FOR STAFF ONLY:
HAWP# 978966
DATE ASSIGNED_____

APPLICATION FOR HISTORIC AREA WORK PERMIT

HISTORIC PRESERVATION COMMISSION
301.563.3400

APPLICANT:

Name: Leigh Dukatt (T-Mobile) E-mail: LDukatt@advantageengineers.com

Address: 7151 Columbia Gateway Dr Ste A City: Columbia Zip: 21046

Daytime Phone: 602-692-9996 Tax Account No.: 00706980

AGENT/CONTACT (if applicable):

Name: _____ E-mail: _____

Address: _____ City: _____ Zip: _____

Daytime Phone: _____ Contractor Registration No.: _____

LOCATION OF BUILDING/PREMISE: MIHP # of Historic Property 22/017-000A

Is the Property Located within an Historic District? __Yes/District Name_____
__No/Individual Site Name Flint Hill II

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: 17800 Street: Bowie Mill Rd

Town/City: Derwood Nearest Cross Street: Fraley Farm Rd

Lot: _____ Block: _____ 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:

- ☐ New Construction
- ☐ Addition
- ☐ Demolition
- ☐ Grading/Excavation
- ☐ Deck/Porch
- ☐ Fence
- ☐ Hardscape/Landscape
- ☐ Roof
- ☐ Shed/Garage/Accessory Structure
- ☐ Solar
- ☐ Tree removal/planting
- ☐ Window/Door
- ☑ Other: Telecommunications

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.

X Leigh Dukatt 12/30/21

Signature of owner or authorized agent Date

Adjacent and Confronting Properties:

Derwood, MD 20835

17705 Bowie Mill Road

17709 Bowie Mill Road

17801 Bowie Mill Road

17805 Bowie Mill Road

17801 Fraley Farm Road

5612 Silo Hill Court

5617 Silo Hill Court

17813 Fraley Farm Road

17821 Fraley Farm Road

5612 Silver Oak Court

17834 Fraley Farm Road

18405 Muncaster Road

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

Silo on a farm with various buildings & structures

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

Remove (3) & add (6) antennas, add (6) RRUs, remove (1) & add (1) equipment cabinet and (1) battery cabinet, and other associated equipment at existing silo

Work Item 1: Telecommunications	
Description of Current Condition: Existing Site for T-Mobile	Proposed Work: Proposed equipment upgrades at existing site for T-Mobile

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/Landscaing	*	*		*	*	*	*
Tree Removal	*	*		*	*	*	*
Siding/ Roof Changes	*	*	*	*	*		*
Window/ Door Changes	*	*	*	*	*		*
Masonry Repair/ Repoint	*	*	*	*	*		*
Signs	*	*	*	*	*		*

T-MOBILE NORTHEAST LLC

FRALEY FAMILY - ROCKVILLE
7WAN162B
67D5A997DB HYBRID

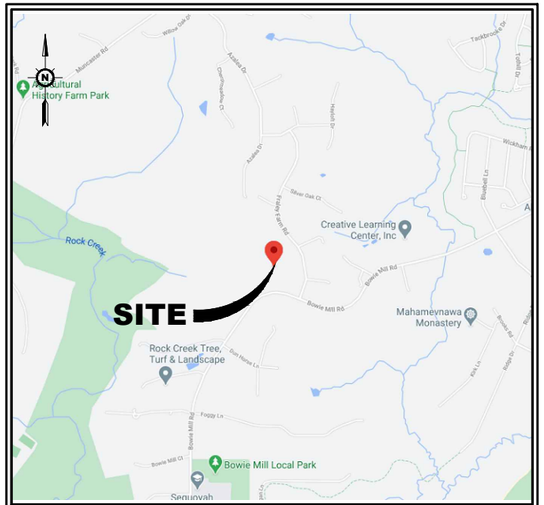
17800 BOWIE MILL ROAD
DERWOOD, MARYLAND 28055

SITE INFORMATION

SITE NUMBER:	7WAN162B
SITE NAME:	FRALEY FAMILY - ROCKVILLE
SITE ADDRESS:	17800 BOWIE MILL ROAD DERWOOD, MARYLAND 28055
ZONING DISTRICT:	RE-1
TAX MAP:	HT22/P222
JURISDICTION:	MONTGOMERY COUNTY, MARYLAND
SITE COORDINATES:	N 39° 09' 0.49" (NAD 83) W 77° 06' 51.55" (NAD 83)
GROUND ELEVATION:	498'± (NAVD 88)
STRUCTURE TYPE:	SILO
STRUCTURE HEIGHT:	73'± AGL (TOP OF EXISTING SILO)
ANTENNA RAD CENTER:	78'-0"± AGL
TENANT:	T-MOBILE NORTHEAST LLC 12050 BALTIMORE AVENUE BELTSVILLE, MARYLAND 20705
OWNER'S NAME:	HARRY FRALEY ET AL
OWNER'S ADDRESS:	17800 BOWIE MILL ROAD ROCKVILLE, MARYLAND 20855-1609

CODE ANALYSIS

BUILDING CODE:	IBC 2018
ELECTRICAL CODE:	NFPA 70, NEC 2014
FIRE CODE:	2015 NFPA 101
USE GROUP:	U (UTILITY)
CONSTRUCTION TYPE:	IIB



AREA MAP

DERWOOD, MARYLAND 28055

DIRECTIONS

HEAD NORTHWEST TOWARD US-1 N/BALTIMORE AVE, TURN RIGHT ONTO US-1 N/BALTIMORE AVE, USE THE LEFT 2 LANES TO TURN LEFT ONTO THE MD-200 W RAMP TO I-95/I-270, CONTINUE ONTO MD-200 W, USE THE RIGHT 2 LANES TO TAKE EXIT 8B FOR GEORGIA AVENUE/MD-97 N TOWARD OLNEY, MERGE ONTO MD-97/GEORGIA AVE, TURN LEFT ONTO EMORY LN, TURN RIGHT ONTO CASHELL RD, TURN LEFT ONTO BREADY RD, TURN LEFT ONTO BOWIE MILL RD, ARRIVE AT, DERWOOD MARYLAND 20855.

SCOPE OF WORK

- REMOVE EXISTING RF FRIENDLY CANISTER
- INSTALL (6) NEW RF FRIENDLY CANISTERS
- REMOVE (3) EXISTING ANTENNAS
- REMOVE (3) EXISTING TMAs
- REMOVE (12) 1-1/4" COAX
- INSTALL (6) PROPOSED ANTENNAS
- INSTALL (6) PROPOSED RRUs
- REMOVE (1) EXISTING 2106 EQUIPMENT CABINET
- INSTALL (1) PROPOSED 6160 EQUIPMENT CABINET
- INSTALL (1) PROPOSED B160 BATTERY CABINET
- INSTALL (6) PROPOSED 6x24 HYBRID CABLES 30M
- INSTALL (1) PSU 4813

SHEET INDEX

DO NOT SCALE DRAWINGS

CONTRACTOR IS TO VERIFY ALL PLANS, EXISTING DIMENSIONS & CONDITIONS RELATING TO THIS PROJECT. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IF THERE ARE ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

APPROVALS

T-MOBILE PROJECT MANAGER — DATE:

T-MOBILE RF ENGINEER — DATE:

LANDLORD — DATE:

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

advantage engineers
7151 COLUMBIA GATEWAY DRIVE SUITE A
COLUMBIA, MARYLAND 21046
PHONE: (443) 367-0003
FAX: (443) 367-3548

SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
5		
4		
3		
2		
1	11-17-2021	ZONING COMMENTS
0	11-05-2021	ISSUED FOR CONSTRUCTION

DRAWN BY:	EDZ
CHECKED BY:	MRL
SCALE:	NOTED
JOB NO:	19E0047.001

DRAWING TITLE:

TITLE SHEET

DRAWING SHEET:

T-1

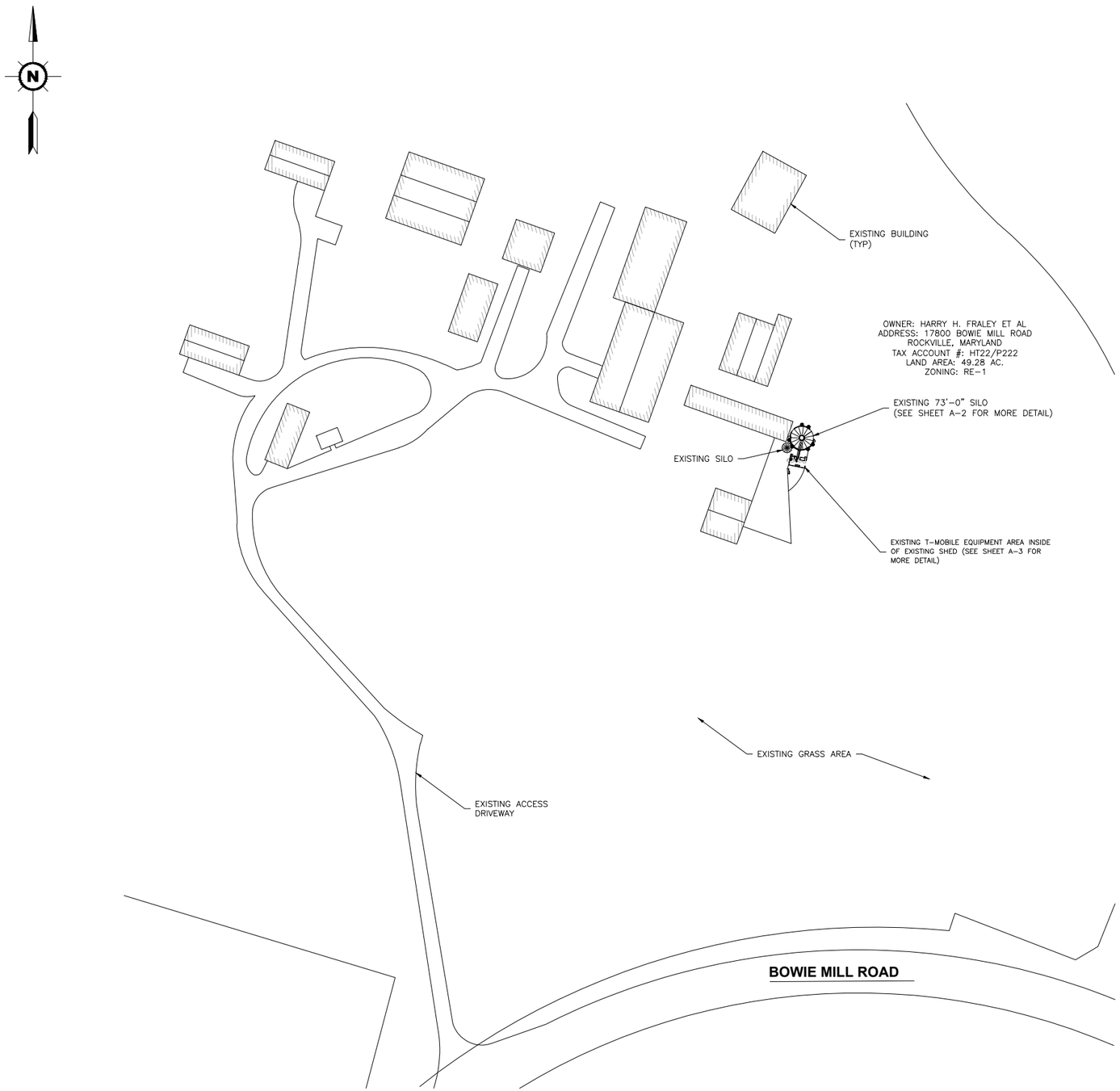
FRALEY FAMILY - ROCKVILLE
7WAN162B
17800 BOWIE MILL ROAD
DERWOOD, MARYLAND 28055

SHEET NO. 1 OF 13

STATE OF MARYLAND — ANDREW M. MILLER — 41497 — PROFESSIONAL ENGINEER — 11/22/2021

ANDREW M. MILLER, P.E.

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 41497, EXPIRATION DATE: 01-05-22"



1 Z-1 **SITE PLAN**
SCALE: 1"=50'-0"

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50ft.
(SCALE BASED ON FULL SIZE 24"x36" SHEETS ONLY)
(DO NOT USE SCALE ON OTHER SIZED DRAWINGS)

SITE INFORMATION

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OWNER'S NAME:	HARRY FRALEY ET AL
OWNER'S ADDRESS:	17800 BOWIE MILL ROAD ROCKVILLE, MARYLAND 20855-1609

GENERAL NOTES:

1. PROPERTY LINE INFORMATION WAS PREPARED USING AVAILABLE SITE PLANS, DEEDS, TAX MAPS, AND PLANS OF RECORD. INFORMATION SHOWN SHOULD NOT BE CONSTRUED AS AN ACCURATE BOUNDARY SURVEY.
2. THIS PLAN WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
3. THE PROPOSED FACILITY WILL CAUSE NO INCREASE IN STORMWATER RUNOFF. THEREFORE, NO DRAINAGE STRUCTURES ARE PROPOSED.
4. THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. (THERE IS NO HANDICAP ACCESS REQUIRED).
5. THE FACILITY IS UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
6. ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
7. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE STREET SIGNS OF ANY TYPE, NO SIGNS WILL BE POSTED EXCEPT THOSE REQUIRED.
8. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES.

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DRAWN BY:	EDZ
CHECKED BY:	MRL
SCALE:	NOTED
JOB NO:	19E0047.001

DRAWING TITLE:

SITE PLAN

DRAWING SHEET:

Z-1

FRALEY FAMILY - ROCKVILLE
7WAN162B
17800 BOWIE MILL ROAD
DERWOOD, MARYLAND 28055

SHEET NO. 2 OF 13

STATE OF MARYLAND · ANDREW M. MILLER · 41497 · PROFESSIONAL ENGINEER · 01/02/2022

ANDREW M. MILLER, P.E.
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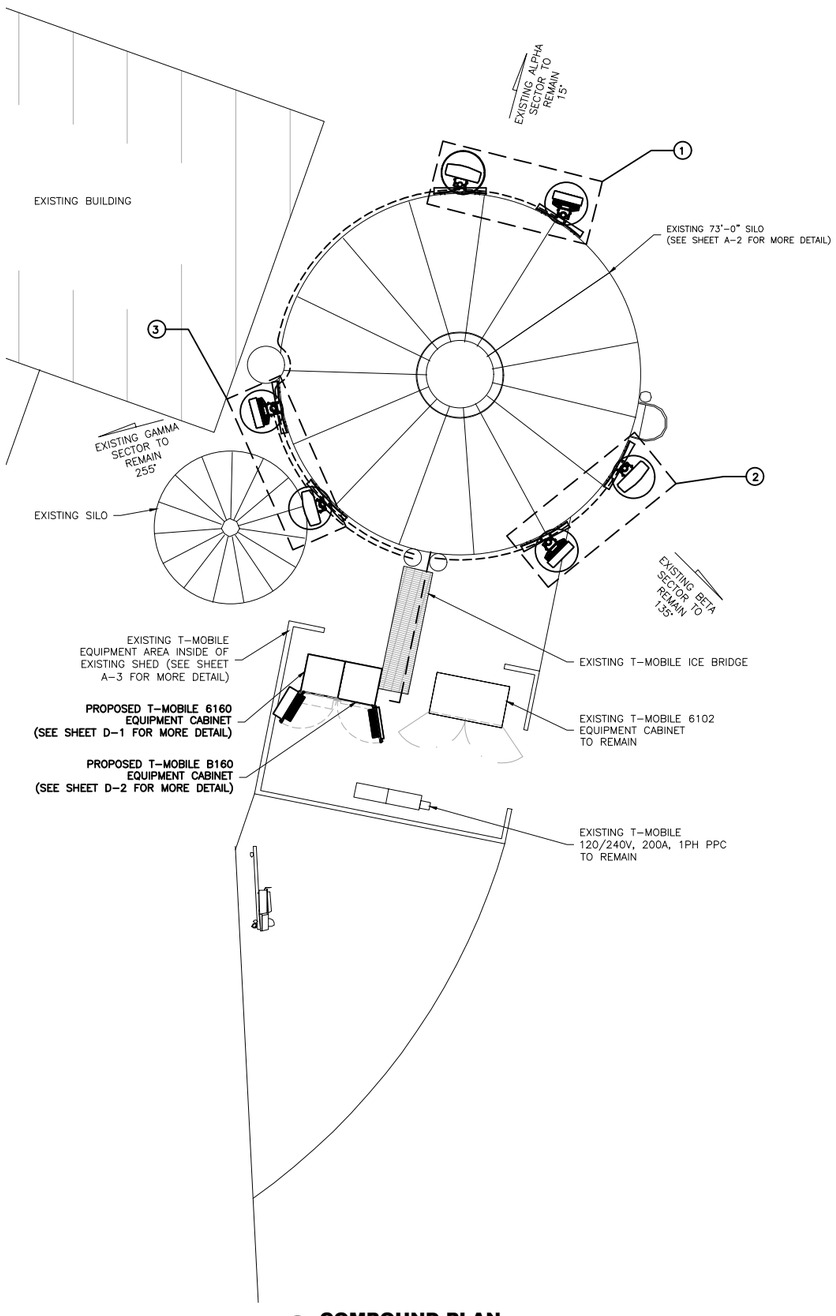

1 S-1 **COMPOUND PLAN**
SCALE: 1/4"=1'-0"

GRAPHIC SCALE

4 0 2 4 8 16

(IN FEET)
1/4 inch = 1 ft.

(SCALE BASED ON FULL SIZE 24"x36" SHEETS ONLY)
(DO NOT USE SCALE ON OTHER SIZED DRAWINGS)

T-MOBILE SECTOR KEY PLAN

T-MOBILE ALPHA SECTOR ①	(0) EXISTING ANTENNAS TO REMAIN
	(0) EXISTING ANTENNAS TO BE RELOCATED
	(1) EXISTING ANTENNAS TO BE REMOVED
	(2) PROPOSED ANTENNAS TO BE INSTALLED
	(0) EXISTING TMAs TO REMAIN
	(0) EXISTING TMAs TO BE RELOCATED
	(1) EXISTING TMAs TO BE REMOVED
	(0) PROPOSED TMAs TO BE INSTALLED
	(0) EXISTING RRU TO REMAIN
	(0) EXISTING RRUs TO BE RELOCATED
	(0) EXISTING RRUs TO BE REMOVED
	(2) PROPOSED RRU TO BE INSTALLED
T-MOBILE BETA SECTOR ②	(0) EXISTING ANTENNAS TO REMAIN
	(0) EXISTING ANTENNAS TO BE RELOCATED
	(1) EXISTING ANTENNAS TO BE REMOVED
	(2) PROPOSED ANTENNAS TO BE INSTALLED
	(0) EXISTING TMAs TO REMAIN
	(0) EXISTING TMAs TO BE RELOCATED
	(1) EXISTING TMAs TO BE REMOVED
	(0) PROPOSED TMAs TO BE INSTALLED
	(0) EXISTING RRU TO REMAIN
	(0) EXISTING RRUs TO BE RELOCATED
	(0) EXISTING RRUs TO BE REMOVED
	(2) PROPOSED RRU TO BE INSTALLED
T-MOBILE GAMMA SECTOR ③	(0) EXISTING ANTENNAS TO REMAIN
	(0) EXISTING ANTENNAS TO BE RELOCATED
	(1) EXISTING ANTENNAS TO BE REMOVED
	(2) PROPOSED ANTENNAS TO BE INSTALLED
	(0) EXISTING TMAs TO REMAIN
	(0) EXISTING TMAs TO BE RELOCATED
	(1) EXISTING TMAs TO BE REMOVED
	(0) PROPOSED TMAs TO BE INSTALLED
	(0) EXISTING RRU TO REMAIN
	(0) EXISTING RRUs TO BE RELOCATED
	(0) EXISTING RRUs TO BE REMOVED
	(2) PROPOSED RRU TO BE INSTALLED

PRE CONSTRUCTION TOTALS

(3) ANTENNAS
(0) RRUs
(3) TMAs

POST CONSTRUCTION TOTALS

(6) ANTENNAS
(6) RRUs
(0) TMAs

GENERAL NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES COMPANY OR OTHER PUBLIC AUTHORITIES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
3. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR THE OVERALL INTENT OF THESE DRAWINGS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
5. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
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11. NO SIGNIFICANT NOISE, SMOKE, DUST OR ODOR WILL RESULT FROM THIS FACILITY.
12. ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
13. CONSTRUCTION TO COMMENCE UPON COMPLETION OF A PASSING STRUCTURAL ANALYSIS. STRUCTURAL ANALYSIS TO BE PERFORMED BY ADVANTAGE ENGINEERS.

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CHECKED BY:	MRL
SCALE:	NOTED
JOB NO:	19E0047.001

DRAWING TITLE:

COMPOUND PLAN

DRAWING SHEET:

S-1

FRALEY FAMILY - ROCKVILLE
7WAN162B
17800 BOWIE MILL ROAD
DERWOOD, MARYLAND 28055

SHEET NO. 3 OF 13

STATE OF MARYLAND — ANDREW M. MILLER — 41497 — PROFESSIONAL ENGINEER — 01/22/2022

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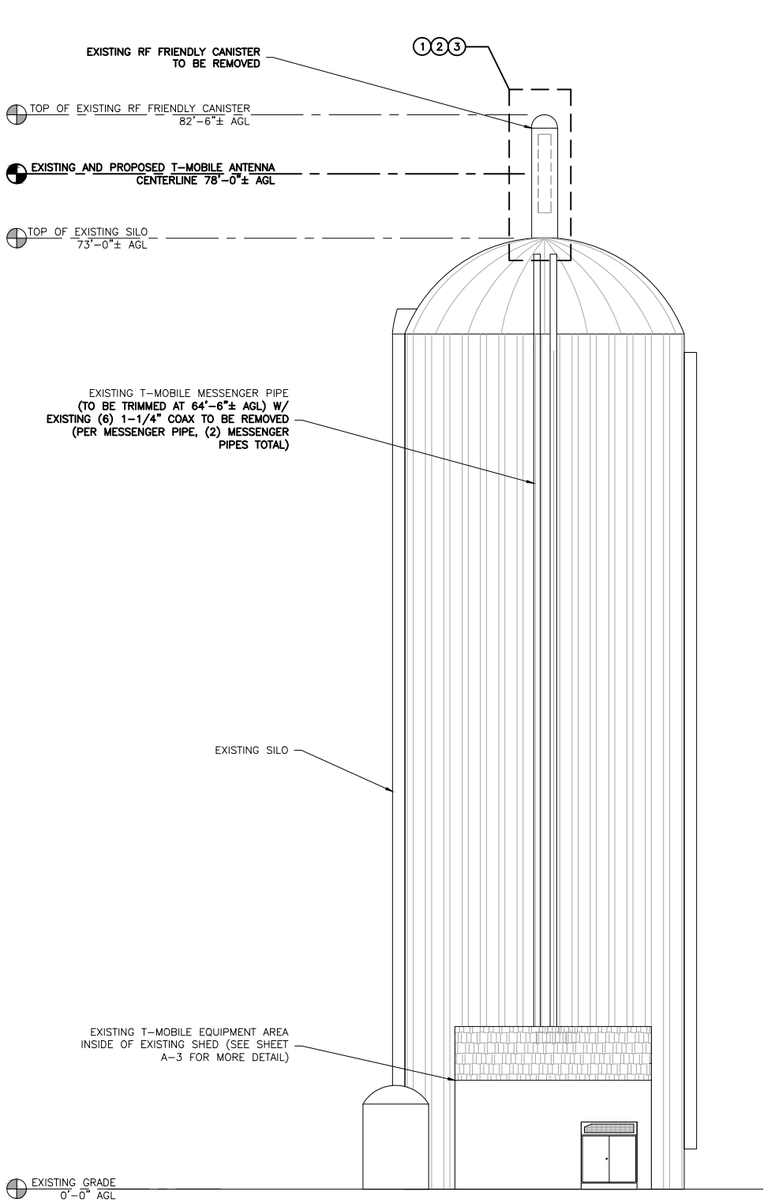

1 S-2 **EXISTING ELEVATION**
SCALE: 3/16"=1'-0"

GRAPHIC SCALE

1 0 1 2 4 8 16

(IN FEET)
3/16 inch = 1 ft.

(SCALE BASED ON FULL SIZE 24"x36" SHEETS ONLY)
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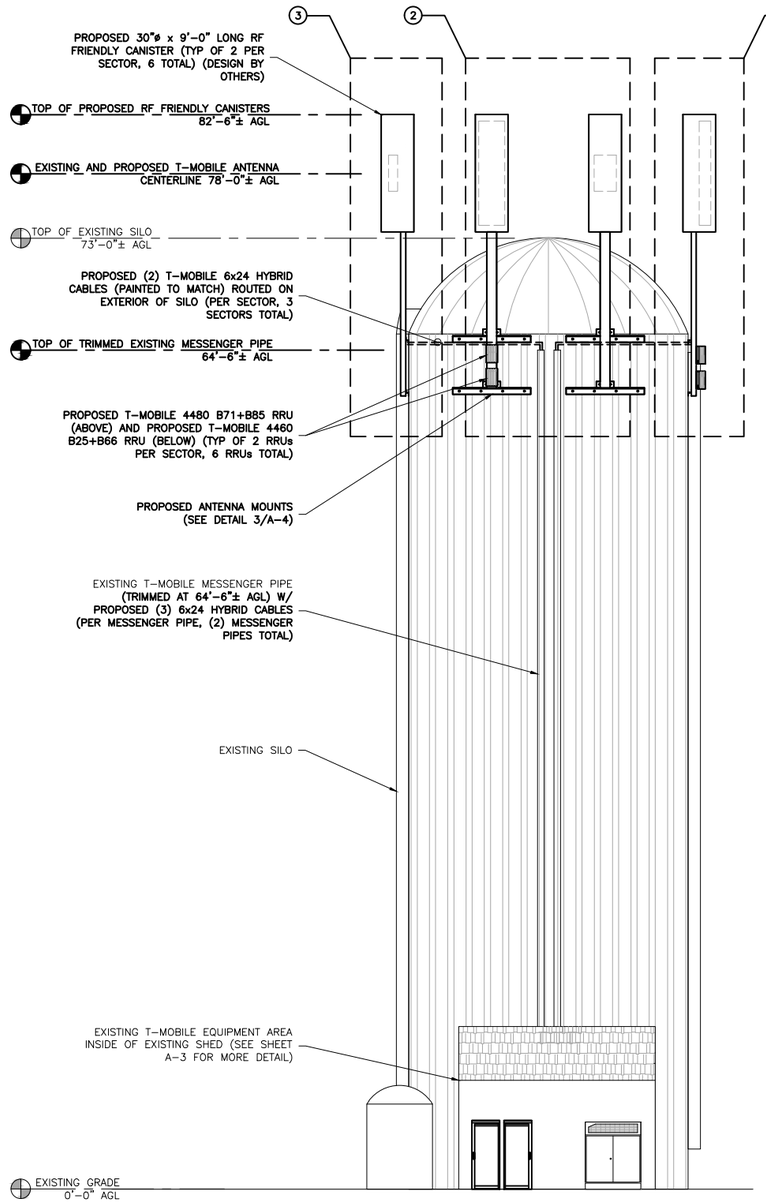

2 S-2 **PROPOSED ELEVATION**
SCALE: 3/16"=1'-0"

GRAPHIC SCALE

1 0 1 2 4 8 16

(IN FEET)
3/16 inch = 1 ft.

(SCALE BASED ON FULL SIZE 24"x36" SHEETS ONLY)
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T-MOBILE SECTOR KEY PLAN

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T-MOBILE BETA SECTOR (2)	(0) EXISTING ANTENNAS TO REMAIN (0) EXISTING ANTENNAS TO BE RELOCATED (1) EXISTING ANTENNAS TO BE REMOVED (2) PROPOSED ANTENNAS TO BE INSTALLED (0) EXISTING TMAs TO REMAIN (0) EXISTING TMAs TO BE RELOCATED (1) EXISTING TMAs TO BE REMOVED (0) PROPOSED TMAs TO BE INSTALLED (0) EXISTING RRU TO REMAIN (0) EXISTING RRUs TO BE RELOCATED (0) EXISTING RRUs TO BE REMOVED (2) PROPOSED RRU TO BE INSTALLED
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(3) ANTENNAS
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SILO ELEVATION

DRAWING SHEET:

S-2

FRALEY FAMILY - ROCKVILLE
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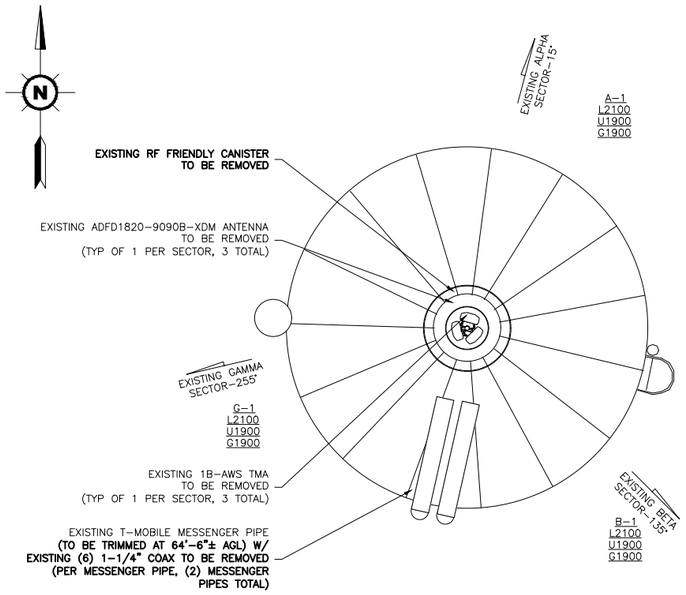
DERWOOD, MARYLAND 28055

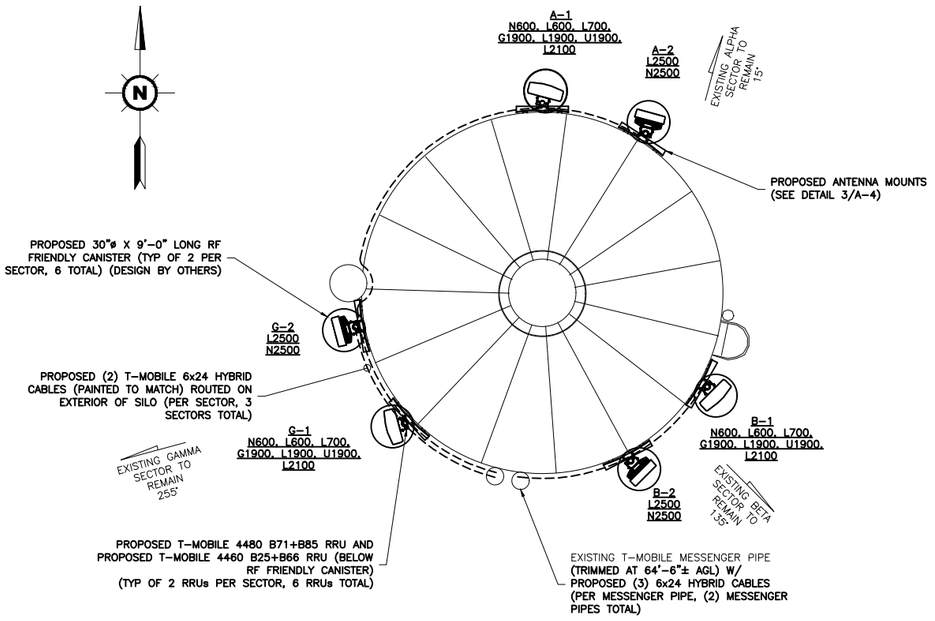
SHEET NO. 4 OF 13

STATE OF MARYLAND · ANDREW M. MILLER · 41407 · PROFESSIONAL ENGINEER · 11/22/2021

ANDREW M. MILLER, P.E.
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 41497, EXPIRATION DATE: 01-05-22"



1 A-1 **EXISTING ANTENNA PLAN**
SCALE: NTS



2 A-1 **PROPOSED ANTENNA PLAN**
SCALE: NTS

STRUCTURAL NOTES

1. DESIGN REQUIREMENTS PER INTERNATIONAL BUILDING CODE 2015 AND THE ANSI/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED BY FIELD MEASUREMENT AND FROM THE EXISTING STRUCTURAL DRAWINGS. THE GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH CONSTRUCTION.
3. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS – ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN INCLUDING THE COMMENTARY AND THE AISC CODE FOR STANDARD PRACTICE.
4. STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO ASTM A992. ALL STRUCTURAL STEEL PIPES SHALL CONFORM TO ASTM A53 GRADE B. ALL STRUCTURAL STEEL COMPONENTS AND FABRICATED ASSEMBLIES SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
5. WELDING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF AMERICAN WELDING SOCIETY (AWS) STRUCTURAL WELDING CODE – STEEL WELD ELECTRODES SHALL BE E70XX.
6. ALL COAXIAL CABLE CONNECTORS AND TRANSMITTER EQUIPMENT SHALL BE AS SPECIFIED BY THE OWNER AND IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL FURNISH ALL CONNECTION HARDWARE REQUIRED TO SECURE THE CABLES. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.
7. ALL THREADED STRUCTURAL FASTENERS FOR ANTENNA SUPPORT ASSEMBLIES SHALL CONFORM TO ASTM A307 OR ASTM A36. ALL STRUCTURAL FASTENERS FOR STRUCTURAL STEEL FRAMING SHALL CONFORM TO ASTM A325. FASTENERS SHALL BE 5/8" MIN. DIAMETER BEARING TYPE CONNECTIONS WITH THREADS INCLUDED IN THE SHEAR PLANE. ALL EXPOSED FASTENERS, NUTS AND WASHERS SHALL BE GALVANIZED UNLESS OTHERWISE NOTED. CONCRETE EXPANSION ANCHORS SHALL BE HILTI KWIK BOLTS UNLESS OTHERWISE NOTED.
8. NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. CONTRACTOR SHALL VERIFY TRUE NORTH AND INFORM CONSTRUCTION MANAGER OF ANY DISCREPANCY BEFORE STARTING CONSTRUCTION.
9. CONSTRUCTION TO COMMENCE UPON COMPLETION OF A PASSING STRUCTURAL ANALYSIS. STRUCTURAL ANALYSIS TO BE PERFORMED BY ADVANTAGE ENGINEERS.

GENERAL CONTRACTOR NOTES

1. **THE ANTENNA MOUNTS AND CONNECTIONS THAT ARE USED TO SUPPORT THE PROPOSED INSTALLATION ARE TO BE INSPECTED PRIOR TO THE INSTALLATION OF THE PROPOSED EQUIPMENT. IF THE CONDITIONS OF THE MOUNTS AND CONNECTIONS ARE FOUND TO BE UNACCEPTABLE, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY AND THE UNACCEPTABLE ELEMENTS OF THE MOUNT OR HARDWARE SHALL BE REPLACED OR REPAIRED BY THE CONTRACTOR.**
2. **ANTENNA RAD CENTER IS IN REFERENCE TO ELEVATION 0'-0" (EXISTING GRADE). SHOULD RAD CENTER NOT MATCH CONSTRUCTION DOCUMENTS AND STRUCTURAL CERTIFICATIONS, NOTIFY THE T-MOBILE CONSTRUCTION MANAGER AND ENGINEER IMMEDIATELY.**
3. **CONTRACTOR IS TO VERIFY ALL ANTENNA AZIMUTHS WITH THE T-MOBILE CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.**

EXISTING ANTENNA SCHEDULE

POSITION	ANTENNA RAD CENTER	EXISTING AZIMUTH	EXISTING TECH	ANTENNA MANUFACTURER	EXISTING ANTENNA MODEL #	EXISTING RRU/TMA	EXISTING RRU/TMA	EXISTING MDT	EXISTING EDT
A-1	78'-0"	1°	L2100,U1900, G1900	ANDREW	ADFD1820-9090B-XDM	1B-AWS	N/A	0°	3/3
B-1	78'-0"	1°	L2100,U1900, G1900	ANDREW	ADFD1820-9090B-XDM	1B-AWS	N/A	0°	5/5
G-1	78'-0"	1°	L2100,U1900, G1900	ANDREW	ADFD1820-9090B-XDM	1B-AWS	N/A	0°	5/5

PROPOSED ANTENNA SCHEDULE

POSITION	ANTENNA RAD CENTER	PROPOSED AZIMUTH	PROPOSED TECH	ANTENNA MANUFACTURER	PROPOSED ANTENNA MODEL #	PROPOSED RRU/TMA	PROPOSED RRU/TMA	PROPOSED MDT	PROPOSED EDT
A-2	78'-0"	15°	N600,L600,L700,L600, L19,G19,U19,L21	RFS	APXVALL24_43-U-NA20	4480 B71+B85	4460 B25+B66	0°	3/3/3/3
A-3	78'-0"	15°	L2500,N2500	ERICSON	AIR6449 B41	N/A	N/A	0°	2/2
B-2	78'-0"	135°	N600,L600,L700,L600, L19,G19,U19,L21	RFS	APXVALL24_43-U-NA20	4480 B71+B85	4460 B25+B66	0°	5/5/5/5
B-3	78'-0"	135°	L2500,N2500	ERICSON	AIR6449 B41	N/A	N/A	0°	2/2
G-2	78'-0"	255°	N600,L600,L700,L600, L19,G19,U19,L21	RFS	APXVALL24_43-U-NA20	4480 B71+B85	4460 B25+B66	0°	5/5/5/5
G-3	78'-0"	255°	L2500,N2500	ERICSON	AIR6449 B41	N/A	N/A	0°	2/2

ANTENNA/RRU/TMA SPECS

EXISTING ANTENNAS	MANUFACTURER	ANTENNA MODEL #	QUANTITY	HEIGHT	WIDTH	DEPTH	WEIGHT
	ANDREW	ADFD1820-9090B-XDM TO BE REMOVED	3	51.7"	12.1"	4.5"	22.05 LBS
FINAL PROPOSED ANTENNA CONFIGURATION	**MANUFACTURER**	**ANTENNA MODEL #**	**QUANTITY**	**HEIGHT**	**WIDTH**	**DEPTH**	**WEIGHT**
	RFS	APXVAALL24_43-U-NA20	3	95.9"	24"	8.5"	122.8 LBS
	ERICSON	AIR6449 B41	3	33.1"	20.5"	8.3"	103 LBS
EXISTING TMAs	MANUFACTURER	TMA MODEL #	QUANTITY	HEIGHT	WIDTH	DEPTH	WEIGHT
	GENERIC	TWIN STYLE 1B-AWS TO BE REMOVED	3	10.04"	9.29"	4.84"	22.5 LBS
FINAL PROPOSED RRU CONFIGURATION	**MANUFACTURER**	**RRU MODEL #**	**QUANTITY**	**HEIGHT**	**WIDTH**	**DEPTH**	**WEIGHT**
	ERICSSON	4480 B71+B85	3	21.8"	15.7"	7.5"	84 LBS
	ERICSSON	4460 B25+B66	3	19.6"	15.7"	12.1"	109 LBS

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advantage engineers
7151 COLUMBIA GATEWAY DRIVE SUITE A
COLUMBIA, MARYLAND 21046
PHONE: (443) 367-0003
FAX: (443) 367-3548

SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
5		
4		
3		
2		
1	11-17-2021	ZONING COMMENTS
0	11-05-2021	ISSUED FOR CONSTRUCTION

DRAWN BY:	EDZ
CHECKED BY:	MRL
SCALE:	NOTED
JOB NO:	19E0047.001

DRAWING TITLE:

ANTENNA PLAN & NOTES

DRAWING SHEET:

A-1

FRALEY FAMILY - ROCKVILLE
7WAN162B
17800 BOWIE MILL ROAD
DERWOOD, MARYLAND 28055

SHEET NO. 5 OF 13

STATE OF MARYLAND · ANDREW M. MILLER · 41497 · PROFESSIONAL ENGINEER · 11/22/21

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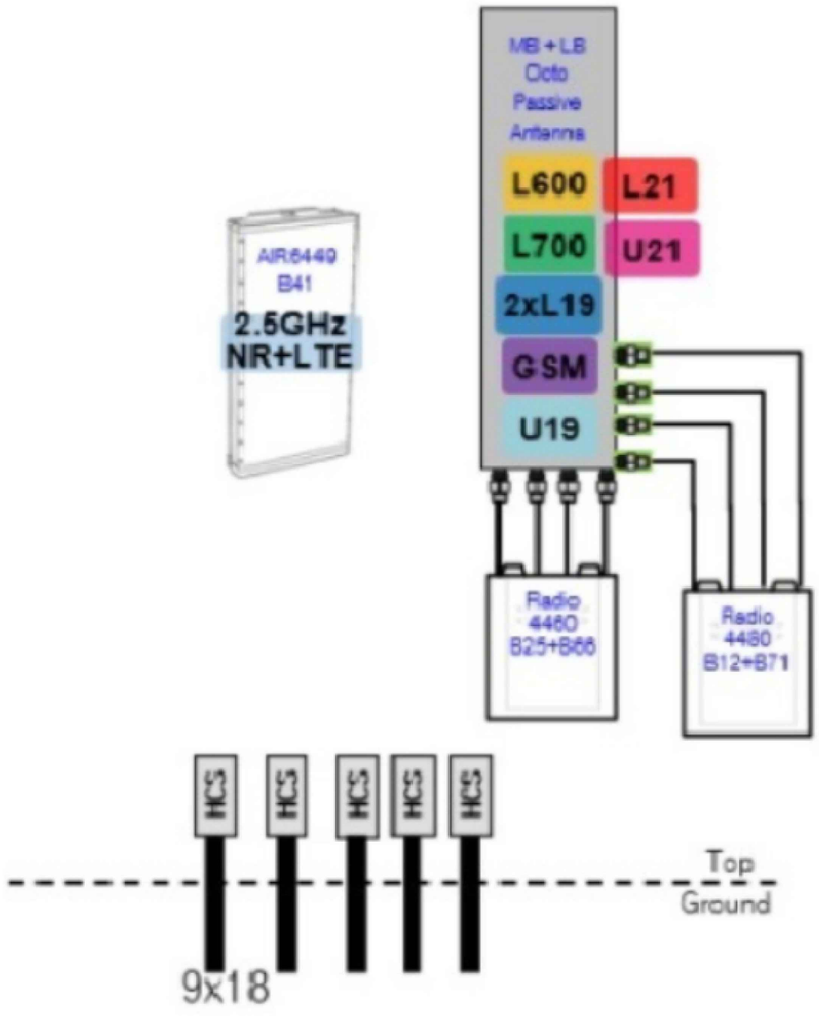
PROPOSED CABLES

DESCRIPTION	QUANTITY	LENGTH
6x24 HYBRID CABLE (ALPHA SECTOR)	2	30M
6x24 HYBRID CABLE (BETA SECTOR)	2	30M
6x24 HYBRID CABLE (GAMMA SECTOR)	2	30M
PSU 4813	1	30M

67E5A998E



1 A-2 **PLUMBING DIAGRAM**
SCALE: N.T.S.

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CHECKED BY:	MRL
SCALE:	NOTED
JOB NO:	19E0047.001

DRAWING TITLE:

PLUMBING DIAGRAM & CABLES

DRAWING SHEET:

A-2

FRALEY FAMILY - ROCKVILLE
7WAN162B
17800 BOWIE MILL ROAD
DERWOOD, MARYLAND 28055

SHEET NO. 6 OF 13

STATE OF MARYLAND · ANDREW M. MILLER · 41497 · PROFESSIONAL ENGINEER
01/27/2022

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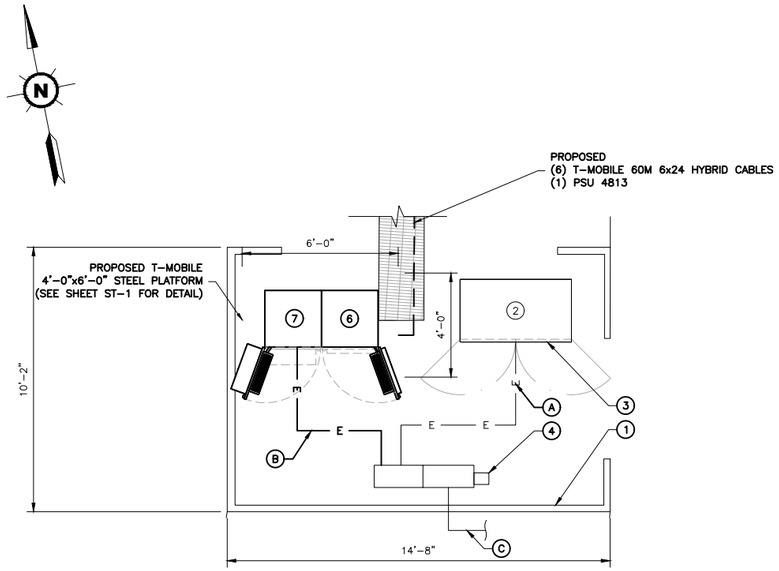
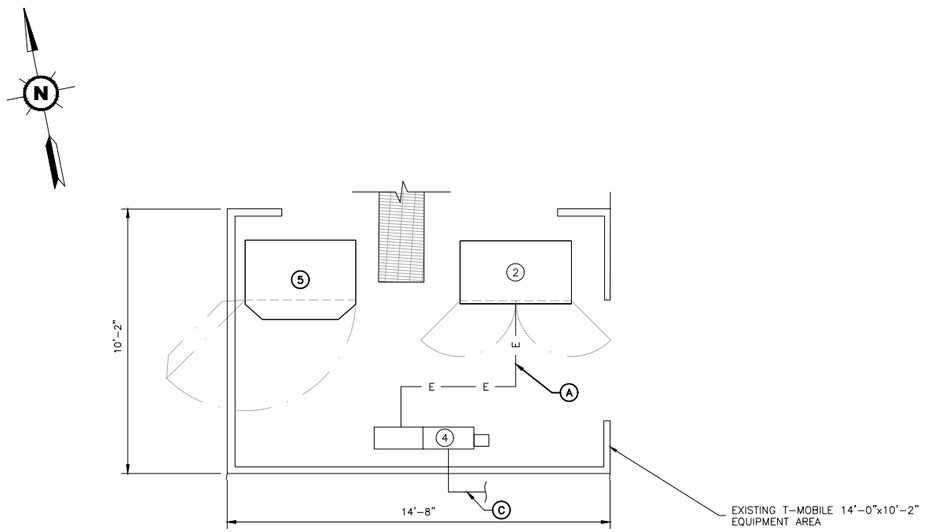


1 / A-3 PROPOSED EQUIPMENT CABINET LAYOUT
SCALE: N.T.S.



2 / A-3 EXISTING EQUIPMENT CABINET LAYOUT
SCALE: N.T.S.

T-MOBILE CABINET PLAN KEY

IDENTIFIER	CABINET AND STATUS	DETAIL
1	EXISTING 14'-0"x10'-2" EQUIPMENT AREA TO REMAIN	N/A
2	EXISTING 6102 EQUIPMENT CABINET TO REMAIN	N/A
3	EXISTING (1) DUW30, (6) RUS01 B2 AND (6) RUS01 B4 TO BE REMOVED	N/A
4	EXISTING 120/240V, 200A, 1PH PPC TO REMAIN	N/A
5	EXISTING RBS 2106 EQUIPMENT CABINET TO BE REMOVED	N/A
6	PROPOSED B160 BATTERY CABINET TO BE INSTALLED	D-2
7	PROPOSED 6160 EQUIPMENT CABINET TO BE INSTALLED	D-1

CABINET INSTALLATION NOTES

1. SEE SHEET D-1 FOR 6160 EQUIPMENT CABINET SPECIFICATIONS AND ERICSSON SUGGESTED INSTALLATION INSTRUCTIONS.
2. SEE SHEET D-2 FOR B160 BATTERY CABINET SPECIFICATIONS AND ERICSSON SUGGESTED INSTALLATION INSTRUCTIONS.

ELECTRICAL AT T-MOBILE CABINETS KEY

IDENTIFIER	ITEM AND STATUS	ROUTING/LOCATION	DETAIL
A	EXISTING (3) #1/0 & (1) #6 GND IN EXISTING CONDUIT TO BE REMOVED (SEE NOTE)	FROM EXISTING T-MOBILE 200A PPC TO EXISTING 6102 EQUIPMENT CABINET	N/A
B	PROPOSED (3) #2 & (1) #8 GND IN PROPOSED 1-1/2" CONDUIT	FROM EXISTING T-MOBILE 200A PPC TO PROPOSED 6160 EQUIPMENT CABINET	N/A
C	EXISTING CONDUIT & CONDUCTORS TO REMAIN	FROM EXISTING 200A ENCLOSED BREAKER TO EXISTING PPC	N/A

NOTE:

RE-USE EXISTING CONDUIT AND (3) #1/0 & (1) #6 GND CONDUCTORS FOR RELOCATED 6102 EQUIPMENT CABINET AS POSSIBLE. REPLACE AS SHOWN IF EXISTING CONDUIT AND CONDUCTORS CANNOT BE RECONNECTED TO RELOCATED 6102 EQUIPMENT CABINET.

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JOB NO:	19E0047.001

DRAWING TITLE:

PROPOSED & EXISTING EQUIPMENT CABINET LAYOUT

DRAWING SHEET:

A-3

FRALEY FAMILY - ROCKVILLE
7WAN162B
17800 BOWIE MILL ROAD
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SHEET NO. 7 OF 13

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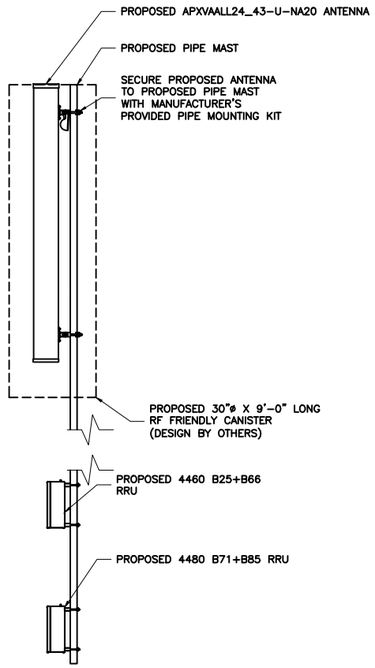

APXVAALL24_43-U-NA20 ANTENNA AND RRU MOUNTING DETAIL

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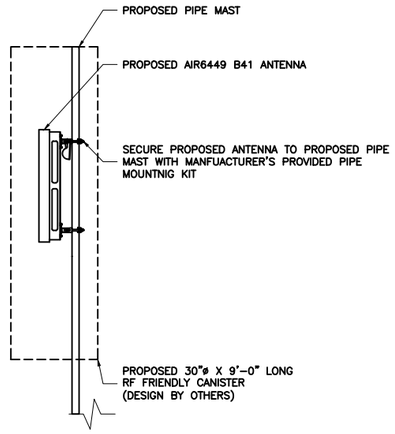
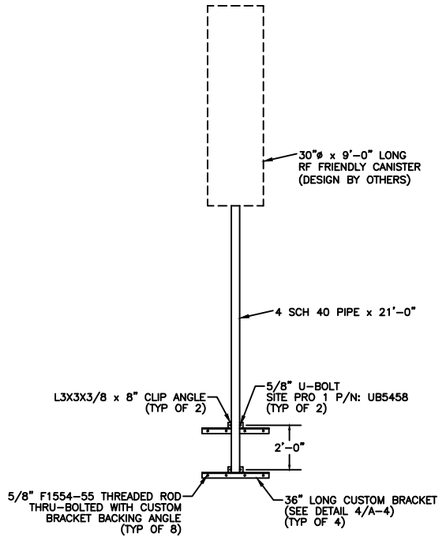


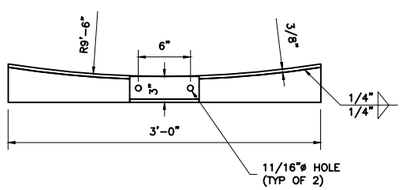
AIR6449 ANTENNA MOUNTING DETAIL

2 A-4 SCALE: NOT TO SCALE

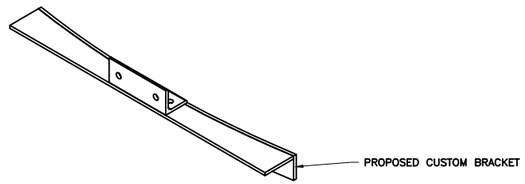


ANTENNA MOUNT DETAIL

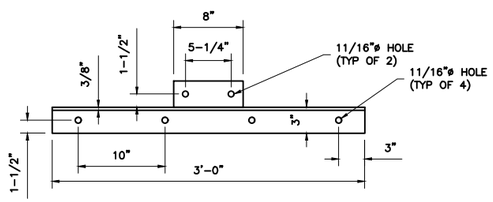
3 A-4 SCALE: NOT TO SCALE



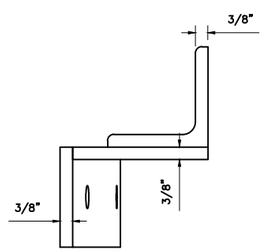
PLAN VIEW



ISO VIEW



FRONT ELEVATION



SIDE ELEVATION

CUSTOM BRACKET DETAIL

4 A-4 SCALE: NOT TO SCALE

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DRAWING TITLE:

DETAILS

DRAWING SHEET:

A-4

FRALEY FAMILY - ROCKVILLE
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SHEET NO. 8 OF 13

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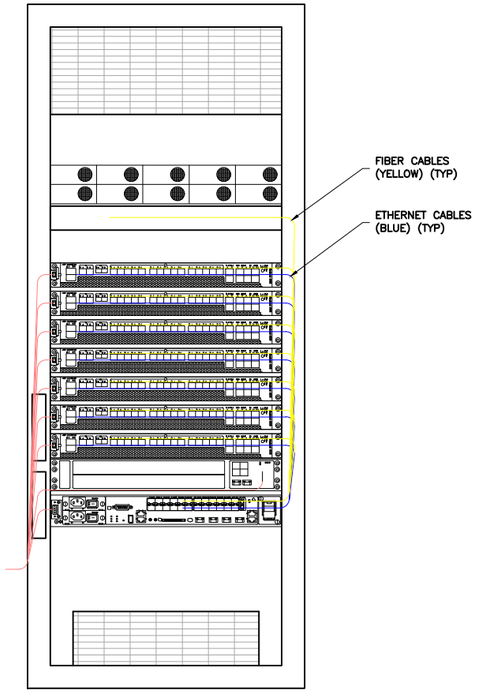
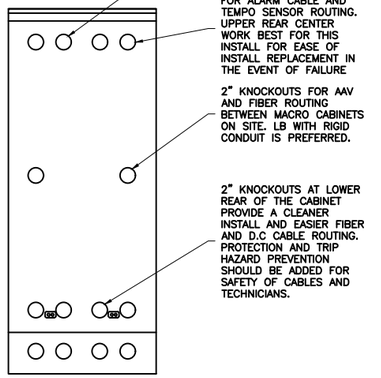
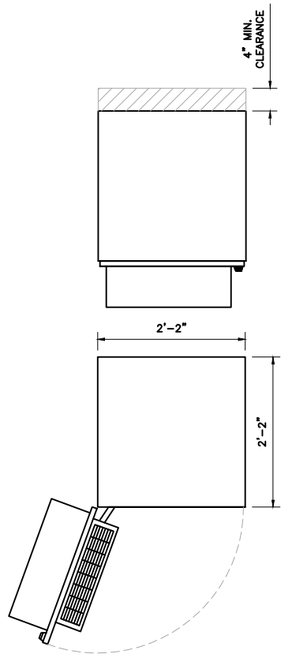


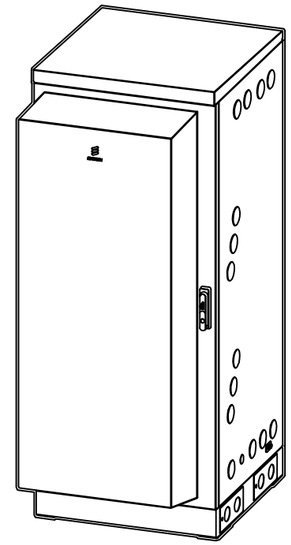
INTERNAL ROUTING



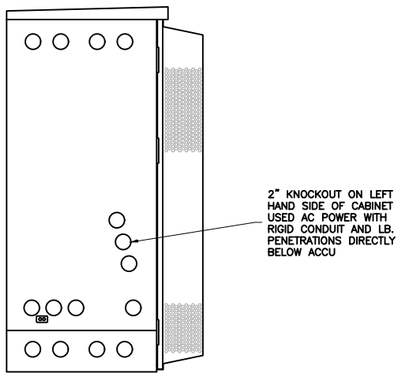
REAR VIEW



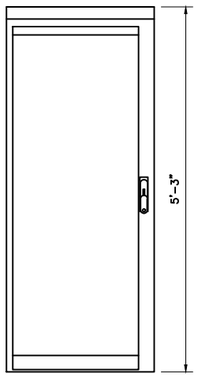
PLAN VIEW



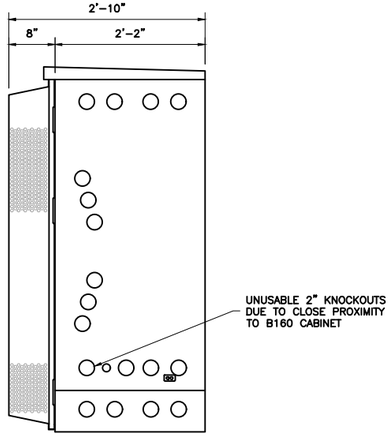
ISOMETRIC VIEW



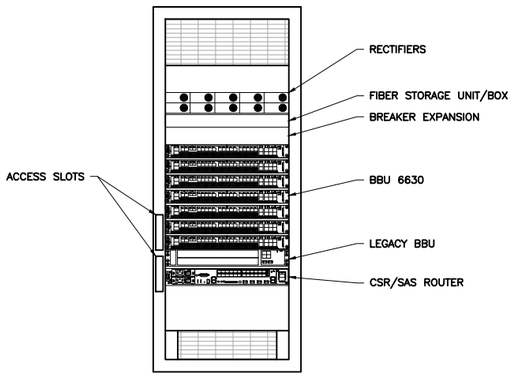
LEFT SIDE VIEW



FRONT VIEW



RIGHT SIDE VIEW



FRONT VIEW
(DOOR NOT SHOWN FOR CLARITY)

MANUFACTURER: ERICSSON
MODEL: 6160
SKU: 33953
DIMENSIONS (HxWxD): 63"x26"x34"
WEIGHT: 295 LBS (WITHOUT EQUIPMENT)
605 LBS (MAX)

NOTES:
1. CORRECT KNOCKOUT TOOL REQUIRED FOR PUNCHING KNOCKOUTS. DO NOT DRILL KNOCKOUTS THROUGH.
2. CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND/OR CABLING.

1 D-1 6160 EQUIPMENT CABINET DETAIL (ERICSSON SKU #33953)

SCALE: N.T.S.

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JOB NO:	19E0047.001

DRAWING TITLE:

6160 EQUIPMENT CABINET DETAIL

DRAWING SHEET:

D-1

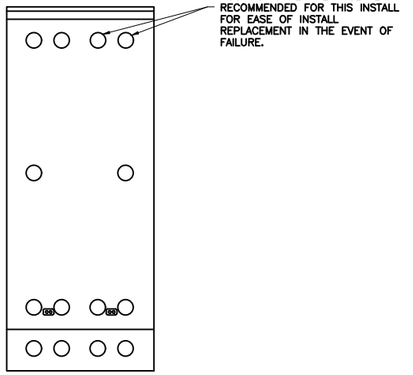
FRALEY FAMILY - ROCKVILLE
7WAN162B
17800 BOWIE MILL ROAD
DERWOOD, MARYLAND 28055

SHEET NO. 9 OF 13

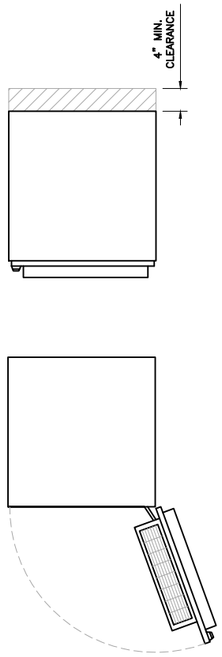
STATE OF MARYLAND · ANDREW M. MILLER · 41407 · 01/22/2022 · PROFESSIONAL ENGINEER

ANDREW M. MILLER, P.E.

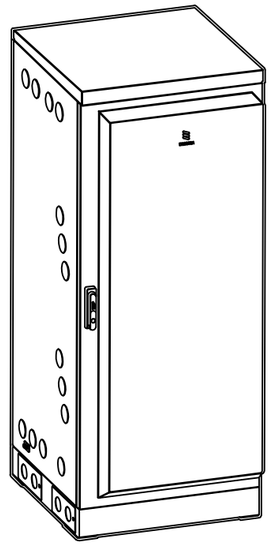
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 41497, EXPIRATION DATE: 01-05-22"



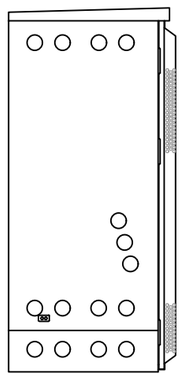
REAR VIEW



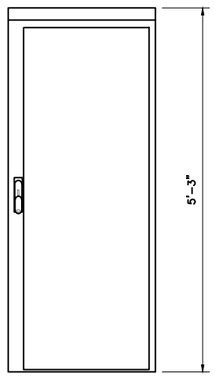
PLAN VIEW



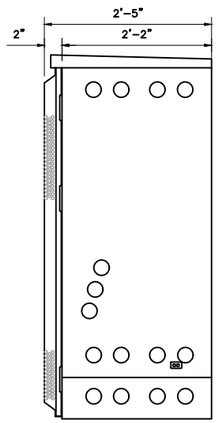
ISOMETRIC VIEW



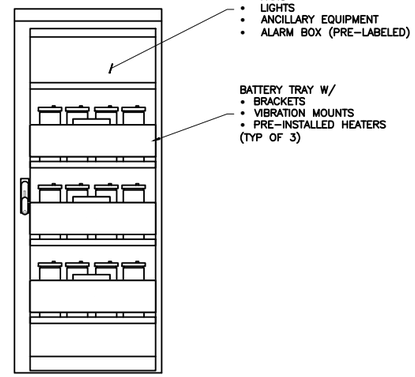
LEFT SIDE VIEW



FRONT VIEW



RIGHT SIDE VIEW



FRONT VIEW
(DOOR NOT SHOWN FOR CLARITY)

MANUFACTURER: ERICSSON
MODEL: B160
SKU: 33954
DIMENSIONS (HxWxD): 63"x26"x29"
WEIGHT: 295 LBS (WITHOUT BATTERIES)
1833 LBS (MAX)

NOTES:
1. CORRECT KNOCKOUT TOOL REQUIRED FOR PUNCHING KNOCKOUTS. DO NOT DRILL KNOCKOUTS THROUGH.
2. CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND/OR CABLING.

1 D-2 B160 BATTERY CABINET DETAIL (ERICSSON SKU #33954)

SCALE: N.T.S.

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T-MOBILE NORTHEAST LLC
12050 BALTIMORE AVENUE
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advantage engineers
7151 COLUMBIA GATEWAY DRIVE SUITE A
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PHONE: (443) 367-0003
FAX: (443) 367-3548

SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
5		
4		
3		
2		
1	11-17-2021	ZONING COMMENTS
0	11-05-2021	ISSUED FOR CONSTRUCTION

DRAWN BY:	EDZ
CHECKED BY:	MRL
SCALE:	NOTED
JOB NO:	19E0047.001

DRAWING TITLE:

B160 BATTERY CABINET DETAIL

DRAWING SHEET:

D-2

FRALEY FAMILY - ROCKVILLE
7WAN162B
17800 BOWIE MILL ROAD
DERWOOD, MARYLAND 28055

SHEET NO. 10 OF 13

STATE OF MARYLAND · ANDREW M. MILLER · 41407 · PROFESSIONAL ENGINEER · 11/22/2021

ANDREW M. MILLER, P.E.
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 41497, EXPIRATION DATE: 01-05-22"

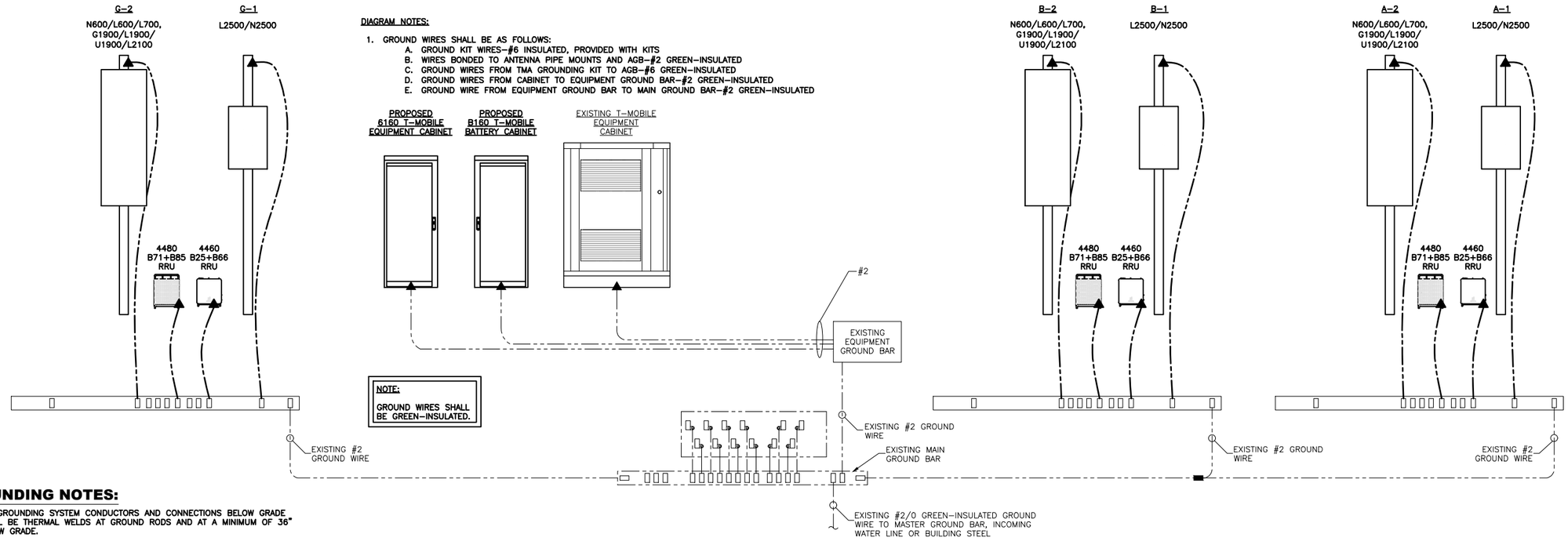


DIAGRAM NOTES:

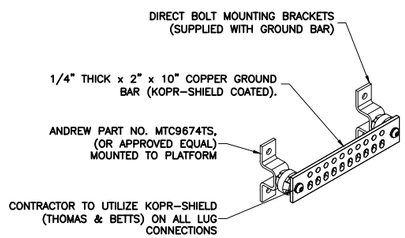
1. GROUND WIRES SHALL BE AS FOLLOWS:
   - A. GROUND KIT WIRES–#6 INSULATED, PROVIDED WITH KITS
   - B. WIRES BONDED TO ANTENNA PIPE MOUNTS AND AGB–#2 GREEN–INSULATED
   - C. GROUND WIRES FROM TMA GROUNDING KIT TO AGB–#6 GREEN–INSULATED
   - D. GROUND WIRES FROM CABINET TO EQUIPMENT GROUND BAR–#2 GREEN–INSULATED
   - E. GROUND WIRE FROM EQUIPMENT GROUND BAR TO MAIN GROUND BAR–#2 GREEN–INSULATED

GROUNDING DIAGRAM

1 G-1 SCALE: N.T.S.

GROUNDING NOTES:

1. ALL GROUNDING SYSTEM CONDUCTORS AND CONNECTIONS BELOW GRADE SHALL BE THERMAL WELDS AT GROUND RODS AND AT A MINIMUM OF 36" BELOW GRADE.
2. ALL INSTALLATIONS SHALL BE FIELD VERIFIED.
3. ALL GROUND WIRE SHALL BE #2 AWG BARE COPPER TINNED UNLESS NOTED OTHERWISE.
4. ALL GROUND WIRES SHALL PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND WITH GRADUAL BEND AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
5. THE CONTRACTOR SHALL COORDINATE INSTALLATION OF GROUND RODS AND GROUND RING WITH FOUNDATION AND UNDERGROUND CONDUIT.
6. EACH EQUIPMENT CABINET SHALL BE CONNECTED WITH (2) #2 AWG INSULATED SOLID TINNED COPPER WIRE TO GROUND BAR. EQUIPMENT CABINETS SHALL EACH HAVE (2) CONNECTIONS.
7. ANTENNA GROUND KITS SHALL BE FURNISHED BY T–MOBILE AND INSTALLED BY ELECTRICAL CONTRACTOR.
8. KOPR–SHIELD ANTI–OXIDATION COMPOUND SHALL BE USED ON ALL GROUNDING CONNECTIONS.
9. EXOTHERMIC WELDS (CADWELD) SHALL NOT BE USED ON ROOFTOPS, AT SECTOR LEVEL OR ON WATER TANKS.
10. ALL BOLTED GROUNDING CONNECTIONS SHALL BE INSTALLED WITH A LOCK WASHER UNDER THE NUT. HARDWARE FOR BOLTED CONNECTIONS SHALL BE A MINIMUM OF ⅜" DIAMETER AND SHALL BE STAINLESS STEEL.
11. GROUNDING WIRE SHALL NOT BE INSTALLED OR ROUTED THROUGH HOLES IN ANY METAL OBJECTS OR SUPPORTS TO PRECLUDE ESTABLISHING A "CHOKE" POINT.
12. PLASTIC CLIPS OR METAL CLIPS WHICH DO NOT COMPLETELY SURROUND THE GROUNDING CONDUCTORS SHALL BE USED TO FASTEN AND SUPPORT GROUNDING CONDUCTORS. FERROUS METAL CLIPS WHICH COMPLETELY SURROUND THE GROUNDING CONDUCTOR SHALL NOT BE USED.
13. STANDARD BUS BARS (CIGBE AND MIGB) SHALL BE FURNISHED AND INSTALLED. THEY SHALL NOT BE FABRICATED OR MODIFIED IN THE FIELD.
14. THE GROUNDING CONNECTION TO THE POWER AND TELCO SECTIONS OF THE PPC CABINET SHALL BE MADE BY CONNECTING A CONDUCTOR FROM THE GROUND RING TO THE FACTORY FURNISHED BUS BAR IN EACH COMPARTMENT.



GROUND LEADS

(4) MECHANICAL CONNECTION #2 AWG BCW TO EQUIPMENT CABINETS

(2) TWO HOLE LUG TO BE USED WITH #2 AWG BCW TO GROUND RING

#6 AWG FROM ANTENNA CABLE GROUND KITS.

GROUND BAR DETAIL

2 G-1 SCALE: N.T.S.

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NORTHEAST LLC
T-MOBILE NORTHEAST LLC
12050 BALTIMORE AVENUE
BELTSVILLE, MARYLAND 20705
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JOB NO:	19E0047.001

DRAWING TITLE:

GROUNDING DIAGRAM & DETAILS

DRAWING SHEET:

G-1

FRALEY FAMILY - ROCKVILLE
7WAN162B
17800 BOWIE MILL ROAD
DERWOOD, MARYLAND 28055

SHEET NO. 11 OF 13

STATE OF MARYLAND · ANDREW M. MILLER · 41407 · PROFESSIONAL ENGINEER
01/22/2021

ANDREW M. MILLER, P.E.

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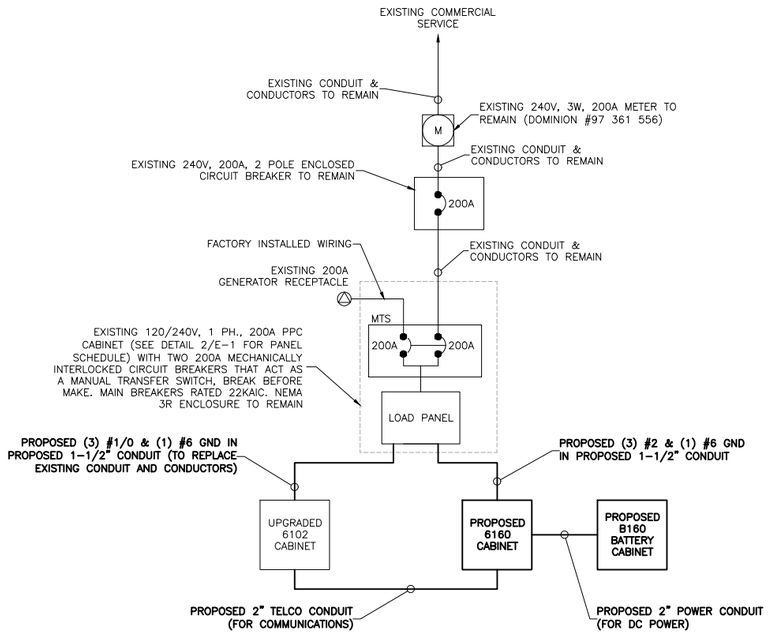


NOTES:

1. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT ADOPTED NATIONAL ELECTRIC CODES AND ALL LOCAL AND STATE CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC.
2. UNDERGROUND POWER AND TELCO SERVICE LINES SHALL BE ROUTED IN A COMMON TRENCH. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 AND CONDUIT EXPOSED ABOVE GROUND SHALL BE RIGID GALVANIZED STEEL. INTERIOR CONDUIT SHALL BE EMT UNLESS OTHERWISE INDICATED. POWER CONDUIT LINES SHALL BE SIZED AS REQUIRED PER CABLE SIZING AND NEC REQUIREMENTS.
3. CONDUITS INSTALLED AT BTS EQUIPMENT ENDS PRIOR TO THE EQUIPMENT INSTALLATION SHALL BE STUBBED AND CAPPED AT 6" ABOVE GRADE OR PLATFORM. IF SERVICE LINES CAN'T BE INSTALLED INITIALLY, PROVIDE NYLON PULL CORD IN CONDUITS.

1 E-1 ELECTRICAL ONE LINE DIAGRAM

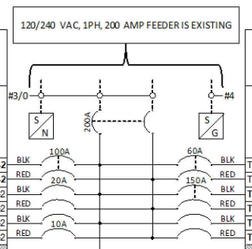
SCALE: N.T.S.

ELECTRICAL SYMBOLS

T	TRANSFORMER	Ø	PHASE
M	METER	— P — P —	POWER WIRE
	CIRCUIT BREAKER	— t — t —	TELCO WIRE
	DISCONNECT SWITCH		

Panel Circuit and Load Schedule

Load				Load per phase (VA)		Continuous	Non-Continuous	Trip	Poles	Wire size	A.I.C.	Wire Type
	Description	QTY.	Unit V.A.	Phase A	Phase B							
1	**PROPOSED 6160**	1	8200	8,200		X		100	2	2	10,000	THWN-2
2	**CABINET**	1	8200		8,200	X				2	10,000	THWN-2
3	LIGHT	1	150	150			X	20	1		10,000	THWN-2
4	GFI	1	180		180		X				10,000	THWN-2
5	SPACE			0							10,000	THWN-2
6	FAN	1	200		200		X	10	1		10,000	THWN-2
			SubTotal Continuous	8,200	8,200							
			SubTotal Non-Continuous	150	380							
Voltage: 120/240		Cycle: 60		Phase: 1			Wire: 3					
Neutral: 200 Amps												
Main Breaker: 200 Amp Frame				A.I.C : 22,000			Trip: 200 Amps					
Main Lugs: 200 Amps		Main Bus : 200 Amps										



SERVICE: 120/240 VAC
DESIGNATION: T-MOBILE PANEL
LOCATION: T-MOBILE PLATFORM

Wire Type	A.I.C.	Wire size	Poles	Trip	Non-Continuous	Continuous	Load per phase (VA) Phase A	Load per phase (VA) Phase B	Unit V.A.	QTY.	Load Description	
THWN-2	10,000		2	60			0				SURGE SUPPRESSOR	7
THWN-2	10,000							0				8
THWN-2	**10,000**						**0**					**9**
THWN-2	**10,000**	**#1/O**	**2**	**150**		**X**		**10,250**	**10250**	**1**	**UPGRADED 6102 CABINET**	**10**
THWN-2	**10,000**	**#1/O**				**X**	**10,250**		**10250**	**1**		**11**
THWN-2	**10,000**							**0**				**12**
							10,250	10,250	**SubTotal Continuous**		TOTAL CONTINUOUS x 1.25	46.125
							0	0	**SubTotal Non-Continuous**		TOTAL NON-CONTINUOUS	0.53
Manufacturer: SQUARE D											TOTAL KVA	46.66
Model Number:											TOTAL AMPS	194.40
APPROVED EQUAL												
Mounting: SURFACE												

2 E-1 PANEL SCHEDULE

SCALE: N.T.S.

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SCALE:	NOTED
JOB NO:	19E0047.001

DRAWING TITLE:

ELECTRICAL DETAILS

DRAWING SHEET:

E-1

FRALEY FAMILY - ROCKVILLE
7WAN162B
17800 BOWIE MILL ROAD
DERWOOD, MARYLAND 28055

SHEET NO. 12 OF 13

STATE OF MARYLAND — ANDREW M. MILLER — 41407 — PROFESSIONAL ENGINEER — 01/22/2022

ANDREW M. MILLER, P.E.
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 41497, EXPIRATION DATE: 01-05-22"

GENERAL ELECTRICAL NOTES & BASIC ELECTRICAL REQUIREMENTS

1. THE DRAWINGS ARE PROVIDED TO DEPICT DESIGN INTENT AND ARE NOT TO BE CONSIDERED INSTALLATION DRAWINGS. NOT ALL COMPONENTS OR CONNECTIONS ARE SHOWN. EQUIPMENT PART NUMBERS ARE SHOWN TO PROVIDE PERFORMANCE CRITERIA AND LEVEL OF PRODUCT STANDARDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING FINAL CONDUIT ROUTING, INSTALLATION OF ALL ELECTRICAL EQUIPMENT, COMPONENTS AND MATERIALS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INSTALLATION MEANS AND METHODS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING, ENERGIZING AND TESTING OF ALL ELECTRICAL COMPONENTS PER THE MANUFACTURER'S INSTRUCTIONS.
2. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE ADVANTAGE ENGINEERS PROJECT MANAGER OR CONSTRUCTION MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
3. CONTRACTOR SHALL PERFORM ALL VERIFICATION, OBSERVATION, TESTS, AND EXAMINATION WORK PRIOR TO THE ORDERING OF THE ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE DESIGN PROFESSIONAL LISTING ANY AND ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
4. THE CONTRACTOR SHALL NOTIFY THE DESIGN PROFESSIONAL, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR THE OVERALL INTENT OF THESE DRAWINGS.
5. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE DESIGN PROFESSIONAL OF ANY UNFORESEEN SITE CONDITIONS THAT MAY IMPACT THE DESIGN.
6. THE CONTRACTOR IS IN NO WAY PERMITTED TO MODIFY OR CHANGE THE DESIGN WITHOUT THE EXPRESS, WRITTEN CONSENT OF THE DESIGN PROFESSIONAL. SHOULD THE CONTRACTOR MAKE MODIFICATIONS TO THE DESIGN WITHOUT THE CONSENT OF THE DESIGN PROFESSIONAL, THE CONTRACTOR ASSUMES ALL RESPONSIBILITY AND LIABILITY FOR SUCH CHANGES.
7. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITY COMPANIES, THE AUTHORITY HAVING JURISDICTIONS OR OTHER PUBLIC AUTHORITIES.
8. ALL ELECTRICAL WORK SHALL CONFORM TO THE CURRENTLY ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE AND OTHER APPLICABLE CODES.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR LOCAL MUNICIPAL AUTHORITIES.
10. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIUPMENT, INSTALLATION CONSTRUCTION TOOLS, TRANSPORTATION, ETC. FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AS INDICATED IN THE CONSTRUCTION DOCUMENTS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING OF THE WORK SITE AND REMOVING ALL TRASH AND DEBRIS ON A DAILY BASIS.
13. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATING, DRAINING, TRENCHES, BACKFILLING, AND REMOVAL OF EXCESS DIRT.
15. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORIES (U.L.) AND SHALL BEAR THE INSPECTION LABEL "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH THE APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION AND SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NFPA, IBC, IMC, IECC, IEC, NEC, IEEE, ASTM, NEMA, U.L. AND NBFU.
16. LOCATON OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO ROUGH-IN.
17. THE CONDUIT RUNS SHOWN ON THE PLANS ARE APPROXIMATE. EXACT LOCATION AND ROUTING SHALL BE PER EXISTING FIELD CONDITIONS.
18. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING EQUAL TO OR GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED; 22,000 AIC MINIMUM FOR MAINS AND 10,000 AIC MINIMUM FOR BRANCH DEVICES. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT.
19. ALL NEW INSTALLED ELECTRICAL EQUIPMENT SHALL BE FURNISHED WITH ARC FLASH HAZARD LABELS AS REQUIRED BY THE NEC.
20. ALL ELECTRICAL EQUIPMENT, INCLUDING BUT NOT LIMITED TO: DISCONNECT SWITCHES, TRANSFORMERS, PANELBOARDS, POWER PROTECTION CABINET (PPC), AUTOMATIC TRANSFER SWITCH (ATS), MANUAL TRANSFER SWITCH (MTS), POWER TRANSFER LOAD CENTER (PTLC), ETC., SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS. LABELS SHALL INDICATE EQUIUPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
21. THE CONTRACTOR SHALL PREPARE A COMPLETE SET OF AS-BUILT DRAWINGS, DOCUMENT ALL WIRING EQUIPMENT CONDITIONS, INCLUDING MANUFACTURER'S AND PART NUMBERS FOR PANELBOARDS, TRANSFORMERS, POWER PROTECTION CABINETS (PPC) AND DISCONNECTS, AND CHANGES WHILE COMPLETING THIS CONTRACT. THE AS-BUILT DRAWINGS SHALL BE SUBMITTED TO THE DESIGN PROFESSIONAL AT THE COMPLETION OF THE PROJECT.
22. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED EQUIPMENT, REMOVE DEBRIS, CRATING AND CARTONS AND LEAVE THE INSTALLATION FINISHED AND READY FOR OPERATION.
23. THE CONTRACTOR SHALL NOTIFY THE BUILDING OWNER FIVE (5) BUSINESS DAYS PRIOR TO ANY PLANNED POWER OR OTHER SERVICE OUTAGE. THE OWNER SHALL RESERVE THE RIGHT TO REFUSE SUCH OUTAGE AND HAVE IT RESCHEDULED.
24. ANY CODE VIOLATIONS DUE TO THE CONTRACTOR'S WORK SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.

ELECTRICAL SPECIFICATIONS: ELECTRICAL MATERIALS AND EQUIPMENT

CONDUIT

1. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL BE USED FOR EXTERIOR LOCATIONS ABOVE GROUND AND IN UNFINISHED INTERIOR LOCATIONS AND WHERE INDICATED ON THE DRAWINGS, FOR UNDERGROUND RUNS. RIGID CONDUIT AND FITTINGS SHALL BE STEEL, COATED WITH ZINC EXTERIOR AND INTERIOR BY THE HOT DIP GALVANIZING PROCESS. CONDUIT SHALL BE PRODUCED TO ANSI SPECIFICATIONS C80.1, FEDERAL SPECIFICATION WW-C-581 AND SHALL BE LISTED WITH THE UNDERWRITER'S LABORATORIES. FITTINGS SHALL BE THREADED – SET SCREW OR COMPRESSION FITTINGS WILL NOT BE ACCEPTED.
2. UNDERGROUND CONDUIT SHALL BE POLYVINYLCHLORIDE SCHEDULE 40 (PVC). SCHEDULE 40 PVC SHALL NOT BE PERMITTED ABOVE GRADE. WHERE CONDUIT PASSES UNDER A ROAD OR DRIVE, IT SHALL BE SCHEDULE 80 PVC. SUITABLE FOR DIRECT BURIAL. JOINTS SHALL BE BELLED, AND FLUSH, SOLVENT WELDED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
3. EMT OR RIGID GALVANIZED STEEL CONDUIT MAY BE USED IN FINISHED INTERIOR SPACES, CONCEALED IN WALLS AND CEILINGS. EMT SHALL BE MILD STEEL, ELECTRICALLY WELDED, ELECTRO-GALVANIZED OR HOT-DIPPED GALVANIZED AND PRODUCED TO ANSI SPECIFICATION C80.3, FEDERAL SPECIFICATION WW-C-563, AND SHALL BE U.L. LISTED. FITTING SHALL BE METALLIC COMPRESSION. SET SCREW CONNECTIONS ARE NOT PERMITTED.
4. LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT SHALL BE USED FOR FINAL CONNECTION TO EQUIPMENT. FITTINGS SHALL BE METALLIC GLAND TYPE COMPRESSION FITTINGS, MAINTAINING THE INTEGRITY OF CONDUIT SYSTEM. SET SCREW CONNECTIONS ARE NOT PERMITTED. MAXIMUM LENGTH OF FLEXIBLE CONDUIT SHALL NOT EXCEED SIX (6) FEET, EXCEPT WHERE PERMITTED BY THE NEC. LFMC SHALL BE PROTECTED AND SUPPORTED AS REQUIRED BY THE NEC.
5. MINIMUM SIZE CONDUIT SHALL BE ¾ INCH.
6. PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR REQUIRED BY THE NEC.
7. PROVIDE VERTICAL CABLE SUPPORTS IN ALL VERITICAL CONDUITS WHERE SHOWN OR REQUIRED BY THE NEC.
8. PROVIDE EXPANSION FITTINGS IN CONDUIT WHERE SHOWN OR REQUIRED BY THE NEC.
9. ALL CONDUITS SHALL BE MET WITH BENDS MADE IN ACCORDANCE WITH NEC. NO RIGHT ANGLE DEVICE OTHER THAN STANDARD CONDUIT ELBOWS WITH 12 INCH MINIMUM INSIDE SWEEPS FOR ALL CONDUITS 2 INCH OR LARGER.
10. THERE SHALL NOT BE MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL) BETWEEN PULL BOXES, CONDUIT BODIES AND BOXES. CONTRACTOR SHALL FURNISH AND INSTALL ANY/ALL JUNCTION BOXES SIZED IN ACCORDANCE WITH THE NEC REQUIREMENTS AS REQUIRED FOR THE INSTALLATION.
11. ALL CONDUIT TERMINATIONS SHALL BE PROVIDED WITH PLASTIC THROAT INSULATING GROUND BUSHINGS.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL CONDUITS DURING CONSTRUCTION.
13. 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.
14. ALL CONDUITS SHALL BE SWABBED CLEAN BY PULLING AN APPROPRIATELY SIZED MANDREL THROUGH THE CONDUIT BEFORE INSTALLATION OF CONDUCTORS OR CABLES. CONDUIT SHALL BE FREE OF DIRT AND DEBRIS.
15. INSTALL PULL STRINGS IN ALL CLEAN EMPTY CONDUITS. IDENTIFY PULL STRINGS AT EACH END.
16. INSTALL 2" HIGHLY VISIBLE AND DETECTABLE TAPE 12" ABOVE ALL UNDERGROUND CONDUIT AND CONDUCTORS, OR AS INDICATED ON THE DRAWINGS.
17. CONDUITS SHALL BE INSTALLED IN SUCH A MANNER AS TO ENSURE AGAINST COLLECTION OF TRAPPED CONDENSATION.
18. 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 (WALLS AND FLOORS) SHALL BE EFFECTIVELY SEALED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE WALL, FLOOR OR STRUCTURE. FIRE STOPS AT FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE, FIRE AND FUMES. ALL MATERIAL SHALL BE U.L. APPROVED FOR THIS PURPOSE.
19. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE ARE NOT PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, PARALLEL AND PERPENDICULAR TO THE STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
20. SPARE CONDUITS SHALL BE FURNISHED WITH PULL LINES AND CAPPED WITH FACTORY CAPS.

CONDUCTORS

1. CONDUCTORS AND CABLE SHALL BE FLAME-RETARDANT, MOISTURE AND HEAT RESISTANT THERMOPLASTIC, SINGLE CONDUCTOR, COPPER, TYPE THHN/THWN-2, 600 VOLT, OR TYPE XHHW, 600V OR XHHW-2, 600V. SIZE AS INDICATED. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR.
2. #10 AWG AND SMALLER CONDUCTORS SHALL BE SOLID AND #8 AWG AND LARGER CONDUCTORS SHALL BE STRANDED.
3. SOLDERLESS, COMPRESSION-TYPE CONNECTORS SHALL BE USED FOR TERMINATION OF ALL STRANDED CONDUCTORS.
4. ALL CONDUCTORS SHALL BE TAGGED AT BOTH ENDS OF THE CONDUCTOR, AT ALL PULL BOXES, JUNCTION BOXES, EQUIPMENT AND CABINETS AND SHALL BE IDENTIFIED WITH APPROVED PLASTIC TAGS.
5. CONTRACTOR SHALL PROVIDE STRAIN-RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES, COAX CABLES, AND AISG RET CABLES. CABLE STRAIN-RELIEF & CABLE SUPPORTS SHALL BE APPROVED FOR THE PURPOSE. ZIP TIES OR VELCO STRAPS ARE NOT PERMITTED.

ELECTRICAL SPECIFICATIONS: ELECTRICAL MATERIALS AND EQUIPMENT, CONTINUED

DISCONNECT SWITCHES

1. DISCONNECT SWITCHES SHALL BE HEAVY DUTY, FUSIBLE, DEAD FRONT, QUICK-MAKE, QUICK-BREAK, EXTERNALLY OPERABLE, HANDLE LOCKABLE AND INTERLOCK WITH COVER IN CLOSED POSITION, VOLTAGE, AMPERAGE AND NEMA RATING AS INDICATED.
2. INSTALL DISCONNECT SWITCHES LEVEL AND PLUMB. CONNECT TO WIRING SYSTEM AND GROUNDING SYSTEM AS INDICATED.
3. PROVIDE A WHITE PHENOLIC SIGN WITH ¾" RED ENGRAVED LETTERING LABELING EACH SERVICE DISCONNECT AS "SERVICE DISCONNECT". IF SOURCE IS HOUSE POWER, INCLUDE LOCATION AND LABEL OF PANEL FEEDING EQUIPMENT. HVAC DISCONNECTS SHALL BE LABELED "HVAC DISCONNECT" AND INCLUDE PANEL AND CIRCUIT NUMBER OF CIRCUIT SERVING THE HVAC EQUIPMENT.
4. ALL FUSIBLE DISCONNECTS SHALL BE FURNISHED WITH CLASS RK-1 FUSES, SIZED AS INDICATED.

PANELBOARDS

1. RATED FOR USE AT 120/240V, SINGLE PHASE, THREE WIRE PLUS GROUND, OR 120/208V, SINGLE PHASE, THREE WIRE PLUS GROUND OR 120/208V, THREE PHASE, FOUR WIRE PLUS GROUND AS REQUIRED FOR THE INTENDED APPLICATION OR AS INDICATED ON THE DRAWINGS.
2. ALUMINUM OR COPPER BUS, RATED FOR 200 AMPERES OR AS INDICATED ON THE DRAWINGS, AND HAVE A SHORT CIRCUIT WITHSTAND RATING OF 22,000 AIC MINIMUM.
3. MAIN CIRCUIT BREAKER SHALL BE 200 AMPERES OR AS INDICATED ON THE DRAWINGS AND HAVE A SHORT CIRCUIT RATING OF 22,000 AIC MINIMUM. THE MAIN BREAKER SHALL NOT BE INSTALLED SO AS TO BACKFEED THE PANEL BUS.
4. PANEL SHALL HAVE A NUMBER OF BRANCH CIRCUITS AS INDICATED ON THE DRAWINGS. THE MAIN BREAKER SHALL NOT USE ANY OF THESE SPACES.
5. BRANCH CIRCUIT BREAKERS SHALL BE PLUG-IN OR BOLT-ON TYPE.
6. BRANCH CIRCUIT BREAKERS SHALL HAVE A MINIMUM RATING OF 10,000 AIC.
7. TANDEM BRANCH CIRCUIT BREAKERS ARE NOT PERMITTED.
8. PANEL ENCLOSURE SHALL BE NEMA 1 FOR INTERIOR APPLICATIONS OR NEMA 3R FOR EXTERIOR APPLICATIONS OR AS INDICATED ON THE DRAWINGS.
9. DO NOT INSTALL PANEL UPSIDE DOWN.
10. WHERE A PANELBOARD IS INSTALLED, AN EXTERNAL SURGE PROTECTION DEVICE MUST ALSO BE INSTALLED ADJACENT AND CONNECTED TO THE PANELBOARD.
11. QUALITY PRODUCT CIRCUIT BREAKERS ARE NOT PERMITTED.
12. UNUSED BRANCH CIRCUIT SPACES SHALL HAVE PANEL MANUFACTURER'S BLANK SPACE INSERTS INSTALLED.
13. ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN, NOT HANDWRITTEN.
14. PANEL DIRECTORIES SHALL BE UPDATED TO ACCURATELY REFLECT THE FINAL CIRCUITING.
15. ALL UNUSED CIRCUIT BREAKERS SHALL BE SWITCHED OFF AND LABELED 'SPARE'.

EXTERNALLY MOUNTED SURGE PROTECTION DEVICES

1. RATED FOR THE INTENDED APPLICATION AND AS INDICATED ON THE DRAWINGS: 120/240V, SINGLE PHASE, OR 120/208V, SINGLE PHASE, OR 120/208V, THREE PHASE, OR 480/277V, SINGLE PHASE OR 480/277V, THREE PHASE.
2. RATED FOR 100KA PEAK SURGE CURRENT PER PHASE.
3. INDICATOR LEDS FOR NORMAL AND FAULT CONDITION FOR EACH PHASE.
4. U.L. LISTED 1449
5. ENCLOSURE SHALL BE: INTERIOR APPLICATIONS, NEMA 1. EXTERIOR APPLICATIONS: NEMA 3R OR NEMA 4X STAINLESS STEEL.

POWER PROTECTION CABINET (PPC)

1. RATED FOR USE AT 120/240V, SINGLE PHASE, THREE WIRE PLUS GROUND OR 120/208V, SINGLE PHASE, THREE WIRE PLUS GROUND OR 120/208V, THREE PHASE, FOUR WIRE PLUS GROUND AS REQUIRED FOR THE INTENDED APPLICATION OR AS INDICATED ON THE DRAWINGS.
2. ALUMINUM OR COPPER BUS, RATED FOR 200 AMPERES OR AS INDICATED ON THE DRAWINGS, AND HAVE A SHORT CIRCUIT WITHSTAND RATING OF 22,000 AIC MINIMUM.
3. TWO MAIN CIRCUIT BREAKERS, MECHANICALLY INTERLOCKED, THAT ACT AS A MANUAL TRANSFER SWITCH, BREAK BEFORE MAKE. ALLOW FOR A NORMAL AND PORTABLE GENERATOR STANDBY FEEDS. MAIN BREAKERS SHALL BE 200 AMPERES AND HAVE A SHORT CIRCUIT RATING OF 22,000 AIC MINIMUM. CONTRACTOR SHALL ENSURE THAT THE MECHANICAL INTERLOCK HAS BEEN INSTALLED.
4. INTERNAL PANEL SHALL HAVE A MINIMUM OF 24 BRANCH CIRCUITS AVAILABLE.
5. BRANCH CIRCUIT BREAKERS SHALL BE PLUG-IN OR BOLT-ON.
6. BRANCH CIRCUIT BREAKERS SHALL HAVE A MINIMUM RATING OF 10,000 AIC.
7. TANDEM BRANCH CIRCUIT BREAKERS ARE NOT PERMITTED.
8. CLASSIFIED PRODUCT BRANCH CIRCUIT BREAKERS ARE NOT PERMITTED.
9. FURNISHED WITH INTERNAL, FACTORY INSTALLED, INTEGRATED SURGE SUPPRESSION.
10. FURNISHED WITH STANDBY GENERATOR INLET (RECEPTACLE), REVERSE SERVICE RATED. VOLTAGE AND AMPERAGE AS INDICATED ON THE DRAWINGS. GENERATOR RECEPTACLE SHALL BE FACTORY INSTALLED ON SIDE OF PPC UNLESS SHOWN AS REMOTE MOUNTED ON THE DRAWINGS.
11. UNUSED BRANCH CIRCUIT BREAKERS SHALL HAVE PANEL MANUFACTURER'S BLANK SPACE INSERTS INSTALLED.
12. ENCLOSURE SHALL BE NEMA 1 FOR INTERIOR APPLICATIONS OR NEMA 3R FOR EXTERIOR APPLICATIONS OR AS INDICATED ON THE DRAWINGS.
13. IF AN EXISTING PPC IS MISSING THE MECHANICAL INTERLOCK, THE CONTRACTOR SHALL FURNISH AND INSTALL THE CORRECT FACTORY MECHANICAL INTERLOCK ON THE TWO MAIN CIRCUIT BREAKERS.
14. ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN, NOT HANDWRITTEN.
15. PANEL DIRECTORIES SHALL BE UPDATED TO ACCURATELY REFLECT THE FINAL CIRCUITING.
16. ALL UNUSED CIRCUIT BREAKERS SHALL BE SWITCHED OFF AND LABELED 'SPARE'.

EXTERIOR COMBINATION GFCI/SWITCH UNIT

1. WEATHERPROOF ENCLOSURE WHICH INCLUDES A 120V, 20A GFCI RECEPTACLE AND A 120V, 20A TOGGLE SWITCH.
2. "IN-USE" COVER, CORROSION RESISTANT, GALVANIZED STEEL ENCLOSURE.
3. GFCI RECEPTACLE AND LIGHT SWITCH SHALL BE WIRED ON SEPARATE CIRCUITS, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
4. G.E. # U010SO10GRP OR APPROVED EQUAL.

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SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
5		
4		
3		
2		
1	11-17-2021	ZONING COMMENTS
0	11-05-2021	ISSUED FOR CONSTRUCTION

DRAWN BY:	EDZ
CHECKED BY:	MRL
SCALE:	NOTED
JOB NO:	19E0047.001

DRAWING TITLE:

ELECTRICAL NOTES

DRAWING SHEET:

E-2

FRALEY FAMILY - ROCKVILLE
7WAN162B
17800 BOWIE MILL ROAD
DERWOOD, MARYLAND 28055

SHEET NO. 13 OF 13

STATE OF MARYLAND · ANDREW MILLER · 41497 · PROFESSIONAL ENGINEER · 01-05-22

ANDREW M. MILLER, P.E.
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 41497, EXPIRATION DATE: 01-05-22"