SHALL BE GROUNDED AT THE TOP OF THE TOWER WITHIN 10 FEET OF THEIR CONNECTORS, AND AT THE BOTTOM OF THE TOWER ABOUT 6 INCHES BEFORE THEY TURN TOWARD THE FACILITY. THEY SHALL BE GROUNDED AT THE MIDPOINT OF THE TOWERS THAT ARE BETWEEN 60 FEET AND 200 FEET HIGH, AND AT INTERVALS OF 60 FEET OR LESS ON TOWERS THAT ARE HIGHER THAN 200 FEET.

ANTENNA CABLE & SCHEDULING NOTES

1. SUBCONTRACTOR SHALL VERIFY THE ACTUAL LENGTH IN THE FIELD BEFORE INSTALLATION.

2. TAG AND COLOR CODE ALL MAIN CABLES AT LOCATIONS PER T-MOBILE ANTENNA CABLE MARKING STANDARD:

• TOP OF TOWER END OF MAIN COAX

• BOTTOM OF TOWER END OF MAIN COAX

• DIRECTLY BEFORE AND AFTER RF EQUIPMENT

• END OF JUMPERS AT BTS EQUIPMENT

3. ANTENNAS SHALL BE PROCURED AND INSTALLED WITH DOWN TILT MOUNTING BRACKETS SUPPLIED BY ANTENNA MANUFACTURER.

4. PRIOR APPROVAL IS REQUIRED BEFORE PERFORMING ANY WORK ON EXISTING CELL SITE EQUIPMENT.

DP5 BATCH STAMPING

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR - CENTERLINE COMMUNICATIONS

SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)

OWNER - T-MOBILE MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTORS EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNERS DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE MOBILITY SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. APPLICABLE BUILDING CODES:

SUBCONTRACTORS 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.

2018 IBC W/2015 AMENDMENTS

CHAPTER 8 MONTGOMERY COUNTY CODE

20156 NFPA 101 LIFE SAFETY CODE

CHAPTER 35 IBC 2018 REFERENCED STANDARDS

2018 NATIONAL ELECTRICAL CODE

MONTGOMERY COUNTY CODE CHAPTER 17

NFPA 70

SUBCONTRACTORS WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G, STRUCTURAL STANDARDS FOR STEEL

ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

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.

ABBREVIATIONS

AGL

ABOVE GRADE LEVEL

G.C.

GENERAL CONTRACTOR

RF

RADIO FREQUENCY

AWG

AMERICAN WIRE GAUGE

MGB

MASTER GROUND BUS

TBD

TO BE DETERMINED

BCW

BARE COPPER WIRE

MIN

MINIMUM

TBR

TO BE REMOVED

BTS

BASE TRANSCEIVER STATION

PROPOSED

NEW

TBRR

TO BE REMOVED & REPLACED

EXISTING

EXISTING

N.T.S.

NOT TO SCALE

TYP

TYPICAL

EG

EQUIPMENT GROUND

REF

REFERENCE

EGR

EQUIPMENT GROUND RING

REQ

REQUIRED

T - Mobile

NORTHEAST LLC

T-MOBILE NORTHEAST, LLC

12050 MATTHEW AVENUE

BELTSVILLE, MARYLAND 20705

PHONE (240) 264-8600

FAX (240) 264-9035

CENTERLINE

COMMUNICATIONS

750 W CENTER ST, SUITE 301

WEST BRIDGEWATER, MA 02379

PHONE: 781.713.4725

REVISIONS

Q

11/02/21

ISSUED FOR PERMIT

RC

D

11/02/21

ELECTRICAL UPGRADE

RC

C

09/20/21

REV. PER CLIENT COMMENTS

RC

B

09/02/21

ISSUED FOR REVIEW

RC

A

04/05/21

ISSUED FOR REVIEW

TRF

REV

DATE

DESCRIPTION

BY

DESIGNED BY:

TJF

APPROVED BY:

MX

STATE OF MARYLAND

PHILIP A. BURTNER

PROFESSIONAL ENGINEER

No. 23172

EXPIRATION DATE 12/31/2024

PROFESSIONAL ENGINEER

DATE: 11/02/2021

PHILIP A. BURTNER, P.E.

MARYLAND PROFESSIONAL ENGINEER

LICENSE #23172

IS A DECLARATION OF LAW FOR THE PERSON WHO HAS THIS SEAL ACTUALLY SIGNED IN THE PRESENCE OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT OR UNDER PENALTY OF PERJURY TO BE THE ENGINEER WHO SIGNED IT. THE ENGINEER SHALL SIGN ALL UNLESS INDICATED OTHERWISE WITHIN THE SEAL. ALTERATION OR MODIFICATION OF THE CONTENTS HEREIN.

SITE NAME:

STEINBURG-GAITHERSBURG

SITE ID:

7WAN115D

SITE ADDRESS:

15021 DUFIEF MILL RD.

GAITHERSBURG MD 20878

SHEET TITLE:

GENERAL NOTES, RF NOTES,

CABLING NOTES

DRAWING:

GN-1

11

# T-Mobile NORTHEAST LLC

T-MOBILE NORTHEAST, LLC  
22050 BALTIMORE AVENUE  
BELTSVILLE, MARYLAND 20705  
PHONE (240) 264-8600  
FAX: (240) 264-8635

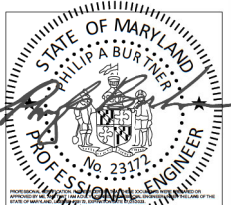


750 W CENTER ST. SUITE 301  
WEST BRIDGEWATER, MA 02379  
PHONE: 781.713.4725

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REV	DATE	DESCRIPTION	BY
0	11/02/21	ISSUED FOR PERMIT	RC
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DESIGNED BY: TPT APPROVED BY: MK



**DATE: 11/02/2021**

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MARYLAND PROFESSIONAL ENGINEER  
LICENSE #23172

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STEINBURG-GAITHERSBURG

SITE ID:

7WAN115D

SITE ADDRESS:

15021 DUFIEF MILL RD.  
GAITHERSBURG MD 20878

SHEET TITLE:

OVERALL SITE PLAN

DRAWING:

A-1

DPS BATCH STAMPING

EXISTING BARN

EXISTING ACCESS ROAD

EXISTING SILO  
← GAMMA SECTOR  
AZ=270°

T-MOBILE GAMMA SECTOR  
ANTENNAS & EQUIP MOUNTED  
ON EXISTING SILO  
(REF. 2/A-4 FOR LAYOUT)

EXISTING ACCESS LADDER

EXISTING SILO

EXISTING T-MOBILE EQUIP. SHELTER

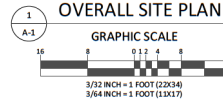
T-MOBILE ALPHA SECTOR  
ANTENNAS & EQUIP MOUNTED  
ON EXISTING SILO  
(REF. 2/A-4 FOR LAYOUT)

T-MOBILE BETA SECTOR  
ANTENNAS & EQUIP MOUNTED  
ON EXISTING SILO  
(REF. 2/A-4 FOR LAYOUT)

T-MOBILE EQUIP. AREA  
(INSIDE SHELTER,  
(REF. 2/A-2 FOR LAYOUT)

BETA SECTOR  
AZ=125°

## OVERALL SITE PLAN



TRUE NORTH

# T-Mobile NORTHEAST LLC

T-MOBILE NORTHEAST, LLC  
12050 BALTIMORE AVENUE  
BELTSVILLE, MARYLAND 20705  
PHONE: (240) 264-8600  
FAX: (240) 264-8610

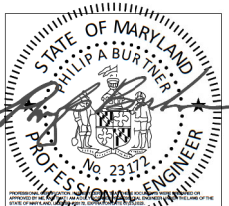


750 W CENTER ST. SUITE 301  
WEST BRIDGEWATER, MA 02379  
PHONE: 781.713.4725

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B	09/02/21	ISSUED FOR REVIEW	RC
A	04/05/21	ISSUED FOR REVIEW	TRF

DESIGNED BY: TRF APPROVED BY: MK



DATE: 11/02/2021  
PHILIP A. BURTNER, P.E.  
MARYLAND PROFESSIONAL ENGINEER  
LICENSE #23172

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SITE ID:

7WAN115D

SITE ADDRESS:

15021 DUFIEF MILL RD.  
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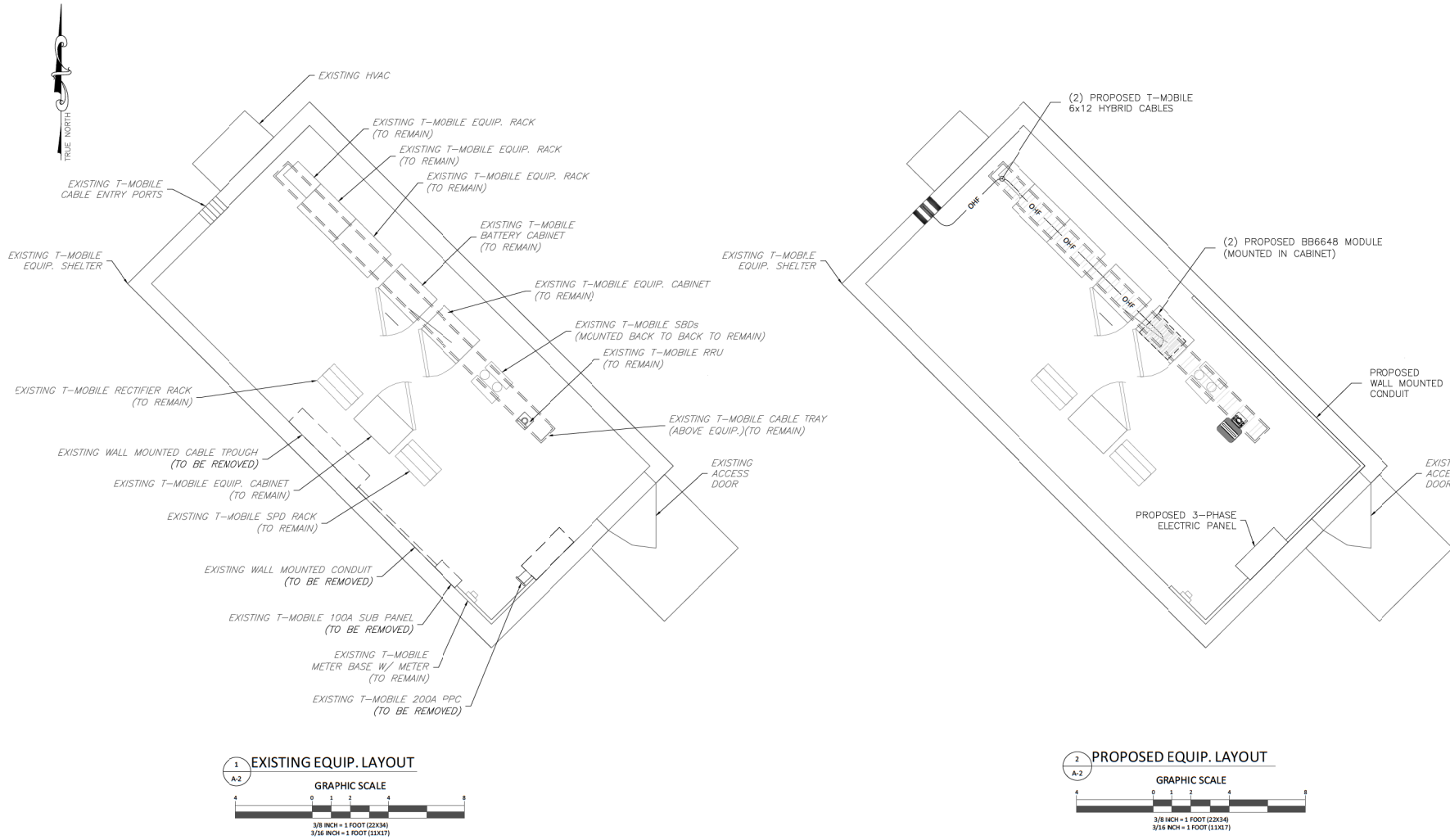
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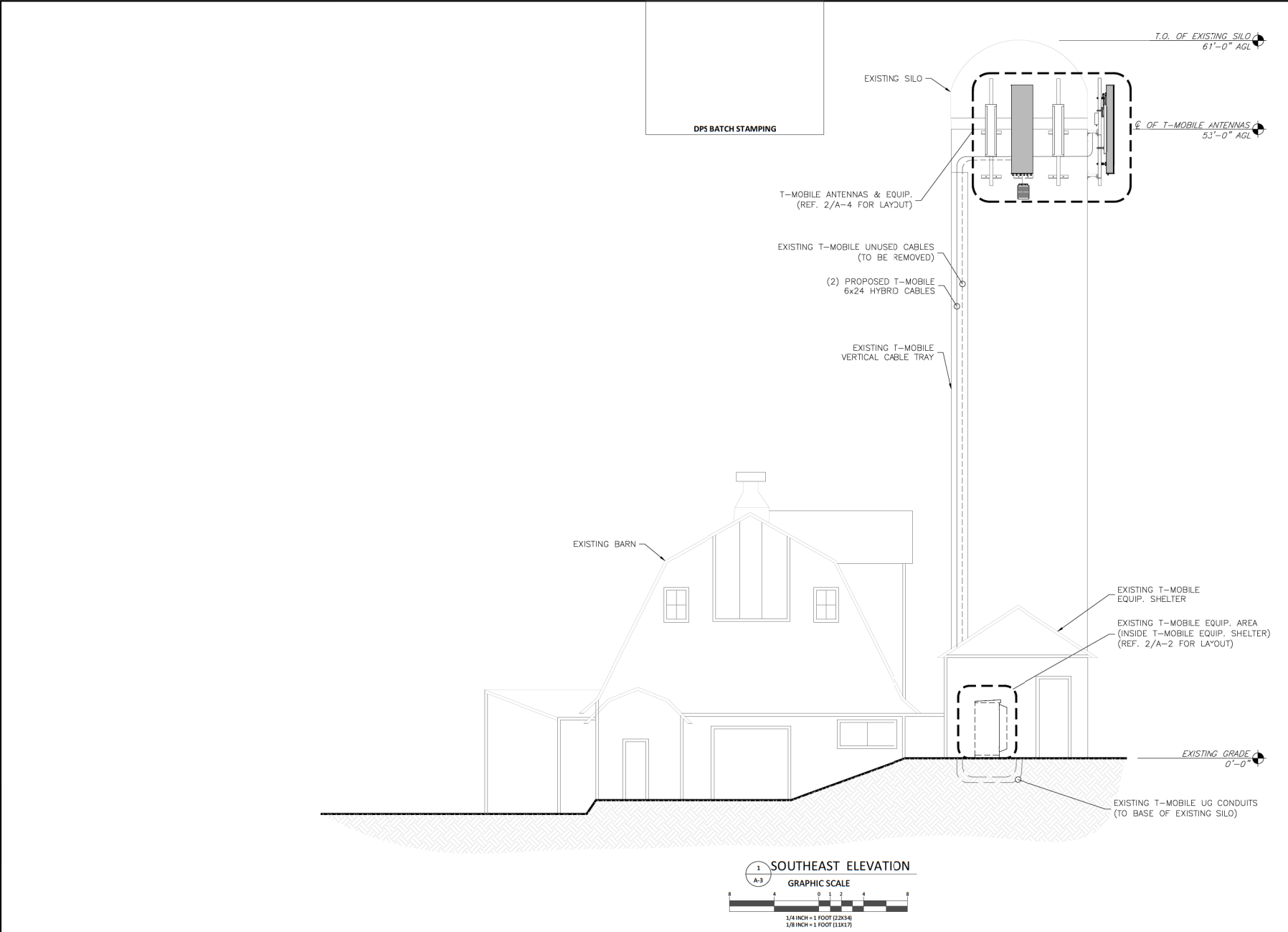
EQUIPMENT LAYOUT  
PLANS

DRAWING:

A-2

DPS BATCH STAMPING





**T-Mobile**  
NORTHEAST LLC

T-MOBILE NORTHEAST, LLC  
22950 BALTIMORE AVENUE  
BELTSVILLE, MARYLAND 20705  
PHONE (240) 264-8600  
FAX (240) 264-8635

750 W CENTER ST, SUITE 301  
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DESIGNED BY: TTF      APPROVED BY: MK

DATE: 11/02/2021  
PHILIP A. BURTNER, P.E.  
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SITE ID:  
7WAN115D

SITE ADDRESS:  
15021 DUFIEF MILL RD.  
GAITHERSBURG MD 20878

SHEET TITLE:  
SOUTHEAST ELEVATION

DRAWING:  
A-3



- ANTENNA & CABLE NOTES:**
1. REFERENCE STRUCTURAL ANALYSIS FOR FURTHER INFORMATION REGARDING THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THIS EQUIPMENT UPGRADE.
  2. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.
  3. REMOVE ALL UNUSED CABLE, RRUs AND TMAs.
  4. PAINT ANTENNAS, EQUIPMENT, & APPURTENANCES TO MATCH EXISTING.

DPS BATCH STAMPING

EXISTING T-MOBILE ANTENNA  
(TO REMAIN)  
(TYP 2 PER SECTOR, 6 TOTAL)

EXISTING T-MOBILE ANTENNA MOUNT ASSEMBLY  
(TO REMAIN)  
(TYP 2 PER SECTOR, 6 TOTAL)

EXISTING T-MOBILE TMA  
(TO BE REMOVED & REPLACED)  
(TYP 1 PER SECTOR, 3 TOTAL)

1 EXISTING ANTENNA PLAN  
A-4 NOT TO SCALE

PROPOSED SITE PRO-1 SLIDER BRACKET  
WALL MOUNTS PART NO. SBWM  
(TYP OF 3 PER SECTOR) AND 2" STD.  
10'-0" LONG MOUNT PIPE  
(TYP OF 1 PER SECTOR)  
(REF. A-5 FOR SPECS & MOUNTING DETAIL)

(1) PROPOSED T-MOBILE  
RFS-APXVAALL24\_43-U-NA20 ANTENNA  
(TYP PER SECTOR)  
(REF. A-5 FOR SPECS & MOUNTING DETAIL)

GAMMA SECTOR  
AZ=270°

EXISTING T-MOBILE ANTENNA  
(TYP 2 PER SECTOR, 6 TOTAL)

2 PROPOSED ANTENNA PLAN  
A-4 NOT TO SCALE

(1) PROPOSED T-MOBILE 1B-KRY 112 144/1 TMA  
(TYP PER SECTOR (3) TOTAL)  
(REF. A-5 FOR SPECS & MOUNTING DETAIL)

(1) PROPOSED T-MOBILE 4449 B71+B85  
RRU BELOW NEW ANTENNA  
(TYP 1 PER SECTOR, 3 TOTAL)  
(REF. A-5 FOR SPECS & MOUNTING DETAIL)

GAMMA SECTOR  
AZ=270°

EXISTING T-MOBILE ANTENNA  
(TYP 2 PER SECTOR, 6 TOTAL)

## ANTENNA & CABLE SCHEDULE

REF. MODEL SPACE FOR DELTA SECTOR BLOCK

	LOCATION	AZIMUTH	RAD CENTER	STATUS	TECHNOLOGY	ANTENNA MODEL	MECH. DOWN-TILT	ELEC. DOWN-TILT	CABLES	DIPLEXERS	TMA/RRU MODEL	CABLE SIZE	CABLE LENGTH
ALPHA	A-1	15°	53'-0"	EXISTING	U1900 G1900	ERICSSON-AR21 KRC118023_1_B2A_B4P	0°	2°/2'	(2) 15' FIBER JUMPERS (2) 66" 7/8" COAX	-	TMA- 1B-KRY 112 144/1	6x12 HYBRID	140'
	A-2	15°	53'-0"	PROPOSED	L700 L600 N600 L1900 G1900	RFS-APXVAALL24_43-U-NA20	0°	2°/2'	(4) 10' COAX JUMPERS (4) 15' FIBER JUMPER	-	RRU-4449 B71+B85	SHARED	-
	A-3	15°	53'-0"	EXISTING	L2500 N2500	ERICSSON-AR21 B4A/B12P	0°	2°/0'	(2) 15' FIBER JUMPERS	-	-	SHARED	-
BETA	B-1	125°	53'-0"	EXISTING	U1900 G1900	ERICSSON-AR21 KRC118023_1_B2A_B4P	0°	2°/2'	(2) 15' FIBER JUMPERS (2) 66" 7/8" COAX	-	TMA- 1B-KRY 112 144/1	6x12 HYBRID	140'
	B-2	125°	53'-0"	PROPOSED	L700 L600 N600 L1900 G1900	RFS-APXVAALL24_43-U-NA20	0°	2°/2'	(4) 10' COAX JUMPERS (4) 15' FIBER JUMPER	-	RRU-4449 B71+B85	SHARED	-
	B-3	125°	53'-0"	EXISTING	L2500 N2500	ERICSSON-AR21 B4A/B12P	0°	2°/0'	(2) 15' FIBER JUMPERS	-	-	SHARED	-
GAMMA	G1	270°	53'-0"	EXISTING	U1900 G1900	ERICSSON-AR21 KRC118023_1_B2A_B4P	0°	2°/2'	(2) 15' FIBER JUMPERS (2) 66" 7/8" COAX	-	TMA- 1B-KRY 112 144/1	SHARED	-
	G2	270°	53'-0"	PROPOSED	L700 L600 N600 L1900 G1900	RFS-APXVAALL24_43-U-NA20	0°	2°/2'	(4) 10' COAX JUMPERS (4) 15' FIBER JUMPER	-	RRU-4449 B71+B85	SHARED	-
	G3	270°	53'-0"	EXISTING	L2500 N2500	ERICSSON-AR21 B4A/B12P	0°	2°/0'	(2) 15' FIBER JUMPERS	-	-	SHARED	-

NOTE: DARK TEXT IN TABLE ABOVE DENOTES PROPOSED EQUIPMENT

TOTAL 6x12 HYBRID CABLE

±280'

**T-Mobile**  
NORTHEAST LLC

T-MOBILE NORTHEAST, LLC  
12050 BALTIMORE AVENUE  
BELTSVILLE, MARYLAND 20705  
PHONE (240) 264-8600  
FAX (240) 264-8620

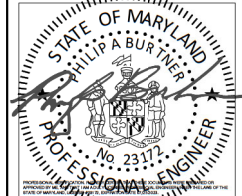


750 W CENTER ST. SUITE 301  
WEST BRIDGEWATER, MA 02379  
PHONE: 781.713.4725

### REVISIONS

REV	DATE	DESCRIPTION	BY
Q	11/02/21	ISSUED FOR PERMIT	RC
D	11/02/21	ELECTRICAL UPGRADE	RC
C	09/20/21	REV. PER CLIENT COMMENTS	RC
B	09/02/21	ISSUED FOR REVIEW	RC
A	04/05/21	ISSUED FOR REVIEW	TRF

DESIGNED BY: TRF  
APPROVED BY: MK



DATE: 11/02/2021

PHILIP A. BURTNER, P.E.  
MARYLAND PROFESSIONAL ENGINEER  
LICENSE #23172

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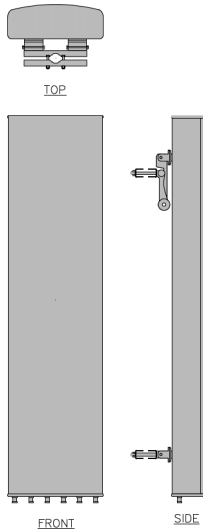
SITE NAME:  
STEINBURG-GAITHERSBURG

SITE ID:  
7WAN115D

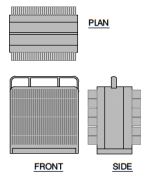
SITE ADDRESS:  
15021 DUFIEF MILL RD.  
GAITHERSBURG, MD 20878

SHEET TITLE:  
ANTENNA PLANS &  
SCHEDULE

DRAWING:  
A-4



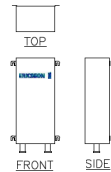
RFS APXVAALL24_43-U-NA20	
MODEL #	APXVAALL24_43-U-NA20 (OCTA)
MANUF.	RFS
HEIGHT	95.9"
WIDTH	24"
DEPTH	8.7"
WEIGHT	128/153.3 LBS with Mounting Hardware



RADIO DIMENSIONS	
MODEL #	RADIO 4449 B71+B85
MANUF.	ERICSSON
HEIGHT	15.0"
WIDTH	13.2"
DEPTH	10.4"
WEIGHT	75 LBS

2 RADIO DETAIL  
A-5 NOT TO SCALE

1 ANTENNA DETAIL  
A-5 NOT TO SCALE



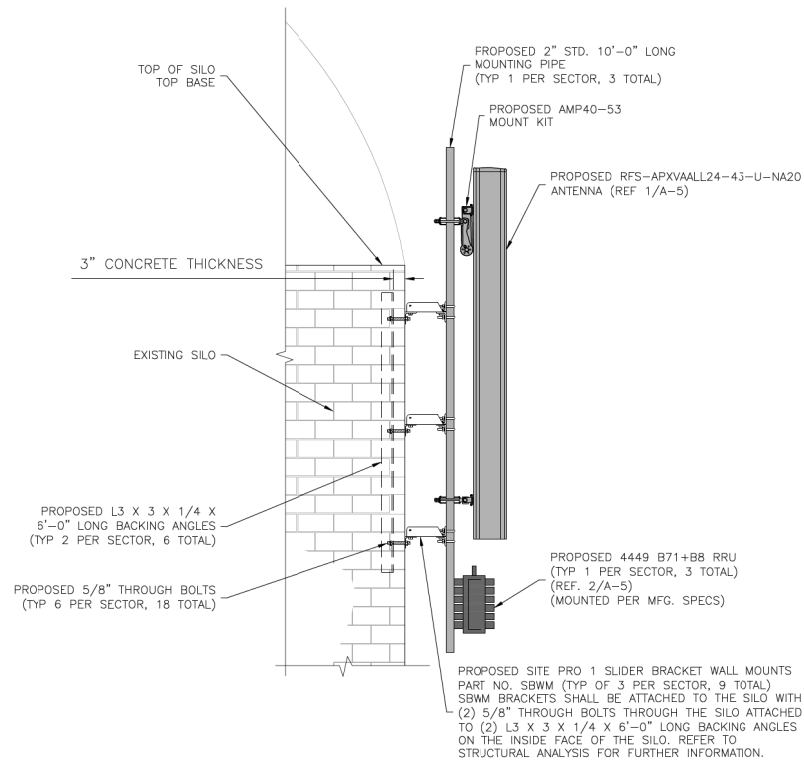
TMA TWIN STYLE 1A-KRY 112	
MFG.	ERICSSON
HEIGHT	12.5"
WIDTH	5.6"
DEPTH	3.7"
WEIGHT	13.2 lbs.

3 TMA DETAIL  
A-5 NOT TO SCALE

DPS BATCH STAMPING

#### ANTENNA & CABLE NOTES:

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4 ANTENNA & RRU MOUNTING DETAIL  
A-5 NOT TO SCALE

**T-Mobile**  
NORTHEAST LLC

T-MOBILE NORTHEAST, LLC  
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BELTSVILLE, MARYLAND 20705  
PHONE (240) 264-8600  
FAX (240) 264-8635

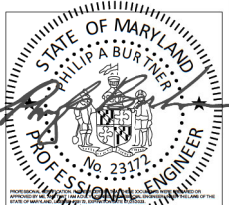


750 W CENTER ST. SUITE 301  
WEST BRIDGEWATER, MA 02379  
PHONE: 781.713.4725

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DESIGNED BY: TTF APPROVED BY: MK



DATE: 11/02/2021  
PHILIP A. BURTNER, P.E.  
MARYLAND PROFESSIONAL ENGINEER  
LICENSE #23172

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**STEINBURG-GAITHERSBURG**

SITE ID:  
**7WAN115D**

SITE ADDRESS:  
**15021 DUFIEF MILL RD.  
GAITHERSBURG MD 20878**

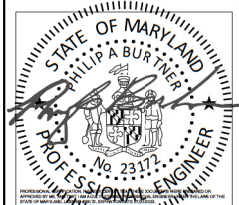
SHEET TITLE:  
**EQUIPMENT & MOUNTING  
DETAILS**

DRAWING:  
**A-5**

REVISIONS

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DESIGNED BY: TYP APPROVED BY: MK



DATE: 11/02/2021

PHILIP A. BURTNER, P.E.  
MARYLAND PROFESSIONAL ENGINEER  
LICENSE #23172

I, A. BURTNER, ENGINEER, HEREBY CERTIFY THAT I AM THE ENGINEER OF RECORD FOR THE PROJECT DESCRIBED HEREIN. I AM NOT PROVIDING ANY OTHER SERVICES TO THE PROJECT DESCRIBED HEREIN.

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STEINBURG-GAITHERSBURG

SITE ID: 7WAN115D

SITE ADDRESS:

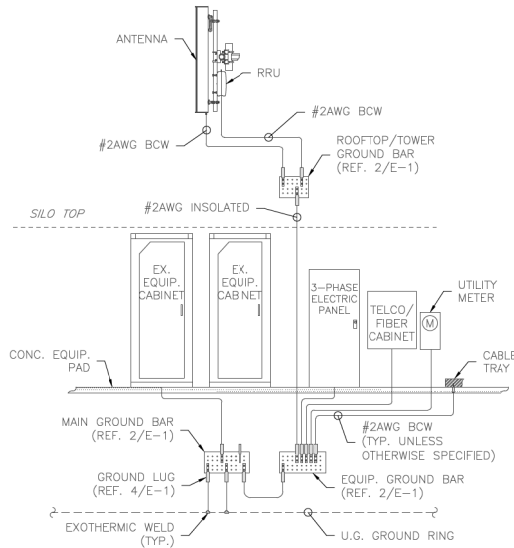
15021 DUFIEF MILL RD.  
GAITHERSBURG, MD 20878

SHEET TITLE:

GROUNDING DETAILS

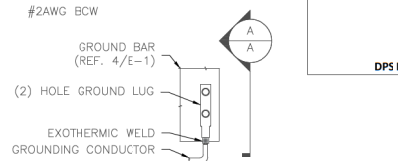
DRAWING:

E-1

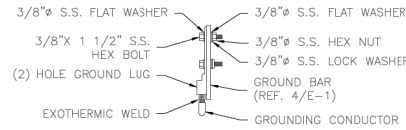


GROUNDING RISER NOTE:  
UNLESS OTHERWISE SPECIFIED ALL GROUNDING CONDUCTORS ARE TO BE #2AWG BCW

1 GROUNDING RISER DIAGRAM  
E-1 NOT TO SCALE



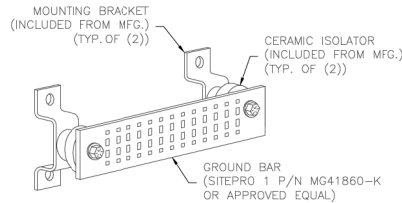
SECTION "A-A"



GROUNDING LUG NOTES:

- DO NOT DOUBLE UP OR STACK LUGS.
- OXIDE INHIBITING COMPOUND TO BE APPLIED TO ALL LUGS.
- ALL LUGS ARE TO BE EXOTHERMIC WELDED TO GROUNDING CONDUCTORS.
- FOR INSULATED GROUNDING CONDUCTORS, EXPOSED BARE COPPER TO BE KEPT TO ABSOLUTE MINIMUM.
- NO INSULATION IS ALLOWED WITHIN THE BARREL OF THE COMPRESSION TERMINAL.

2 GROUND LUG DETAIL  
E-1 NOT TO SCALE



4 GROUND BAR DETAIL  
E-1 NOT TO SCALE

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

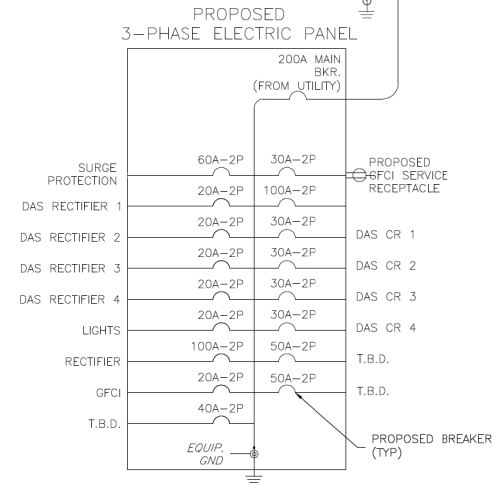
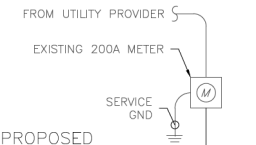
SECTION "P" - SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES) (#2)  
GENERATOR FRAMEWORK (IF AVAILABLE) (#2)  
TELCO GROUND BAR  
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)  
+24V POWER SUPPLY RETURN BAR (#2)  
-48V POWER SUPPLY RETURN BAR (#2)  
RECTIFIER FRAMES.

SECTION "A" - SURGE ABSORBERS

INTERIOR GROUND RING (#2)  
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)  
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)  
BUILDING STEEL (IF AVAILABLE) (#2)

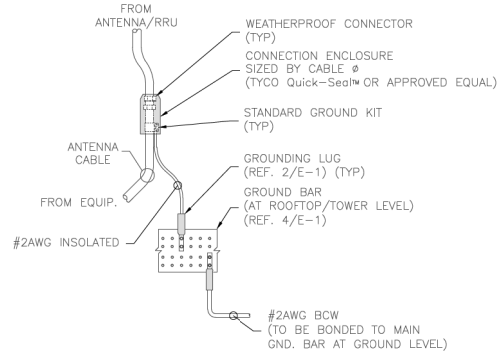
5 GROUND WIRE SCHEDULE  
E-1 NOT TO SCALE



ELECTRICAL NOTES:

- CONTRACTOR IS TO REMOVE EXISTING 200A PPC AND EXISTING 100A SUB PANEL.
- CONTRACTOR IS TO INSTALL PROPOSED 3-PHASE ELECTRIC PANEL.
- CONTRACTOR IS TO REVIEW/EXAMINE ALL EXISTING BREAKERS AND REMOVE ALL UNUSED BEFORE INSTALLING IN NEW PANEL.
- THERE ARE (3) EXISTING 3/0 AWG AND (1) #6 GND FEEDING THE EXISTING SINGLE PHASE PANEL. CONTRACTOR TO INSTALL ADDITIONAL 3/0 AWG CABLE FROM METER DISCONNECT AS REQUIRED TO UPGRADE TO A 3-PHASE PANEL.

6 ONE LINE DIAGRAM  
E-1 NOT TO SCALE



- NOTES:
- DO NOT INSTALL CABLE GROUND KIT AT BEND IN CABLE.
  - GROUND CABLES DIRECTLY TO CIGBE
  - JUMPER REQUIRED ONLY WHEN CABLE IS 1 1/4" OR LARGER

3 ANTENNA/RRU GROUNDING DETAIL  
E-1 NOT TO SCALE











## Dual Slant Polarized Hex Band (12 Port) Antenna, 2x617-894 / 4x1695-2690MHz, 65deg, 16.0/15.7/19.8/19.4/19.4/20.0 dBi, 2.4m (8ft), VET, RET, 2-12°

### FEATURES / BENEFITS

This antenna provides a 12 Port multi-band flexible platform for advanced use for flexible use in deployment scenarios for encompassing 600, 700, 800, AWS, PCS & BRS applications.

- ➡ 24 Inch Width For Easier Zoning
- ➡ Field Replaceable (Integrated) AISG RET platform for reduced environmental exposure
- ➡ Superior elevation pattern performance across the entire electrical down tilt range
- ➡ Includes three AISG RET motors
- ➡ Low band arrays driven by a single RET motor
- ➡ HBL & HBLC arrays driven by a single RET & HBR & HBRC arrays driven by a single RET
- ➡ Includes 1m AISG jumper for optional daisy chain of two high band RET motors for one single AISG point of high band tilt control.



### Technical Features

#### LOW BAND LEFT ARRAY (617-894 MHZ)

Frequency Band	MHz	617-698	698-806	806-894
Gain Typical	dBi	15.7	16.0	16.0
Gain Over All Tilts	dBi	15.3+/- .4	15.5+/- .5	15.6+/- .4
Horizontal Beamwidth @3dB	Deg	70+/- 3	68+/- 3	65+/- 3
Vertical Beamwidth @3dB	Deg	9.9+/- .7	8.6+/- .7	7.6+/- .3
Electrical Downtilt Range	Deg	2 to 12		
Upper Side Lobe Suppression Peak to +20	dB	15	15	16
Front-to-Back, at +/-30°, Copolar	dB	28	26	28
Cross Polar Discrimination (XPD) @ Boresight	dB	23	23	22
Cross Polar Discrimination (XPD) @ +/-60	dB	11	7	4
3rd Order PIM 2 x 43dBm	dBc	/	-153	-153
VSWR	-	1.5:1		
Cross Polar Isolation	dB	25		
Maximum Effective Power per Port	Watt	400		



**Dual Slant Polarized Hex Band (12 Port) Antenna, 2x617-894 / 4x1695-2690MHz, 65deg, 16.0/15.7/19.8/19.4/19.4/20.0 dBi, 2.4m (8ft), VET, RET, 2-12°**

**LOW BAND RIGHT ARRAY (617-894 MHZ)**

Frequency Band	MHz	617-698	698-806	806-894
Gain Typical	dBi	15.3	15.5	15.7
Gain Over All Tilts	dBi	15+/-3	15+/-5	15.2+/-5
Horizontal Beamwidth @3dB	Deg	70+/-3	69+/-3	66+/-4
Vertical Beamwidth @3dB	Deg	9.9+/-6	8.6+/-7	7.6+/-3
Electrical Downtilt Range	Deg	2 to 12		
Upper Side Lobe Suppression Peak to +20	dB	15	15	16
Front-to-Back, at +/-30°, Copolar	dB	27	25	26
Cross Polar Discrimination (XPD) @ Boresight	dB	21	20	22
Cross Polar Discrimination (XPD) @ +/-60	dB	10	7	5
3rd Order PIM 2 x 43dBm	dBc	/	-153	-153
VSWR	-	1.5:1		
Cross Polar Isolation	dB	25		
Maximum Effective Power per Port	Watt	400		

**HIGH BAND LEFT ARRAY (1695-2690 MHZ)**

Frequency Band	MHz	1695-1880	1850-1990	1920-2200	2200-2500	2500-2690
Gain Typical	dBi	17.8	18.6	19.8	18.9	17.5
Gain Over All Tilts	dBi	16.9+/-9	17.9+/-7	18.8+/-1	17.8+/-1.1	17.1+/-4
Horizontal Beamwidth @3dB	Deg	65+/-3	62+/-4	57+/-5	60+/-7	63+/-5
Vertical Beamwidth @3dB	Deg	5.6+/-5	5.1+/-4	4.6+/-6	4.4+/-3	4.5+/-3
Electrical Downtilt Range	Deg	2 to 12				
Upper Side Lobe Suppression Peak to +20	dB	13	13	13	12	9
Front-to-Back, at +/-30°, Copolar	dB	28	29	28	25	25
Cross Polar Discrimination (XPD) @ Boresight	dB	24	20	18	21	19
Cross Polar Discrimination (XPD) @ +/-60	dB	5	3	4	1	1
3rd Order PIM 2 x 43dBm	dBc	-153				
VSWR	-	1.5:1				
Cross Polar Isolation	dB	25				
Maximum Effective Power per Port	Watt	250				



**Dual Slant Polarized Hex Band (12 Port) Antenna, 2x617-894 / 4x1695-2690MHz, 65deg, 16.0/15.7/19.8/19.4/19.4/20.0 dBi, 2.4m (8ft), VET, RET, 2-12°**

**HIGH BAND LEFT CENTER ARRAY (1695-2690 MHZ)**

Frequency Band	MHz	1695-1880	1850-1990	1920-2200	2200-2500	2500-2690
Gain Typical	dBi	17.7	18.3	19.4	19.2	19.2
Gain Over All Tilts	dBi	17.1+/-0.6	17.7+/-0.6	18.5+/-0.8	18.7+/-0.5	18.6+/-0.6
Horizontal Beamwidth @3dB	Deg	69+/-6	69+/-5	66+/-6	59+/-6	53+/-5
Vertical Beamwidth @3dB	Deg	5.6+/-0.3	5.3+/-0.4	4.8+/-0.6	4.3+/-0.3	4.3+/-0.3
Electrical Downtilt Range	Deg	2 to 12				
Upper Side Lobe Suppression Peak to +20	dB	14	14	14	14	13
Front-to-Back, at +/-30°, Copolar	dB	29	29	30	29	27
Cross Polar Discrimination (XPD) @ Boresight	dB	24	24	23	22	21
Cross Polar Discrimination (XPD) @ +/-60	dB	4	8	8	2	1
3rd Order PIM 2 x 43dBm	dBc	-153				
VSWR	-	1.5:1				
Cross Polar Isolation	dB	25				
Maximum Effective Power per Port	Watt	300				

**HIGH BAND RIGHT CENTER ARRAY (1695-2690 MHZ)**

Frequency Band	MHz	1695-1880	1850-1990	1920-2200	2200-2500	2500-2690
Gain Typical	dBi	17.8	18.3	19.4	19.1	19.2
Gain Over All Tilts	dBi	17.1+/-0.7	17.7+/-0.6	18.5+/-0.9	18.6+/-0.5	18.6+/-0.6
Horizontal Beamwidth @3dB	Deg	69+/-6	69+/-6	66+/-6	59+/-7	55+/-5
Vertical Beamwidth @3dB	Deg	5.6+/-0.3	5.4+/-0.4	4.8+/-0.6	4.4+/-0.3	4.3+/-0.2
Electrical Downtilt Range	Deg	2 to 12				
Upper Side Lobe Suppression Peak to +20	dB	14	14	13	14	14
Front-to-Back, at +/-30, Copolar	dB	29	29	30	29	28
Cross Polar Discrimination (XPD) @ Boresight	dB	25	24	22	19	19
Cross Polar Discrimination (XPD) @ +/-60	dB	5	7	7	4	1
3rd Order PIM 2 x 43dBm	dBc	-153				
VSWR	-	1.5:1				
Cross Polar Isolation	dB	25				
Maximum Effective Power per Port	Watt	300				



**Dual Slant Polarized Hex Band (12 Port) Antenna, 2x617-894 / 4x1695-2690MHz, 65deg, 16.0/15.7/19.8/19.4/19.4/20.0 dBi, 2.4m (8ft), VET, RET, 2-12°**

**HIGH BAND RIGHT ARRAY (1695-2690 MHZ)**

Frequency Band	MHz	1695-1880	1850-1990	1920-2200	2200-2500	2500-2690
Gain Typical	dBi	17.8	18.6	20	19	17.8
Gain Over All Tilts	dBi	16.9+/- .9	18+/- .6	19+/- .1	17.9+/- .1.1	17.3+/- .5
Horizontal Beamwidth @3dB	Deg	64+/- .4	61+/- .5	56+/- .6	58+/- .6	63+/- .8
Vertical Beamwidth @3dB	Deg	5.7+/- .4	5.3+/- .4	4.8+/- .6	4.5+/- .4	4.5+/- .5
Electrical Downtilt Range	Deg	2 to 12				
Upper Side Lobe Suppression Peak to +20	dB	15	16	13	10	9
Front-to-Back, at +/-30, Copolar	dB	29	29	28	25	24
Cross Polar Discrimination (XPD) @ Boresight	dB	22	17	17	18	18
Cross Polar Discrimination (XPD) @ +/-60	dB	6	5	5	1	1
3rd Order PIM 2 x 43dBm	dBc	-153				
VSWR		1.5:1				
Cross Polar Isolation	dB	25				
Maximum Effective Power per Port	Watt	250				

**ELECTRICAL SPECIFICATIONS**

Impedance	Ohm	50.0
Polarization	Deg	±45°

**MECHANICAL SPECIFICATIONS**

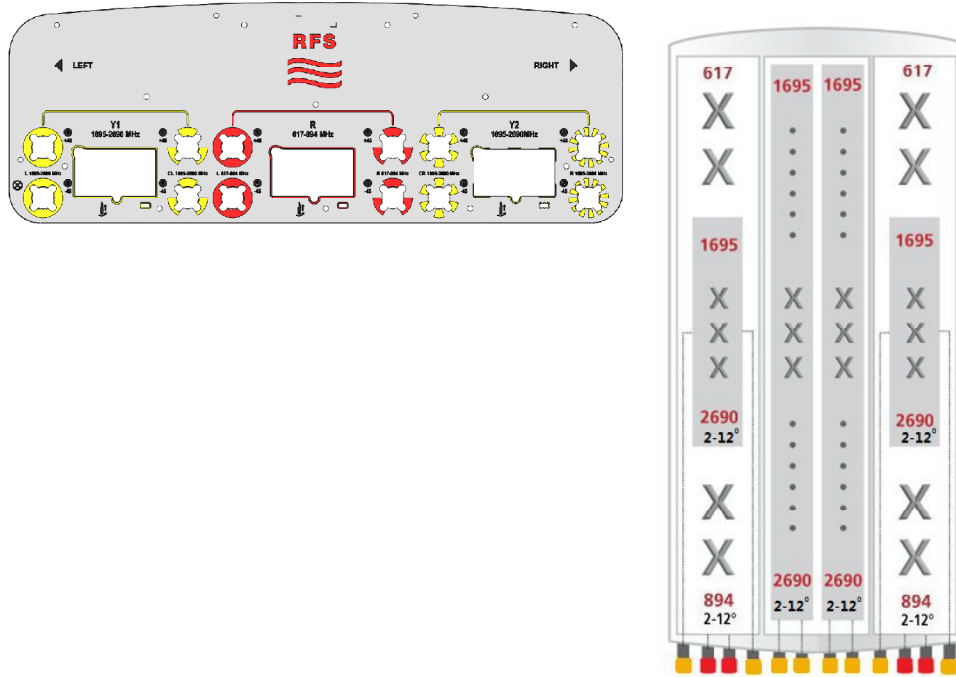
Dimensions - H x W x D	mm (in)	2436 x 609 x 215 (95.9 x 24 x 8.5)
Weight (Antenna Only)	kg (lb)	65 (143.3)
Weight (Mounting Hardware only)	kg (lb)	11.5 (25.3)
Packing size- HxWxD	mm (in)	2565 x 735 x 390 (101 x 29 x 15.4)
Shipping Weight	kg (lb)	86.7 (191.1)
Connector type		12 x 4.3-10 female at bottom + 6 AISG connectors (3 male, 3 female)
Adjustment mechanism		Integrated RET solution AISG compliant (Field Replaceable) + Manual Override + External Tilt Indicator
Radome Material / Color		Fiber Glass / Light Grey RAL7035

**TESTING AND ENVIRONMENTAL**

Temperature Range	°C (°F)	-40 to 60 (-40 to 140 )
Lightning protection		Direct Ground
Survival/Rated Wind Velocity	km/h	240 (150 )
Wind Load @Rated Wind Front	N	1428.0
Wind Load @Rated Wind Side	N	434.0
Wind Load @Rated Wind Rear	N	1544.0



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**ORDERING INFORMATION**

Order No.	Configuration	Mounting Hardware	Mounting pipe Diameter	Shipping Weight
APXVAA4L24_43-U-NA20	Field Replace RET included (3)	APM40-5E Beam tilt kit (included)	60-120mm	86.7 Kg

**External Document Links**

CAxxx-7 Series  
APM40\_Series\_Installation\_Instructions  
Manual Overdrive Instructions  
Global RFS Website

**Notes**

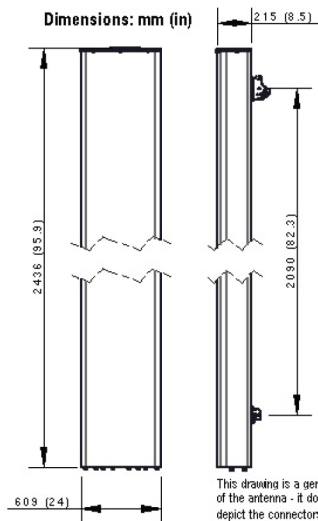
- ➡ All electrical parameters are compliant with BASTA NGMN 10.0 requirements.
- ➡ A one-meter AISG cable CA010-7 comes in the box, and for additional cable information please click "External Document Links".
- ➡ For additional mounting information please click "External Document Links".

**External Link Reference**

Global RFS Website <http://www.rfsworld.com>



Dual Slant Polarized Hex Band (12 Port) Antenna, 2x617-894 / 4x1695-2690MHz, 65deg,  
16.0/15.7/19.8/19.4/19.4/20.0 dBi, 2.4m (8ft), VET, RET, 2-12°



This drawing is a general representation  
of the antenna - it does **NOT** accurately  
depict the connectors or radome shape.



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## Exhibit 01: ID Label

KRC 161 749/1: Product ID / Authorization  
Radio 4449 B5 B13 – NGR G2 (Multi-Standard)

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FCC ID: TA8AKRC161749-1

Date: 16 November 2017  
Author: Ericsson Canada  
File: Radio 4449 B5 B13 Legal Overlay

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## Product ID Label:



FCC ID: TA8AKRC161749-1

Label: Product ID / Authorization - Radio 4449 B5 B13