Cell Site No. DA01265A
Name: Dallas North Water Tower
Address: 2409 W. Plano Parkway

THIRD AMENDMENT TO COMMUNICATIONS FACILITIES LICENSE

THIS THIRD AMENDMENT TO COMMUNICATIONS FACILITIES LICENSE AGREEMENT ("Amendment"), dated as of the latter of the signature dates below, is by and between City of Plano, having a mailing address of 4120 West Plano Parkway, Plano, Texas 75093 (hereinafter referred to as "Licensor") and T-Mobile West LLC, a Delaware limited liability company, having a mailing address of 12920 SE 38th Street, Bellevue, WA 98006 (hereinafter referred to as "Licensee").

WHEREAS, Licensor and Licensee entered into a Communications Facilities License dated November 17, 2000, a First Amendment to Communications Facilities License on April 3, 2013, and a Second Amendment to Communications Facilities License on October 2, 2016, whereby Licensor licensed to Licensee certain Premises, therein described, that are a portion of the Property located at 2409 W. Plano Parkway, Plano, Texas (collectively "Agreement"); and

WHEREAS, Licensor and Licensee desire to modify, as set forth herein, the rent payable under the Agreement; and

WHEREAS, Licensee desires to modify the Site Plan as currently included in the Agreement and alter and make improvements to the Property or Premises as indicated on the Site Plan attached hereto as Appendix "A"; and

WHEREAS, based upon the Site Plan attached hereto as Appendix "A" and pursuant to the City of Plano's existing rate structure for the attachment of communications facilities to City water towers, approval of the Site Plan attached hereto as Appendix "A" will result in a modified rent payment becoming due for the remaining term of the Agreement; and

WHEREAS, Licensor and Licensee, in their mutual interest, wish to amend the Agreement as set forth below accordingly.

NOW THEREFORE, in consideration of the foregoing and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Licensor and Licensee agree as follows:

1. **Rental Fees. Appendix "B" of the License Agreement, Payment Terms and Conditions**, is hereby modified to reflect that the LICENSEE's monthly Rental Fee upon the execution of this Third Amendment shall be increased by Three Thousand Three Hundred Thirty-Eight and 81/100 Dollars ($3,338.81) per month so that the total monthly Rental Fee shall thereafter be in the amount of Five Thousand Sixty-Two and 53/100 Dollars ($5,062.53) per month for a total of Sixty Thousand Seven Hundred Fifty and 36/100 Dollars ($60,750.36) annually. Said increase shall become effective on the effective date of this Third Amendment. Any increased rent due and payable under the terms of this Third Amendment for the remainder of the

current month (i.e. until LICENSEE's next monthly payment becomes due) shall be pro-rated based upon the new Rent Payment identified herein and shall become due and payable at the time of LICENSEE's next monthly payment. Rental Fees shall continue to be increased each year by three percent (3%) of the previous year's Rental Fee, including the next year after the execution of this Third Amendment.

2. **Equipment.** Licensor consents to the equipment modifications all in the manner in accordance with the Site Plan attached hereto as Appendix "A" and incorporated herein by reference.

3. **Other Terms and Conditions Remain.** In the event of any inconsistencies between the Agreement and this Third Amendment, the terms of this Third Amendment shall control. Except as expressly set forth in this Third Amendment, the Agreement otherwise is unmodified and remains in full force and effect. Each reference in the Agreement to itself shall be deemed also to refer to this Third Amendment.

4. **Capitalized Terms**. All capitalized terms used but not defined herein shall have the same meanings as defined in the Agreement.

[this space intentionally left blank]

IN WITNESS WHEREOF, the parties have caused their properly authorized representatives to execute and seal this Third Amendment on the dates set forth below.

CITY OF PLANO, TEXAS

By:_____
Mark D. Israelson
CITY MANAGER

Date:_____

APPROVED AS TO FORM:

BY: _____
Paige Mims, CITY ATTORNEY

Date: _____

T-MOBILE WEST LLC
A DELAWARE LIMITED LIABILITY COMPANY

By:_____
Name: JENNIFER J STEVEIRA
Title: SVP ENGINEERING

Date: 9-3-2021

TMO Legal Digitally signed by TMO Legal Date: 2021.08.17 08:24:30 -04'00'

LICENSOR ACKNOWLEDGEMENT

STATE OF TEXAS

COUNTY OF COLLIN

BEFORE ME, the undersigned authority, a Notary Public in and for the State of Texas, on this day personally appeared **Mark D. Israelson** known to me to be the person and officer whose name is subscribed to the foregoing instrument, and acknowledged to me that he/she executed the same for and as the act of the CITY OF PLANO, of the State of Texas, Collin County, Texas, and as the City Manager thereof, and for the purposes and consideration therein expressed and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this _____day of _____, 2021.

_____
Notary Public in and for the State of Texas

My Commission Expires _____

LICENSEE ACKNOWLEDGEMENT

STATE OF Texas

COUNTY OF Collin

BEFORE ME, the undersigned authority, on this day personally appeared, Jennifer J. Silveira (Name) SVP of Engineering (Title) of T-Mobile West LLC, a Delaware limited liability company, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said T-Mobile West LLC, and that he executed the same as the act of such Corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this 3rd day of September, 2021.

_____
Notary Public in and for the State of Texas

My Commission Expires 03/24/2025

BEN SUTTON
Notary Public, State of Texas
Comm. Expires 03-24-2025
Notary ID 132994768

Appendix "A"

T-Mobile

T-MOBILE SITE NUMBER: DA01265A
T-MOBILE SITE NAME: PLANO PKWY. WT
SITE TYPE: WATER TOWER
TOWER HEIGHT: ---

SITE ADDRESS: 2409 W PLANO PKWY, PLANO, TX 75075
COUNTY: COLLIN
JURISDICTION: CITY OF PLANO, TX

T-MOBILE ANCHOR PROJECT

SITE INFORMATION

SITE NAME:	PLANO PKWY. WT
SITE ADDRESS:	2409 W PLANO PKWY PLANO, TX 75075
COUNTY:	COLLIN
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	33° 0' 33.0984"
LONGITUDE:	-96° 44' 26.001"
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	699.45 FT
CURRENT ZONING:	N/A
JURISDICTION:	CITY OF PLANO, TX
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	CITY OF PLANO
ELECTRIC PROVIDER:	TBD
TELCO PROVIDER:	TBD

PROJECT TEAM

DESIGNER FIRM:	BROADUS SERVICES 4 COUNTRY PLACE CIRCLE DALWORTHINGTON GARDENS, TX 76016 PH: (817) 349-3449
ENGINEER FIRM:	JACOB GORALSKI, PLLC 1106 COLBI STREET KENNEDALE, TX 76060 PH: (972) 239-5495 CONTACT: JACOB GORALSKI, P.E.
CARRIER/APPLICANT:	T-MOBILE 7668 WARREN PARKWAY FRISCO, TX 75034 CONTACT: MICHELLE SHERWOOD-SMITH PH: (972) 464-3926

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	OVERALL SITE PLAN
C-2	ENLARGE EXISTING SITE PLAN
C-3	ENLARGED FINAL EQUIPMENT PLAN
C-4	FINAL SITE ELEVATION & ANTENNA MOUNT DIAGRAM
C-5	EXISTING & FINAL ANTENNA LAYOUTS
C-6.1	RFDS
C-6.2	PLUMBING DIAGRAM
C-7	ANTENNA SPECIFICATIONS
C-8	EQUIPMENT SPECIFICATIONS
C-9	EQUIPMENT SPECIFICATIONS
C-10	EXTERIOR STEEL PAINTING SPECIFICATIONS
C-11	TEMPORARY CONSTRUCTION FENCE SPECIFICATIONS
G-1	GROUNDING SITE PLAN
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR FULL SIZE. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

APPROVALS

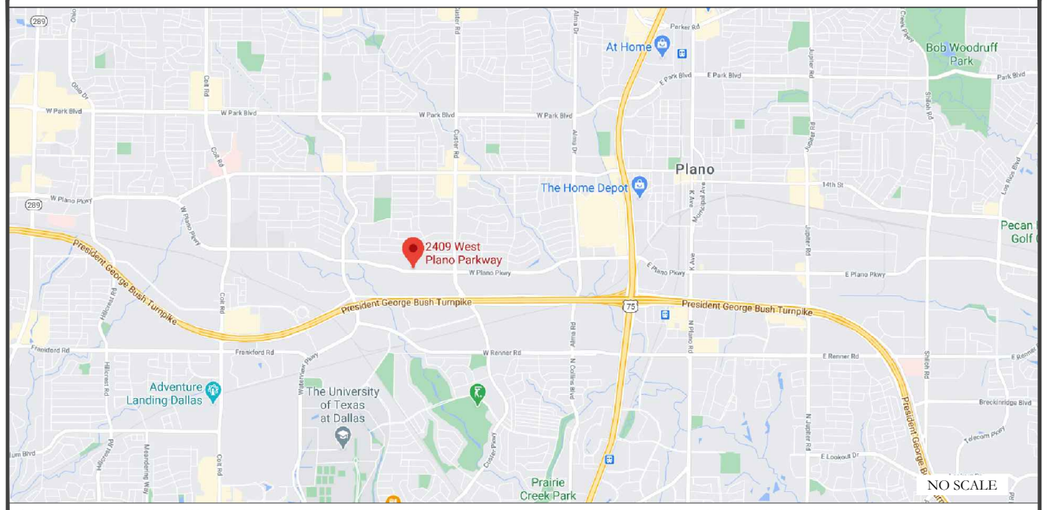
APPROVAL	SIGNATURE	DATE
PROPERTY OWNER OR REP.		
LAND USE PLANNER		
T-MOBILE		
OPERATIONS		
RF		
NETWORK		
BACKHAUL		
CONSTRUCTION MANAGER		

NOTES:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT T-MOBILE CONSTRUCTION MANAGER

THE HEIGHT OF THE TOWER WILL NOT BE INCREASED; NOR WILL THERE BE AN EXPANSION OF THE GROUND/LEASE AREA

THE PARTIES ABOVE HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL CONSTRUCTION DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND ANY CHANGES AND MODIFICATIONS THEY MAY IMPOSE.

LOCATION MAP



DRIVING DIRECTIONS FROM T-MOBILE LOCAL OFFICE (7668 WARREN PARKWAY, FRISCO, TX 75034): FROM T-MOBILE'S OFFICE HEAD WEST TOWARD MCCANDLESS WAY, TURN LEFT ONTO MCCANDLESS WAY, TURN RIGHT ONTO WARREN PKWY, USE THE LEFT 2 LANES TO TURN LEFT ONTO DALLAS PKWY, USE THE LEFT LANE TO TAKE THE RAMP ONTO DALLAS NORTH TOLLWAY S, MERGE ONTO DALLAS NORTH TOLLWAY S, USE THE RIGHT 2 LANES TO MERGE ONTO PRESIDENT GEORGE BUSH TURNPIKE E, TAKE THE EXIT CUSTER PKWY, MERGE ONTO TX-190, TURN LEFT ONTO CUSTER RD, TURN LEFT ONTO CUSTER RD, TURN LEFT ONTO NORTHCREST DR, TURN LEFT, TUR RIGHT, DESTINATION WILL BE ON THE LEFT.

APPLICABLE CODES/REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	IBC 2018
MECHANICAL	IMC 2018
ELECTRICAL	NEC 2017

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS: BY JACOB GORALSKI
PROJECT # ---
DATED OCTOBER 26, 2020

MOUNT ANALYSIS: BY TEAM COMMUNICATIONS
DATED OCTOBER 6, 2020

CALL TEXAS ONE CALL
(800) DIG-TESS
CALL 3 WORKING DAYS BEFORE YOU DIG!

811

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO PROPOSE AN ANTENNA MODIFICATION ON AN EXISTING WIRELESS SITE.

FINAL TOWER CONFIGURATION:
- (6) ANTENNAS
- (6) RRUs
- (2) HCS 2.0 BREAKOUT FEATURES
- (2) HCS 2.0 PART 3 TRUNK CABLE (1.55")
- (9) HCS 2.0 HYBRID JUMPER CABLES (0.72")

FINAL GROUND CONFIGURATION:
- (1) DELTA 600A HPL3 SSC
- (1) DELTA LB3 BBU
- (2) AMIAs
- (2) HCS 2.0 BOTTOM JUNCTION BOX
- (1) PPC/TELCO
- (1) DISTRIBUTION BOX
- (1) CIENA 3931
- (1) JUNCTION BOX

DESIGN PACKAGE BASED ON RF DATA SHEET
VERSION: 15
ISSUED: 11/18/2020 06:14:57 PM

T-Mobile
7668 WARREN PARKWAY
FRISCO, TX 75034

BROADUS services
4 COUNTRY PLACE CIRCLE
DALWORTHINGTON GARDENS
TEXAS 76016
OFFICE: (817) 349 3449
FAX: 800 401 4234

T-MOBILE SITE NUMBER:
DA01265A

PLANO PKWY. WT

2409 W PLANO PKWY
PLANO, TX 75075

EXISTING WATER TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
PCD0	10/29/2020	MN	PRELIMINARY	ELG
PCD1	11/06/2020	MN	PRELIMINARY	ELG
FCD0	11/23/2020	MN	FINAL	ELG
FCD2	01/04/2020	MN	FINAL	ELG

3/25/2021

STATE OF TEXAS
JACOB GORALSKI
116873
LICENSED
PROFESSIONAL ENGINEER

JACOB GORALSKI, PLLC
CONSULTING ENGINEER
TX PE No. 116873
TX FIRM No. F-17021
1106 COLBI STREET
KENNEDALE, TX 76060
(972) 239-5495

SHEET NUMBER: T-1
REVISION: FCD2

Appendix A

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES, SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.
3. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS.
4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
5. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.
6. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
7. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
8. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
9. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
10. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE PROJECT SPECIFICATIONS.
11. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
12. NOTICE TO PROCEED– NO WORK TO COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF A PURCHASE ORDER.
13. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND T–MOBILE STANDARD INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH THE ANSI/TIA–322 (LATEST EDITION).

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND IN ACCORDANCE WITH ASTM A36 UNLESS OTHERWISE NOTED.
2. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4"ø) CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
3. NON–STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8"ø ASTM A307 BOLTS UNLESS NOTED OTHERWISE.
4. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. SLAB FOUNDATION DESIGN ASSUMING ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER.....2 IN.
   #5 AND SMALLER & WWF.....1 1/2 IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALLS.....3/4 IN.
   BEAMS AND COLUMNS.....1 1/2 IN.
5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE. IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

MASONRY NOTES:

1. HOLLOW CONCRETE MASONRY UNITS SHALL MEET A.S.T.M. SPECIFICATION C90, GRADE N. TYPE 1. THE SPECIFIED DESIGN COMPRESSIVE STRENGTH OF CONCRETE MASONRY (F'm) SHALL BE 1500 PSI.
2. MORTAR SHALL MEET THE PROPERTY SPECIFICATION OF A.S.T.M. C270 TYP. "S" MORTAR AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI.
3. GROUT SHALL MEET A.S.T.M. SPECIFICATION C475 AND HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2000 PSI.
4. CONCRETE MASONRY SHALL BE LAID IN RUNNING (COMMON) BOND.
5. WALL SHALL RECEIVE TEMPORARY BRACING. TEMPORARY BRACING SHALL NOT BE REMOVED UNTIL GROUT IS FULLY CURED.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR– _____
   SUBCONTRACTOR– GENERAL CONTRACTOR (CONSTRUCTION)
   CARRIER– T–MOBILE
   TOWER OWNER– _____
   OEM– ORIGINAL EQUIPMENT MANUFACTURER

   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 AND T–MOBILE
2. 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.
3. DRAWINGS PROVIDED HERE ARE NOT TO SCALE AND ARE INTENDED TO SHOW OUTLINE ONLY.
4. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
5. "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.
6. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
7. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR AND T–MOBILE. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
8. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWINGS.
9. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
10. 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 OWNER'S DESIGNATED LOCATION.
11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

ABBREVIATIONS AND SYMBOLS:

ABBREVIATIONS:

AGL	ABOVE GRADE LEVEL
BTS	BASE TRANSCEIVER STATION
(E)	EXISTING
MIN.	MINIMUM
REF	REFERENCE
RF	RADIO FREQUENCY
T.B.D.	TO BE DETERMINED
T.B.R.	TO BE RESOLVED
TYP	TYPICAL
REQ	REQUIRED
EGR	EQUIPMENT GROUND RING
AWG	AMERICAN WIRE GAUGE
MGB	MASTER GROUND BAR
EG	EQUIPMENT GROUND
BCW	BARE COPPER WIRE
SIAD	SMART INTEGRATED ACCESS DEVICE
GEN	GENERATOR
IGR	INTERIOR GROUND RING (HALO)
RBS	RADIO BASE STATION

SYMBOLS:

- SOLID GROUND BUS BAR
- SOLID NEUTRAL BUS BAR
- SUPPLEMENTAL GROUND CONDUCTOR
- 2–POLE THERMAL–MAGNETIC CIRCUIT BREAKER
- SINGLE–POLE THERMAL–MAGNETIC CIRCUIT BREAKER
- CHEMICAL GROUND ROD
- TEST WELL
- DISCONNECT SWITCH
- METER
- EXOTHERMIC WELD (CADWELD) (UNLESS OTHERWISE NOTED)
- MECHANICAL CONNECTION
- GROUNDING WIRE

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC. HILTI EPOXY ANCHORS ARE REQUIRED BY T–MOBILE.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
5. CABLES SHALL NOT BE ROUTED THROUGH LADDER–STYLE CABLE TRAY RUNGS.
6. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH PLASTIC TAPE PER COLOR SCHEDULE. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (I.E. PANEL BOARD AND CIRCUIT ID'S).
8. PANEL BOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
10. POWER, CONTROL AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET & DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN–2 GREEN INSULATION CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION WITH OUTER JACKET LISTED OR LABELED FOR THE LOCATION USED UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E. RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT) OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
21. WIREWAYS SHALL BE EPOXY–COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER).
22. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHIN ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
23. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL; SHALL MEET OR EXCEED UL 50 AND RATED NEMA 1 (OR BETTER) INDOORS OR NEMA 3R (OR BETTER) OUTDOORS.
24. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
25. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
26. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
27. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
28. INSTALL PLASTIC LABEL ON THE METER CENTER TO SHOW "T–MOBILE".
29. ALL CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 AWG SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 FT. OF MAIN GROUND WIRES WITH 1–#2 AWG TIN–PLATED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS, WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 TINNED SOLID IN 3/4" LIQUID TIGHT CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE LIQUID TIGHT CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

NEC INSULATOR COLOR CODE

DESCRIPTION	PHASE/CODE LETTER	WIRE COLOR
240/120 1Ø	LEG 1	BLACK
	LEG 2	RED
AC NEUTRAL	N	WHITE
GROUND (EGC)	G	GREEN
VDC POS	+	*RED–POLARITY MARK AT TERMINATION
VDC NEG	–	*BLACK–POLARITY MARK AT TERMINATION
240V OR 208V, 3Ø	PHASE A	BLACK
	PHASE B	RED(ORG. IF HI LEG)
	PHASE C	BLUE
480V, 3Ø	PHASE A	BROWN
	PHASE B	ORANGE OR PURPLE
	PHASE C	YELLOW

* SEE NEC 210.5(C)(1) AND (2)

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FRISCO, TX 75034

BROADUS services
4 COUNTRY PLACE CIRCLE
DALWORTHINGTON GARDENS
TEXAS 76016
OFFICE: (817) 349 3449
FAX: 800 401 4234

T-MOBILE SITE NUMBER:
DA01265A

PLANO PKWY. WT

2409 W PLANO PKWY
PLANO, TX 75075

EXISTING WATER TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
PCD0	10/29/2020	MN	PRELIMINARY	ELG
PCD1	11/06/2020	MN	PRELIMINARY	ELG
FCD0	11/23/2020	MN	FINAL	ELG
FCD2	01/04/2020	MN	FINAL	ELG

3/25/2021

STATE OF TEXAS
JACOB GORALSKI
116873
LICENSED
PROFESSIONAL ENGINEER

JACOB GORALSKI, PLLC
CONSULTING ENGINEER
TX PE No. 116873
TX FIRM No. F–17021
1106 COLBI STREET
KENNEDALE, TX 76060
(972) 239–5495

SHEET NUMBER: T-2

REVISION: FCD2

NOTE:

CITY OF PLANO REQUIRES 72 HOUR NOTICE PRIOR TO BEGINNING OF WORK.

NOTE:

CONTRACTOR TO REMOVE ALL ABANDON EQUIPMENT AND DISPOSE OF OFFSITE INCLUDING CONDUCTOR AND FITTINGS. THE BALCONY AROUND THE TANK ITSELF SHALL BE FREE OF ALL DEBRIS.

NOTE:

CONTRACTOR SHALL PROVIDE A LIFT FOR CITY TO VIEW COMPLETED WORK AND CLEANUP OF THE BALCONY. CANNOT UTILIZE TANK STRUCTURE TO SUPPORT IT.

NOTE:

CONTRACTOR TO LABEL ALL T-MOBILE CONDUCTORS ALONG ALL VERTICAL AND HORIZONTAL RUNS ON 50 FOOT SPACING.

NOTE:

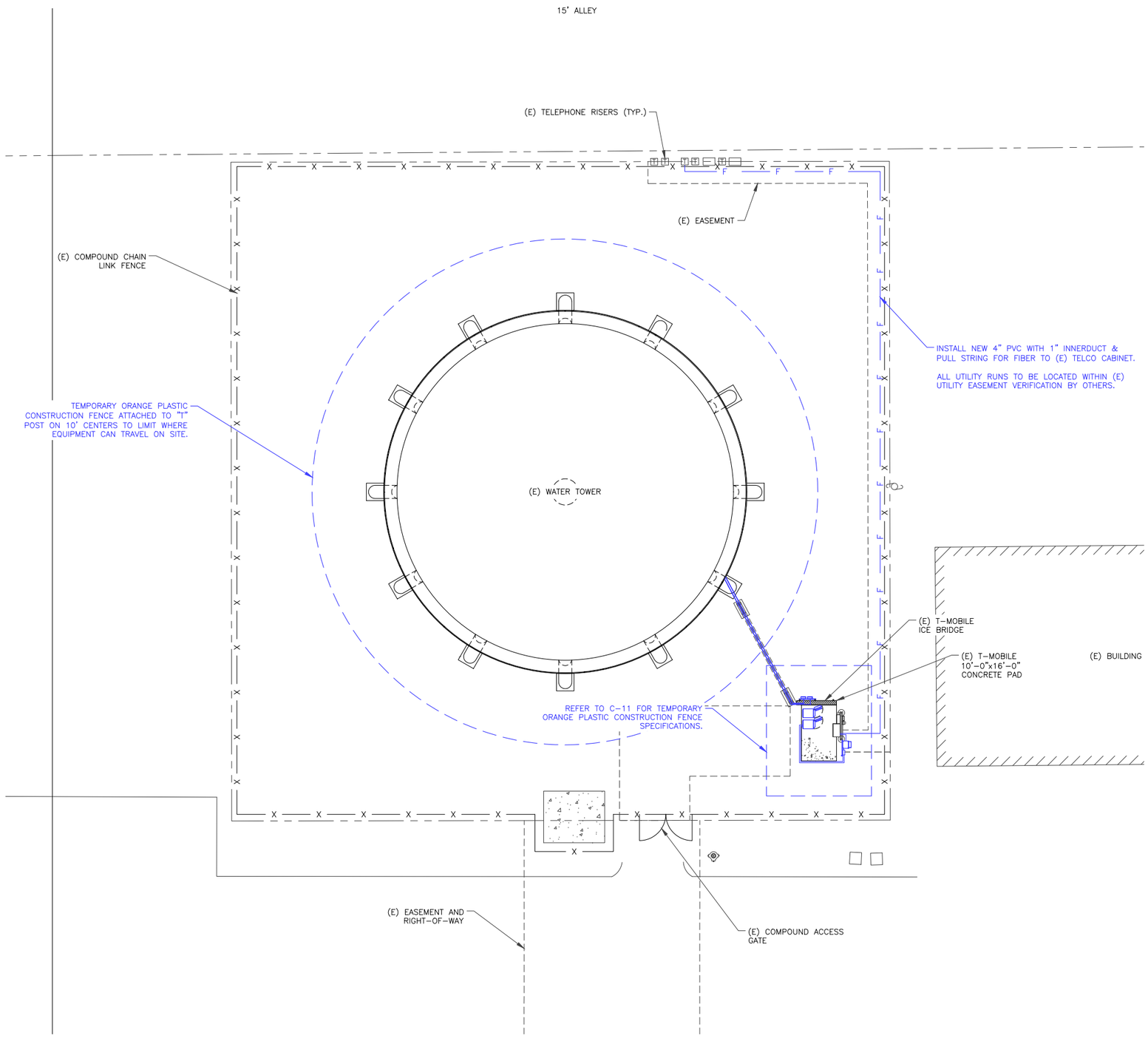
SITE RESTORATION PLAN IS REQUIRED TO REPAIR DAMAGE FROM EQUIPMENT, SUCH AS RUTS. NEED TO INCLUDE DIGGING OUT RUTS, LEVELING, PLACING SOLID SOD, ROLL SOD AND WATER SOD. RESTORATION MUST BE ACCEPTABLE TO THE CITY.

NOTE:

CONTRACTOR TO NOT RELOCATE WATER AND SEWER LINES.

NOTE:

CONTRACTOR CANNOT UTILIZE TANK STRUCTURE TO SUPPORT ANY CONSTRUCTION ACTIVITY.



1 OVERALL SITE PLAN

SCALE: 2' 1' 0 2' 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

N

T-Mobile
7668 WARREN PARKWAY
FRISCO, TX 75034

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DALWORTHINGTON GARDENS
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FAX: 800 401 4234

T-MOBILE SITE NUMBER:
DA01265A

PLANO PKWY. WT

2409 W PLANO PKWY
PLANO, TX 75075

EXISTING WATER TOWER

ISSUED FOR:

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3/25/2021

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SHEET NUMBER: C-1

REVISION: FCD2

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NOTE:

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NOTE:

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NOTE:

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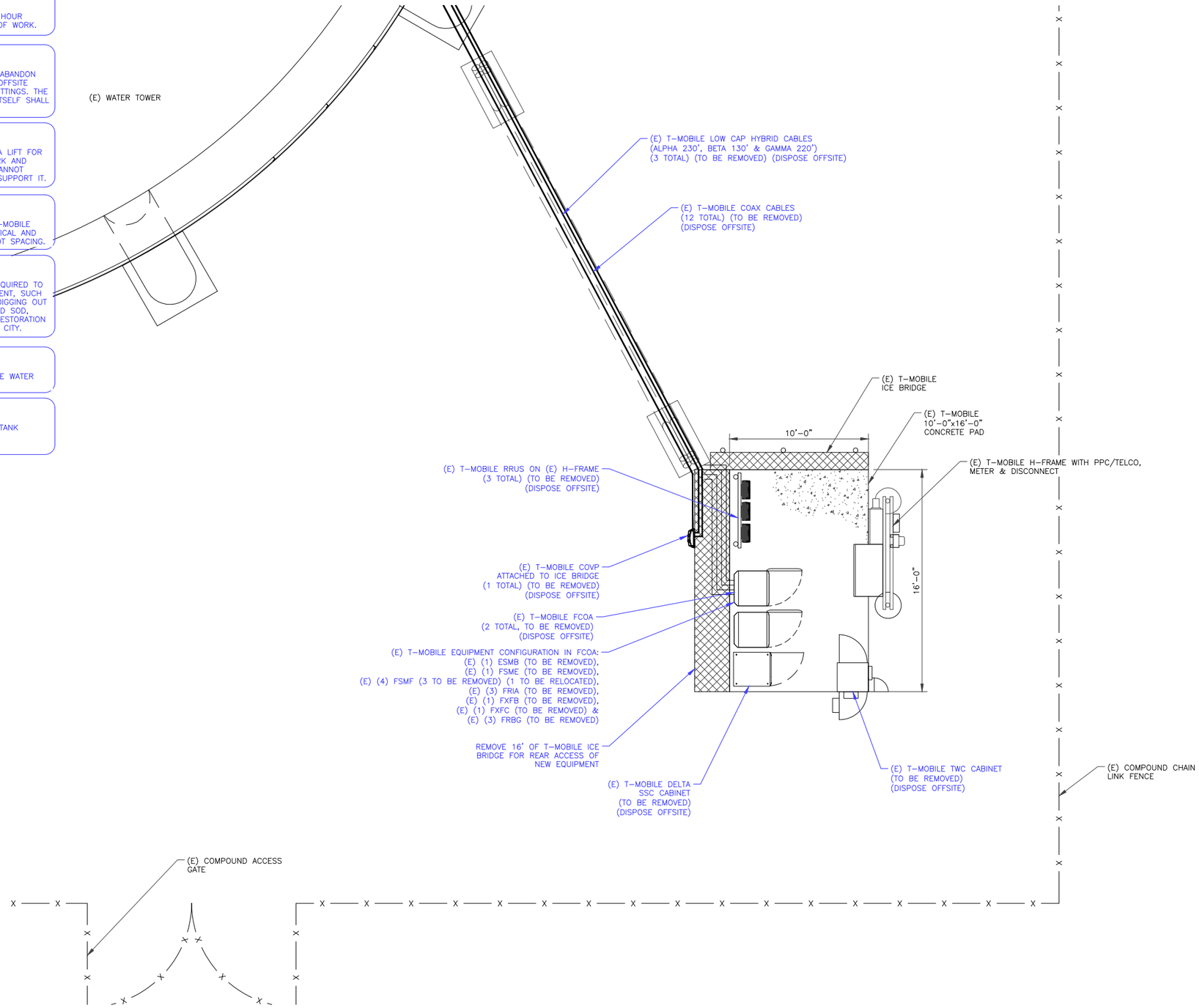

1 ENLARGE EXISTING SITE PLAN

SCALE: 2' 1' 0 2' 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

N

T-Mobile
7668 WARREN PARKWAY
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PLANO PKWY. WT

2409 W PLANO PKWY
PLANO, TX 75075

EXISTING WATER TOWER

ISSUED FOR:

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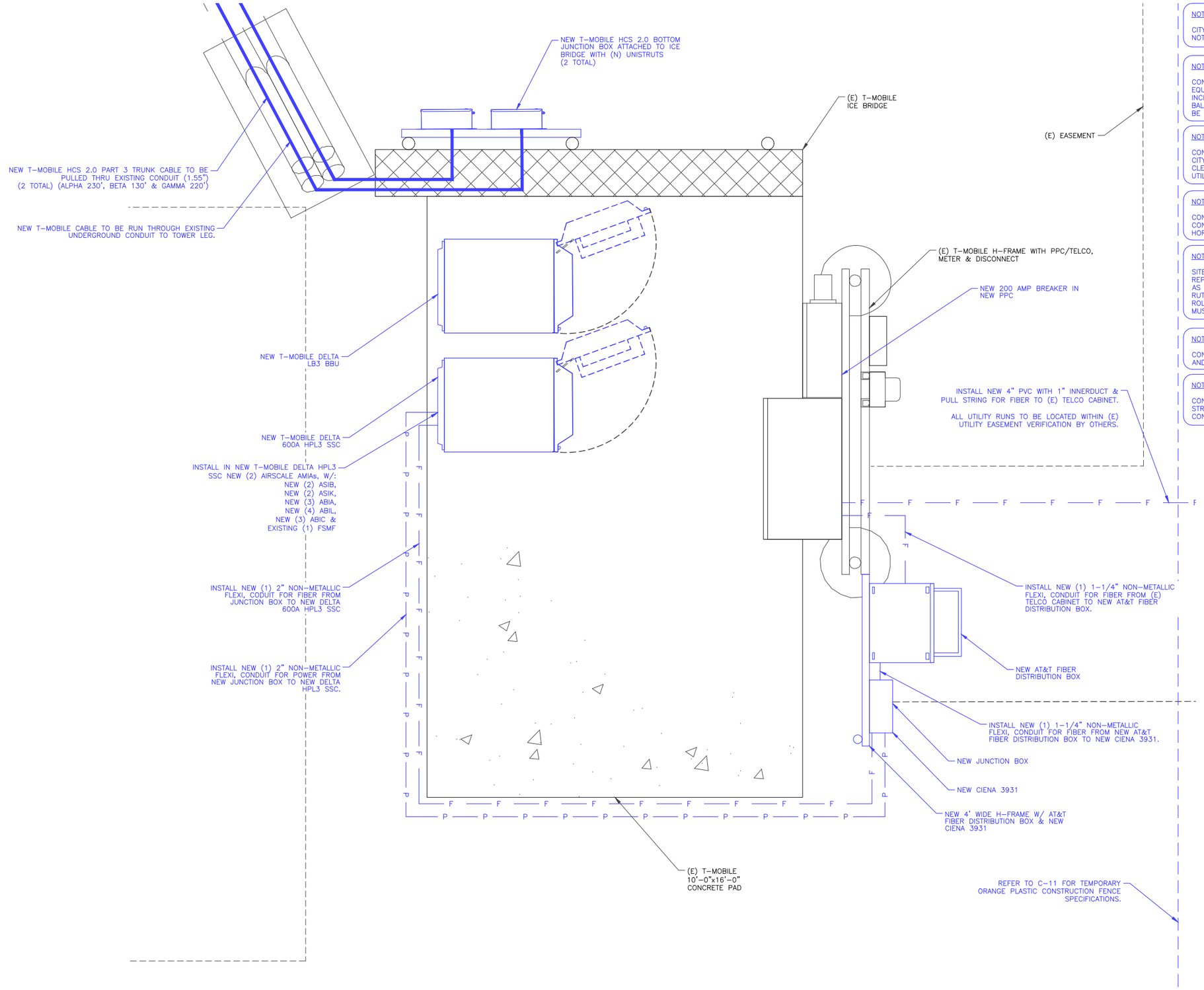

1 ENLARGED FINAL EQUIPMENT PLAN
SCALE: 1"=1'-0" (FULL SIZE) 1/2"=1'-0" (11x17)

N

NOTE:
CITY OF PLANO REQUIRES 72 HOUR NOTICE PRIOR TO BEGINNING OF WORK.

NOTE:
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NOTE:
CONTRACTOR SHALL PROVIDE A LIFT FOR CITY TO VIEW COMPLETED WORK AND CLEANUP OF THE BALCONY. CANNOT UTILIZE TANK STRUCTURE TO SUPPORT IT.

NOTE:
CONTRACTOR TO LABEL ALL T-MOBILE CONDUCTORS ALONG ALL VERTICAL AND HORIZONTAL RUNS ON 50 FOOT SPACING.

NOTE:
SITE RESTORATION PLAN IS REQUIRED TO REPAIR DAMAGE FROM EQUIPMENT, SUCH AS RUTS. NEED TO INCLUDE DIGGING OUT RUTS, LEVELING, PLACING SOLID SOD, ROLL SOD AND WATER SOD. RESTORATION MUST BE ACCEPTABLE TO THE CITY.

NOTE:
CONTRACTOR TO NOT RELOCATE WATER AND SEWER LINES.

NOTE:
CONTRACTOR CANNOT UTILIZE TANK STRUCTURE TO SUPPORT ANY CONSTRUCTION ACTIVITY.

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T-MOBILE SITE NUMBER:
DA01265A

PLANO PKWY. WT

2409 W PLANO PKWY
PLANO, TX 75075

EXISTING WATER TOWER

ISSUED FOR:

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3/25/2021

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SHEET NUMBER: C-3

REVISION: FCD2

Appendix A

NOTE:

CITY OF PLANO REQUIRES 72 HOUR NOTICE PRIOR TO BEGINNING OF WORK.

NOTE:

CONTRACTOR TO REMOVE ALL ABANDON EQUIPMENT AND DISPOSE OF OFFSITE INCLUDING CONDUCTOR AND FITTINGS. THE BALCONY AROUND THE TANK ITSELF SHALL BE FREE OF ALL DEBRIS.

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NOTE:

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NOTE:

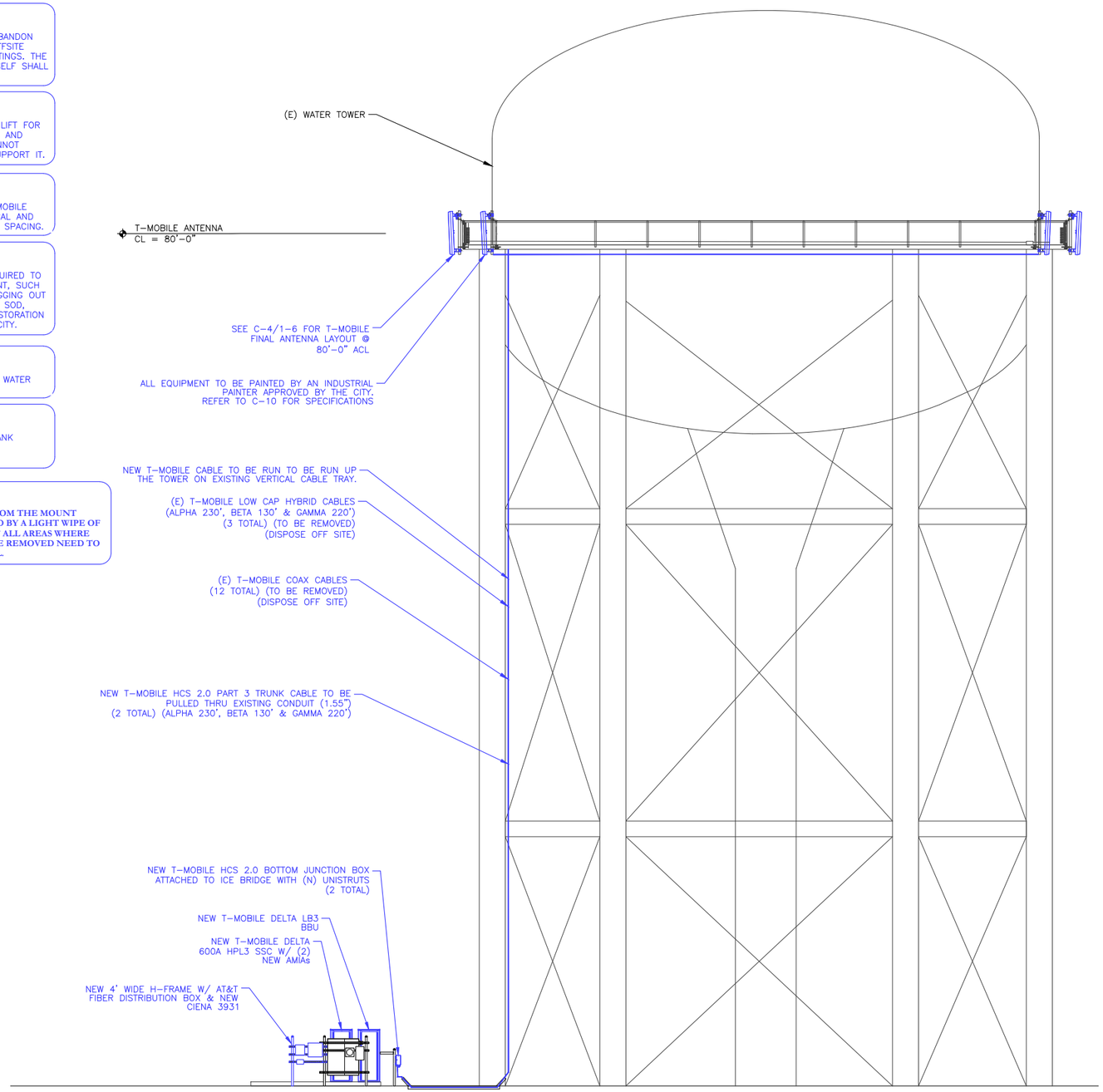
CONTRACTOR CANNOT UTILIZE TANK STRUCTURE TO SUPPORT ANY CONSTRUCTION ACTIVITY.

NOTE:

THE PERMANENT MARKINGS FROM THE MOUNT MAPPING NEED TO BE REMOVED BY A LIGHT WIPE OF MEK OR ACETONE. PICTURES OF ALL AREAS WHERE THE PERMANENT MAKING WERE REMOVED NEED TO BE SENT TO CITY FOR APPROVAL.

T-MOBILE EQUIPMENT

ANTENNA CL: 80'-0"
MOUNT CL: 80'-0"



1 FINAL TOWER ELEVATION
SCALE: NOT TO SCALE

TOWER & ANTENNA STANDARD NOTES:

A. TOWER STRUCTURAL ANALYSIS BY JACOB GORALSKI. DATED OCTOBER 26, 2020. PROJECT # ---/ NO NEW ANTENNAS OR EQUIPMENT INSTALLED WITHOUT APPROVAL OF STRUCTURAL ENGINEER.

B. MOUNT ANALYSIS AND COMPLIANCE PERFORMED BY TEAM COMMUNICATIONS, DATED OCTOBER 6, 2020. NO NEW ANTENNAS OR EQUIPMENT INSTALLED ON MOUNTS WITHOUT THE APPROVAL OF A STRUCTURAL ENGINEER.

C. INSTALLED EQUIPMENT MUST HAVE A MATCHING T-MOBILE RFDS AND STRUCTURAL ANALYSIS.

D. PRIOR TO ATTACHING ANTENNAS AND MOUNTING SECTIONS, (E) TOWER MUST BE ANALYZED BY A LICENSED STRUCTURAL ENGINEER TO VERIFY TOWER IS CAPABLE OF SUPPORTING THE PROPOSED LOADS. REFER TO STRUCTURAL ANALYSIS BY OTHERS.

E. NEW EQUIPMENT CANNOT BE MOUNTED TO TOWER. RELOCATE EXISTING TOWER MOUNTED EQUIPMENT TO CUSTOMER MOUNT.

F. DURING INSTALLATION, THE RADIOS ARE NOT TO EXCEED 5'-0" FROM THE WORKING SURFACE TO THE TOP OF RADIOS.

G. DIRECT TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/CLIMBING PEGS/STEPS AND SAFETY CLIMB.

H. VERIFY AZIMUTHS WITH RFDS.

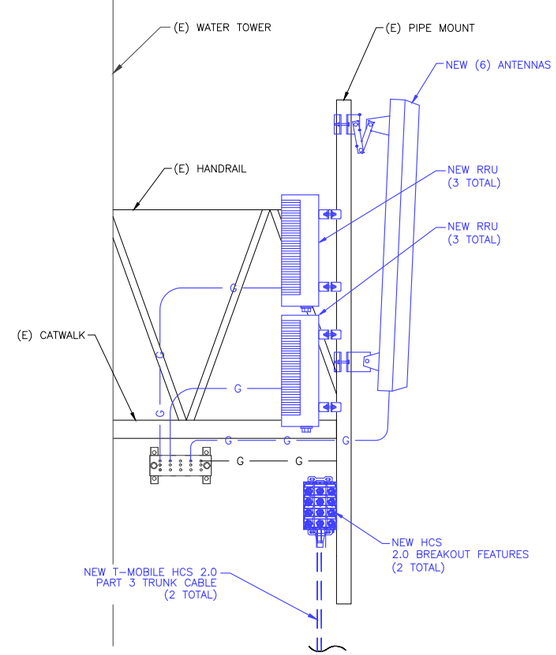
I. 2' ANTENNA SEPARATION REQUIRED. CONTRACTOR TO MOVE (E) ANTENNAS TO ENDS OF MOUNT AS REQUIRED.

J. PROPOSED ANTENNA PLACEMENT LOCATION TO BE FIELD VERIFIED BY GENERAL CONTRACTOR PRIOR TO CONSTRUCTION TO AVOID ANY INTERFERENCE OR SHADOWING OF EXISTING ANTENNAS. IF INTERFERENCE OR SHADOWING OF EXISTING ANTENNAS IS DISCOVERED DURING FIELD VERIFICATION, PLEASE CONTACT (A&E VENDOR) FOR DESIGN REVISION PRIOR TO ANY NEW ANTENNA INSTALLATION.

K. DO NOT OBSTRUCT BEACON IF TOWER LIT.

INSTALLER NOTE:

CONTRACTOR TO VERIFY ALL ANTENNA TIP HEIGHTS DO NOT EXCEED BEACON BASE HEIGHT.



2 ANTENNA/RRU MOUNT DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
7668 WARREN PARKWAY
FRISCO, TX 75034

BROADUS services
4 COUNTRY PLACE CIRCLE
DALWORTHINGTON GARDENS
TEXAS 76016
OFFICE: (817) 349 3449
FAX: 800 401 4234

T-MOBILE SITE NUMBER:
DA01265A

PLANO PKWY. WT

2409 W PLANO PKWY
PLANO, TX 75075

EXISTING WATER TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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FCD2	01/04/2020	MN	FINAL	ELG

3/25/2021

STATE OF TEXAS
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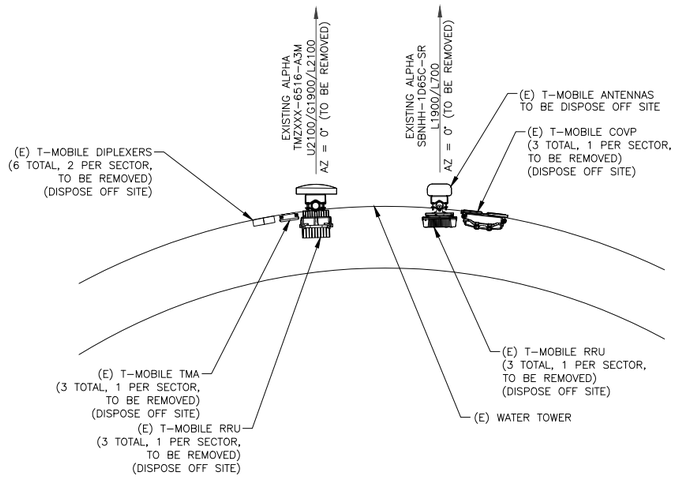
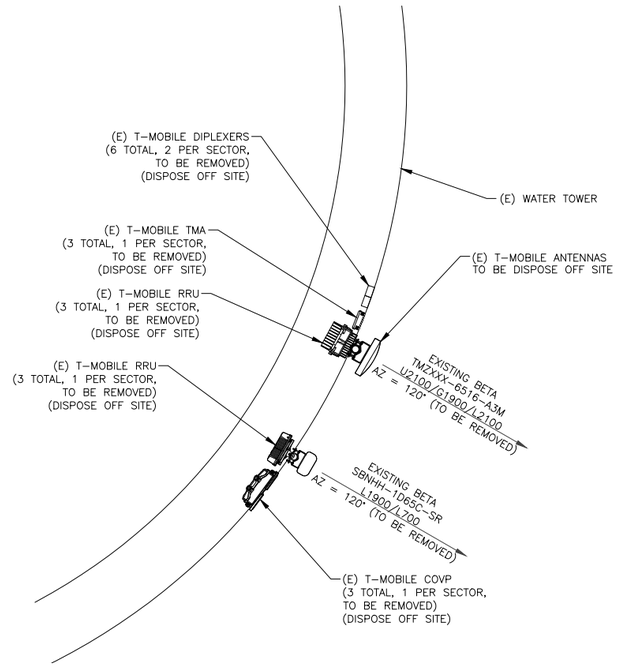
1106 COLBI STREET
KENNEDALE, TX 76060
(972) 239-5495

SHEET NUMBER: C-4

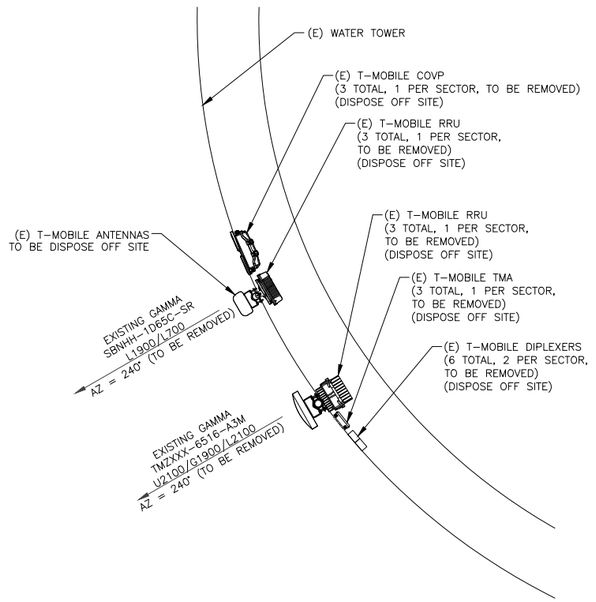
REVISION: FCD2



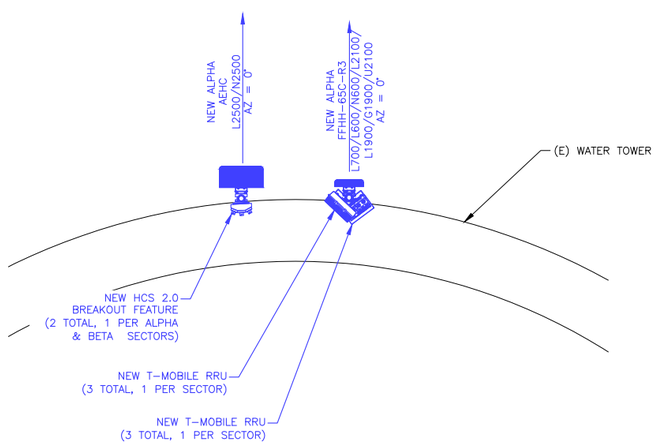
1 EXISTING ALPHA ANTENNA LAYOUT
SCALE: NOT TO SCALE



2 EXISTING BETA ANTENNA LAYOUT
SCALE: NOT TO SCALE



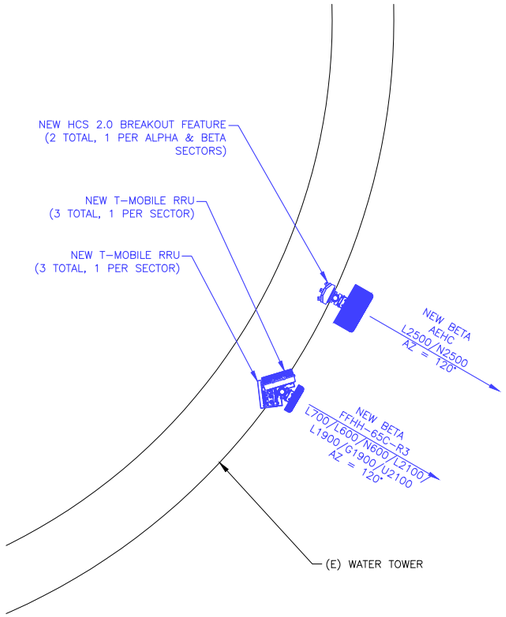
3 EXISTING GAMMA ANTENNA LAYOUT
SCALE: NOT TO SCALE



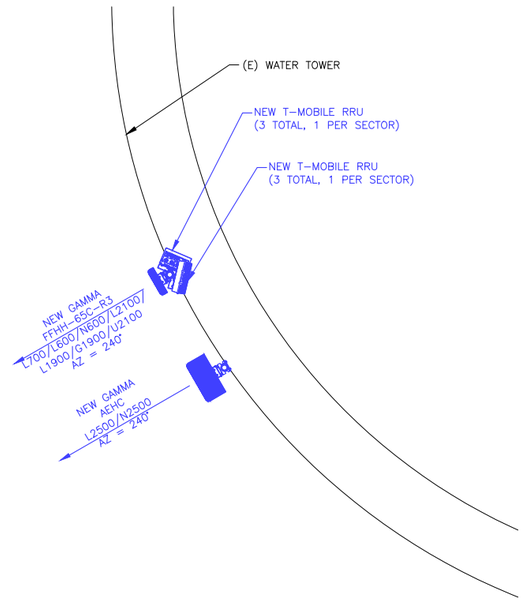
NOTE:

ALL EQUIPMENT TO BE PAINTED BY AN INDUSTRIAL PAINTER APPROVED BY THE CITY. REFER TO C-10 FOR SPECIFICATIONS

4 FINAL ALPHA ANTENNA LAYOUT
SCALE: NOT TO SCALE



5 FINAL BETA ANTENNA LAYOUT
SCALE: NOT TO SCALE



6 FINAL GAMMA ANTENNA LAYOUT
SCALE: NOT TO SCALE

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TEXAS 76016
OFFICE: (817) 349 3449
FAX: 800 401 4234

T-MOBILE SITE NUMBER:
DA01265A

PLANO PKWY. WT

2409 W PLANO PKWY
PLANO, TX 75075

EXISTING WATER TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
PCD0	10/29/2020	MN	PRELIMINARY	ELG
PCD1	11/06/2020	MN	PRELIMINARY	ELG
FCD0	11/23/2020	MN	FINAL	ELG
FCD2	01/04/2020	MN	FINAL	ELG

3/25/2021

STATE OF TEXAS
JACOB GORALSKI
116873
LICENSED
PROFESSIONAL ENGINEER

JACOB GORALSKI, PLLC
CONSULTING ENGINEER
TX PE No. 116873
TX FIRM No. F-17021
1106 COLBI STREET
KENNEDALE, TX 76060
(972) 239-5495

SHEET NUMBER: C-5

REVISION: FCD2

Appendix A

Section 1 - Site Information

Site ID: DA01265A
Status: Final
Version: 15
Project Type: Anchor
Approved: 11/18/2020 6:14:57 PM
Approved By: MILIND.GANDHI6@T-MOBILE.COM
Last Modified: 11/18/2020 6:14:57 PM
Last Modified By: MILIND.GANDHI6@T-MOBILE.COM

Site Name: Plano Pkwy. WT
Site Class: Watertank
Site Type: Structure Non Building
Plan Year: 2020
Market: DALLAS TX
Vendor: Nokia
Landlord: City of Plano

Latitude: 33.00919400
Longitude: -96.74055600
Address: 2409 W Plano Pkwy
City, State: Plano, TX
Region: SOUTH

RAN Template: 56791EZ_SR_U21 | **AL Template:** 56791EZ_SR_U21
Sector Count: 3 | **Antenna Count:** 6 | **Coax Line Count:** 0 | **TMA Count:** 0 | **RRU Count:** 6

Proposed RAN Equipment

Template: 56791EZ_SR_U21

Enclosure	1	2	3	4
Enclosure Type	Generic 600A Site Support Cabinet	Tower Top Mount (Nokia)	Ancillary Equipment (Nokia)	Generic Battery Cabinet for 600A SSC
Baseband	ASIB: L700, L600, L2100, L1900 / ASIK: N2500 / ASIK: N600 / ASIB: L2500 / FSMF: G1900, U2100			
Baseband Submodule	ABIA (x 2): L2100, L1900 / ABIA: L700, L600 / ABIL (x 3): N2500 / ABIL: N600 / ABIC (x 3): L2500			
Baseband Subrack	AMIA (x 2)			
Hybrid Cable System	Voltage Booster needed if hybrid under 250' / Extra Booster Amplifier needed if hybrid under 250'	Nokia HCS 2.0 Jumper Cable Airscale *Select Length* (x 9)	Nokia HCS 2.0 Trunk *Select Length* (x 2)	
Junction Box			Nokia HCS 2.0 Tower Junction Box (x 2)	
Power subsystem	Rectifier Shelf *Select size* / Breakers *Select size*			Batteries *Select size*
Radio		AHLOA (x 3): L700, L600, N600 / AHFIG (x 3): L2100, L1900, G1900, U2100		
Transport System	CSR IXRe V1 (Gen1)			

RAN Scope of Work:

6/6/2020

-Project Type: Anchor, L700 4x2
-Project CD: DA01265A - Site Modification (2942950)

-Proposed Equipment on Top:
1) Antennas - CommScope-FFHH-65C-R3 (3x) | AEHC (3x)
2) Radios - AHFIG (3x) | AHLOA (3x)
3) HCS 2.0 (2x)
4) Nokia Airscale Jumper cable (9x)

-Tx/Rx Frequencies:
1) AWS(2100) => UL: 1710-1715, 1735-1755 MHz | DL: 2110-2115, 2135-2155 MHz
2) PCS(1900) => UL: 1865-1885 MHz | DL: 1945-1965 MHz
3) 600 => UL: 663-673 MHz | DL:617-627 MHz
4) 700 => UL: 699-704 MHz | DL:729-734 MHz
5) 2500 => 2496 MHz-2690 MHz

Sector 1 (Proposed) view from front (Note: the images show view from behind)

Coverage Type	A - Outdoor Macro				
Antenna	1				2
Antenna Model	Commscope - FFHH-65C-R3 (Octo)				AEHC (Active Antenna - Massive MIMO)
Azimuth	0				0
M. Tilt	0				0
Height	80				80
Ports	P1	P2	P3	P4	P5
Active Tech.	L700, L600, N600	L700, L600, N600	L2100, L1900, G1900, U2100	L2100, L1900, G1900, U2100	L2500, N2500
Dark Tech.					
Restricted Tech.					
Decomm. Tech.					
E. Tilt					
Cables					
TMAs					
Diplexers / Combiners					
Radio					
Sector Equipment					

Sector 2 (Proposed) view from front (Note: the images show view from behind)

Coverage Type	A - Outdoor Macro				
Antenna	1				2
Antenna Model	Commscope - FFHH-65C-R3 (Octo)				AEHC (Active Antenna - Massive MIMO)
Azimuth	120				120
M. Tilt	0				0
Height	80				80
Ports	P1	P2	P3	P4	P5
Active Tech.	L700, L600, N600	L700, L600, N600	L2100, L1900, G1900, U2100	L2100, L1900, G1900, U2100	L2500, N2500
Dark Tech.					
Restricted Tech.					
Decomm. Tech.					
E. Tilt					
Cables					
TMAs					
Diplexers / Combiners					
Radio					
Sector Equipment					

Sector 3 (Proposed) view from front (Note: the images show view from behind)

Coverage Type	A - Outdoor Macro				
Antenna	1				2
Antenna Model	Commscope - FFHH-65C-R3 (Octo)				AEHC (Active Antenna - Massive MIMO)
Azimuth	240				240
M. Tilt	0				0
Height	80				80
Ports	P1	P2	P3	P4	P5
Active Tech.	L700, L600, N600	L700, L600, N600	L2100, L1900, G1900, U2100	L2100, L1900, G1900, U2100	L2500, N2500
Dark Tech.					
Restricted Tech.					
Decomm. Tech.					
E. Tilt					
Cables					
TMAs					
Diplexers / Combiners					
Radio					
Sector Equipment					

1 RFDS
SCALE: NOT TO SCALE

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TEXAS 76016
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FAX: 800 401 4234

T-MOBILE SITE NUMBER:
DA01265A

PLANO PKWY. WT

2409 W PLANO PKWY
PLANO, TX 75075

EXISTING WATER TOWER

ISSUED FOR:

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FCD2	01/04/2020	MN	FINAL	ELG

3/25/2021

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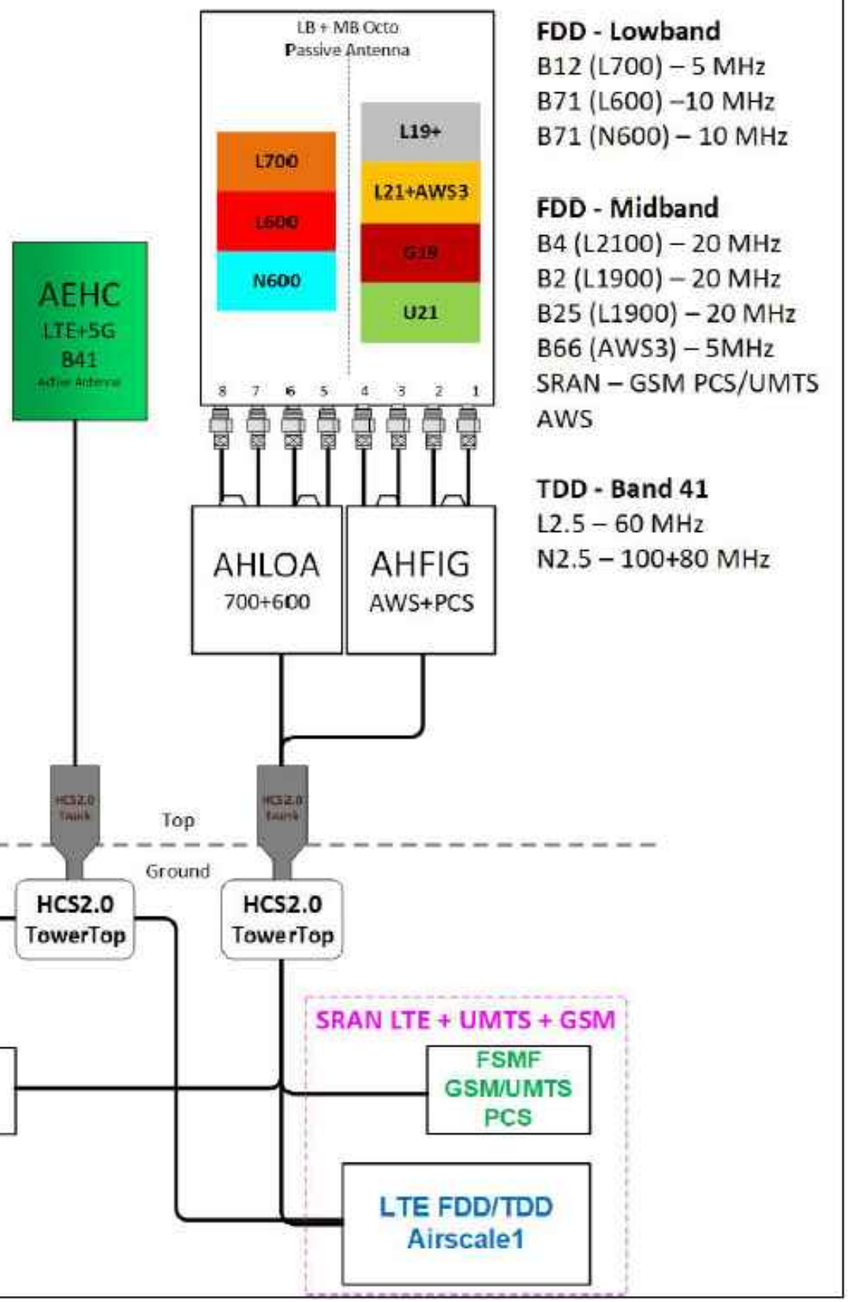
SHEET NUMBER: C-6.1
REVISION: FCD2

Configuration 56791EZ_SR_U21

* For 5G and LTE Airscale BB dimensioning refer to Fiber Port matrices.
(Alpha, Beta & Gamma)



FDD - Lowband
B12 (L700) – 5 MHz
B71 (L600) –10 MHz
B71 (N600) – 10 MHz

FDD - Midband
B4 (L2100) – 20 MHz
B2 (L1900) – 20 MHz
B25 (L1900) – 20 MHz
B66 (AWS3) – 5MHz
SRAN – GSM PCS/UMTS
AWS

TDD - Band 41
L2.5 – 60 MHz
N2.5 – 100+80 MHz

1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

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PLANO, TX 75075

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(972) 239-5495

SHEET NUMBER: C-6.2

REVISION: FCD2

AEHC AirScale MAA 64T64R 192AE n41 240W

Preliminary Technical datasheet

Specification	3GPP/FCC compliant, TDD
Frequency range	2496 - 2690 MHz
Max. supported modulation	256 QAM
Number of TX/RX paths	64T / 64R
MIMO streams	16
Instantaneous bandwidth IBW	194 MHz
Occupied bandwidth OBW	194 MHz
Total average EIRP	79.3 dBm
Max. output power per TRX	3.75 W / TRX (240 W total)
Antenna configuration	12 rows, 8 columns, 2 (±45° X-polarized)
Max. Antenna gain	25.5dBi
Horizontal beamwidth	15° (boresight)
Vertical beamwidth	6° (boresight)
Horizontal coverage angle	±45° (3 dB), ±60° (5 dB)
Vertical steering angle	±6°
Dimensions	TBD:900 mm (H) x 580 mm (W) x 210 mm (D)
Volume /Windward area	TBD:<110 L /<0.6m2
Weight	<45kg (without mounting brackets)
Supply voltage / Connector type	DC -40.5 V ... -57 V / 2 pole connector
Power consumption	900 W typical (75% DL duty cycle, 30% RF load) 1300 W max (75% DL duty cycle, 100% RF load)

Optical ports	4 x SFP28, 10/25GE eCPRI (with R2CT)
Other interfaces / Connector type	Control AISG RF monitor port / SMA Female External Alarms / MDR26 status LED
Operational temperature range	-40 °C ... +55 °C
Cooling	Natural convection cooling
Ingress protection class	IP65
Installation options	Pole / Wall, ± 5° vertical adjustment
Surge protection	Class II 20 kA

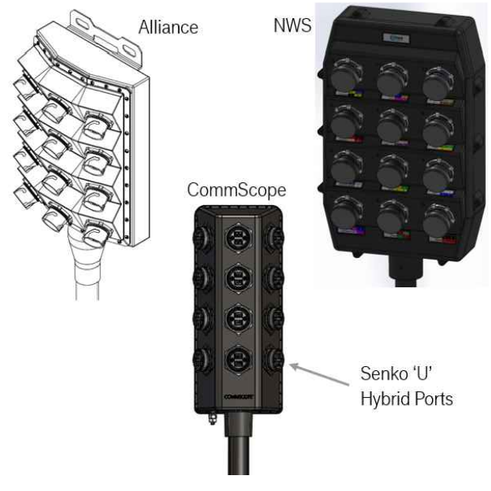
NOKIA

1 ANTENNA SPECIFICATIONS
SCALE: NOT TO SCALE

Breakout Feature General Specifications

Characteristics	Alliance	CommScope	NWS
Dimensions, in.	9.3x14.9x5.8	6.7x16.9x4.7	10.2x16.0x3.2
Weight	1.61 lb/ft	0.970 lb/ft	1.61 lb/ft
Port Interface	Senko U	Senko U	Senko U
Hybrid Ports	12	12	12
Conductor Termination	None	None	None
Single Mode Fibers	48	48	48
Fiber Termination	LC pair	LC pair	LC pair
Max RRU	12	12	12

Note: Permanently attached to trunk cable, not field removable/replaceable.
Note: No internal OVP.



2 HCS 2.0 BREAKOUT FEATURE SPECIFICATIONS
SCALE: NOT TO SCALE

Product Specifications

COMMSCOPE®

FFHH-65C-R3

8-port sector antenna, 4x 617-806 and 4x 1695–2360 MHz, 65° HPBW, 3x RET, 600 MHz-Ready Antenna Technology

Electrical Specifications

Frequency Band, MHz	617-698	698–806	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	15.3	15.5	17.8	18.2	18.9	19.6
Beamwidth, Horizontal, degrees	67	63	65	66	64	55
Beamwidth, Vertical, degrees	10.2	9.1	5.7	5.3	4.9	4.4
Beam Tilt, degrees	2–13	2–13	2–12	2–12	2–12	2–12
USLS (First Lobe), dB	19	17	20	19	19	21
Front-to-Back Ratio at 180°, dB	32	29	35	40	40	41
Isolation, dB	28	28	28	28	28	28
Isolation, Intersystem, dB	28	28	28	28	28	28
VSWR | Return Loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc		-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	300	300	300	300	300	250
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	617-698	698–806	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	15.0	15.2	17.4	17.9	18.5	19.3
Gain by all Beam Tilts Tolerance, dB	±0.6	±0.5	±0.4	±0.5	±0.6	±0.5
Gain by Beam Tilt, average, dBi	2 ° | 14.8 8 ° | 15.1 13 ° | 15.0	2 ° | 15.0 8 ° | 15.3 13 ° | 15.1	2 ° | 17.2 7 ° | 17.5 12 ° | 17.4	2 ° | 17.6 7 ° | 18.0 12 ° | 17.8	2 ° | 18.1 7 ° | 18.6 12 ° | 18.4	2 ° | 18.8 7 ° | 19.4 12 ° | 19.2
Beamwidth, Horizontal Tolerance, degrees	±2.7	±4.8	±5.5	±5.2	±4.9	±6.4
Beamwidth, Vertical Tolerance, degrees	±0.6	±0.7	±0.4	±0.3	±0.4	±0.1
USLS, beampeak to 20° above beampeak, dB	17	12	15	16	16	18
Front-to-Back Total Power at 180° ± 30°, dB	23	21	29	31	31	31
CPR at Boresight, dB	24	23	21	20	21	22
CPR at Sector, dB	6	10	9	9	9	8

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

Array Layout

3 ANTENNA SPECIFICATIONS
SCALE: NOT TO SCALE

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T-MOBILE SITE NUMBER:
DA01265A

PLANO PKWY. WT

2409 W PLANO PKWY
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EXISTING WATER TOWER

ISSUED FOR:

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SHEET NUMBER: C-7
REVISION: FCD2

Trunk Cable General Specifications

Characteristics	Alliance	CommScope	NWS
Outer Diam.	1.46"	1.55"	1.48"
Weight	1.61 lb/ft	1.71 lb/ft	1.61 lb/ft
Min. Bend Rad	14.6"	18.6"	21.5"
DC Conductors	12 x 6AWG	12 x 6AWG	12 x 6AWG
Armor	Corrugated Cu	Corrugated Al	Cu tape, PVC
Conductor Termination	None	None	None
Single-Mode Fibers	48	48	48
Fiber Termination	LC pair	LC pair	LC pair

1 HCS 2.0 TRUNK CABLE SPECIFICATIONS
SCALE: NOT TO SCALE

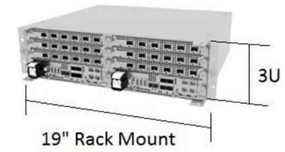
AirScale System Module Installation Guidelines - AMIA

AMIA is primary for indoor sites (environmentally controlled) or site support cabinets

- For a 19" rack installation 3U of space is needed (adapters/support required for 23" rack)
- For Medium/Large HP/ Large Delta SSC – Fan/filter kit required (SKU# 32168) to support medium config
- For Medium Purcell SSC – Nothing required to support minimal config (single LTE layer)
- For Medium Purcell SSC – Door upgrade kit required (SKU# 33401) to support full config

AMIA Mounting Options		
Item Description	3U space*	4U Space
19 to 23 inch adaptor bracket, 3U w/slot	x	
19 to 23 inch adaptor bracket, 4U w/slot		x
ASSY, SHELF		x

*Bottom support is available

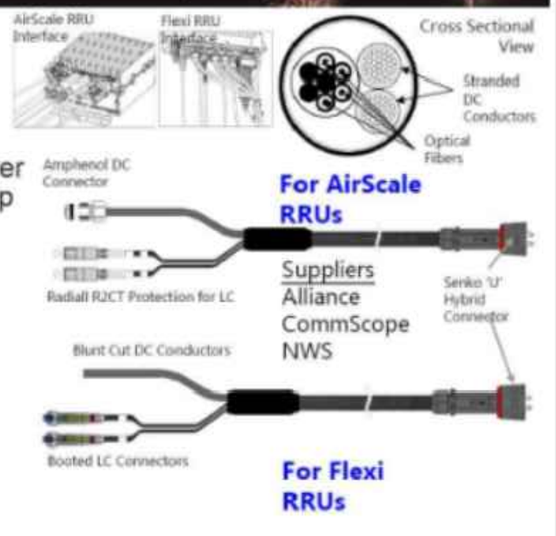


T··Mobile·

2 AMIA SPECIFICATIONS
SCALE: NOT TO SCALE

Hybrid Jumper Cable General Specifications

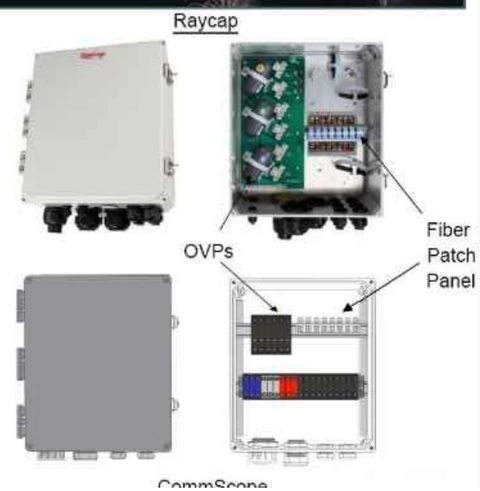
- Outer diameter: 0.72"
- Weight: 0.34 lb/ft
- Operating Temp: -40 °C ~ +75°C
- Connectorized for mating with tower top trunk cable breakout or roof top box
- DC and fiber interfaces versions for Nokia Airscale and Flexi RRUs
- Short (tower top 15') & long (roof top 20' - 250') AirScale versions available
- Also available with legacy booted LC connectors & blunt cut DC conductors



3 HCS 2.0 TJUMPER SPECIFICATIONS
SCALE: NOT TO SCALE

Bottom Junction Box General Specifications

Characteristics	CommScope	Raycap
Dimensions	14"x16"x8"	14"x16"x8"
Weight	23.5 lb	21.9 lb
OVP, IEC 61643-1	24"	Class I SPD (3)
UL Rating		1449, 4th Ed.
OVP Monitoring	Dry contact	Dry contact
Fiber Patch Panel	24 LC pairs	24 LC pairs
Environmental Rating	IP67	IP66
Operating Temperature	-40 °C to +75°C	-40 °C to +80°C



4 HCS 2.0 JUNCTION BOX SPECIFICATIONS
SCALE: NOT TO SCALE

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KENNEDALE, TX 76060
(972) 239-5495

SHEET NUMBER: C-8
REVISION: FCD2

HP-Large 3 Power Cabinet

Product Features

Compact design for equipment & power:

- 30RU supports 3 radios and transport equipment
- 600A @ -48V power system
- Slimline high efficiency rectifier
- ORION Touch screen Controller
- Rear Access Hatch

Direct air-cooling solution, 6000W capacity, 5°C delta T

Easy slide-in filter replacement

Connects with:

- SB3, 2-string battery cabinet
- LB3, 4-string battery cabinet
- V2, Expansion equipment and battery cabinet

Designed to GR-487 specifications

www.deltaww.com

DELTA Smarter. Greener. Together.

DELTA Smarter. Greener. Together.

Specifications

Model	HPL3 (HP-Large 3 Power Cabinet)	
1. General		
Construction	Aluminum enclosure	
Dimensions (W x H x D)	30 x 72 x 34.6 in. (762 x 1829x 879mm), Depth with Door/Hatch: 44.7 in. (1136mm)	
Weight	~595 lbs (~270kg) (without customer equipment or batteries)	
Internal rack dimension	Total Equipment space 30RU: Horizontal rack: 19" x 27RU Vertical rack: 19" x 3RU Power System space: 23" x 12RU	
Mounting options	Pad-mount, plinth option	
Finish	Polyester Power Paint (Tan)	
Safety	UL Listed , IEC / EN 60950	
2. Environment		
Operating temperature	-40°C to +50°C (-40°F to +122°F) with solar load. IP 55	
Protection class	designed to GR-487	
Acoustics	65dBA @5000W heat load , 70dBA @ 6000W	
Humidity (relative)	95%, non-condensing (Max.)	
3. Thermal Management		
Cooling Equipment:	Direct Air Cooling, 6000W capacity, 5°C delta T	
Heating Equipment:	Forced air heating (2) 1000W AC heaters	
4. Equipment		
Cable entry	Knock-out plate on each upper side wall / Additional knockouts each side (1) 3" conduit hole with hole plug	
Door latch	3 point latching, 5/16 nut driver tool, pad-locking capability	
Primary ground	10 double-hole ¼"-20 threaded holes on 5/8" center ground bar	
Lifting Ears	4 Lifting Tabs	
Plinth	Optional 6" plinth available	
Standard equipment	AC Load Center: 240V split phase, dual feed / (1) 200A + (1)100A 208V 3-phase, single feed / (1) 200A AC Surge Protection for each breaker feed GFCI Receptacle 120V Temp Probes (6 form-C) Alarm Termination block 605A/ 54V (336kW) redundant Power System with DIN rail distribution: 12 rectifier positions (3x55A DPR3000 rectifiers included) 48 poles for load (2x10A, 3x50A, and 6x100A load breakers included) 16 poles for battery (2) SB350 / (2) SB175 Battery connections (3) SB350 Generator connections	
Front Door:	(6) DC powered centrifugal fans with (3) MERV-13 filters, (GORE option) Clogged Filter alarm pressure switch Door intrusion alarm (2) 1000W AC powered heaters LED interior cabinet light	
Rear Hatch:	Exhaust vent with (3) MERV-13 filters, (GORE option)	
5. Ordering information		
Cabinet	ESOA600-HCU01	HP-Large 3 600A Power / Equipment Cabinet
Rectifier	ESR-48/60A A-T	48V / 56A 3000W, 96.4%, CAN communication
Controller (Spare)	TPS1020028AU17	Orion TOUCH Controller
Plinth, 6"	3799331881690O-S	Plinth for V1/V2, HPL2, HPL3, LB2 and LB3

*All specifications are subject to change without prior notice.

Delta Group Website:
www.deltaww.com

Product Website:
www.deltapowersolutions.com

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Delta Electronics (USA) Inc.
2925 E. Plano Parkway
Plano, TX (Texas) 75074

Sales and Orders:
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DEUSTPS.Orders@deltaww.com

Field Support:
1-877-DELTA-08 option 3
(877-335-8208 option 3)
DEUSTPS.Support@deltaww.com

Installation Services:
DEUSTPS.Services@deltaww.com

RMA:
DEUSTPS.RMA@deltaww.com

1 SSC SPECIFICATIONS
SCALE: NOT TO SCALE

Large Battery 3 Cabinet

LB3 Site Support Enclosure

Product Feature

- Direct air cooling solution with optional Gore filter
- Supports four strings of -48V VRLA batteries up to 210Ah
- 600A bus bar with individual 200A breakers per string
- Bulk Input / Output with ability to daisy chain cabinets
- Connection kit includes cables with disconnects
- Rear hatch access
- Corrosion resistant aluminum construction
- Powder coated high gloss finish
- Designed to meet GR-487

www.deltaww.com

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Specifications

Model	Large 3 Battery (LB3) Cabinet	
1. General		
Construction	Aluminum enclosure	
Dimensions (W x H x D)	30 x 72 x 35 in. (762 x 1829x 889mm), Depth with door: 41 in. (1040mm)	
Weight	~540lbs (245kg) (without batteries)	
Internal rack dimension	4 battery trays to support up to 210Ah batteries	
Mounting options	Pad-mount, plinth option	
Finish	Polyester Powder Paint (Tan)	
Safety	UL Listed, IEC / EN 60950	
2. Environment		
Operating temperature	-40C to +50C (-40F to +122F) with solar load.	
Protection class	IP55 designed to GR-487	
Acoustics	65 dBA	
Humidity (relative)	95%, non-condensing (Max.)	
3. Thermal management		
Cooling	Direct Air Cooling: (4) Axial Fans. Filters: F6 front and rear	
Heating	Forced air heating (2) 1000W AC heaters	
4. Equipment		
Cable Entry	Knock-out plate on each upper side wall Additional knockouts each side	
Door latch	3 point latching, 5/16 Nut driver tool, pad-locking capability	
Lifting Ears	4 eye bolts	
Standard equipment	AC Load Center with AC Surge protection and GFCI outlet Left or Right side AC entry options (2) 1000W AC powered heater DC Load Center 600A bulk feed bus bar (4) 200SDA DIN rail battery breakers (4) 2-hole lug landings (2) Anderson SB350 input connectors to daisy chain 2nd battery cabinet 2AWG battery cables from breakers to trays Configurable trays for (4) strings of up to 210Ah batteries Door intrusion switch LED interior cabinet light Fan Control Board, factory wired alarms via RJ45 output (fan & breaker alarms) Cabinet Connection kit (2) 4/0 cables with SB350 disconnects to connect to power cabinet	
5. Ordering information		
Cabinet	ESOF015-ECV04	Large Battery 3 Cabinet
Plinth, 6"	3799331881690O-S	Plinth for V1/V2, HPL2, LB2 cabinets only

*All specifications are subject to change without prior notice.

Delta Group Website:
www.deltaww.com

Product Website:
www.deltapowersolutions.com

United States of America & Canada:
Delta Electronics U.S. Inc.
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Plano, TX (Texas) 75074

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Installation Services:
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RMA:
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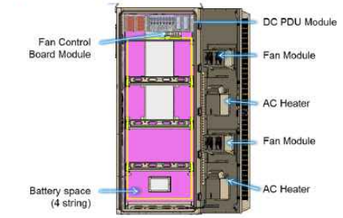

2 BBU SPECIFICATIONS
SCALE: NOT TO SCALE

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FRISCO, TX 75034

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T-MOBILE SITE NUMBER:
DA01265A

PLANO PKWY. WT

2409 W PLANO PKWY
PLANO, TX 75075

EXISTING WATER TOWER

ISSUED FOR:

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FCD0	11/23/2020	MN	FINAL	ELG
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3/25/2021

STATE OF TEXAS
JACOB GORALSKI
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PROFESSIONAL ENGINEER

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(972) 239-5495

SHEET NUMBER: C-9

REVISION: FCD2

SITE WORK GENERAL NOTES:

SURFACE PREPARATION

ALL EXTERIOR SURFACES ON THE TANK SHALL BE POWER TOOLED CLEANED WITH VACUUMS OR BE ABRASIVE BLASTED TO A COMMERCIAL FINISH IN ACCORDANCE WITH SSPC-SP03. SURFACE PREPARATION SHALL REMOVE ALL PAINT AND MILL SCALE. BLASTING OF ANY PREVIOUSLY PAINTED SURFACES REQUIRES THE BLAST FINISH TO BE FEATHERED TO PROVIDE A SMOOTH UNIFORM PAINT FINISH.

FINAL DETERMINATION OF SURFACE PREPARATION QUALITY PRIOR TO COATING SHALL BE DETERMINED BY THE CITY. ALL POWER TOOL CLEANING AND ABRASIVE BLASTING SHALL BE PERFORMED IN FULL ACCORDANCE WITH THE LATEST REGULATIONS ISSUED BY THE TEXAS AIR CONTROL BOARD.

ALL BLASTING OR THE POWER TOOL CLEANING ON THE EXTERIOR SHALL ACHIEVE AN ANCHOR PATTERN AS REQUIRED BY THE PAINT MANUFACTURER. ALL WELD FLUX AND SPLATTER SHALL BE REMOVED BY GRINDING. CONTRACTOR SHALL WORK WITH CITY INSPECTORS TO ACCOMPLISH COMPLIANCE ON REMOVAL OF FLUX AND SPLATTER. SHARP EDGES AND PROJECTIONS SHALL BE GROUND SMOOTH.

ALL PREPARATION AND PAINTING SHALL BE COMPLETED BY AN INDUSTRIAL PAINTER APPROVED BY THE CITY.

EXTERIOR STEEL PAINTING

AFTER EXTERIOR SURFACES HAVE BEEN PROPERLY PREPARED AND SURFACE PROFILE ACHIEVED, THEY SHALL BE PAINTED BY SPRAYING, ROLLING OR BRUSHING ONE COAT OF TNEMEC SERIES 90-97 OR 91-H2O ZINC. MINIMUM DRY FILM THICKNESS SHALL BE 2.5 MILS THROUGHOUT.

THE SECOND EXTERIOR COAT SHALL BE APPLIED BY SPRAYING, ROLLING OR BRUSHING ONE OR MORE COATS OF TNEMEC SERIES 1075 OR SERIES 73 ENDURA SHIELD IL THE MINIMUM DRY FILM THICKNESS SHALL BE 3.0 MILS THROUGHOUT.

THE THIRD EXTERIOR COAT SHALL BE APPLIED BY SPRAYING OR ROLLING ONE OR MORE COATS OF TNEMEC SERIES 700 COLOR HYDRO FLON. THE MINIMUM DRY FILM THICKNESS SHALL BE 2.5 MILS THROUGHOUT. SMALL AREAS OF SERIES 700 CAN BE BRUSHED AS DIRECTED BY TNEMEC.

THE MINIMUM TOTAL DRY FILM THICKNESS OF THE EXTERIOR PAINT SYSTEM SHALL BE NO LESS THAN 8.5 MILS. EACH COAT OF PAINT SHALL BE APPLIED IN A UNIFORM THICKNESS AND SHALL BE FEATHERED AS NECESSARY AT ITS EDGES TO PREVENT LAP MARKS AND PROVIDE A SMOOTH PAINT FINISH. THE THIRD COAT MAY REQUIRE PLACING THIS COATING IN MORE THAN ONE (1) COAT TO INSURE A UNIFORM COLOR. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PRODUCE THE UNIFORM COVER ON THE EXTERIOR OF THIS TANK. IF ADDITIONAL COATS ARE USED THEY SHALL BE PLACED IN THICKNESS OF 1.5 MILS MINIMUM.

COLOR OF THE EXTERIOR OF STEEL SHALL BE:

EXTERIOR: TNEMEC TANK WHITE 15BL

APPLICATION

COATINGS SHALL BE APPLIED IN ACCORDANCE WITH PAINT MANUFACTURER'S RECOMMENDATIONS FOUND ON THE PAINT DATA SHEETS AND ARE SUBJECT TO INSPECTION AT ALL TIMES BY THE CITY'S REPRESENTATIVES. CONTRACTOR SHALL FOLLOW THE STEEL STRUCTURES PAINTING COUNCIL GOOD PAINTING PRACTICE EXCEPT WHERE EXCEEDED IN THESE SPECIFICATIONS
.

NO PAINTING SHALL TAKE PLACE UTILIZING THE FIRST COAT OF EXTERIOR PAINT SYSTEM UNLESS THE ATMOSPHERIC TEMPERATURE IS 40°F AND RISING AND METAL SURFACE TEMPERATURES ARE ABOVE 40°F AND A MINIMUM OF 5°F ABOVE THE DEW POINT. THE RELATIVE HUMIDITY SHALL NOT BE GREATER THAN 85%. NO PAINTING SHALL TAKE PLACE UTILIZING THE SECOND AND FINAL COAT OF THE EXTERIOR PAINT SYSTEM UNLESS THE ATMOSPHERIC TEMPERATURE IS ABOVE 40°F AND METAL SURFACE TEMPERATURE IS ABOVE 40°F AND A MINIMUM OF 5°F ABOVE THE DEW POINT. THE RELATIVE HUMIDITY SHALL NOT BE GREATER THAN 80%. PAINTING UTILIZING THE EXTERIOR SYSTEM SHALL NOT PROCEED IF THE TEMPERATURE IS EXPECTED TO FALL BELOW 40°F BEFORE THE PAINT HAS DRIED TO THE RECOAT WINDOW (24 HOURS) OR IF THE SURFACE TEMPERATURE IS AT OR ABOVE 110°F.

ALL SPRAY EQUIPMENT SHALL BE INSPECTED AND APPROVED BY OWNER'S REPRESENTATIVE BEFORE ANY APPLICATION IS BEGUN. A MOISTURE TRAP SHALL BE PLACED IN LINE FROM AIR SUPPLY TO PRESSURE POT AND SPRAY GUN. THIS TRAP SHALL BE OPENED SLIGHTLY TO PROVIDE A CONTINUOUS BLEED. REGULATORS AND GAUGES SHALL BE PROVIDED FOR AIR TO BOTH PRESSURE POT AND SPRAY GUN.

PRIOR TO COMMENCING THE COATING, ALL ABRASIVE AND DUST FROM STEEL PREPARATION OPERATION SHALL BE REMOVED FROM SURFACES BEFORE PAINT APPLICATION IS BEGUN. SURFACES SHALL BE COATED THE SAME DAY THAT SURFACE PREPARATION IS COMPLETED.

SPRAY GUNS MUST BE HELD PERPENDICULAR TO THE SURFACE BEING PAINTED, HANDLED AND ADJUSTED IN SUCH A MANNER SO DRY OVERSPRAY IS KEPT AT A MINIMUM. RIGGING SHALL BE ADJUSTED AS REQUIRED TO MAINTAIN A MAXIMUM DISTANCE FROM THE STEEL SURFACE OF TWO-FEET.

THE CONTRACTOR SHALL AT ALL TIMES PROTECT AREA BUILDINGS, BUSINESSES, AUTOMOBILES AND OTHER ITEMS FROM SURFACE PREPARATION AND PAINT THAT IS BEING APPLIED TO THE TANK. CONTRACTOR SHALL BE SOLELY LIABLE FOR ALL CLAIMS OF DAMAGE OF WHATEVER NATURE WHICH RESULTS FROM THE SURFACE PREPARATION AND/OR PAINTING OPERATIONS ON THIS PROJECT.

SITE WORK GENERAL NOTES:

INSPECTION

ALL WORK SHALL BE DONE IN A WORKMANLIKE MANNER, SO THAT THE FINISHED COATING ON THE EXTERIOR AND ALL PAINTED SURFACES OF THE TANK AND STRUCTURES SHALL BE FREE FROM BUBBLES, RUNS, DRIPS, RIDGES, OVER-SPRAY, WAVES AND UNNECESSARY BRUSH MARKS AND VARIATIONS IN COLOR. THE CITY SHALL MAKE FINAL DETERMINATION OF FINISHED WORK.

INSPECTION AND ACCEPTANCE OF THE SURFACE PREPARATION SHALL BE ACHIEVED PRIOR TO APPLICATION OF THE PRIME COAT OF PAINT ON THE TANK. THE CONTRACTOR SHALL SCHEDULE AND COORDINATE HIS WORK WITH THE CITY TO ALLOW FOR EXPEDITIOUS PROSECUTION OF THE INSPECTION. ALL RIGGING, LIFTS, STAGING AND THE ALIKE SHALL REMAIN IN PLACE UNTIL ALL INSPECTIONS BY THE CITY ARE COMPLETE. ALL RIGGING, LIFTS AND STAGING SHALL CONFORM TO APPLICABLE SAFETY REQUIREMENTS. CONTRACTOR SHALL PROVIDE RIGGING, LIFTS AND STAGING AS REQUIRED BY THE CITY TO FACILITATE INSPECTION AND TESTING.

ALL PAINT WILL BE INSPECTED BY THE CITY FOR APPLIED DRY FILM THICKNESS USING A NON-DESTRUCTIVE MAGNETIC GAUGE SUCH AS A MIKROTEST GAUGE OR AN ELKOMETER. GENERAL PAINT INSPECTION WILL BE DONE BY AN INDEPENDENT LABORATORY EMPLOYED BY THE CITY OR BY THE CITY. ALL WORK SHALL BE DONE IN A WORKMANLIKE MANNER, SO THAT THE FINISHED COATING ON THE EXTERIOR OF THE TANK SHALL BE FREE FROM BUBBLES, RUNS, DRIPS, RIDGES, OVER-SPRAY, WAVES, BRUSH MARKS AND VARIATIONS IN COLOR.

SAFETY PRECAUTIONS

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE SAFETY OF THE WORKMEN ON THIS PROJECT AND PUBLIC IN THE VICINITY OF THIS TANK AT ALL TIMES DURING THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL OSHA SAFETY STANDARDS AND REGULATIONS. PROTECTIVE EQUIPMENT, ABRASIVE RESISTANT CLOTHING, SAFETY SHOES, LEATHER GLOVES, EAR PROTECTION AND OSHA APPROVED RESPIRATORS SHALL BE UTILIZED AS A MINIMUM DURING SURFACE PREPARATION AND PAINTING ON THIS TANK.

CONTRACTOR LIABILITY

CONTRACTOR SHALL BE SOLELY LIABLE FOR ALL CLAIMS FOR PERSONAL AND PROPERTY DAMAGE, INCLUDING DEATH, WHICH RESULT FROM THE SURFACE PREPARATION AND PAINTING ON THIS PROJECT. THE CONTRACTOR SHALL TAKE SPECIAL PRECAUTIONS TO CONTROL PAINT FROM DAMAGING AUTOMOBILES, HOMES AND OTHER FACILITIES IN THE AREA AROUND THE TANK. IF COMPLAINTS ARE RECEIVED BY THE CONTRACTOR OR THE CITY, THE CONTRACTOR SHALL INVESTIGATE THE COMPLAINT IMMEDIATELY AND REPORT IN WRITING TO THE CITY CORRECTIVE ACTION HE IS TAKING. IT SHALL BE THE CONTRACTOR'S COMPLETE RESPONSIBILITY TO CORRECT OR MAKE WHOLE ANY DAMAGE OR INJURIES CAUSED BY HIS SURFACE PREPARATION AND PAINTING OPERATIONS.

ANNUAL INSPECTION

AN ANNUAL INSPECTION SHALL BE PERFORMED AT THE 12TH MONTH AFTER PROJECT COMPLETION PRIOR TO THE EXPIRATION OF THE GUARANTEE. THE CONTRACTOR SHALL FURNISH SUCH PERSONNEL LIFTS, RIGGING, POWER TOOLS, SPOT CLEANING EQUIPMENT AND TOUCH-UP PAINT AS MAY BE NECESSARY FOR INSPECTION AND TOUCH-UP. THE INSPECTION SHALL BE CONDUCTED IN THE PRESENCE OF THE OWNER AND THEIR DESIGNATED REPRESENTATIVE.

1 EXTERIOR STEEL PAINTING SPECIFICATIONS
SCALE: NOT TO SCALE

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T-MOBILE SITE NUMBER:
DA01265A

PLANO PKWY. WT

2409 W PLANO PKWY
PLANO, TX 75075

EXISTING WATER TOWER

ISSUED FOR:

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3/25/2021

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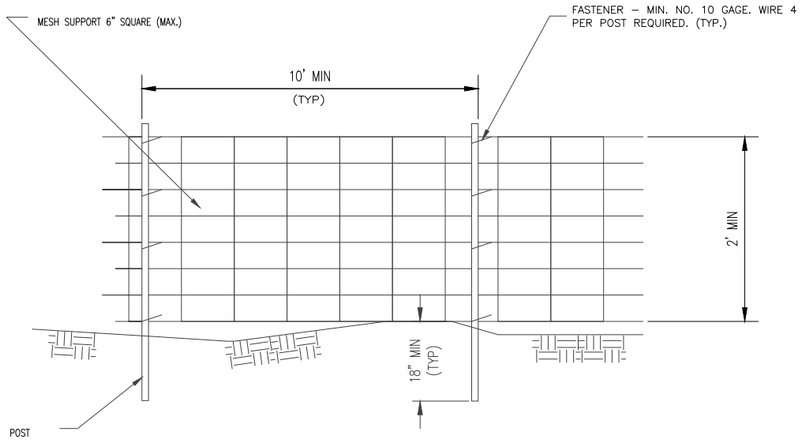
SHEET NUMBER: C-10

REVISION: FCD2



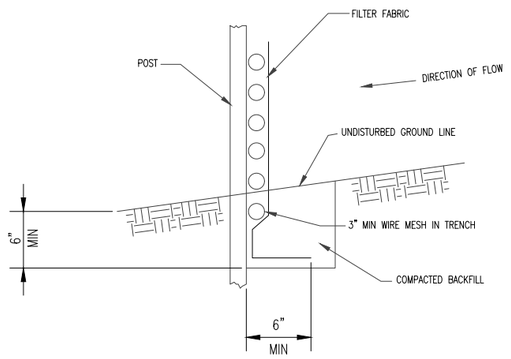
ELEVATION

NOTES:
1. WIRES OF MESH SUPPORT SHALL BE MIN. GAGE NO. 12.

2. TEMPORARY SEDIMENT FENCE SHALL BE INSTALLED PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED. THEY SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD AND REMOVED IN CONJUNCTION WITH THE FINAL GRADING AND SITE STABILIZATION.

3. FILTER FABRIC SHALL MEET THE REQUIREMENTS OF MATERIAL SPECIFICATION 592 GEOTEXTILE TABLE 1 OR 2, CLASS I WITH EQUIVALENT OPENING SIZE OF AT LEAST 30 FOR NONWOVEN AND 50 FOR WOVEN.

4. FENCE POSTS SHALL BE EITHER WOOD POST WITH A MINIMUM CROSS–SECTIONAL AREA OF 3.0 SQ. IN. OR A STANDARD STEEL POST.



FABRIC ANCHOR DETAIL

1 TEMPORARY CONSTRUCTION FENCE SPECIFICATIONS
SCALE: NOT TO SCALE

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PLANO PKWY. WT

2409 W PLANO PKWY
PLANO, TX 75075

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SHEET NUMBER: C-11

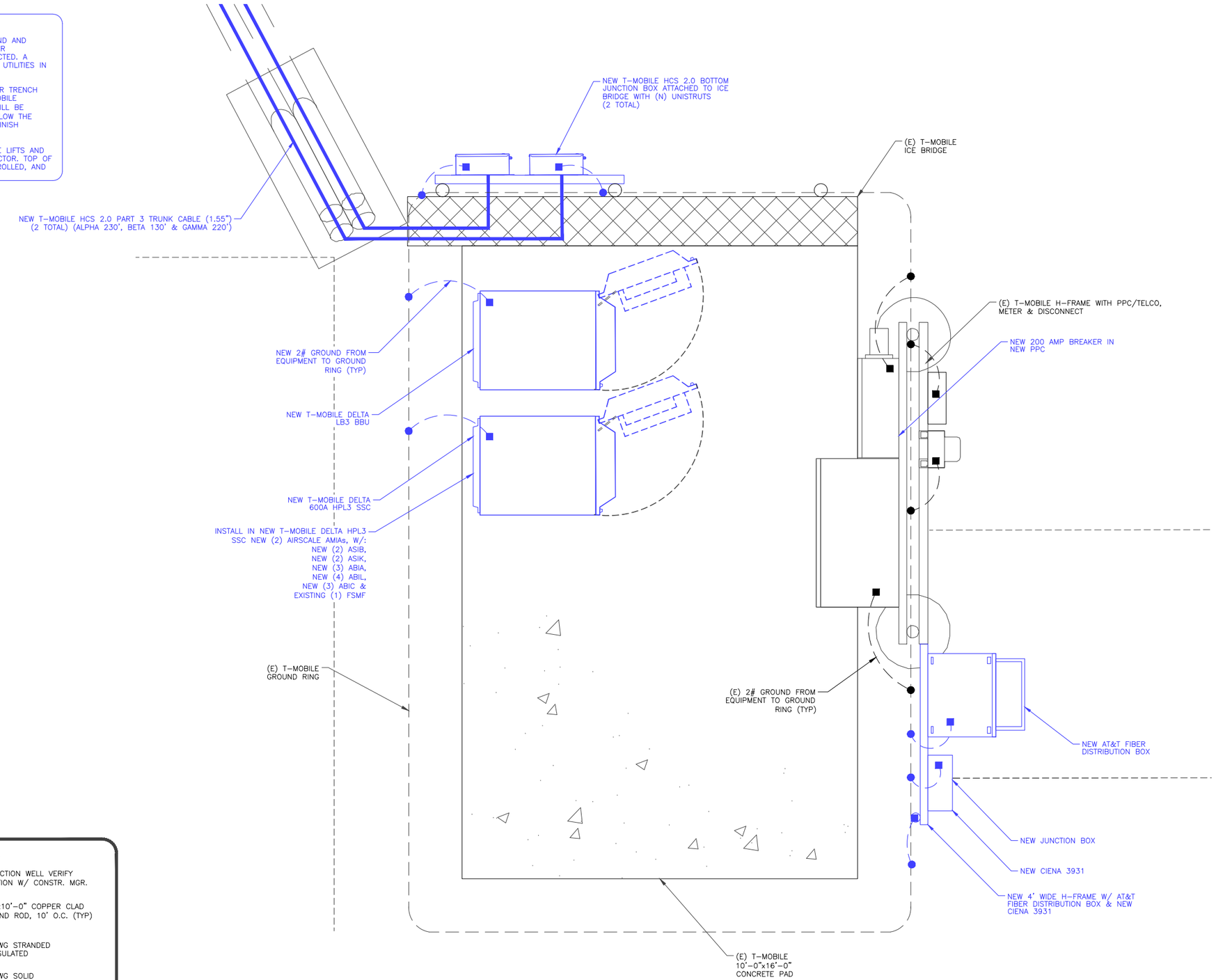
REVISION: FCD2

INSTALLER NOTE:

– ALL TRENCHING WILL BE HAND DUG IN COMPOUND AND PROPOSED TRENCH SHALL BE TO COMPOUND OWNER REQUIREMENTS, LOCATOR TAPE ADDED, AND COMPACTED. A PRIVATE LOCATOR IS REQUIRED TO LOCATE ANY UG UTILITIES IN THE PROPOSED PVC TRENCH ROUTE.

– CHECK WITH AUTHORITY HAVING JURISDICTION FOR TRENCH DEPTH, IF NO REQUIREMENT, THEN REFER TO T–MOBILE STANDARDS. "ALL UTILITY CONDUIT INSTALLATIONS WILL BE INSTALLED AT A MINIMUM DEPTH OF 30" OR 6" BELOW THE FROST LINE, WHICHEVER IS THE DEEPEST, BELOW FINISH GRADE."

– ALL BACK FILL TO BE PLACED IN 8–INCH LOOSE LIFTS AND MECHANICALLY COMPACTED TO 90% STANDARD PROCTOR. TOP OF TRENCH WILL NEED TO HAVE SOLDI SOD PLACED, ROLLED, AND WATERED.



1 EQUIPMENT GROUNDING PLAN
SCALE: NOT TO SCALE

GROUNDING LEGEND

- INSPECTION WELL VERIFY LOCATION W/ CONSTR. MGR.
- 5/8"x10'–0" COPPER CLAD GROUND ROD, 10' O.C. (TYP)
- #6 AWG STRANDED & INSULATED
- #2 AWG SOLID COPPER TINNED
- GROUND BUS BAR
- EXOTHERMIC WELD (CADWELD) (UNLESS OTHERWISE NOTED)
- MECHANICAL CONNECTION

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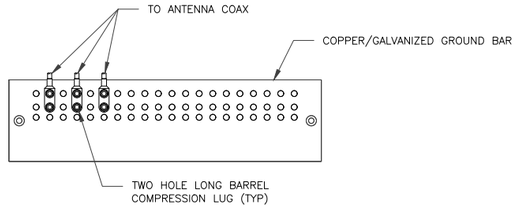
SHEET NUMBER: G-1

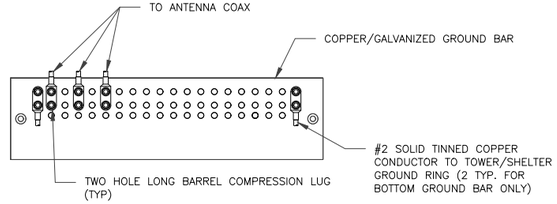
REVISION: FCD2



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL BE ISOLATED FROM TOWER AND TOWER STRUCTURE.

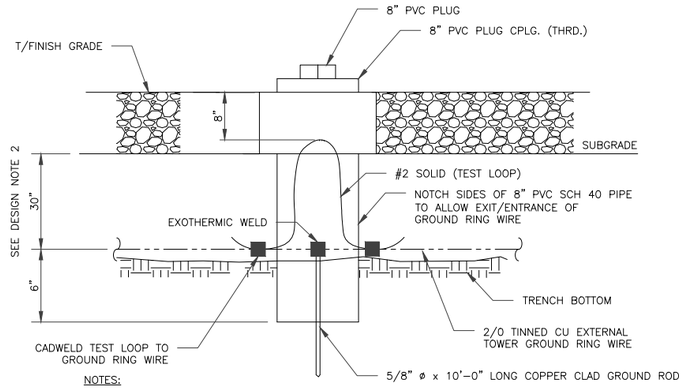
1 ANTENNA GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL BE ISOLATED FROM TOWER. MOUNT.
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE

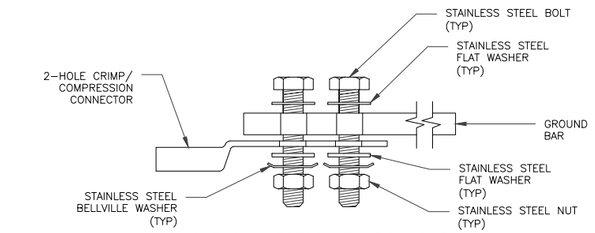


NOTES:

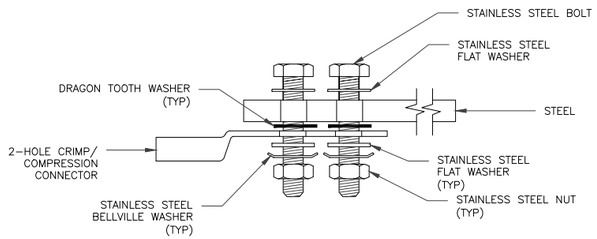
1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE

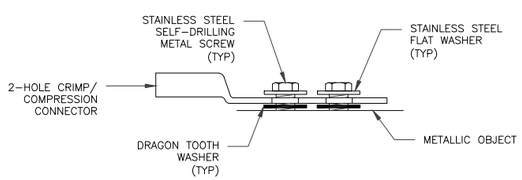
4 NOT IN USE
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

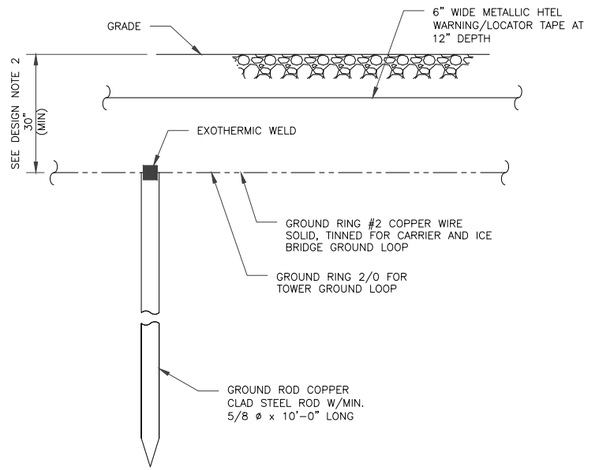


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

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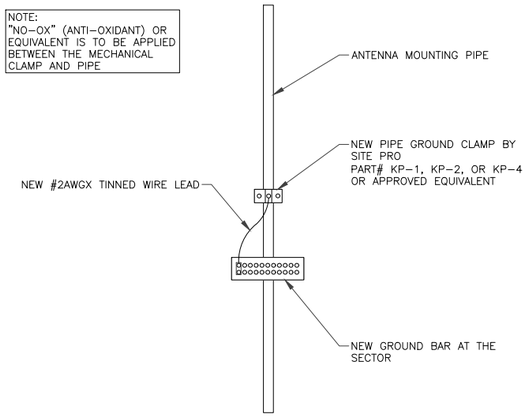
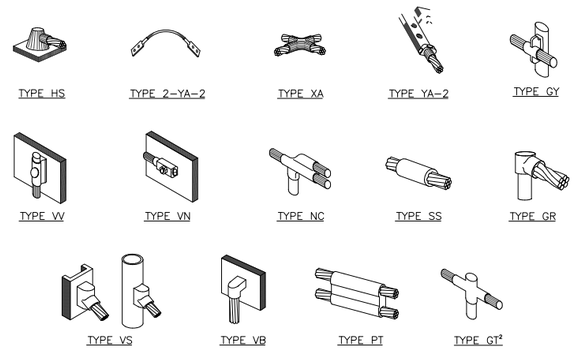
SHEET NUMBER: G-2

REVISION: FCD2

Appendix A



1 ANTENNA PIPE GROUNDING DETAIL
SCALE: NOT TO SCALE

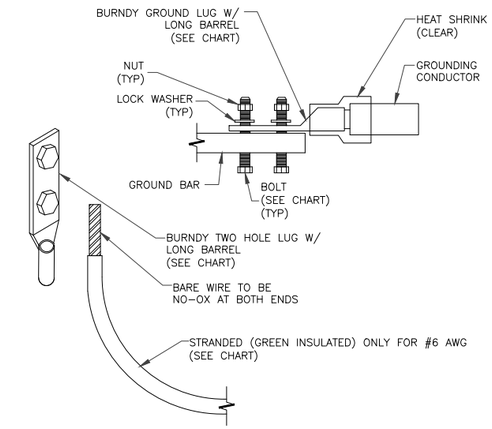


NOTE:

1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

2 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE

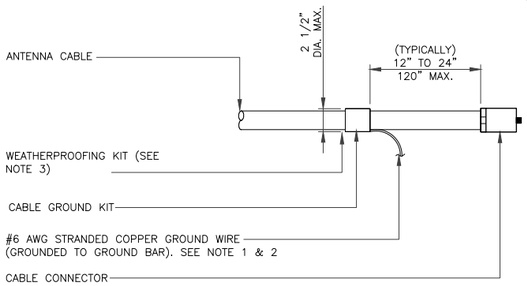
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



NOTES:

1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER,GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

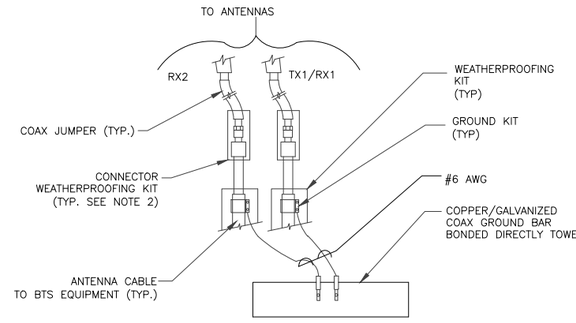
3 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

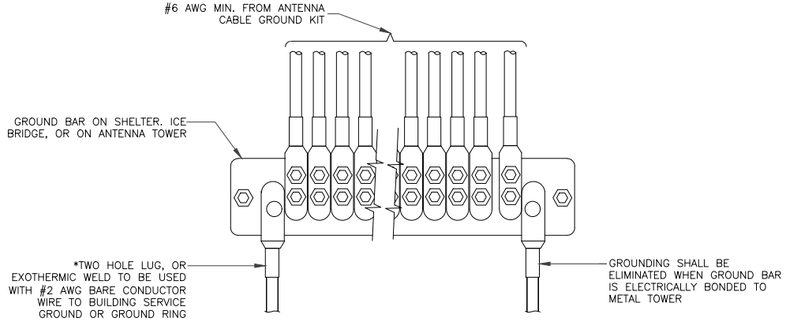
4 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



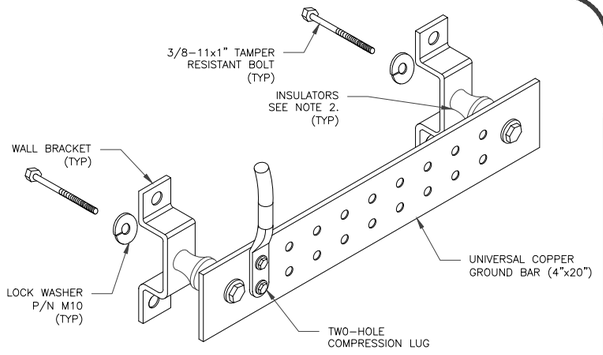
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

5 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



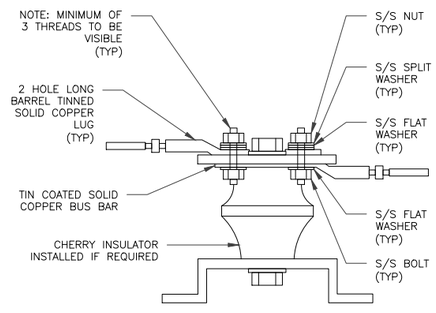
6 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



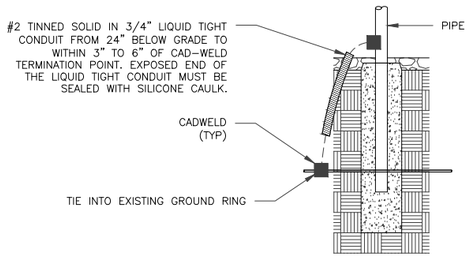
NOTES:

1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

7 GROUND BAR DETAIL
SCALE: NOT TO SCALE



8 LUG DETAIL
SCALE: NOT TO SCALE



9 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

T-Mobile
7668 WARREN PARKWAY
FRISCO, TX 75034

BROADUS services
4 COUNTRY PLACE CIRCLE
DALWORTHINGTON GARDENS
TEXAS 76016
OFFICE: (817) 349 3449
FAX: 800 401 4234

T-MOBILE SITE NUMBER:
DA01265A

PLANO PKWY. WT

2409 W PLANO PKWY
PLANO, TX 75075

EXISTING WATER TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
PCD0	10/29/2020	MN	PRELIMINARY	ELG
PCD1	11/06/2020	MN	PRELIMINARY	ELG
FCD0	11/23/2020	MN	FINAL	ELG
FCD2	01/04/2020	MN	FINAL	ELG

3/25/2021

JACOB GORALSKI, PLLC
CONSULTING ENGINEER
TX PE No. 116873
TX FIRM No. F-17021
1106 COLBI STREET
KENNEDALE, TX 76060
(972) 239-5495

SHEET NUMBER: G-3

REVISION: FCD2