CONSTRUCTION DRAWING

IF USING 11"X17" PLOT, DRAWINGS WILL BE HALF SCALE

T-Mobile

SITE NUMBER: 9KX0421A - L600
SITE NAME: 9KX0421A
SITE TYPE: SELF SUPPPORTING TOWER

CITY: CROSSVILLE
STATE: TENNESSEE
COUNTY: CUMBERLAND COUNTY

PROJECT SUMMARY

SITE ADDRESS

997 LIVINGSTON RD.
CROSSVILLE, TN 38555

PROPERTY OWNER

NAME: RICHARD WEBB
ADDRESS: 1847
CROSSVILLE, TN 38555
CONTACT: TBD
PHONE: TBD

APPLICANT

T-MOBILE
3800 EZELL ROAD, STE. 815
NASHVILLE, TN 37211

TOWER INFORMATION

TYPE: SELF
SUPPPORTING TOWER
HEIGHT: 249'

PROPERTY INFORMATION

PARCEL #	TBD
JURISDICTION:	TBD
ZONING:	08 COMMERCIAL
LATITUDE:	35° 57' 48.9594" N (35.96360000°)
LONGITUDE:	85° 02' 25.08" W (-85.04030000°)
GROUND ELEVATION:	± 1809' AMSL

PROJECT DESCRIPTION

- INSTALL (3) NEW SITE PRO1 VFA12-RRU SECTOR MOUNTS (1 PER SECTOR, TYP 3 SECTORS)
- INSTALL (3) NEW COMMSCOPE FFVV-65C-R3-V1 ANTENNAS (1 PER SECTOR)
- INSTALL (3) NEW NOKIA AHFIG RADIOS (1 PER SECTOR)
- INSTALL (3) NEW NOKIA AHLOA RADIOS (1 PER SECTOR)
- INSTALL (1) NEW DELTA HPL3 600A DC SITE SUPPORT CABINET
  - INSTALL (2) ASIL, (4) ABIO AND (1) AMIA WITHIN NEW SSC
- INSTALL (1) NEW DELTA LB3 LARGE BATTERY CABINET
  - INSTALL (8) NEW BATTERIES WITHIN NEW BATTERY CABINET
- INSTALL (2) NEW HCS 2.0 BOTTOM JUNCTION BOXES
- INSTALL (2) NEW HCS 2.0 TRUNK CABLES AND JUMPERS PER RFDS
- INSTALL (1) NEW 12'X20' CONCRETE EQUIPMENT PAD
- INSTALL (1) NEW 200A PPC CABINET
- INSTALL (1) NEW TELCO CABINET
- INSTALL (1) NEW ICE BRIDGE
- INSTALL (1) NEW H-FRAME ON CONCRETE PAD
- INSTALL (1) NEW COMMSCOPE VHLP3-18/A MICROWAVE ANTENNA (BETA)
- INSTALL (1) NEW CERAGON IP-20D ODU AND OMT (BETA)
- INSTALL (1) NEW .323" DC POWER CABLE W/ (2) 14AWG CONDUCTORS
- INSTALL (1) NEW 4.8mm FIBER CABLE

CONSULTING TEAM

PROJECT MANAGER

SURESITE CONSULTING GROUP, LLC
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122
CONTACT: JODI FERTSCH
PHONE: 330.720.1960
EMAIL: j.fertsch@sure-site.com

PROJECT A&E

SURESITE CONSULTING GROUP, LLC
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122
CONTACT: RICH LAIRD
PHONE: 216.593.0400
EMAIL: r.laird@sure-site.com

SITE ACQUISITION

SURESITE CONSULTING GROUP, LLC
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122
CONTACT: AMY WICKLUND
PHONE: 216.973.3523
EMAIL: a.wicklund@sure-site.com

ZONING

SURESITE CONSULTING GROUP, LLC
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122
CONTACT: AMY WICKLUND
PHONE: 216.973.3523
EMAIL: a.wicklund@sure-site.com

RF ENGINEER

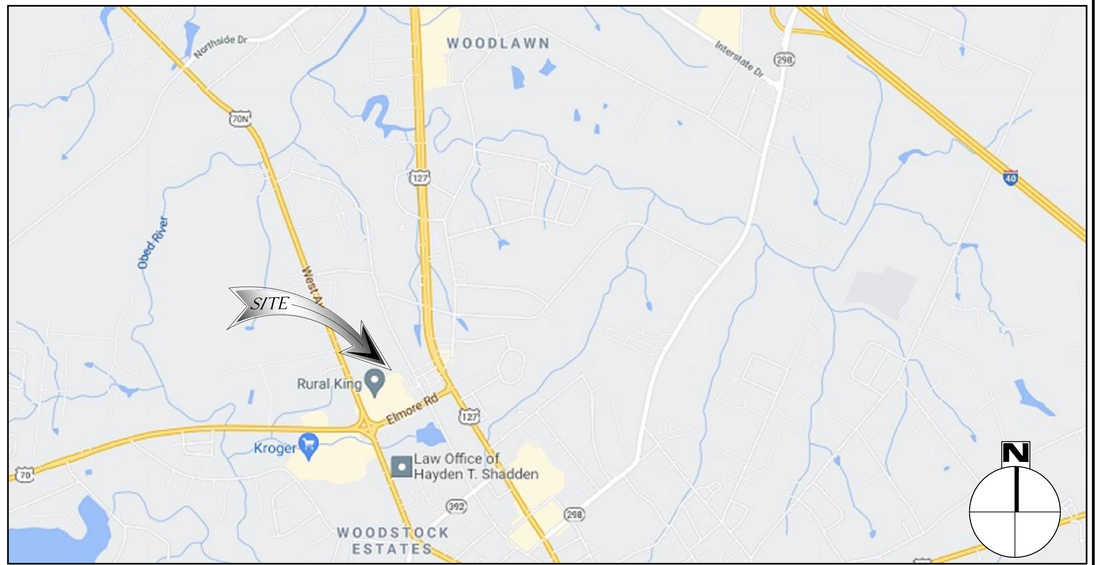
T-MOBILE USA
11509 COMMONWEALTH DR., STE. 9
LOUISVILLE, KY 40299
CONTACT: KEVIN BLEWITT
PHONE: 502.291.6782
EMAIL: kevin.blewitt@T-mobile.com

CONSTRUCTION MANAGER

T-MOBILE USA
5209 LINBAR DRIVE
NASHVILLE, TN 37211
CONTACT: ROGER FIRESTONE
PHONE: 615.804.3971
EMAIL: roger.firestone1@t-mobile.com

SHEET INDEX

SHEET	DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES AND SPECIFICATIONS
T-3	GENERAL NOTES AND SPECIFICATIONS
T-4	GENERAL NOTES AND SPECIFICATIONS
A-1	SITE PLAN
A-2	EQUIPMENT LAYOUT PLAN / ANTENNA LAYOUT PLAN
A-3	ARCHITECTURAL ELEVATIONS
D-1	EQUIPMENT DETAILS
D-2	EQUIPMENT DETAILS
D-3	EQUIPMENT DETAILS
D-4	EQUIPMENT DETAILS
D-5	EQUIPMENT DETAILS
D-6	EQUIPMENT DETAILS
D-7	EQUIPMENT DETAILS
E-1	ELECTRICAL PLAN
G-1	GROUNDING PLAN, SCHEMATIC AND NOTES
G-2	GROUNDING DETAILS
RF-1	ANTENNA SCHEDULES
RF-2	RFDS INFORMATION



APPROVALS

THE FOLLOWING PARTIES 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.

	PRINT NAME	SIGNATURE	DATE
LANDLORD			
ZONING REP.			
DEVELOP. MGR			
CONST. MGR			
PROJECT MGR			
ZONING MGR.			
RF ENGINEER			
OPERATIONS			
SAC REP.			

DIRECTIONS FROM LOCAL T-MOBILE OFFICE:

-TAKE EZELL ROAD SOUTH TO HAYWOOD LANE, TURN LEFT.
-TAKE HAYWOOD LANE EAST TO I-24 NORTH, TAKE ON RAMP ON THE RIGHT.
-USE THE RIGHT LANE TO MERGE ONTO I-24 W VIA THE RAMP TO NASHVILLE
-FOLLOW I-40 E TO N MAIN ST IN CROSSVILLE. TAKE EXIT 317 FROM I-40 E
-MERGE ONTO I-24 W, KEEP LEFT TO STAY ON I-24 W
-USE THE RIGHT 2 LANES TO TAKE EXIT 52B TO MERGE ONTO I-40 E TOWARD AIRPORT/KNOXVILLE, TAKE EXIT 317 TOWARD CROSSVILLE, CONTINUE ON N MAIN ST. DRIVE TO LIVINGSTON RD, MERGE ONTO N MAIN ST
-TURN RIGHT ONTO INDUSTRIAL BLVD
-TURN LEFT ONTO LIVINGSTON RD
DESTINATION WILL BE ON THE RIGHT
997 LIVINGSTON RD, CROSSVILLE, TN 38555

APPLICABLE CODES

1. 2012 IBC (INTERNATIONAL BUILDING CODE) AND AMENDMENTS
2. 2017 NEC (NATIONAL ELECTRIC CODE)
3. 2009 ICC
4. 2012 IMC (INTERNATIONAL MECHANICAL CODE) AND AMENDMENTS
5. 2012 IFC (INTERNATIONAL FIRE CODE) AND AMENDMENTS

ANSI/TIA-222-G OR LATEST EDITION CURRENT LOCAL CODES AND AMENDMENTS IN THE EVENT OF CONFLICT, THE MOST RESTRICTIVE CODE SHALL PREVAIL.

Tennessee811

THREE DAYS BEFORE YOU DIG, DRILL, BORE, OR TRENCH, NOTIFY TENNESSEE 811 AT 1-800-351-1111 OR DIAL 811

THE UTILITIES SHOWN HEREIN ARE FOR THE CONTRACTORS CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE PLANS. THE ENGINEER/SURVEYOR ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL THE UTILITIES WITHIN THE LIMITS OF THE WORK. ALL DAMAGE MADE TO THE (E) UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

PROPRIETARY INFORMATION

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAT THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

T-Mobile
T-MOBILE
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SURESITE
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY:	BWG
CHECKED BY:	RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A
9KX0421A
997 LIVINGSTON RD.
CROSSVILLE, TN 38555

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

SHEET TITLE

TITLE SHEET

SHEET NUMBER

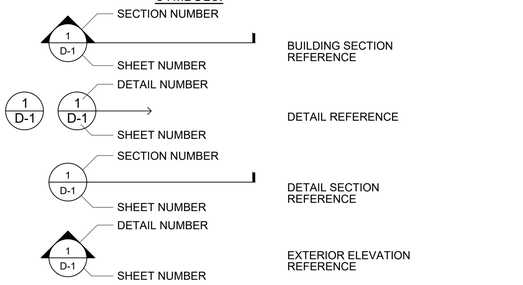
T-1

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

ABBREVIATIONS

AB	ANCHOR BOLT
AC	ASPHALTIC CONCRETE
A/C	AIR CONDITIONING
ADJ	ADJUSTABLE
A.F.F.	ABOVE FINISH FLOOR
ARCH	ARCHITECTURAL
APPROX	APPROXIMATELY
A.G.L.	ABOVE GRADE LEVEL
A.M.S.L.	ABOVE MEAN SEA LEVEL
BD	BOARD
BLDG	BUILDING
BLKG	BLOCKING
BOT	BOTTOM
BSMT	BASEMENT
BTS	BASE TRANSCEIVER STATION
C	COURSE(S)
CEM	CEMENT
CL	CHAIN LINK
CLG	CEILING
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CORR	CORRIDOR
CO	CONDUIT ONLY
DIA	DIAMETER
DBL	DOUBLE
DEPT	DEPARTMENT
DEMO	DEMOLITION
DIM	DIMENSION
DN	DOWN
DR	DOOR
DTL	DETAIL
DWG	DRAWING
(E)	EXISTING
EA	EACH
ELEC	ELECTRIC
ELEV	ELEVATION
EQUIP	EQUIPMENT
EXP	EXPANSION
EXT	EXTERIOR
FA	FIRE ALARM
FB	FLAT BAR
FF	FINISH FLOOR
FH	FLAT HEAD
FIN	FINISH(ED)
FLR	FLOOR
FOS	FACE OF STUDS
FS	FINISH SURFACE
FT	FOOT, FEET
FTG	FOOTING
FW	FINISH WALL
F.G.	FINISH GRADE
FUT	FUTURE
GA	GAUGE
GALV	GALVANIZED
GL	GLASS
GR	GRADE
GYP	GYPSUM
GFCI	GROUND FAULT CIRCUIT INTERRUPT
GND	GROUND
HC	HOLLOW CORE
HDW	HARDWARE
HTR	HEATER
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HR	HOUR
HSS	HOLLOW STRUCTURAL SECTION
HT	HEIGHT
HV	HIGH VOLTAGE
ID	INSIDE DIMENSION
INS	INSULATION
INT	INTERIOR
JT	JOINT
LAM	LAMINATED
LBS	POUNDS
LT	LIGHT
LA	LIGHTNING ARRESTOR
LNA	LOW NOISE AMPLIFIER
MFR	MANUFACTURER
MAT	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MIN	MINIMUM
MISC	MISCELLANEOUS
ML	METAL LATH
MO	MASONRY OPENING
MS	MACHINE SCREW
MTD	MOUNTED
MTL	METAL
(N)	PROPOSED
NIC	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
OA	OVERALL
O.C.	ON CENTER
OPNG	OPENING
OPP	OPPOSITE
PARTN	PARTITION
PL	PLATE
PLAS	PLASTER
PLYWD	PLYWOOD
POC	POINT OF CONNECTION
PROP	PROPERTY
PT	PRESSURE TREATED
R	RISER
REQD	REQUIRED
RD	ROOF DRAIN
RM	ROOM
RMS	ROOMS
RO	ROUGH OPENING
SC	SOLID CORE
SCHED	SCHEDULE
SECT	SECTION
SHT	SHEET
SIM	SIMILAR
SPECS	SPECIFICATIONS
SS	STAINLESS STEEL
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURAL
SUSP	SUSPENDED
SW	SWITCH
SWBO	SWITCHBOARD
THK	THICK
TI	TENANT IMPROVEMENT
TMA	TOWER MOUNTED AMPLIFIER
TOS	TOP OF SURFACE
TS	TUBE STEEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
V.I.F.	VERIFY IN FIELD
VG	VERTICAL GRAIN
W/	WITH
WD	WOOD
WR	WATER RESISTANT
WT	WEIGHT
XFMR	TRANSFORMER
@	AT
⌈	CHANNEL
℄	CENTERLINE
∠	ANGLE
ℙ	PROPERTY LINE

SYMBOLS:



GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE BUILDING CODE AND ALL OTHER GOVERNING CODES. THESE NOTES SHALL BE CONSIDERED A PART OF THE WRITTEN SPECIFICATIONS.

2. THE CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ANY ERRORS, OMISSIONS, OR DISCREPANCIES AS THEY MAY BE DISCOVERED IN THE PLANS, SPECIFICATIONS, & NOTES PRIOR TO STARTING CONSTRUCTION, INCLUDING BUT NOT LIMITED BY DEMOLITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ANY ERROR, OMISSION, OR INCONSISTENCY AFTER THE START OF CONSTRUCTION WHICH HAS NOT BEEN BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER AND SHALL INCUR ANY EXPENSES TO RECTIFY THE SITUATION. THE METHOD OF CORRECTION SHALL BE APPROVED BY THE ARCHITECT/ENGINEER.

3. PRIOR TO STARTING CONSTRUCTION THE CONTRACTOR HAS THE RESPONSIBILITY TO LOCATE ALL EXISTING UTILITIES, WHETHER OR NOT SHOWN ON THE PLANS, AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR OR SUBCONTRACTOR SHALL BEAR THE EXPENSE OF REPAIRING OR REPLACING ANY DAMAGE TO THE UTILITIES CAUSED DURING THE EXECUTION OF THE WORK. WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, UTILITIES SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW.

4. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND SHALL BE CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF THE ENGINEER.

5. A COPY OF THE APPROVED PLANS SHALL BE KEPT IN A PLACE SPECIFIED BY THE GOVERNING AGENCY, AND BY LAW SHALL BE AVAILABLE FOR INSPECTION AT ALL TIMES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE ALL CONSTRUCTION SETS REFLECT THE SAME INFORMATION AS THE APPROVED PLANS. THE CONTRACTOR SHALL ALSO MAINTAIN ONE SET OF PLANS AT THE SITE FOR THE PURPOSE OF DOCUMENTING ALL AS-BUILT CHANGES, REVISIONS, ADDENDUMS, OR CHANGE ORDERS. THE CONTRACTOR SHALL FORWARD THE AS-BUILT/HIRED DRAWINGS TO THE ARCHITECT/ENGINEER AT THE CONCLUSION OF THE PROJECT.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE SECURITY OF THE SITE WHILE THE WORK IS IN PROGRESS UNTIL THE JOB IS COMPLETE.

7. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE TEMPORARY POWER, WATER, AND TOILET FACILITIES AS REQUIRED BY THE PROPERTY OWNER OR GOVERNING AGENCY.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL SAFETY PRECAUTIONS AND REGULATIONS DURING THE WORK. THE ENGINEER WILL NOT ADVISE ON, NOR PROVIDE DIRECTION, AS TO SAFETY PRECAUTIONS AND PROGRAMS.

9. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, PROCEDURES AND SEQUENCING AND COORDINATING ALL PORTIONS OF THE WORK UNDER THE PROJECT. FURTHERMORE, THE STRUCTURE IS DESIGNED AS A UNIT UPON COMPLETION. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS. THE INVESTIGATION, DESIGN, SAFETY, ADEQUACY AND INSPECTION OF BRACING, SHORING, TEMPORARY SUPPORTS, ETC. IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

10. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN AND PAY FOR ALL PERMITS, LICENSES AND INSPECTIONS WITH RESPECT TO THE WORK TO COMPLETE THE PROJECT. BUILDING PERMIT APPLICATIONS SHALL BE FILED BY THE OWNER OR HIS REPRESENTATIVE. CONTRACTOR SHALL OBTAIN THE PERMIT AND MAKE FINAL PAYMENT OF SAID DOCUMENT(S).

11. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF LOAD IMPOSED ON THE STRUCTURAL FRAMING AND STRUCTURE DURING CONSTRUCTION. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED. TEMPORARY SHORING OR BRACING SHALL BE PROVIDED WHERE THE STRUCTURE OR SOIL HAS NOT ATTAINED THE DESIGN STRENGTH FOR THE CONDITIONS PRESENT. THE CONTRACTOR SHALL ALSO RECOGNIZE AND CONSIDER THE EFFECTS OF THERMAL MOVEMENTS OF STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD.

12. ALL DIMENSIONS TAKE PRECEDENCE OVER SCALE UNLESS OTHERWISE NOTED.

13. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY FRAMING, BACKING, HANGERS, BLOCKING OR SUPPORTS FOR INSTALLATION OF ITEMS INDICATED ON THE DRAWINGS.

14. THE CONTRACTOR SHALL PROVIDE FIRE MARSHALL APPROVED MATERIALS TO FILL/SEAL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES.

15. PROPOSED CONSTRUCTION ADDED TO EXISTING CONSTRUCTION SHALL BE MATCHED IN FORM, TEXTURE, MATERIAL AND PAINT COLOR EXCEPT AS NOTED IN THE PLANS.

16. WHERE SPECIFIED, MATERIALS TESTING SHALL BE TO THE LATEST STANDARDS AVAILABLE AS REQUIRED BY THE LOCAL GOVERNING AGENCY RESPONSIBLE FOR RECORDING THE RESULTS.

17. ALL GENERAL NOTES AND STANDARD DETAILS ARE THE MINIMUM REQUIREMENTS TO BE USED IN CONDITIONS WHICH ARE NOT SPECIFICALLY SHOWN OTHERWISE.

18. ALL DEBRIS AND REFUGE IS TO BE REMOVED FROM THE PROJECT. PREMISES SHALL BE LEFT IN A CLEAN BROOM FINISHED CONDITION AT ALL TIMES.

19. ALL SYMBOLS AND ABBREVIATIONS ARE CONSIDERED CONSTRUCTION INDUSTRY STANDARDS. IF A CONTRACTOR HAS A QUESTION REGARDING THEIR EXACT MEANING, THE ARCHITECT/ENGINEER SHALL BE NOTIFIED FOR CLARIFICATIONS.

20. CONTRACTORS SHALL VISIT THE SITE PRIOR TO BID TO ASCERTAIN CONDITIONS WHICH MAY ADVERSELY AFFECT THE WORK OR COST THEREOF.

21. THE CONTRACTOR SHALL FIELD VERIFY THE DIMENSIONS, ELEVATIONS, ETC. NECESSARY FOR THE PROPER CONSTRUCTION AND ALIGNMENT OF THE PROPOSED PORTION OF THE WORK TO THE EXISTING WORK. THE CONTRACTOR SHALL MAKE ALL MEASUREMENTS NECESSARY FOR FABRICATION AND ERECTION OF STRUCTURAL MEMBERS. ANY DISCREPANCY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER.

DIGALERT
DIAL TOLL FREE
811
AT LEAST TWO WORKING DAYS BEFORE YOU DIG

GENERAL (CONTINUED)

22. REPRESENTATIONS OF TRUE NORTH, OTHER THAN THOSE FOUND ON THE PLOT OF SURVEY DRAWING (SHEET LS1), SHALL NOT BE USED TO IDENTIFY OR ESTABLISH THE BEARING OF TRUE NORTH AT THE SITE. THE CONTRACTOR SHALL RELY SOLELY ON THE PLOT OF SURVEY DRAWING AND ANY SURVEYOR'S MARKINGS AT THE SITE FOR THE ESTABLISHMENT OF TRUE NORTH, AND SHALL NOTIFY THE ARCHITECT/ ENGINEER PRIOR TO PROCEEDING WITH THE WORK. IF ANY DISCREPANCY IS FOUND BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND THE TRUE NORTH ORIENTATION AS DEPICTED ON THE CIVIL SURVEY, THE CONTRACTOR SHALL ASSUME SOLE LIABILITY FOR ANY FAILURE TO NOTIFY THE ARCHITECT/ENGINEER.

23. NO CHANGES ARE TO BE MADE TO THESE PLANS WITHOUT THE KNOWLEDGE AND WRITTEN CONSENT OF THE ARCHITECT/ ENGINEER. UNAUTHORIZED CHANGES RENDER THESE DRAWINGS VOID. THIS INCLUDES THAT THE CONTRACTOR SHALL NOT BE RELIEVED OF ANY DEVIATION FROM THE PLANS BY THE PROFESSIONAL'S OF RECORD REVIEW OF SHOP DRAWINGS, PRODUCT DATA, ETC. UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE PROFESSIONAL OF RECORD OF SUCH DEVIATION IN WRITING AT THE TIME OF SUBMISSION, AND THE PROFESSIONAL OF RECORD HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION.

24. ANY REFERENCE TO THE WORDS "APPROVED" OR "APPROVAL" IN THESE DOCUMENTS SHALL BE HERE DEFINED TO MEAN GENERAL ACCEPTANCE OR REVIEW AND SHALL NOT RELIEVE THE CONTRACTOR AND/OR HIS SUB-CONTRACTORS OF ANY LIABILITY IN FURNISHING THE REQUIRED MATERIALS OR LABOR SPECIFIED.

25. STAIR TREADS SHALL BE MARKED BY A STRIP OF CLEARLY CONTRASTING COLOR AT LEAST 2-INCHES WIDE AND PLACED PARALLEL TO AND NOT MORE THAN 1 INCH FROM THE NOSE OF THE STEP. ALL TREAD SURFACES SHALL BE SLIP RESISTANCE. NOSING SHALL NOT PROJECT MORE THAN 1-1/2 INCHES PAST THE FACE OF THE RISER BELOW.

SITE PREPARATION NOTES:

1. THE PREPARATION OF THE SITE FOR CONSTRUCTION SHALL INCLUDE THE REMOVAL OF ALL BROKEN CONCRETE, TREE TRUNKS AND ANY OTHER DEBRIS THAT WOULD BE DAMAGING TO THE FOOTINGS OF THE PROPOSED STRUCTURE.

2. ALL FOUNDATION FOOTINGS SHALL EXTEND INTO AND BEAR AGAINST NATURAL UNDISTURBED SOIL OR APPROVED COMPACTED FILL. FOOTINGS SHALL EXTEND INTO SOIL DEPTH INDICATED ON DETAILS.

3. SHOULD ANY LOOSE FILL, EXPANSIVE SOIL, GROUND WATER OR ANY OTHER DANGEROUS CONDITIONS BE ENCOUNTERED DURING THE EXCAVATION FOR THE PROPOSED FOUNDATION, THE ARCHITECT/ENGINEER SHALL BE NOTIFIED AND ALL FOUNDATION WORK SHALL CEASE IMMEDIATELY.

4. THE SURFACE OF THE EXPOSED SUBGRADE SHALL BE INSPECTED BY PROBING OR TESTING TO CHECK FOR POCKETS OF SOFT OR UNSUITABLE MATERIAL. EXCAVATE UNSUITABLE SOIL AS DIRECTED BY THE GEOTECHNICAL ENGINEER/TESTING AGENCY.

5. PROOFROLL THE SURFACE OF THE EXPOSED SUBGRADE WITH A LOADED TANDEM AXLE DUMP TRUCK. REMOVE ALL SOILS WHICH PUMP OR DO NOT COMPACT PROPERLY AS DIRECTED BY THE GEOTECHNICAL ENGINEER/TESTING AGENCY.

6. FILL ALL EXCAVATED AREAS WITH APPROVED CONTROLLED FILL. PLACE IN 8" LOOSE LIFTS AND THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-698. COMPACT TO A MINIMUM OF 90% RELATIVE COMPACTION. ADEQUATE DRAINAGE SHALL BE PROVIDED SUCH THAT NO PONDING OCCURS AFTER THESE RECOMMENDATIONS ARE APPROVED BY THE ARCHITECT/ENGIENEER.

7. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL PROTECT ALL AREAS FROM DAMAGE WHICH MAY OCCUR DURING CONSTRUCTION. ANY DAMAGE TO PROPOSED OR EXISTING SURFACES, STRUCTURES OR EQUIPMENT SHALL BE IMMEDIATELY REPAIRED OR REPLACED TO THE SATISFACTION OF THE PROPERTY OWNER. THE CONTRACTOR SHALL BEAR THE EXPENSE OF REPAIRING OR REPLACING ANY DAMAGED AREAS.

8. BEFORE PROCEEDING WITH ANY WORK WITHIN THE EXISTING FACILITY, THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH EXISTING STRUCTURAL AND OTHER CONDITIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL NECESSARY BRACING, SHORING AND OTHER SAFEGUARDS TO MAINTAIN ALL PARTS OF THE EXISTING WORK IN A SAFE CONDITION DURING THE PROCESS OF DEMOLITION AND CONSTRUCTION AND TO PROTECT FROM DAMAGE THOSE PORTIONS OF THE EXISTING WORK WHICH ARE TO REMAIN.

SUBMITTALS

SUBMITTALS: SUBMITTALS FOR SHOP DRAWINGS, MILL TESTS, PRODUCT DATA, ETC. FOR ITEMS DESIGNED BY THE ARCHITECT/ ENGINEER OF RECORD SHALL BE MADE TO THE ARCHITECT/ENGINEER PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REVIEW THE SUBMITTAL BEFORE FORWARDING TO THE ARCHITECT. SUBMITTALS SHALL BE MADE IN TIME TO PROVIDE A TWO-WEEK REVIEW PERIOD FOR THE ARCHITECT/ ENGINEER. SUBMITTALS REQUIRED FOR EACH SECTION OF THESE NOTES ARE SPECIFIED IN THAT SECTION.

SHOP DRAWING REVIEW

REVIEW BY THE ARCHITECT/ENGINEER IS FOR GENERAL COMPLIANCE WITH THE DESIGN CONCEPT AND THE CONTRACT DOCUMENTS. MARKINGS OR COMMENTS SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM COMPLIANCE WITH THE PROJECT PLANS AND SPECIFICATIONS, NOR DEPARTURES THEREFROM. THE CONTRACTOR REMAINS RESPONSIBLE FOR DETAILS AND ACCURACY, FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, FOR SELECTING FABRICATION PROCESSES, ETC. WHEN SHOP DRAWINGS DIFFER FROM OR ADD TO THE REQUIREMENTS OF THE STRUCTURAL DRAWINGS THEY SHALL BE DESIGNED AND STAMPED BY A SPECIALTY STRUCTURAL ENGINEER (SSE)

FIRE DEPARTMENT NOTES

1. SCHEDULE REQUIRED FINAL FIRE DEPARTMENT INSPECTION 2 DAYS IN ADVANCE.

2. A UNIFORM FIRE CODE PERMIT TO OPERATE BATTERY SYSTEMS WITH STATIONARY LEAD-ACID BATTERIES MAY BE REQUIRED AND ISSUED BY FIRE INSPECTOR.

3. AN APPROVED METHOD TO NEUTRALIZE SPILLED ELECTROLYTE SHALL BE PROVIDED IN THE BATTERY ROOM (IF APPLICABLE)

4. LOCATIONS AND CLASSIFICATIONS OF FIRE EXTINGUISHERS SHALL BE IN ACCORDANCE WITH THE UNIFORM FIRE CODE STANDARD 10-1 AND PLACEMENT IS SUBJECT TO THE APPROVAL OF THE FIRE INSPECTOR.

5. CONTRACTOR SHALL POST PERMANENT SIGNAGE IN A CONSPICUOUS LOCATION AT THE SITE IDENTIFYING WHOM SHOULD BE CALLED IN AN EMERGENCY WITH PHONE NUMBERS AND SITE-IDENTIFYING INFORMATION (SUCH AS ADDRESS, SITE #, ETC.) FOR FIRE DEPARTMENT EMERGENCY USE.

6. A HAZARDOUS MATERIALS IDENTIFICATION SIGN IS REQUIRED FOR ALL ENTRANCES INTO BATTERY STORAGE AREAS. LETTERS MUST BE 1" IN HEIGHT AND IN A COLOR WHICH CONTRASTS WITH THE BACKGROUND OF THE SIGN AND LIST THE FOLLOWING: "BATTERY CABINET, LEAD ACID BATTERIES INSIDE"

7. PROVIDE 2A:40BC FIRE EXTINGUISHER, OR OTHER EQUIVALENT, IN RECESSED OR SEMI-RECESSED CABINET MOUNTED AT 48" AFF MAXIMUM TO TOP OF CABINET. IF CONSTRUCTION MATERIALS ARE NOT AMENABLE TO RECESSING THE CABINET, SURFACE MOUNTED CABINETS MAY BE APPROVED. CABINETS SHALL HAVE AN OPENABLE DOOR THAT DOES NOT REQUIRE BREAKAGE OF GLASS. EXTINGUISHERS SHALL BE HUNG ON THEIR HOOKS IN THE CABINETS.

FLASHING AND SHEET METAL

1. ALL FLASHING, COUNTER FLASHING, COPING AND ALL OTHER SHEET METAL SHALL BE OF NOT LESS THAN NO. 20 U.S. GAUGE CORROSION-RESISTANT METAL U.N.O. ALL METAL MUST BE GALVANIZED AFTER FABRICATION.

2. FLASH AND COUNTER FLASH AT ALL ROOF TO WALL CONDITIONS. G.I. FLASH AND CAULK WOOD BEAMS AND OUTLOOKERS PROJECTING THROUGH EXTERIOR WALLS OR ROOF SURFACES.

3. FLASH ALL EXTERIOR OPENINGS WITH APPROVED WATERPROOFING, WHICH CONFORMS TO THE STANDARDS OF LOCAL AND STATE CODES.

4. ALL CONNECTIONS TO BUILDING WALLS OR ROOFS MUST BE FLASHED AND MADE WATERTIGHT USING LIKE MATERIALS IN ACCORDANCE WITH NRCA ROOFING STANDARDS AND DETAILS. CONTRACTOR SHALL OBTAIN DETAILING CLARIFICATION FOR SITE-SPECIFIC CONDITIONS FROM ARCHITECT/ENGINEER, IF NECESSARY, BEFORE PROCEEDING. PLANS ARE NOT TO BE SCALED AND ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY, UNLESS NOTED OTHERWISE.

PAINTING

1. THE CONTRACTOR SHALL PREPARE SURFACES, FURNISH ALL PAINT, MATERIAL, LABOR AND EQUIPMENT FOR THE PAINTING OF ALL SURFACES AS REQUIRED.

2. ALL PAINTS TO BE APPLIED IN WORKMANLIKE MANNER. AT COMPLETION, REMOVE ALL MATERIALS AND DEBRIS CAUSED BY THIS CONTRACTOR. ALL FLOORS, GLASS, HARDWARE, FRAMES, FIXTURES, ETC SHALL BE THOROUGHLY CLEANED OF PAINT.

3. ALL STEEL COLUMNS AND MISC. METALS SHALL BE PRIMED AND PAINTED.

4. FIRE PREVENTION: TAKE EVERY PRECAUTION AT THE END OF THE DAY TO REMOVE OILY RAGS AND COMBUSTIBLE MATERIALS FROM THE SITE OR STORE IN METAL CONTAINER WITH TIGHT COVERS.

5. FINAL TEXTURE & COLOR PER OWNER'S INSTRUCTIONS.

6. SHOP PAINTING: CONFORM TO AISC SPECIFICATION SEC M2 AND AISC CODE SEC. 6.5. DO NOT PRIME SURFACES TO BE FIREPROOFED, IN CONTACT WITH CONCRETE, OR FIELD WELDED. STEEL WORK TO BE CONCEALED BY INTERIOR BUILDING FINISHES OR IN CONTACT WITH CONCRETE DOES NOT REQUIRE PAINTING. ALL OTHER STEEL WORK SHALL BE GIVEN ONE COAT OF SHOP PAINT.

7. ALL VISIBLE ANTENNAS, ANTENNA SUPPORT STRUCTURES, CABLE TRAYS, EQUIPMENT MUST BE PAINTED TO BLEND WITH SURROUNDING ELEMENTS - U.N.O

THERMAL & MOISTURE PROTECTION INSULATION

1. COMPLY WITH ALL APPLICABLE REQUIREMENTS OF THE STATE ENERGY REGULATIONS.

2. PROVIDE R-13 MINIMUM KRAFT-FACED BATT. INSULATION AT WALLS UNLESS NOTED OTHERWISE, AND R-19 MINIMUM AT CEILINGS TO COMPLETELY ENCLOSE EQUIPMENT ROOM. PLACE VAPOR BARRIERS ON WARM SIDE OF WALL.

3. INSULATE WALLS BETWEEN EQUIPMENT ROOM AND ADJACENT ROOMS. INSULATE BETWEEN JAMBS AND FRAMING, BEHIND HEADER JOISTS AND IN SOFFITS OVER EXTERIOR SPACE.

4. PENETRATIONS OF ROOF MEMBRANES SHALL BE PATCHED/FLASHED AND MADE WATERTIGHT USING LIKE MATERIALS IN ACCORDANCE WITH NRCA ROOFING STANDARDS AND DETAILS. CONTRACTOR SHALL OBTAIN DETAILING CLARIFICATION FOR SITE-SPECIFIC CONDITIONS FROM ARCHITECT/ENGINEER, IF NECESSARY, BEFORE PROCEEDING. PLANS ARE NOT TO BE SCALED AND ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY, UNLESS NOTED OTHERWISE.

ACCESSIBILITY NOTE

THE TELECOMMUNICATIONS EQUIPMENT SPACE SHOWN ON THESE PLANS IS NOT CUSTOMARILY OCCUPIED. WORK TO BE PERFORMED IN THIS FACILITY CANNOT REASONABLY BE PERFORMED BY PERSONS WITH A SEVERE IMPAIRMENT: MOBILITY, SIGHT, AND/OR HEARING. HANDICAPPED ACCESS REQUIREMENTS ARE NOT REQUIRED IN ACCORDANCE WITH THE 2015 IBC, INTERNATIONAL BUILDING CODE.

T-MOBILE
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SURESITE
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY:	BWG
CHECKED BY:	RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A
9KX0421A
997 LIVINGSTON RD.
CROSSVILLE, TN 38555

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

SHEET TITLE
GENERAL NOTES AND SPECIFICATIONS

SHEET NUMBER
T-2

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

FRAMING

1. ALL LUMBER SHALL BE GRADE MARKED DOUGLAS FIR-LARCH AND SHALL HAVE THE FOLLOWING MINIMUM GRADES:

JOISTS AND RAFTERS	#1
BEAMS AND STRINGERS	#1
PLATES	#2
STUDS (2X4, 3X4, 2X6)	#1
POSTS, COLUMNS AND TIMBER	#1

2. ALL FRAMING EXPOSED TO THE WEATHER OR IN CONTACT WITH MASONRY OR CONCRETE SHALL BE PRESSURE-TREATED IN ACCORDANCE WITH THE AMERICAN WOOD PRESERVERS ASSOCIATION SPECIFICATIONS. WHERE POSSIBLE, ALL CUTS AND HOLES SHOULD BE COMPLETED BEFORE TREATMENT. CUTS AND HOLES DUE TO ON-SITE FABRICATION SHALL BE BRUSHED WITH 2 COATS OF COPPER NAPHTHENATE SOLUTION CONTAINING A MINIMUM OF 2% METALLIC COPPER IN SOLUTION (PER AWPA STD. M4).

3. CUTTING OR NOTCHING OF WOOD STUDS OR PLATES SHALL NOT EXCEED 25% OF THE STUD/PLATE WIDTH AT EXTERIOR OR BEARING WALLS AND SHALL NOT EXCEED 40% OF THE STUD/PLATE WIDTH IN NONBEARING PARTITIONS. BORED HOLE DIAMETERS ARE LIMITED TO 40% OF THE STUD WIDTH IN ANY STUD AND MAY BE 60% IN NONBEARING PARTITIONS OR WHEN THE BORED STUD IS DOUBLED.

4. DO NOT NOTCH JOISTS, RAFTERS, OR BEAMS EXCEPT WHERE SHOWN ON THE DETAILS. BORED HOLES THROUGH JOISTS SHALL NOT EXCEED 1/3 OF MEMBER DEPTH AND BE LOCATED AT LEAST 2" FROM THE TOP AND BOTTOM OF THE MEMBER.

5. ALL BLOCKING AND BRIDGING SHALL BE PROVIDED AS REQUIRED PER GOVERNING CODE OR STANDARD OF PRACTICE.

6. ALL JOIST, RAFTER & MISC. FRAMING SHALL HAVE FULL-DEPTH (OR METAL) BRIDGING AT ALL SUPPORTS, MIDSPAN AND AT A MAXIMUM SPACING OF 8'-0" O/C IN BETWEEN UNLESS NOTED OTHERWISE.

7. PROVIDE DOUBLE JOISTS UNDER ALL PARTITIONS THAT ARE PARALLEL TO JOISTS. USE 2-16D NAILS AT 16" O.C. TO NAIL DOUBLE JOISTS TOGETHER.

8. THE CONTRACTOR SHALL CAREFULLY SELECT LUMBER TO BE USED IN LOAD BEARING APPLICATIONS. THE LENGTH OF SPLIT ON THE WIDE FACE OF 2" NOMINAL LOAD FRAMING SHALL BE LIMITED TO LESS THAN 1/2 OF THE WIDE FACE DIMENSION. THE LENGTH OF SPLIT ON THE WIDE FACE OF 3" (NOMINAL) AND THICKER LUMBER SHALL BE LIMITED TO 1/2 OF THE NARROW FACE DIMENSION.

9. BOLT HOLES SHALL BE CAREFULLY CENTERED AND DRILLED NOT MORE THAN 1/16" LARGER THAN THE BOLT DIAMETER. PROVIDE WASHERS BETWEEN BOLT HEADS OR NUTS AND WOOD. BOLTED CONNECTIONS SHALL BE SNUGGED TIGHT BUT NOT TO THE EXTENT OF CRUSHING WOOD UNDER WASHERS.

10. ALL BOLTS SHALL BE RE-TIGHTENED PRIOR TO APPLICATION OF PLASTER, PLYWOOD, ETC. AND BEFORE CLOSING IN COMPLETION OF THE JOB.

11. PREFABRICATED METAL JOIST HANGERS, HURRICANE CLIPS, HOLD-DOWN ANCHORS AND OTHER ACCESSORIES SHALL BE AS MANUFACTURED BY "SIMPSON STRONG-TIE COMPANY" OR APPROVED EQUAL. INSTALL ALL ACCESSORIES PER THE MANUFACTURER'S REQUIREMENTS. ALL STEEL SHALL HAVE A MINIMUM THICKNESS OF 0.04 INCHES (PER ASTM A446, GRADE A) AND BE GALVANIZED (COATING G60).

12. STRUCTURAL STEEL PLATE CONNECTORS SHALL CONFORM TO ASTM A-36 SPECIFICATIONS AND BE 1/4" THICK UNLESS OTHERWISE INDICATED.

13. ALL PLATES, ANCHORS, NAILS, BOLTS, NUTS, WASHERS, AND OTHER MISCELLANEOUS HARDWARE THAT ARE EXPOSED OR IN CONTACT WITH PRESSURE TREATED LUMBER SHALL BE HOT DIP GALVANIZED.

14. BOLTS IN WOOD SHALL BE A MINIMUM OF 7 BOLT DIAMETERS FROM THE ENDS AND 4 BOLT DIAMETERS FROM THE EDGES.

15. ALL SILL BOLTS SHALL BE PLACED STARTING 9" FROM THE ENDS OF A BOARD OR FROM A NOTCH AND SPACED AT INTERVALS AS NOTED ON THE PLANS.

16. ALL SILL PLATE ANCHOR BOLTS AND HOLD-DOWN CONNECTOR BOLTS AT ALL PLYWOOD SHEAR PANELS SHALL HAVE THE FOLLOWING PLATE WASHERS.

BOLT SIZE	PLATE WASHER SIZE (ASTM A-36)
5/8"	0.229" X 3" X 3"
3/4"	5/16" X 3" X 3"
7/8"	5/16" X 3" X 3"
1"	3/8" X 3-1/2" X 3-1/2"

17. TOP PLATES FOR ALL STUD WALLS SHALL BE 2-2X. MINIMUM TOP PLATE LAP SHALL BE 48" WITH 16d NAILS AT 4" O.C. EACH SIDE OF SPLICE U.N.O. SPLICES IN UPPER AND LOWER PLATES SHALL BE STAGGERED 10' MINIMUM.

18. ALL WOOD STUD WALLS SHALL HAVE 2X4 STUDS AT 16" O.C. WHEN HEIGHT BETWEEN LATERAL SUPPORTS IS LESS THAN 10'-0". WHEN HEIGHT BETWEEN LATERAL SUPPORTS MORE THAN 10'-0", USE 2X6 STUDS AT 16" O.C. WITH FULL DEPTH BLOCKING AT NOT MORE THAN 8' VERTICAL INTERVAL.

19. ALL NAILS SHALL BE COMMON WIRE NAILS U.N.O. SEE FRAMING PLANS OR DETAILS FOR NAIL SIZES AND SPACING. NAILS THAT ARE NOT DETAILED OR NOTED SHALL BE IN ACCORDANCE WITH IBC TABLE 2304.9.1. FASTENING SCHEDULE. HOLES FOR NAILS SHALL BE PREDRILLED AT A SMALLER DIAMETER THAN THE NAIL WHERE NECESSARY TO PREVENT SPLITTING.

20. LAG BOLTS SHALL HAVE LEAD HOLES BORED AS FOLLOWS:

SHANK PORTION	SAME DIAMETER AND LENGTH AS SHANK
THREADED PORTION	0.6-0.75 OF DIAMETER OF THREAD

PLYWOOD SHEATHING NOTES

1. ALL PLYWOOD CONSTRUCTION SHALL BE IN ACCORDANCE WITH (APA) AMERICAN PLYWOOD ASSOCIATION SPECIFICATIONS AND COMPLY WITH PS1-07 OR PS2-04.

2. ALL ROOF PANEL SHEATHING SHALL BE 5/8" (NOM.) TYPE CDX. EXP. 1 APA RATED SHEATHING. SUITABLE EDGE SUPPORT SHALL BE PROVIDED BY USE OF PANEL CLIPS OR BLOCKING BETWEEN FRAMING. CONNECT ROOF SHEATHING WITH 8d COMMON NAILS AT 6" O/C AT SUPPORTED PANEL EDGES AND 12" O/C AT INTERMEDIATE SUPPORTS U.N.O.

3. ALL WALL PANEL SHEATHING SHALL BE 1/2" (NOM.) TYPE CDX. EXP. 1 APA RATED SHEATHING ATTACHED WITH 10d COMMON NAILS SPACED 6" O/C AT SUPPORTED PANEL EDGES AND 12" O/C AT INTERMEDIATE SUPPORTS U.N.O.

4. INSTALL ALL PLYWOOD SHEATHING WITH THE LONG DIMENSION OF THE PANEL ACROSS SUPPORTS AND WITH PANEL CONTINUOUS OVER TWO OR MORE SPANS. STAGGER PANEL END JOINTS. ALLOW 1/8" SPACING AT PANEL ENDS AND EDGES UNLESS OTHERWISE RECOMMENDED BY THE SHEATHING MANUFACTURER.

5. ALL NAILING SHALL BE CAREFULLY DRIVEN AND NOT OVERDRIVEN. THE USE OF STAPLES AND PNEUMATIC NAIL GUNS ARE PROHIBITED FROM USE.

6. ALL EXTERIOR EXPOSED PLYWOOD SHALL BE MARINE GRADE.

FIRE RESISTANCE REQUIREMENTS

1. CONTRACTOR TO PROVIDE FLAME STOP I-DS (OR OTHER APPROVED METHOD OF FIRE PREVENTION) TO TOWER, BRANCHES, AND/ OR OTHER COMBUSTIBLE MATERIALS AS OUTLINED IN SECTIONS 602 & 603 OF 2016 CBC.

MASONRY

1. ALL MASONRY SHALL HAVE MINIMUM COMPRESSIVE STRENGTH f'm OF 1,500 PSI.

2. MASONRY UNITS SHALL BE NORMAL WEIGHT BLOCK CONFORMING TO ASTM C90, GRADE N, TYPE 1, AND SHALL HAVE A MINIMUM NET AREA COMPRESSIVE STRENGTH OF 1900 PSI. CONCRETE MASONRY UNITS MUST BE TESTED IN ACCORDANCE WITH ASTM C140.

3. MORTAR SHALL BE MACHINE MIXED CONFORMING TO ASTM C270, TYPE S. MORTAR SHALL BE FRESHLY PREPARED AND UNIFORMLY MIXED AND SHALL BE PROPORTIONED PER BUILDING CODE TABLE 2103.8(1) AND 2103.8(2).

4. GROUT SHALL CONFORM TO ASTM C476 AND BE PROPORTIONED PER BUILDING CODE TABLE 2103.12. MINIMUM GROUT COMPRESSIVE STRENGTH SHALL EQUAL OR EXCEED THE GREATER OF 2,000 PSI OR THE REQUIRED f'm.

5. REINF'G BARS SHALL CONFORM TO ASTM A706 OR ASTM A615, GRADE 60 U.N.O.

6. CONTINUOUS WIRE REINFORCING (JOINT REINFORCING) SHALL BE GALVANIZED TRUSS OR LADDER TYPE FORMED FROM 9 GAUGE COLD-DRAWN STEEL WIRE COMPLYING WITH ASTM A82.

7. ALL MASONRY BLOCKS SHALL CONFORM WITH EACH OTHER IN COLOR, TEXTURE AND SIZE WHERE APPLICABLE. BLOCK SIZE, COLOR, TYPE AND TEXTURE SHALL BE AS INDICATED ON THE DRAWINGS. PROVIDE ACCESSORY BLOCKS AS INDICATED AND REQUIRED. WHERE CUTTING IS REQUIRED, BLOCKS SHALL BE SAWCUT.

8. COURSING SHALL BE COMMON RUNNING BOND (UNLESS NOTED OTHERWISE), WITH 3/8" GROUT JOINT. JOINTS SHALL BE TOOLED CONCAVE AND BE UNIFORM IN SIZE. USE CARE TO PREVENT MORTAR AND GROUT SPILLAGE ON THE FACE OF THE MASONRY. CLEAN SUCH SPILLAGE IMMEDIATELY. REPAIR ANY DAMAGE OR INTERSTICES BETWEEN BLOCKS AND REMOVE STAINS AT THE COMPLETION OF WORK.

9. TIE INTERSECTING WALLS BY OVERLAPPING UNITS IN ALTERNATE COURSES. ROUGHEN AND CLEAN CONCRETE BEARING SURFACES FOR THE PLACEMENT OF THE FIRST COURSE. VERTICAL HEAD JOINTS SHALL BE FILLED SOLID AND SHOVED TIGHTLY TO PROVIDE BOND TO BOTH BLOCKS.

10. AT VERTICAL REINFORCING LOCATIONS, PROVIDE DOWELS FROM FOOTING TO MATCH SIZE AND SPACING OF VERTICAL WALL REINFORCING. DOWELS SHALL BE EMBEDDED INTO THE FOOTING A MINIMUM OF 9" AND SHALL HAVE A 90 DEGREE HOOK. DEEPEN FOOTING WHERE REQUIRED FOR DOWEL. WHEN A FOUNDATION DOWEL DOES NOT LINE UP WITH A VERTICAL BLOCK CORE, IT SHALL NOT BE SLOPED MORE THAN ONE HORIZONTAL IN 6 VERTICAL.

11. SPLICED BARS (INCLUDING DOWELS) SHALL BE LAPPED 48 BAR DIAMETERS MINIMUM OR 24", WHICHEVER IS GREATER. SPLICED BARS SHALL BE WIRE-TIED.

12. VERTICAL REINFORCING BARS SHALL HAVE A MINIMUM CLEARANCE OF 3/4" FROM THE MASONRY AND NOT LESS THAN ONE DIAMETER BETWEEN BARS.

13. BOND BEAMS WITH A HORIZONTAL BAR OR BARS SHALL BE PROVIDED AT 48 INCHES ON CENTER AND AT ALL FLOOR AND ROOF LINES AND AT THE TOP OF THE WALL. PROVIDE A BOND BEAM WITH A HORIZONTAL BAR OR BARS OVER ALL OPENINGS, AND EXTEND THESE BARS 2'-0' PAST THE OPENING AT EACH SIDE. PROVIDE A BAR OR BARS VERTICALLY FOR THE FULL HEIGHT OF THE WALL AT EACH SIDE OF OPENINGS, WALL ENDS AND INTERSECTIONS. PROVIDE CORNER BARS TO MATCH THE HORIZONTAL WALL REINFORCING AT WALL INTERSECTIONS.

14. REINFORCING STEEL SHALL BE SECURED IN PLACE BEFORE GROUTING BEGINS. VERTICAL BARS SHALL BE HELD IN POSITION AT THE TOP, BOTTOM AND AT INTERVALS NOT EXCEEDING 200 DIAMETERS OF THE REINFORCING BAR, NOR 10 FEET.

15. SEE DRAWINGS FOR LOCATION OF VERTICAL CONTROL JOINTS. HORIZONTAL BOND BEAM AND LINTEL REINFORCING SHALL BE CONTINUOUS ACROSS VERTICAL CONTROL JOINTS.

16. ALL CELLS SHALL BE GROUTED SOLID. GROUTING OF MASONRY BEAMS AND LINTELS SHALL BE DONE IN ONE CONTINUOUS OPERATION. GROUTING SHALL BE STOPPED 1-1/2" BELOW THE TOP OF A COURSE SO AS TO FORM A KEY AT THE POUR JOINT. FILL CELLS WITH GROUT WITH MAXIMUM 4'-0" LIFTS. VERTICAL CELLS SHALL HAVE A VERTICAL ALIGNMENT TO MAINTAIN A CONTINUOUS UNOBSTRUCTED CELL AREA NOT LESS THAN 3"X4".

17. ALL ISOLATED BOLTS EMBEDDED IN MASONRY SHALL BE GROUTED SOLIDLY IN PLACE WITH NOT LESS THAN 2" OF GROUT SURROUNDING THE BOLT.

18. PROVIDE BOND BEAM LINTELS AND BRICK SHELF ANGLES ABOVE ALL WALL OPENINGS PER DETAILS. SEE THE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF ALL OPENINGS.

19. THE MASONRY CONTRACTOR SHALL PROVIDE ALL REQUIRED TEMPORARY WALL BRACING DURING CONSTRUCTION

20. ALL RETAINING WALLS SHALL HAVE AT LEAST 12" OF FREE-DRAINING GRANULAR BACKFILL, FULL HEIGHT OF WALL. PROVIDE CONTROL JOINTS IN RETAINING WALLS AT APPROXIMATELY EQUAL INTERVALS NOT TO EXCEED 25 FEET NOR 3 TIMES THE WALL HEIGHT. PROVIDE EXPANSION JOINTS AT EVERY FOURTH CONTROL JOINT, UNLESS OTHERWISE INDICATED. SEAL RETAINING FACE OF WALL AND FOOTING WITH 2 COATS OF HENRY'S 502 ASPHALTIC MASTIC. PROVIDE CONTINUOUS INSPECTION.

FOUNDATIONS - GENERAL

1. BOTTOM OF EXTERIOR FOOTINGS SHALL BEAR A MINIMUM OF 18" BELOW FINAL GRADE AND BEAR ON FIRM NATIVE OR PROPERLY COMPACTED SOILS.

2. FOOTINGS MAY BE POURED INTO AN EARTH-FORMED TRENCH IF SOIL CONDITIONS PERMIT.

3. ALL BEARING MATERIAL SHALL BE INSPECTED BY THE INDEPENDENT TESTING AGENCY PRIOR TO CONCRETE PLACEMENT. THE INDEPENDENT TESTING AGENCY SHALL BE THE SOLE JUDGE AS TO THE SUITABILITY OF THE BEARING MATERIAL. FOOTING ELEVATIONS SHALL BE ADJUSTED AS REQUIRED.

4. FOUNDATION CONCRETE SHALL HAVE REACHED A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI BEFORE BEING LOADED. STRENGTHS SHALL BE VERIFIED BY TEST.

5. FOUNDATION WALLS THAT RETAIN EARTH SHALL BE BRACED AGAINST BACKFILLING PRESSURES UNTIL THE SLABS AT TOP AND BOTTOM ARE IN PLACE AND CURED AS REQUIRED.

6. WHERE WALLS ARE TO HAVE EARTH PLACED ON EACH SIDE, SIMULTANEOUSLY PLACE FILL SO AS TO MAINTAIN A COMMON ELEVATION ON EACH SIDE OF WALL.

7. CONTRACTOR SHALL PROVIDE ALL SHORING AS REQUIRED.

8. ALL RETAINING WALLS SHALL HAVE AT LEAST 12" OF FREE-DRAINING GRANULAR BACKFILL FULL HEIGHT OF WALL. SEAL RETAINING FACE OF WALL AND FOOTING WITH 2 COATS OF HENRY'S 502 ASPHALTIC MASTIC. PROVIDE CONTINUOUS INSPECTION.

9. CONTRACTOR SHALL PROVIDE TEMPORARY AND PERMANENT DEWATERING FOR SURFACE WATER, GROUND WATER AND SEEPAGE WATER AS REQUIRED.

10. CONTRACTOR SHALL PROTECT ALL UTILITY LINES, ETC ENCOUNTERED DURING EXCAVATIONS AND BACKFILLING. ALL BACKFILL SHALL BE PROPERLY COMPACTED.

11. ALL FOOTINGS HAVE BEEN DESIGNED BASED UPON AN ASSUMED SOIL BEARING PRESSURE OF 1,000 PSF UNLESS NOTED OTHERWISE.

STRUCTURAL STEEL

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE LATEST REVISED EDITION OF THE AISC MANUAL OF STEEL CONSTRUCTION, WHICH INCLUDES SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, CODE OF STANDARD PRACTICE AND AWS STRUCTURAL WELDING CODE. IDENTIFY AND MARK STEEL PER CBC 2203.

2. STRUCTURAL STEEL SHOP DRAWINGS SHALL BE REVIEWED BY THE ENGINEER/ ARCHITECT PRIOR TO FABRICATION.

3. GROUTING OF COLUMN BASE PLATES: BASE PLATES SHALL BE DRYPACKED OR GROUTED WITH NON-SHRINK, NON-FERROUS GROUT. MINIMUM COMPRESSIVE STRENGTH SHALL BE 4,000 PSI AT 28 DAYS. ALL SURFACES SHALL BE PROPERLY CLEANED OF FOREIGN MATERIAL PRIOR TO GROUTING.

4. ALL EXPOSED WELDS SHALL BE FILLED AND GROUND SMOOTH WHERE METAL COULD COME IN CONTACT WITH THE PUBLIC.

5. NO HOLES OTHER THAN THOSE SPECIFICALLY DETAILED SHALL BE ALLOWED THRU STRUCTURAL STEEL MEMBERS. BOLT HOLES SHALL CONFORM TO AISC SPECIFICATION, AND SHALL BE STANDARD HOLES UNLESS OTHERWISE NOTED. NO CUTTING OR BURNING OF STRUCTURAL STEEL WILL BE PERMITTED WITHOUT PRIOR CONSENT OF THIS ENGINEER. HOLES IN STEEL SHALL BE DRILLED OR PUNCHED. ALL SLOTTED HOLES SHALL BE PROVIDED WITH SMOOTH EDGES. BURNING OF HOLES AND TORCH CUTTING AT THE SITE IS NOT PERMITTED.

6. WELDING: CONFORM TO AWS D1.1. WELDERS SHALL BE CERTIFIED

7. BOLTING: ASTM A307 BOLTS SHALL BE INSTALLED "SNUG TIGHT" PER AISC SECTION RCSC 8(C), ASTM A325 BOLTS SHALL CONFORM TO RCSC SECTION 8 (D).

8. FABRICATION: CONFORM TO AISC SPECIFICATION SEC M2 "FABRICATION" AND AISC CODE SEC 6 "FABRICATION AND DELIVERY" PERFORM WORK ON PREMISES OF A FABRICATOR APPROVED BY THE BUILDING OFFICIAL.

9. GALVANIZING: ALL EXPOSED STEEL OUTSIDE THE BUILDING ENVELOPE SHALL BE HOT-DIPPED GALVANIZED. APPLY FIELD TOUCH-UPS PER ASTM A153.

10. ALL FRAMING CONNECTORS SUCH AS CONCRETE ANCHORS, HOLD-DOWNS, POST BASES, FRAMING CAPS, HANGER AND OTHER MISCELLANEOUS STRUCTURAL METALS SHALL BE AS MANUFACTURED BY SIMPSON STRONG TIE CO. OR APPROVED EQUAL.

11. ALL STRUCTURAL STEEL EXPOSED TO EARTH SHALL HAVE 3" CONCRETE COVER.

12. MATERIALS SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:

ANCHOR BOLTS/ RODS: ASTM F1554, GRADE 36

BARS & PLATES: ASTM A36

BOLTS IN WOOD: ASTM A307
BOLTS - HIGH STRENGTH: ASTM A325SC OR A325N

C-, M-, AND ANGLE SHAPES: ASTM A36

DEFORMED WELDED WIRE FABRIC: ASTM A497

GROUT: EMBECO OR EQUIVALENT

OTHER STRUCTURAL SHAPES: ASTM A36

REINFORCING BARS (WELDED): ASTM A706. GRADE 60, DEFORMED BARS
REINFORCING BARS (REGULAR): ASTM A615, GRADE 60, DEFORMED BARS

SMOOTH WELDED WIRE FABRIC: ASTM A185

STEEL GRATING: ANSI/NAAMM MBG 531-00

STEEL PIPE: ASTM A53, GRADE B

TIE WIRE: 16.5 GAGE OR HEAVIER, BLACK ANNEALED

TUBE STEEL & PIPE COLUMNS: ASTM A500, GRADE B

W - SHAPES: ASTM A992, GRADE 50

WELDING ELECTRODES: E70XX FOR STRUCTURAL STEEL
E80XX FOR REINFORCING BARS
E60XX FOR LIGHT GAUGE AND METAL DECK

EPOXY AND EXPANSION ANCHORS

1. EPOXY OR EXPANSION ANCHORS SHALL NOT BE USED EXCEPT WHERE SPECIFICALLY SHOWN ON THE PLANS OR WHEN APPROVED IN ADVANCE BY THE STRUCTURAL ENGINEER.

2. DRILLED HOLES SHALL BE PREPARED AND ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE CURRENT ICC REPORT.

3. SPECIAL INSPECTION SHALL BE DONE IN ACCORDANCE WITH BUILDING CODE AND THE SPECIFIC INSPECTION REQUIREMENTS SET FORTH IN THE CURRENT ICC REPORT.

4. ANCHOR RODS USED FOR EPOXY ANCHORS SHALL BE THE TYPE SPECIFIED IN THE REFERENCED ICC REPORT.

5. THE ANCHOR SIZE AND EMBEDMENT SHALL BE AS INDICATED ON THE PLANS.

6. WHERE PERMITTED, EPOXY ANCHORING SHALL BE COMPLETED WITH THE FOLLOWING ALLOWED PRODUCT(S):
HILTI RE-500 SD (ICC# ESR-2322, LARR-25700) - CONCRETE ONLY
HILTI HIT-HY 150 (ICC# ER-5193, LARR-25652M) - MASONRY WALL ONLY.
HILTI HIT-HY 20 (ICC# ER-4815, LARR-24564) - BRICK WALL ONLY.
SIMPSON SET-XP (ICC# ESR-1722, LAR#-25744) CONCRETE ONLY

7. WHERE PERMITTED, THE FOLLOWING EXPANSION ANCHORS MAY BE USED:
HILTI KWIK BOLT TZ STAINLESS STEEL (ICC# ESR-1917, LARR-25701) - CONCRETE ONLY.
SIMPSON STRONG-BOLT (ICC# ESR-1771, LARR-25705) - CONCRETE ONLY.
HILTI KWIK BOLT 3 (ICC#ESR-1385, LARR-25577)GROUT FILLED MASONRY ONLY
SIMPSON WEDGE-ALL (ICC# ESR-1396, LARR-24682) - GROUT FILLED MASONRY ONLY.

SEISMIC GAS SHUT-OFF VALVE

1. WHEN THE LOCAL JURISDICTION REQUIRES, THE CONTRACTOR SHALL SUPPLY A “GAS SHUTOFF DEVICE” DOWNSTREAM OF GAS UTILITY METER(S) OR LIQUID PETROLEUM GAS STORAGE TANK(S) AT NO ADDITIONAL CHARGE TO THE OWNER.

2. “GAS SHUTOFF DEVICE” MAY CONSIST OF A “SEISMIC GAS SHUTOFF DEVICE “OR AN “EXCESS FLOW GAS SHUTOFF DEVICE”. CONSULT WITH LOCAL JURISDICTION FOR THEIR REQUIREMENTS.

3. GAS SHUTOFF DEVICES SHALL BE CERTIFIED BY THE STATE ARCHITECT AND BE LISTED BY AN APPROVED LISTING AND TESTING AGENCY SUCH AS IAS, IAMPO, UL OR THE OFFICE OR THE STATE ARCHITECT. THE GAS SHUTOFF DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS AND HAVE A THIRTY (30) YEAR WARRANTY WHICH WARRANTS THAT THE VALVE OR DEVICE IS FREE FROM DEFECT AND WILL CONTINUE TO PROPERLY OPERATE FOR THIRTY (30) YEARS FROM THE DATE OF INSTALLATION.

4. IN THE CASE OF SEISMIC GAS-SHUT-OFF DEVICES (MOTION SENSITIVE) ONLY, SUCH DEVICES MUST BE MOUNTED RIGIDLY TO THE EXTERIOR OF THE BUILDING OR STRUCTURE CONTAINING THE FUEL GAS PIPING. THIS REQUIREMENT NEED NOT APPLY IF THE BUILDING AND SAFETY DIVISION DETERMINES THAT THE SEISMIC GAS SHUTOFF DEVICE (MOTION SENSITIVE) HAS BEEN TESTED AND LISTED FOR AN ALTERNATE METHOD OF INSTALLATION.

REINFORCING STEEL

1. ALL REINFORCING SHALL BE NEW DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60 OR ASTM A706, GRADE 60. ALL WELDED REINFORCING BARS SHALL CONFORM TO ASTM A706.

2. REINFORCING STEEL SPLICE/DEVELOPMENT LENGTHS SHALL CONFORM TO THE FOLLOWING MINIMUM LENGTHS UNLESS NOTED OTHERWISE: SPLICED BARS SHALL BE WIRED TOGETHER.

SPLICE/DEVELOPMENT LENGTH (INCHES)

BAR SIZE	TOP BAR	OTHER BAR
#3	28	22
#4	37	29
#5	47	36
#6	56	43
#7	81	63
#8	93	72
#9	105	81
#10	116	89

TOP BAR LENGTHS APPLY TO HORIZONTAL REINFORCEMENT PLACED WITH MORE THAN 12" OF FRESH CONCRETE CAST BELOW THE SPLICE OR DEVELOP LENGTH.
COMPRESSION DOWEL EMBEDMENT: 22 BAR DIAMETERS.
LAP WELDED WIRE FABRIC ONE SPACING OF CROSS WIRES PLUS 2".

3. MINIMUM CONCRETE COVER UNLESS NOTED OTHERWISE:
UNFORMED SURFACE IN CONTACT WITH THE GROUND: 3"
FORMED SURFACES EXPOSED TO EARTH OR WEATHER
#6 BARS AND LARGER: 2"
#5 BARS AND SMALLER: 1.5"
FORMED SURFACES NOT EXPOSED TO EARTH OR WEATHER
BEAMS, GIRDERS AND COLUMNS: 1.5"
SLABS, WALLS AND JOISTS
#11 BARS AND SMALLER: 0.75"

4. BARS SHALL BE CLEAN OF MUD, OIL, OR OTHER COATINGS LIKELY TO IMPAIR BONDING.

5. ALL REINFORCING SHALL BE SECURED IN PLACE PRIOR TO INSPECTIONS, PLACING CONCRETE, OR GROUTING MASONRY.

6. WELDING: BARS SHALL NOT BE WELDED UNLESS AUTHORIZED. WHEN AUTHORIZED, CONFORM TO ACI 301 SEC 3.2, 2.2, AND AWS D1.4 "WELDING" AND PROVIDE ASTM A706, GRADE 60 REINFORCEMENT.

7. FIELD BENDING: CONFORM TO ACI 301 SEC 3.3.2.8 "FIELD BENDING OR STRAIGHTENING". BAR SIZES #3 THROUGH #5 MAY BE FIELD BENT COLD THE FIRST TIME. OTHER BARS REQUIRE PREHEATING. DO NOT TWIST BARS

8. SPLICE ALL BARS IN MASONRY WITH A MINIMUM OF 48 BAR DIAMETER LAPS (2'-0" MINIMUM).

9. ALL VERTICAL WALL REINFORCEMENT SHALL BE CONTINUOUS BETWEEN SPLICE LOCATIONS SHOWN IN THE DETAILS.

CONCRETE

1. MIX DESIGN REQUIREMENTS: (UNLESS NOTED OTHERWISE)
A. CEMENT SHALL CONFORM TO ASTM C-150, TYPE V.
B. COMPRESSIVE STRENGTH = 3,000 PSI
C. CONCRETE SLUMP SHALL BE 3"+/-1" FOR SLABS AND 4"+/-1" FOR ALL OTHER WORK.
D. WATER CEMENT RATIO = 0.45 MAX

2. AGGREGATES FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C-33 (1" MAXIMUM SIZE), AND ASTM C-330 FOR STRUCTURAL LIGHT WEIGHT CONCRETE.

3. WHERE CONCRETE WILL BE IN CONTACT WITH NATIVE OR IMPORTED SOIL WHICH HAS A VERY SEVERE SULFATE CONTENT, POZZOLAN SHALL BE ADDED AS REQUIRED.

4. EXTERIOR CONCRETE EXPOSED TO FREEZING TEMPERATURES AND/OR SALT OR DEICING CHEMICALS SHALL HAVE AIR ENTRAINMENT AND THE CEMENT CONTENT APPROPRIATE FOR THE EXPECTED EXPOSURE.

5. WATER SHALL BE POTABLE OR CLEAN, FREE FROM DELETERIOUS AMOUNTS OF ACIDS, ALKALIS OR ORGANIC MATERIALS, OILS, AND SALTS.

6. READY-MIX CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C-94.

7. FLOOR SLABS SHALL CONFORM TO ASTM C-38 STANDARDS AND SHALL BE AT LEAST 3 1/2 INCHES THICK- SEE FOUNDATION PLANS FOR REINFORCEMENT, BASE, UNDERLAYMENT, VAPOR BARRIER OR OTHER SPECIFIC REQUIREMENTS.

8. FLOOR SLABS SHALL BE LEVEL OR TRUE SLOPES AS SHOWN ON DRAWINGS. TOLERANCE: 1/8 INCH IN 10 FEET.

9. PROVIDE LIGHT BROOM FINISH ON ALL EXPOSED CONCRETE UNLESS NOTED OTHERWISE.

10. PRIOR TO COMMENCING ANY FOUNDATION WORK, COORDINATE WORK WITH ANY EXISTING UTILITIES. FOUNDATIONS SHALL BE LOWERED WHERE REQUIRED TO AVOID UTILITIES.

11. ALL EDGES OF PERMANENTLY EXPOSED CONCRETE SURFACES SHALL BE CHAMFERED 3/4" UNLESS NOTED OTHERWISE.

12. FORMWORK SHALL REMAIN IN PLACE UNTIL CONCRETE HAS OBTAINED AT LEAST 90% OF COMPRESSIVE STRENGTH. THE CONTRACTOR SHALL PROVIDE ALL SHORING AND RESHORING.

13. PROVIDE CONCRETE SLABS OVER A 10 MIL POLYETHYLENE VAPOR BARRIER OVER 4" OF POROUS FILL UNLESS NOTED OTHERWISE.

14. ALL POROUS FILL MATERIAL SHALL BE A CLEAN GRANULAR MATERIAL. POROUS FILL SHALL BE COMPACTED TO 90% MAX. DRY DENSITY .

15. WALKWAYS AND OTHER EXTERIOR SLABS ARE NOT INDICATED ON THE STRUCTURAL DRAWINGS. SEE THE SITE PLAN AND ARCHITECTURAL DRAWINGS FOR LOCATIONS, DIMENSIONS, ELEVATIONS, JOINTING DETAILS AND FINISH DETAILS. PROVIDE 4" WALKS REINFORCED WITH 6x6 - WI.4xWI.4 WWF UNLESS OTHERWISE NOTED.

16. ALL CONCRETE MATERIALS AND WORKMANSHIP SHALL CONFORM TO CHAPTER 19 OF THE CBC AND TO ALL REQUIREMENTS OF ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS," EXCEPT AS SPECIFIED HEREIN.

17. ALL FOOTINGS SHALL REST ON FIRM NATURAL SOIL OR APPROVED COMPACTED FILL.

18. MONOPOLE CAISSONS ARE DESIGNED BY OTHERS. PROVIDE ADEQUATE SEPARATION AND/OR COMPRESSIBLE MATERIAL AROUND THE TOP OF THE CAISSON AS DIRECTED BY THE CAISSON ENGINEER TO PROTECT ADJACENT NEW AND EXISTING FOUNDATIONS AND OTHER ELEMENTS.

19. CONTROL JOINTS SHALL BE PLACED IN ALL CONCRETE SLABS PER THE SCHEDULE BELOW. SAWCUT WITHIN 4 HOURS AFTER THE POUR USING THE "SOFF-CUT" PROCEDURE.

SLAB THICKNESS	MAXIMUM SPACING
4"	10'-0"
5"	12'-0"
6" AND LARGE	15'-0"

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

T · ·Mobile·®
T-MOBILE
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SURESITE
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY: BWG
CHECKED BY: RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A
9KX0421A
997 LIVINGSTON RD.
CROSSVILLE, TN 38555

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

SHEET TITLE
GENERAL NOTES AND SPECIFICATIONS

SHEET NUMBER
T-3

STATEMENT OF SPECIAL INSPECTIONS PER THE 2016 CBC

1. THE OWNER OR REGISTERED DESIGN PROFESSIONAL OF RECORD WILL EMPLOY THE SERVICES OF ONE OR MORE SPECIAL INSPECTORS TO PROVIDE SPECIAL INSPECTIONS DURING CONSTRUCTION FOR THE ITEMS IN THE SPECIAL INSPECTION TABLE BELOW.
2. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL RESPONSIBLE FOR THE DESIGN OF THE STRUCTURE, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
3. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:
   - A. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED FOR CONFORMANCE WITH THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS. THE INSPECTOR MAY NOT ALTER, MODIFY, ENLARGE OR WAIVE ANY OF THE REQUIREMENTS OF THE DOCUMENTS.
   - B. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, THE PROFESSIONAL OF RECORD, AND THE CONTRACTOR. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, SUBMIT A COMPLETE LIST OF ALL OUTSTANDING DISCREPANCIES ON A WEEKLY BASIS TO THE OWNER, THE BUILDING OFFICIAL, AND THE PROFESSIONAL OF RECORD UNTIL ALL CORRECTIONS HAVE BEEN COMPLETED.
   - C. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CODE.
4. WHERE SPECIAL INSPECTION REQUIREMENTS DUPLICATE THE REQUIREMENTS OF SPECIFIED QUALITY ASSURANCE TESTING, DUPLICATE INSPECTIONS SHALL NOT BE REQUIRED.
5. OBSERVATIONS OR SITE VISITS PERFORMED BY THE ENGINEER OR ARCHITECT DUE NOT CONSTITUTE SPECIAL INSPECTIONS.
6. THE CONTRACTOR SHALL PROVIDE ADEQUATE NOTIFICATION OF SCHEDULE OF WORK REQUIRING INSPECTION OR TESTING TO THE SPECIAL INSPECTION TO ALLOW COORDINATION.
7. THE MATERIALS, SYSTEMS, COMPONENTS AND WORK REQUIRED TO HAVE SPECIAL INPSECTION OR TESTING ARE OUTLINED ON THESE DRAWINGS ALONG WITH THE TYPE AND EXTENT OF EACH INSPECTION AND TEST AND WHETHER IT IS CONTINUOUS OR PERIODIC IN NATURE. IF IT IS NOT INDICATED OTHERWISE, INSPECTION SHALL BE CONTINUOUS.
8. EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN WIND- OR SEISMIC-FORCE-RESISTING SYSTEM, DESIGNATED SEISMIC SYSTEM OR A WIND- OR SEISMIC-RESISTING COMPONENT SHALL PROVIDE A WRITTEN STATEMENT OF RESPONSIBILITY TO THE OWNER AND THE BUILDING OFFICIAL PRIOR TO COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT AS REQUIRED BY CBC SECTION 1704.4.

ADDITIONAL SEISMIC RESISTANCE CASES:

SEISMIC DESIGN CATEGORIES REQUIRED IN	THE FOLLOWING IS A SUMMARY OF THE SEISMIC SYSTEMS, SEISMIC COMPONENTS AND SEISMIC-FORCE-RESISTING SYSTEMS
SEISMIC FORCE RESISTING SYSTEMS	
C, D, E, F	A. ALL MOMENT FRAMES, BRACED FRAMES, CANTILEVERED COLUMNS, SHEARWALLS, AND THEIR FOUNDATIONS, AND DRAGS, CHORDS, FLOOR AND ROOF DIAPHRAGMS
C, D, E, F	B. ALL DRAGS, CHORDS, FLOOR AND ROOF DIAPHRAGMS
D, E, F	C. ALL FREE STANDING MASONRY WALLS
ADDITIONAL SYSTEMS AND COMPONENTS	
C, D, E, F	A. ANCHORAGE OF ELECTRICAL EQUIPMENT USED FOR EMERGENCY OR STANDBY POWER SYSTEMS INCLUDING TELECOM CABINETS
D, E, F	B. EXTERIOR WALL PANELS AND THEIR ANCHORAGE
D, E, F	C. SUSPENDED CEILING SYSTEMS AND THEIR ANCHORAGE

SPECIAL INSPECTION	FREQUENCY	REFERENCED STANDARD	
		ACI 530/ ASCE 5/ TMS 402	ACI 530.1/ ASCE 5/ TMS 602
MASONRY			
1. AS MASONRY CONSTRUCTION BEGINS, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:			
a. SITE PREPARED MORTAR PROPORTIONS	PERIODIC		ART. 2.6A
b. CONSTRUCTION OF MORTAR JOINTS	PERIODIC		ART. 3.3B
c. LOCATION OF REINFORCEMENT AND CONNECTORS.	PERIODIC		ART. 3.4
2. THE INSPECTION PROGRAM SHALL VERIFY:			
a. SIZE AND LOCATION OF STRUCTURAL ELEMENTS.	PERIODIC		ART. 3.3G
b. TYPE, SIZE AND LOCATION OF ANCHORS, INCLUDING DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES OR OTHER CONSTRUCTION	PERIODIC	SEC. 1.15.4,2.1.2	
c. SPECIFIED SIZE, GRADE AND TYPE OF REINFORCEMENT.	PERIODIC	SEC. 1.12	ART. 2.4, 3.4
d. WELDING OF REINFORCING BARS.	CONTINUOUS	SEC. 8.5.7 & SEC. 8.5.7.2	
e. PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURE ABOVE 90°F).	PERIODIC		ART. 1.8
3. PRIOR TO GROUTING, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:			
a. GROUT SPACE IS CLEAN.	PERIODIC		ART. 3.2D
b. PLACEMENT OF REINFORCEMENT AND CONNECTORS.	PERIODIC		ART. 3.4
c. PROPORTIONS OF SITE-PREPARED GROUT	PERIODIC		ART. 2.6B
d. CONSTRUCTION OF MORTAR JOINTS	PERIODIC		ART. 3.3B
4. GROUT PLACEMENT SHALL BE VERIFIED TO ENSURE COMPLIANCE WITH CODE AND CONSTRUCTION DOCUMENT PROVISIONS.	CONTINUOUS		ART. 3.5
5. PREPARATION OF ANY REQUIRED GROUT SPECIMENS, MORTAR SPECIMENS AND/OR PRISMS SHALL BE OBSERVED.	CONTINUOUS		ART. 1.4
6. COMPLIANCE WITH REQUIRED INSPECTION PROVISIONS OF THE CONSTRUCTION DOCUMENTS AND APPROVED SUBMITTALS SHALL BE VERIFIED	PERIODIC		ART. 1.5

SPECIAL INSPECTION	FREQUENCY	REFERENCED STANDARD
CONCRETE (APPLICABLE TO STRUCTURAL CONCRETE OVER F'C = 2,500 PSI)		
1. INSPECT BOLTS TO BE INSTALLED IN CONCRETE PRIOR TO AND DURING PLACEMENT OF CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED	CONTINUOUS	
2. INSPECT EPOXY ANCHORS AND EXPANSION ANCHORS INSTALLED IN HARDENED CONCRETE.	CONTINUOUS	PRODUCT ICC-ES REPORT

SPECIAL INSPECTION	FREQUENCY	REFERENCED STANDARD
STEEL CONSTRUCTION		
1. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS, AND WASHERS:	PERIODIC	APPLICABLE ASTM MATERIAL SPECIFICATIONS: AISC ASD. SECTION A3.4: AISC LRFD. SECTION A3.3
a. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.		
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.		
2. INSPECTION OF HIGH-STRENGTH BOLTING:		
a. BEARING TYPE CONNECTIONS	PERIODIC	AISC LRFD SECTION M2.5
b. SLIP-CRITICAL CONNECTIONS	CONTINUOUS	
3. MATERIAL VERIFICATION OF STRUCTURAL STEEL:		ASTM A 6 OR ASTM A 568
a. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.		
b. MANUFACTURER'S CERTIFIED MILL TEST REPORTS. REQUIRED		
4. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:		AISC. ASD. SECTION A3.6 AISC LRFD. SECTION A3.5
a. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS.		
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED		
5. INSPECTION OF WELDING:		
a. STRUCTURAL STEEL		
1) COMPLETE AND PARTIAL PENETRATION GROOVE WELDS	CONTINUOUS	AWS D1.1
2) MULTI-PASS FILLET WELDS	CONTINUOUS	
3) SINGLE-PASS FILLET WELDS GREATER THAN 5/16" (7.9mm)	CONTINUOUS	
4) SINGLE-PASS FILLET WELDS LESS THAN OR EQUAL TO 5/16" (7.9mm)	PERIODIC	
5) FLOOR AND DECK WELDS	PERIODIC	AWS D1.3
6. INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS:	PERIODIC	
a. DETAILS SUCH AS BRACING AND STIFFENING		
b. MEMBER LOCATIONS.		
c. APPLICATION OF JOINT DETAILS AT EACH CONNECTION.		
INSPECTION OF FABRICATORS	PERIODIC	
1. APPLICABLE ELEMENT (FABRICATOR CERTIFICATION REQUIREMENTS)		
a. STRUCTURAL STEEL (AISC CERTIFIED FOR CONVENTIONAL STEEL BUILDING) b. STEEL JOISTS/ JOIST GIRDERS (SJI MEMBER) c. STEEL ROOF DECK (SDI MEMBER) d. PRECAST CONCRETE WALLS PANELS (PCI GROUP C MANUFACTURER WITH C3 CERTIFICATION) e. LOAD BEARING CONCRETE MASONRY (NCMA MEMBER)		
2. WHEN SPECIAL INSPECTIONS ARE REQUIRED BY BUILDING OFFICIAL		
a) FABRICATION AND IMPLEMENTATION PROCEDURES: THE SPECIAL INSPECTOR SHALL VERIFY THAT THE FABRICATOR MAINTAINS DETAILED FABRICATION AND QUALITY CONTROL PROCEDURES THAT PROVIDE A BASIS FOR INSPECTION, CONTROL OF THE WORKMANSHIP, AND THE FABRICATOR'S ABILITY TO CONFORM TO APPROVED CONSTRUCTION DOCUMENTS AND REFERENCED STANDARDS. THE SPECIAL INSPECTOR SHALL REVIEW THE PROCEDURES FOR COMPLETENESS AND ADEQUACY RELATIVE TO THE CODE REQUIREMENTS FOR THE FABRICATOR'S SCOPE OF WORK.		
3. WHEN SPECIAL INSPECTIONS ARE NOT REQUIRED BY THE BUILDING OFFICIAL		
a) UPON COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF THE COMPLIANCE TO THE BUILDING OFFICIAL STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.		

SPECIAL INSPECTION	FREQUENCY	REFERENCED STANDARD
DRILLED PIERS		
1. OBSERVE DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH PIER.	CONTINUOUS	GEOTECHNICAL ENGINEERING REPORT
2. VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM PIER DIAMETERS (IF APPLICABLE), LENGTHS, EMBEDMENT INTO BEDROCK (IF APPLICABLE) AND ADEQUATE END BEARING STRATA CAPACITY.		
3. FOR CONCRETE PIERS, PERFORM ADDITIONAL INSPECTIONS IN ACCORDANCE WITH SECTION 1705.3.	SEE SPECIAL INSPECTION NOTES FOR CONCRETE ALSO	

SPECIAL INSPECTION	FREQUENCY	REFERENCED STANDARD
SOILS:		
1. SITE PREPARATION-VERIFY THAT THE SITE SUBGRADE SOILS ARE PROPERLY PREPARED	CONTINUOUS	GEOTECHNICAL ENGINEERING REPORT
2. FILL PLACEMENT 12" THICK OR GREATER - VERIFY MATERIAL BEING USED AND LIFT THICKNESS	CONTINUOUS	
3. EVALUATION OF IN-PLACE DENSITY OF COMPACTED FILL 12" THICK OR GREATER	PERIODIC	
4. SUB-GRADE IMPROVEMENTS INVOLVING SOIL MIXING, COMPACTION GROUTING, DYNAMIC COMPACTION, OR PLACEMENT OF STONE COLUMNS	CONTINUOUS	

STRUCTURAL OBSERVATION:

1. STRUCTURAL OBSERVATIONS BY A REGISTERED DESIGN PROFESSIONAL SHALL BE MADE IN ACCORDANCE WITH SPECIAL INSPECTION AND OBSERVATION STATEMENT (FORM UGG-6) PER 2015 IBC AT THE EXPENSE OF THE OWNER TO REVIEW THE CONSTRUCTION OF THE PROJECT. STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION OF THE ELEMENTS AND CONNECTIONS OF THE STRUCTURAL SYSTEM AT SIGNIFICANT CONSTRUCTION STAGES, AND THE COMPLETED STRUCTURE FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS. STRUCTURAL OBSERVATION DOES NOT WAIVE THE RESPONSIBILITY FOR THE INSPECTIONS REQUIRED OF THE BUILDING INSPECTOR OR THE DEPUTY INSPECTOR(S).
2. THE OWNER SHALL EMPLOY THE CIVIL OR STRUCTURAL ENGINEER OR THE ARCHITECT OF RECORD OR THEIR DESIGNATED AGENT TO PERFORM THE STRUCTURAL OBSERVATION.
3. EVIDENCE OF EMPLOYMENT BY THE OWNER SHALL BE PROVIDED TO THE BUILDING INSPECTOR BEFORE THE FIRST SITE VISIT.
4. WHEN A PRECONSTRUCTION MEETING IS REQUIRED, IT SHALL BE ATTENDED BY THE GENERAL CONTRACTOR, APPROPRIATE SUBCONTRACTORS, AND DEPUTY INSPECTORS. THE MAJOR STRUCTURAL ELEMENTS AND CONNECTIONS WHICH REQUIRE STRUCTURAL OBSERVATION WILL BE IDENTIFIED. A RECORD OF THE MEETING SHALL BE INCLUDED IN THE FIRST OBSERVATION REPORT.
5. REQUIRED OBSERVATIONS ARE TO OCCUR AT THE FOLLOWING STAGES OF CONSTRUCTION AS A MINIMUM, FOR EACH BUILDING OR STRUCTURE AS APPLICABLE. NOTIFY THE ENGINEER 72 HOURS PRIOR TO EACH OBSERVATION.

REQUIRED IF CHECKED	ITEMS
	A. PRECONSTRUCTION MEETING SHALL BE ATTENDED BY THE STRUCTURAL OBSERVER OF RECORD.
	B. PRIOR TO PLACEMENT OF CONCRETE FOR THE FIRST FOUNDATION POUR.
	C. PRIOR TO PLACEMENT OF CONCRETE IN WALL FORMS.
	D. UPON COMPLETION OF WELDING AT STEEL MOMENT FRAMES.
	E UPON COMPLETED ERECTION OF ALL STRUCTURAL STEEL.
	F. PRIOR TO PLACEMENT OF GROUT IN FIRST LIFT.
	G. PRIOR TO GROUTING THE TOP 48" OF MASONRY WALLS AT FLOOR AND ROOF LINE. (CHORD REINFORCING)
	H. AFTER NAILING OF ALL PLYWOOD SHEAR WALLS AND ALL HOLDOWNS, DRAGS, STRAPS ARE IN PLACE, AND PRIOR TO COVERING ANY OF THE SHEAR WALLS.
	K. AFTER NAILING OF FLOOR PLYWOOD DIAPHRAGM(S); PRIOR TO COVERING.
	J. AFTER NAILING OF ROOF PLYWOOD DIAPHRAGM(S); PRIOR TO COVERING.
	K. PRIOR TO ROOFING OR PLACEMENT OF CONCRETE FILL OVER METAL DECK ROOFS OR FLOORS.
	L. FINAL WALK THROUGH UPON COMPLETION OF ALL STRUCTURAL ASPECTS OF THE PROJECT PRIOR TO ARCHITECTURAL FINISHES.
●	M. NO STRUCTURAL OBSERVATION REQUIRED

A REPORT PREPARED ON DEPARTMENT FORMS OR FORMS PREPARED BY THE ENGINEER OR ARCHITECT OF RECORD FOR EACH SIGNIFICANT STAGE OF CONSTRUCTION OBSERVED, SHALL BE LEFT AT THE PROJECT SITE FOR THE CONTRACTOR TO FORWARD TO THE BUILDING INSPECTOR. THE FORMS SHALL BE WET SIGNED AND SEALED BY THE RESPONSIBLE STRUCTURAL OBSERVER, ONE SIGNED COPY OF THE REPORT SHALL BE PROVIDED TO THE OWNER, CONTRACTOR, AND DEPUTY INSPECTOR, AS REQUESTED.
A FINAL OBSERVATION REPORT MUST BE SUBMITTED WHICH SHOWS THAT ALL OBSERVED DEFICIENCIES WERE RESOLVED AND THE STRUCTURAL SYSTEM GENERALLY CONFORMS TO THE APPROVED PLANS AND SPECIFICATIONS.
IF THE OWNER ELECTS TO CHANGE THE STRUCTURAL OBSERVER OF RECORD, THE OWNER SHALL:
- A. NOTIFY BUILDING INSPECTOR IN WRITING BEFORE THE NEXT INSPECTION.
- B. CALL AN ADDITIONAL PRECONSTRUCTION MEETING, AND FURNISH THE REPLACEMENT STRUCTURAL OBSERVER WITH A COPY OF PREVIOUS OBSERVER'S REPORTS.

THE PROPOSED OBSERVER SHALL BE RESPONSIBLE FOR APPROVAL OF THE CORRECTION OF ALL THE ORIGINAL OBSERVED NOTED DEFICIENCIES.
THE ENGINEER OR ARCHITECT OF RECORD SHALL DEVELOP ALL CHANGES TO THE STRUCTURAL SYSTEMS AT THE CONTRACTOR'S EXPENSE.
STRUCTURAL OBSERVATION SHALL BE PERFORMED BY NATIONAL ENGINEERING & CONSULTING, INC.

SPECIAL INSPECTION	FREQUENCY	REFERENCED STANDARD
COLD-FORMED STEEL FRAMING		
1. DURING WELDING OPERATIONS OF ELEMENTS OF THE SEISMIC-FORCE-RESISTING SYSTEM.	PERIODIC	CBC 1705.10.2
2. SCREW ATTACHMENT, BOLTING, ANCHORING AND OTHER FASTENING OF COMPONENTS WITHIN THE SEISMIC-FORCE RESISTING SYSTEM, INCLUDING STRUTS, BRACES & HOLD-DOWNS.	PERIODIC	

SPECIAL INSPECTION	FREQUENCY	REFERENCED STANDARD
WOOD		
1. DURING FIELD GLUING OPERATIONS OF ELEMENTS OF THE SEISMIC-FORCE-RESISTING SYSTEM.	CONTINUOUS	CBC 1705.10.1
2. NAILING, BOLTING, ANCHORING AND OTHER FASTENING OF COMPONENTS WITHIN SEISMIC-FORCE-RESISTING SYSTEM, INCLUDING WOOD SHEAR WALLS, WOOD DIAPHRAGMS, DRAG STRUTS, BRACES, SHEAR PANELS & HOLD-DOWNS.	PERIODIC	
EXCEPTION SPECIAL INSPECTION IS NOT REQUIRED FOR WOOD SHEAR WALLS, SHEAR PANELS & DIAPHRAGMS, INCLUDING NAILING, BOLTING, ANCHORING & OTHER FASTENING TO OTHER COMPONENTS OF THE SEISMIC-FORCE-RESISTING SYSTEM, WHERE THE FASTENER SPACING OF THE SHEATHING IS MORE THAN 4 INCHES ON CENTER.		

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

T-Mobile
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SURESITE
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY:	BWG
CHECKED BY:	RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

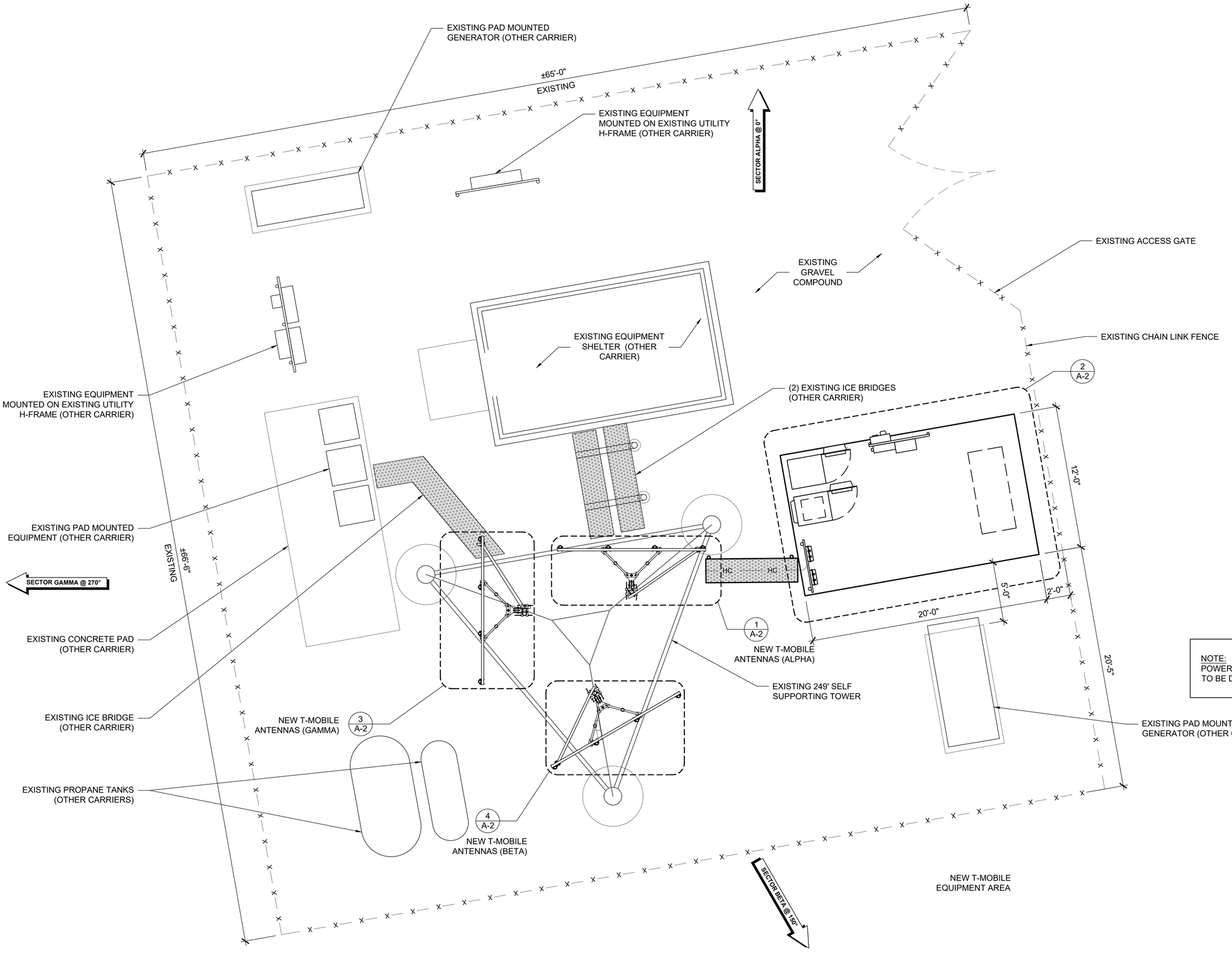
NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A
9KX0421A
997 LIVINGSTON RD.
CROSSVILLE, TN 38555

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

SHEET TITLE
GENERAL NOTES AND SPECIFICATIONS

SHEET NUMBER
T-4



22"x34" SCALE: 1-1/2" = 1'-0"
11"x17" SCALE: 3/4" = 1'-0"
1' 6" 0' 1'

SITE PLAN | 1

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

T-MOBILE
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SURESITE
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY:	BWG
CHECKED BY:	RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A

9KX0421A

997 LIVINGSTON RD.
CROSSVILLE, TN 38555

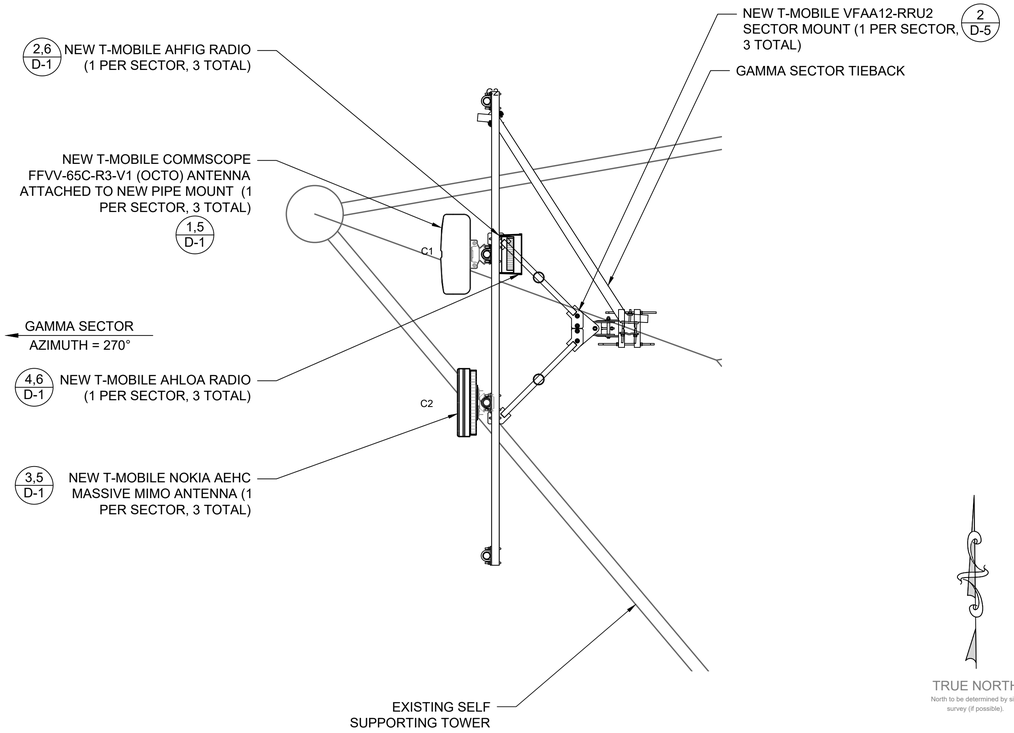
IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

SHEET TITLE

SITE PLAN

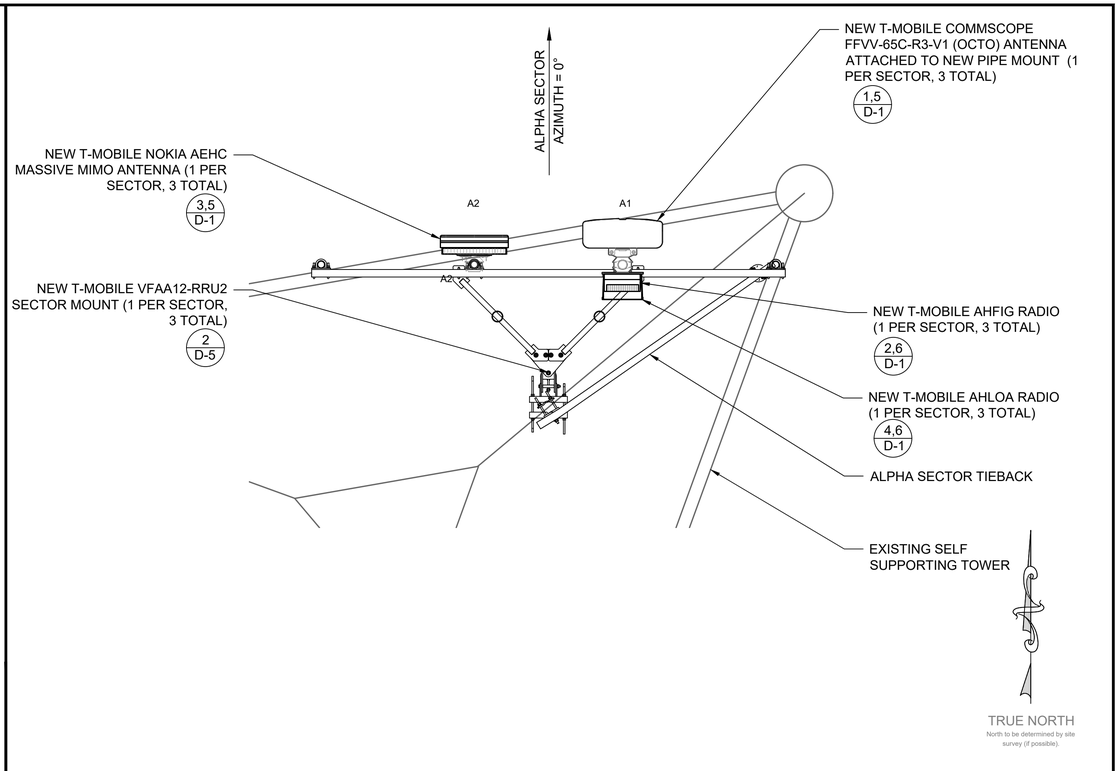
SHEET NUMBER

A-1



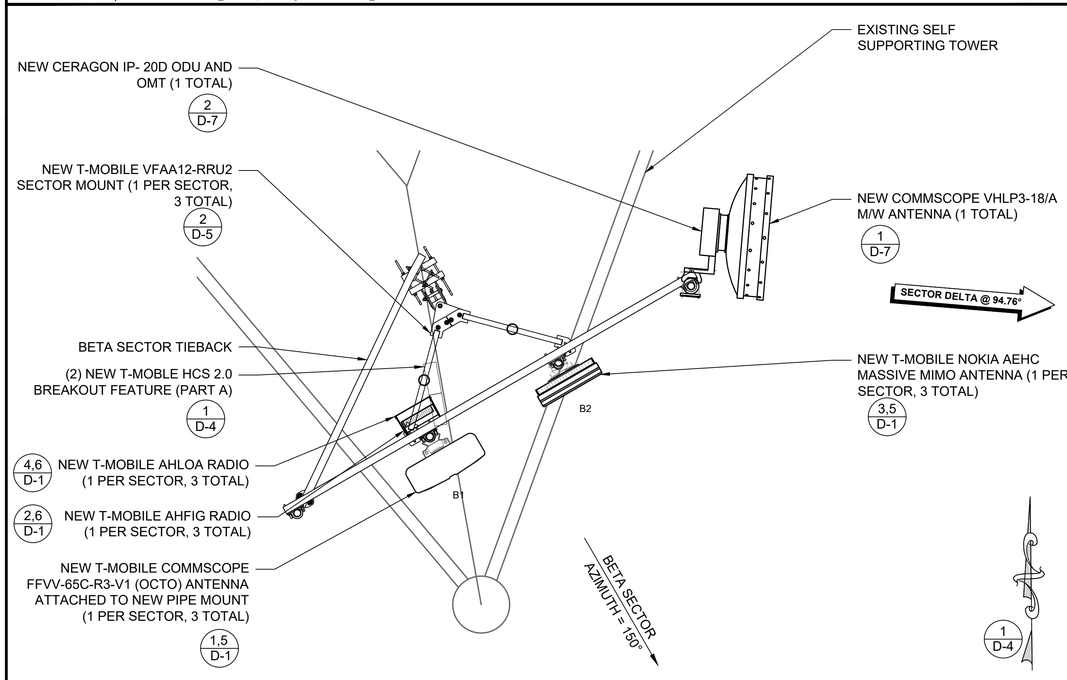
22"x34" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"
2' 1' 0" 2'

NEW ANTENNA LAYOUT PLAN (GAMMA) | 3



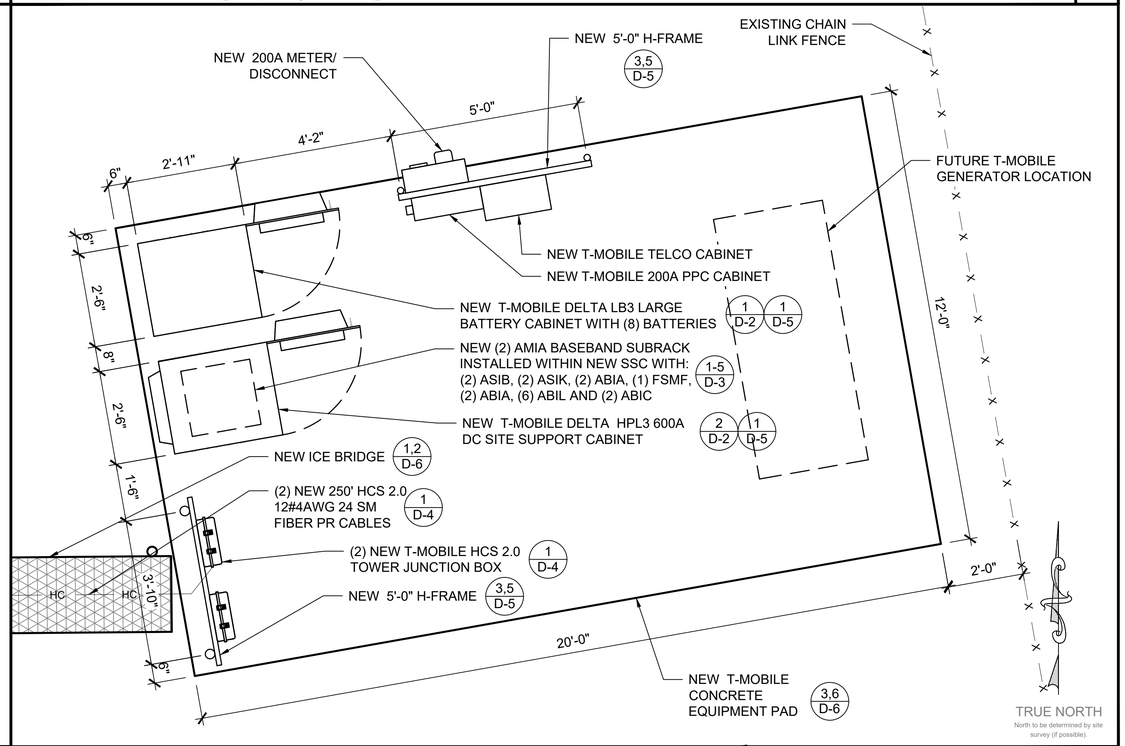
22"x34" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"
2' 1' 0" 2'

NEW ANTENNA LAYOUT PLAN (ALPHA) | 1



22"x34" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"
2' 1' 0" 2'

NEW ANTENNA LAYOUT PLAN (BETA) | 4



22"x34" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"
2' 1' 0" 2'

NEW EQUIPMENT LAYOUT PLAN | 2

T-Mobile
T-MOBILE
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SURESITE
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY:	BWG
CHECKED BY:	RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A

9KX0421A

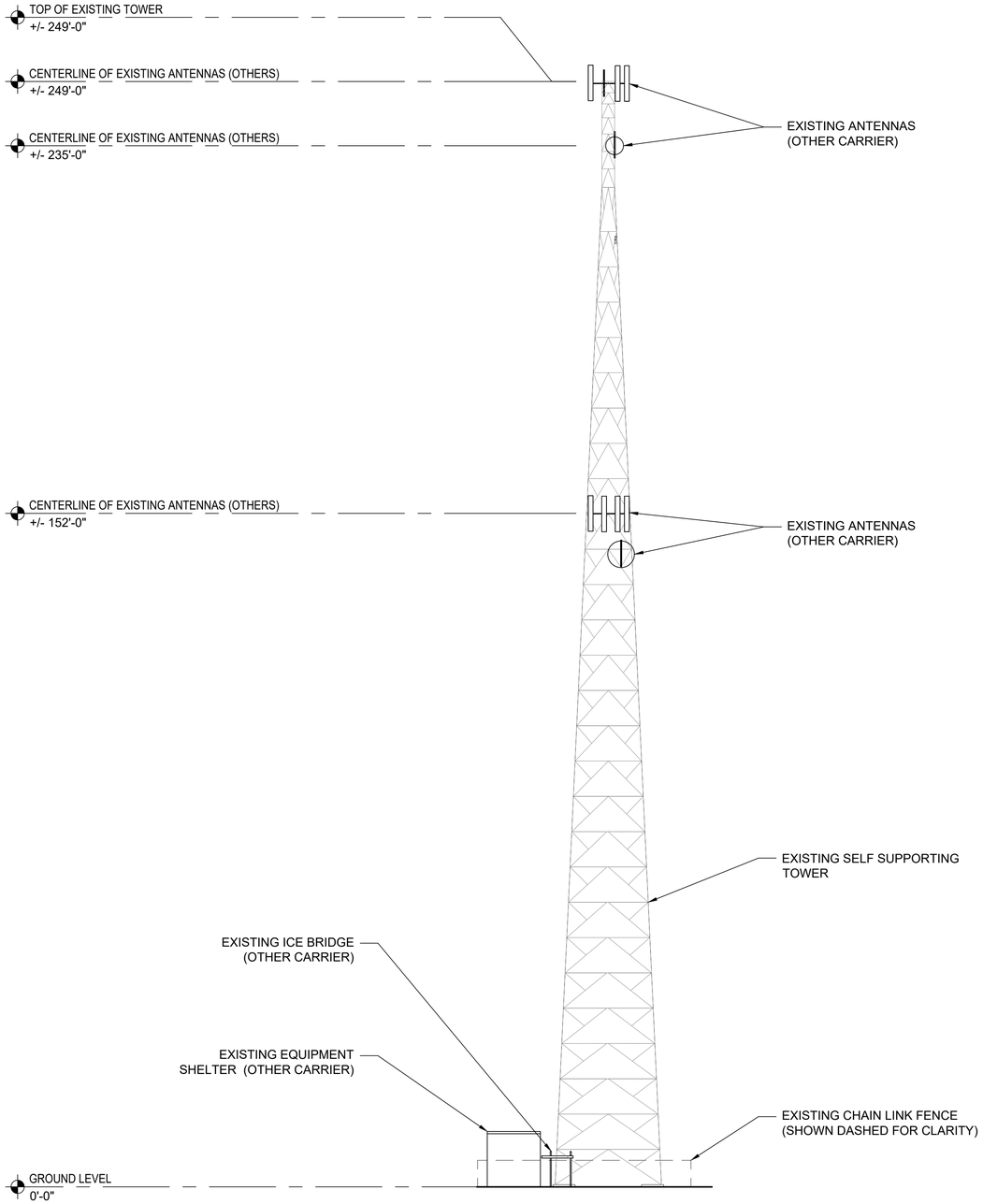
997 LIVINGSTON RD.
CROSSVILLE, TN 38555

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

SHEET TITLE
EQUIPMENT LAYOUT PLAN &
ANTENNA LAYOUT PLAN

SHEET NUMBER
A-2

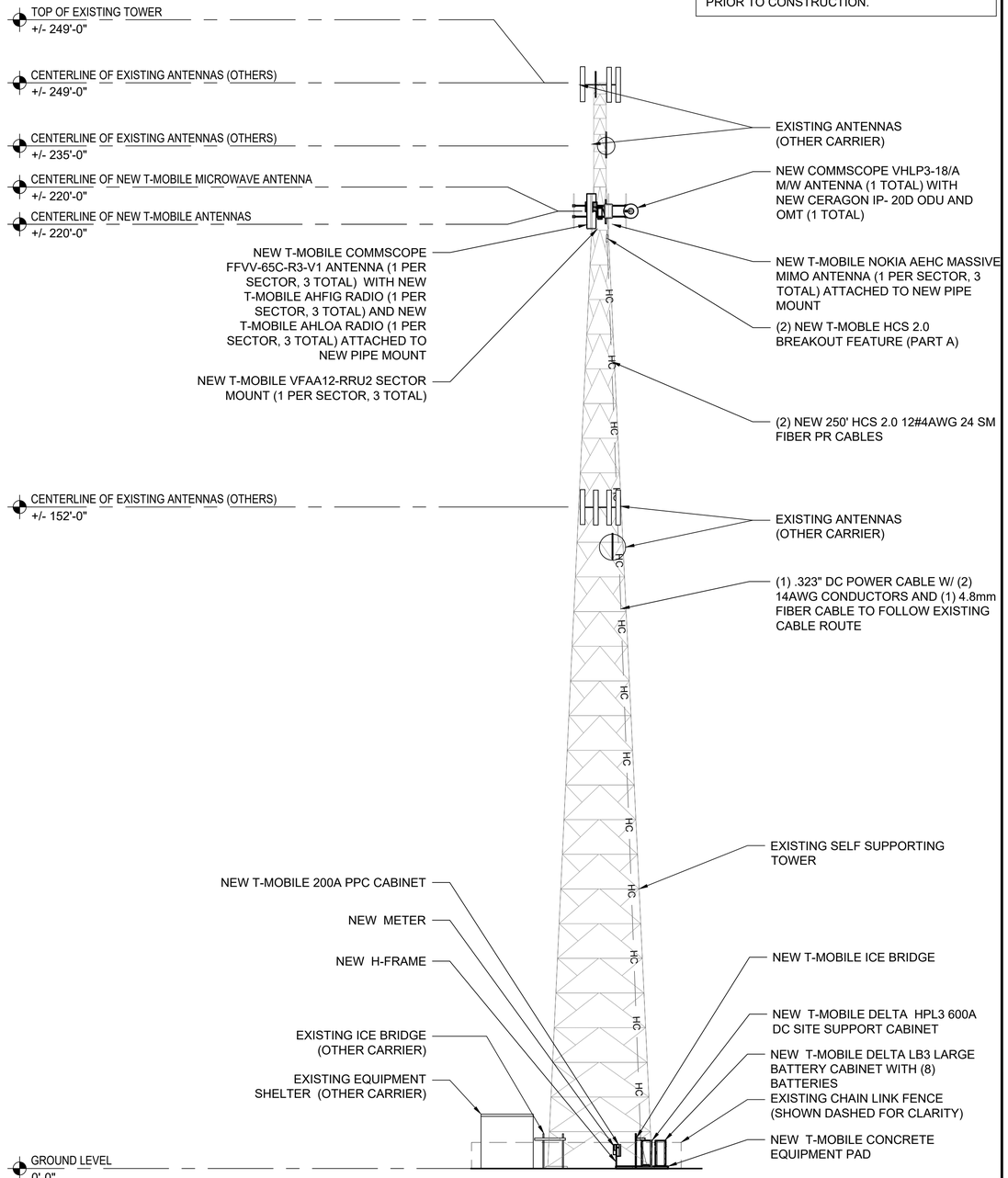
THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.



22"x34" SCALE: 3/32" = 1'-0"
11"x17" SCALE: 3/64" = 1'-0"
8' 4' 0" 8'

EXISTING ELEVATION 2

NOTE:
VERIFICATION THAT EXISTING STRUCTURE AND MOUNTING ATTACHMENTS CAN SUPPORT PROPOSED LOADING SHALL BE PERFORMED BY A REGISTERED STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION.



22"x34" SCALE: 3/16" = 1'-0"
11"x17" SCALE: 3/32" = 1'-0"
4' 2' 0" 4'

NEW ELEVATION 1

T-MOBILE
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SURESITE
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY:	BWG
CHECKED BY:	RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A

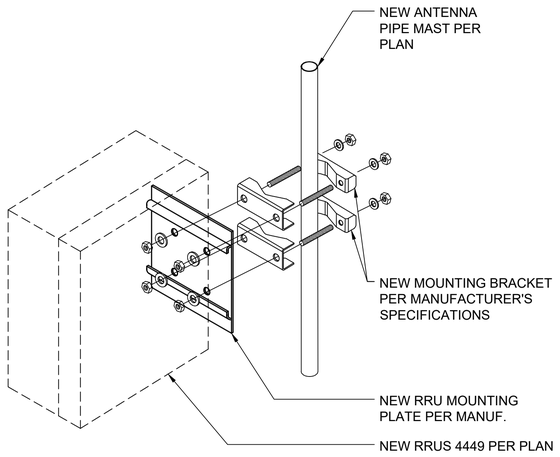
9KX0421A
997 LIVINGSTON RD.
CROSSVILLE, TN 38555

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

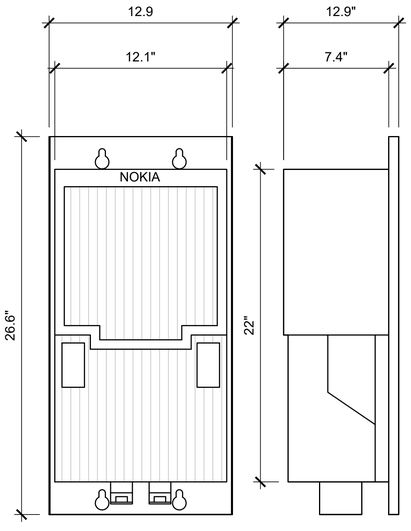
SHEET TITLE
ARCHITECTURAL ELEVATIONS

SHEET NUMBER
A-3

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.



N.T.S. RADIO MOUNTING BRACKET 6



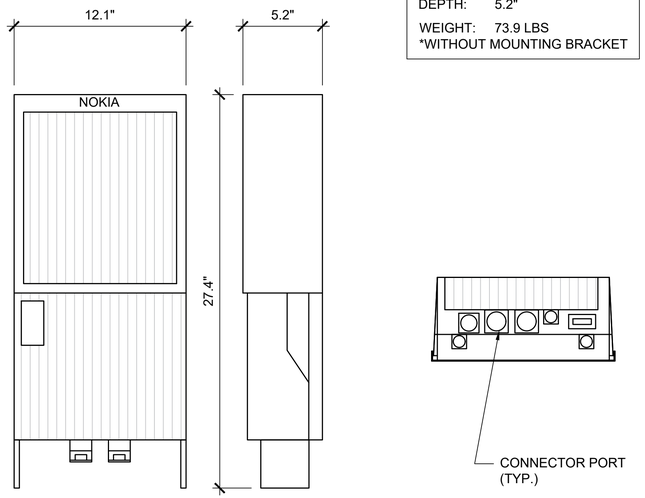
FRONT VIEW SIDE VIEW CONNECTOR PORT VIEW

RADIO SPECIFICATIONS

MANUFACTURER: NOKIA
MODEL: AHLOA
HEIGHT: 22"
WIDTH: 12.1"
DEPTH: 7.4"

WEIGHT: 83.8 LBS
*WITHOUT MOUNTING BRACKET

N.T.S. NOKIA AHLOA RADIO DETAILS 4



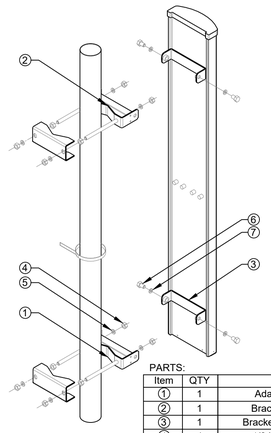
FRONT VIEW SIDE VIEW CONNECTOR PORT VIEW

RADIO SPECIFICATIONS

MANUFACTURER: NOKIA
MODEL: AHFIG
HEIGHT: 27.4"
WIDTH: 12.1"
DEPTH: 5.2"

WEIGHT: 73.9 LBS
*WITHOUT MOUNTING BRACKET

N.T.S. NOKIA AHFIG RADIO DETAILS 2



NOTES

1) INSERT SCISSOR BRACKETS BETWEEN THE UPPER ANTENNA MOUNTING BRACKET AND THE UPPER POLE ADAPTER BRACKET. SECURE USING 1/2 INCH HARDWARE PROVIDED.

2) TO SET THE DEGREE OF DOWNTILT, ALIGN THE DESIRED HOLES ON THE SCISSOR BRACKETS AND SECURE USING 5/16 INCH HARDWARE PROVIDED.

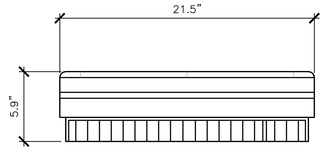
3) THE NUMBER OF CONNECTORS WILL VARY BASED ON ANTENNA TYPE.

4) INSTALLATION TO BE CONFIRMED BY GC PER MANUFACTURER

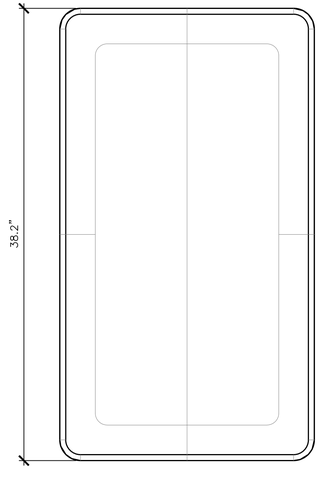
PARTS:

Item	QTY	Description
①	1	Adaptor, Pole, Lower
②	1	Bracket, Downtilt, Pole
③	1	Bracket, Downtilt, Antenna
④	4	1/2 X 1 Hex Head Bolt
⑤	4	1/2 Split Washer
⑥	2	5/16 X 1 Hex Head Bolt
⑦	2	5/16 Split Washer

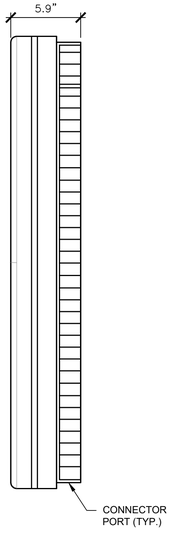
N.T.S. ANTENNA MOUNTING DETAIL 5



PLAN VIEW



FRONT VIEW

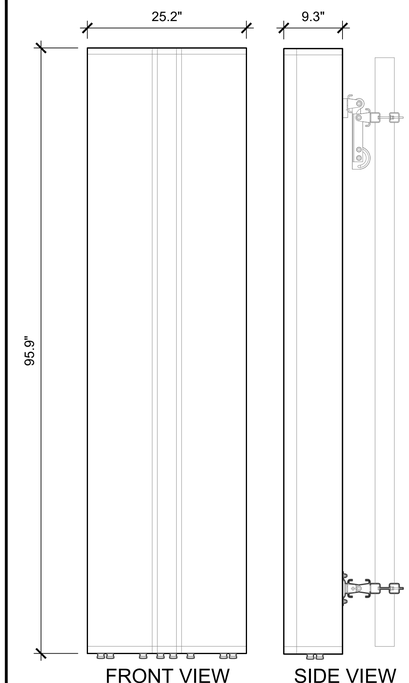


SIDE VIEW

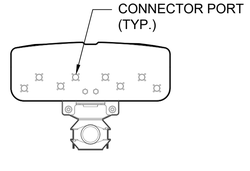
ANTENNA SPECIFICATIONS

MANUFACTURER: NOKIA
MODEL: AEHC (2.5GHz)
HEIGHT: 38.2"
WIDTH: 21.5"
MODEL: 5.9"
WEIGHT: 108.0 LBS

N.T.S. NOKIA AEHC MIMO ANTENNA DETAILS 3



FRONT VIEW SIDE VIEW



CONNECTOR PORT VIEW

ANTENNA SPECIFICATIONS

MANUFACTURER: COMMSCOPE
MODEL: FFVV-65C-R3-V1
LENGTH: 95.9"
WIDTH: 25.2"
DEPTH: 9.2"
WEIGHT: 124.6 lbs

N.T.S. COMMSCOPE FFVV-65C-R3-V1 ANTENNA DETAILS 1

T-MOBILE
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SURESITE
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY:	BWG
CHECKED BY:	RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A

9KX0421A

997 LIVINGSTON RD.
CROSSVILLE, TN 38555

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

SHEET TITLE

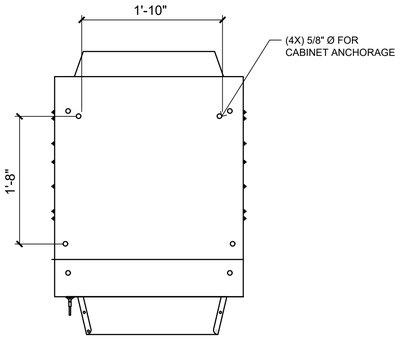
EQUIPMENT DETAILS

SHEET NUMBER

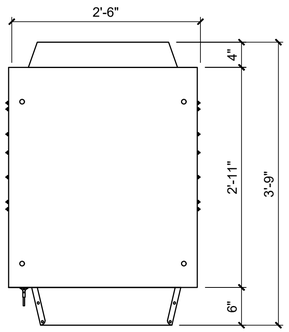
D-1

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

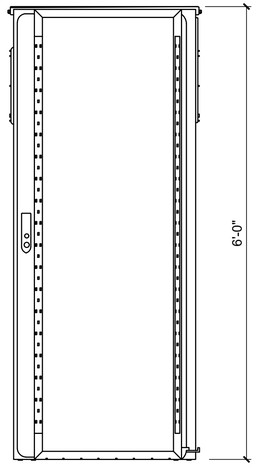
MANUFACTURER: DELTA
MODEL: ESOA600-HCU01
DIMENSIONS: 30.0"x35.0"x72.0"
WEIGHT: 551 LBS (WITHOUT EQUIPMENT)



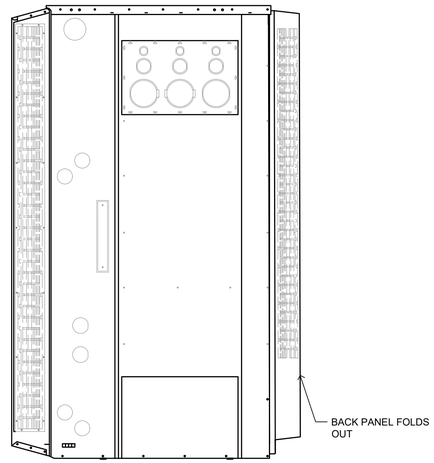
MOUNTING DETAIL



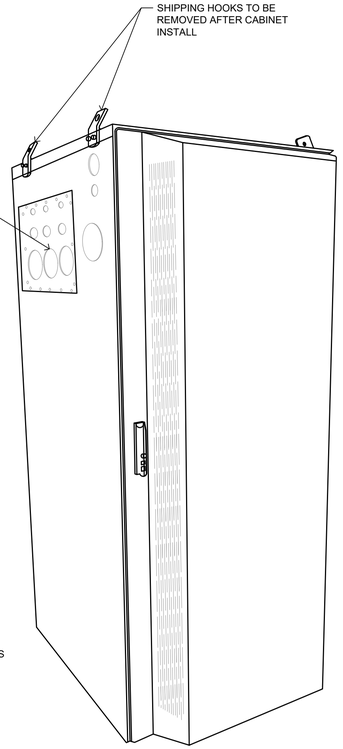
PLAN VIEW



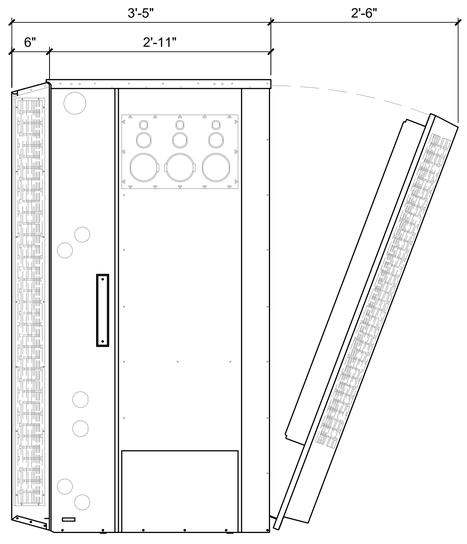
FRONT VIEW



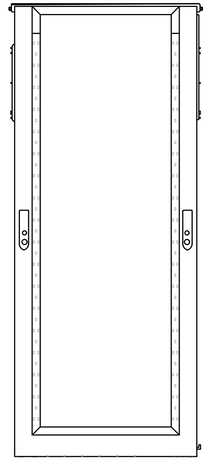
SIDE VIEW WITH BACK PANEL CLOSE



ISO VIEW



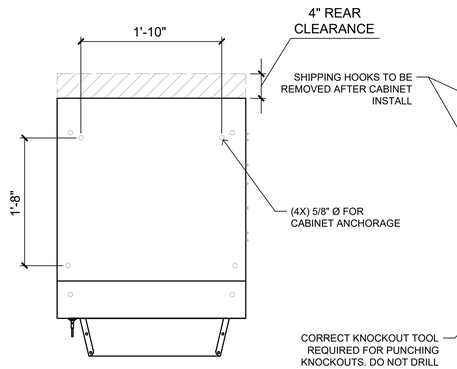
SIDE VIEW WITH BACK PANEL OPEN



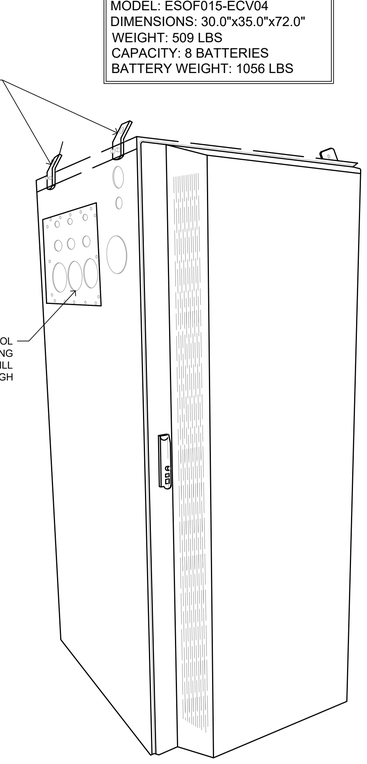
BACK VIEW

N.T.S.	DELTA HPL3 600A DC SITE SUPPORT CABINET	2

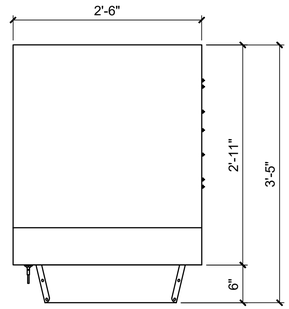
MANUFACTURER: DELTA
MODEL: ESOF015-ECV04
DIMENSIONS: 30.0"x35.0"x72.0"
WEIGHT: 509 LBS
CAPACITY: 8 BATTERIES
BATTERY WEIGHT: 1056 LBS



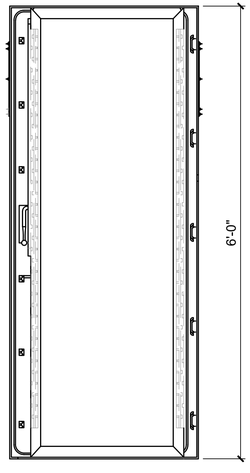
MOUNTING DETAIL



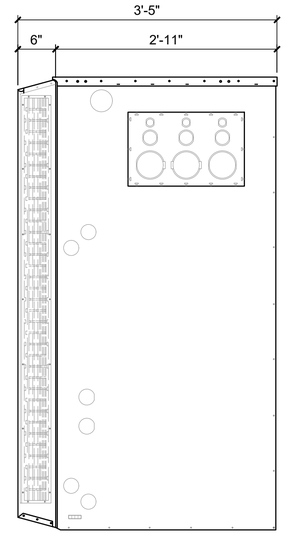
ISO VIEW



PLAN VIEW



FRONT VIEW



SIDE VIEW

N.T.S.	DELTA LB3 LARGE BATTERY CABINET	1

T-MOBILE
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SURESITE
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY:	BWG
CHECKED BY:	RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A

9KX0421A

997 LIVINGSTON RD.
CROSSVILLE, TN 38555

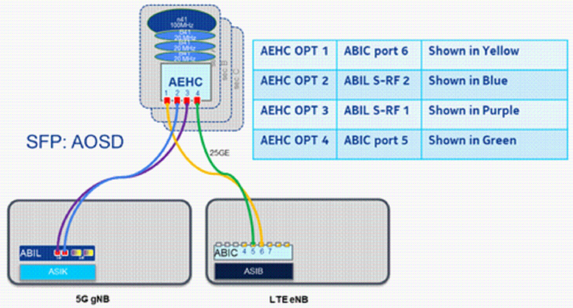
IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
D-2

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

8.1 Port Matrix per radio/sector



AEHC OPT 1	ABIC port 6	Shown in Yellow
AEHC OPT 2	ABIL S-RF 2	Shown in Blue
AEHC OPT 3	ABIL S-RF 1	Shown in Purple
AEHC OPT 4	ABIC port 5	Shown in Green

8.2 Port Matrix for all the sectors

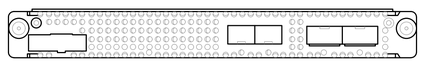
LTE TDD – B41 (2.5GHz)				
RF Module	Port	Baseband	Port	Technology
AEHC1	OPT4	ABIC1	RF5	L41- Alpha
AEHC1	OPT1	ABIC1	RF6	L41- Alpha
AEHC2	OPT4	ABIC2	RF5	L41 - Beta
AEHC2	OPT1	ABIC2	RF6	L41 - Beta
AEHC3	OPT4	ABIC3	RF5	L41 - Gamma
AEHC3	OPT1	ABIC3	RF6	L41 - Gamma

NR TDD – B41 (2.5GHz)				
RF Module	Port	Baseband	Port	Technology
AEHC1	OPT3	ABIL1	S-RF1	N41- Alpha
AEHC1	OPT2	ABIL1	S-RF2	N41- Alpha
AEHC2	OPT3	ABIL2	S-RF1	N41 - Beta
AEHC2	OPT2	ABIL2	S-RF2	N41 - Beta
AEHC3	OPT3	ABIL3	S-RF1	N41 - Gamma
AEHC3	OPT2	ABIL3	S-RF2	N41 - Gamma

Any crossing of physical connections at the ABIL/ABIC will result in the commissioner being unable to make calls or even see the cells. Web Element Manager Detailed Site View does not necessarily show the physical connections (it shows configured connections per SCF instead)

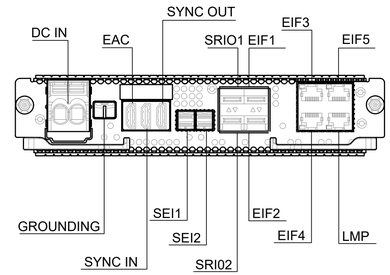
N.T.S. NEW CABLING DIAGRAM 6

MANUFACTURER: NOKIA
MODEL: ABIA UNIT
DIMENSIONS: 8.6"x14.2"x1.1" (UNIT ONLY)
WEIGHT: 4.4 LBS (UNIT ONLY)



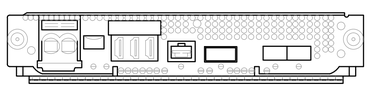
N.T.S. ABIA DETAIL 4

MANUFACTURER: NOKIA
MODEL: ASIA UNIT
DIMENSIONS: 8.6"x14.2"x1.7" (UNIT ONLY)
WEIGHT: 6.6 LBS (UNIT ONLY)



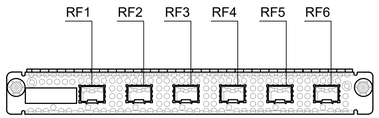
N.T.S. ASIA DETAIL 2

MANUFACTURER: NOKIA
MODEL: ABIL UNIT
DIMENSIONS: 8.6"x14.2"x1.1" (UNIT ONLY)
WEIGHT: 4.4 LBS (UNIT ONLY)

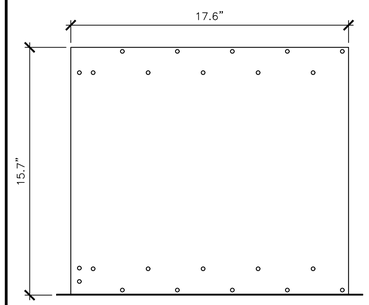


N.T.S. ABIA DETAIL 5

MANUFACTURER: NOKIA
MODEL: ABIA UNIT
DIMENSIONS: 8.6"x14.2"x1.1" (UNIT ONLY)
WEIGHT: 4.4 LBS (UNIT ONLY)



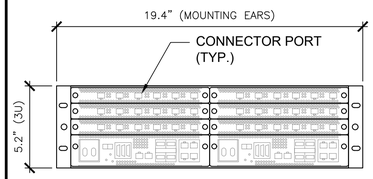
N.T.S. ABIL DETAIL 3



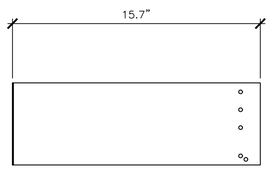
PLAN VIEW

ANTENNA SPECIFICATIONS

MANUFACTURER: NOKIA
MODEL: AMIA SUBRACK
HEIGHT: 5.2"
WIDTH: 17.6" WITHOUT EARS
DEPTH: 15.7"



FRONT VIEW



SIDE VIEW

N.T.S. NOKIA AIRSCALE AMIA SUBRACK DETAILS 1

T-MOBILE
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SURESITE
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY:	BWG
CHECKED BY:	RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A

9KX0421A
997 LIVINGSTON RD.
CROSSVILLE, TN 38555

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

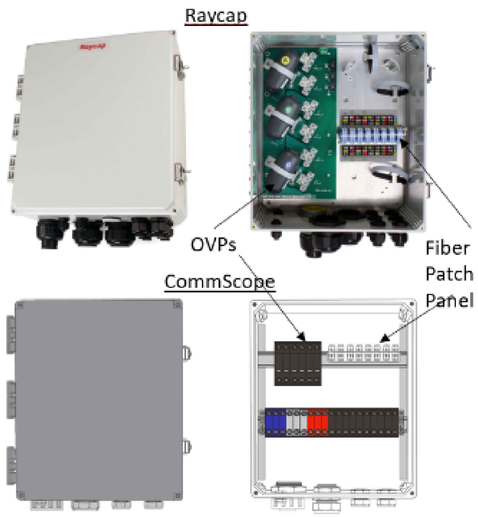
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
D-3

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

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



Roof Top Box General Specifications

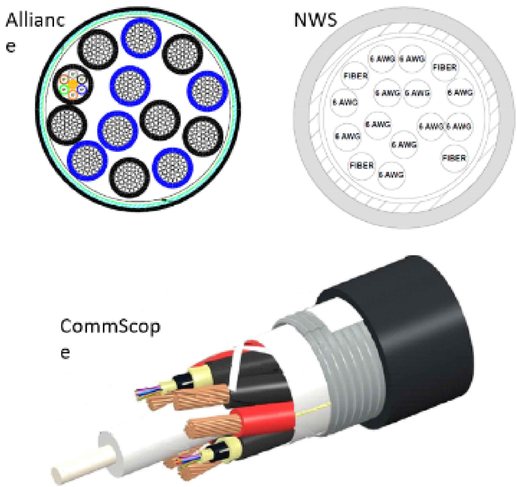
Characteristics	CommScope	Raycap
Dimensions	14"x16"x8"	14"x16"x8"
Weight	23.5 lb	21.9 lb
OVP, IEC 61643-1	24"	Class I SPD (3)
UL Rating		1449, 4th Ed.
OVP Monitoring	Dry contact	Dry contact
Fiber Patch Panel	24 LC pairs	24 LC pairs
Environmental Rating	IP67	IP66
Operating Temperature	-40 °C to +75 °C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

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

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



T-MOBILE
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SURESITE
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY:	BWG
CHECKED BY:	RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A

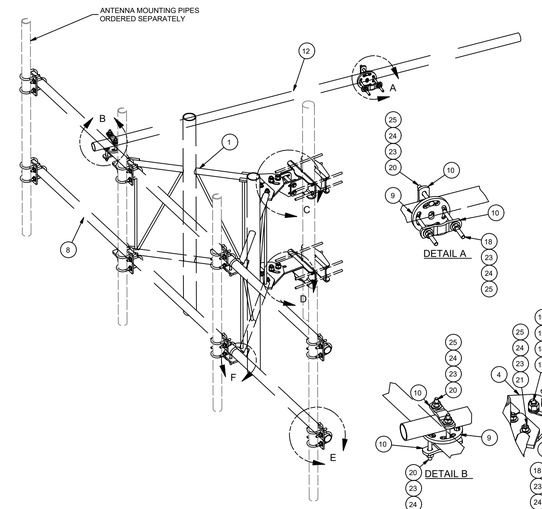
9KX0421A
997 LIVINGSTON RD.
CROSSVILLE, TN 38555

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

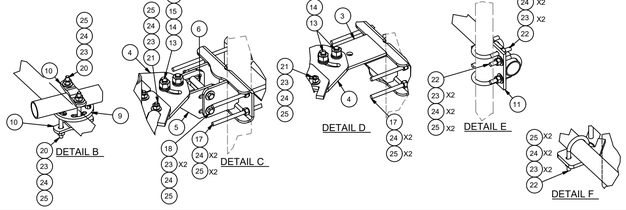
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
D-4

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.



PARTS LIST						
ITE	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-233791	SUPPORT ARM		80.39	160.78
2	1	X-SDTFLB	DIAGONAL SLOT WELDMENT FOR BCAM SD		15.08	15.08
3	1	X-SDMHTP	MULTI-HOLE TAPER PLATE WELDMENT		16.63	16.63
4	2	X-SDPP	PIVOT PLATE	11 1/16 in	9.09	18.18
5	1	X-SDCAMSS	STRAIGHT SLOT WELDMENT FOR BCAM		8.48	8.48
6	1	X-SDCAMSP	POSITIONING PLATE WELDMENT FOR BCAM		1.43	1.43
7	2	X-LCBP2	BENT BACKING PLATE	12 in	8.86	17.73
8	2	P2150	2-3/8" O.D. X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	91.54
9	2	X-127594	FLAT DISK CLAMP PLATE 4" CENTERS (GALV.)		2.51	5.01
10	4	X-100064	CLAMP (4" V-CLAMP) GALVANIZED		0.92	3.69
11	8	SCX1	CROSSOVER PLATE 2-3/8" X 2-3/8"	6 in	3.71	29.67
12	1	P2126	2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE	126 in	40.75	40.75
13	4	A34214	3/4"-10 X 2-1/4" A325 BOLT	2 1/4 in	0.47	1.89
14	4	G34FW	3/4" HDG USS FLATWASHER		0.06	0.24
15	4	G34LW	3/4" HDG LOCKWASHER		0.04	0.17
16	4	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	0.85
17	8	G12R-15	1/2" x 15" THREADED ROD (HDG.)		0.84	6.69
18	4	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	1.64
19	1	G12045	1/2" x 4.5" HDG HEX BOLT GR5 FULL THREAD	4 1/2 in	0.30	0.30
20	6	G1204	1/2" x 4" HDG HEX BOLT GR5 FULL THREAD	4 in	0.27	1.62
21	8	G1202	1/2" x 2" HDG HEX BOLT GR5	2 in	0.18	1.41
22	36	X-IJB1212	1/2" X 2-1/2" X 4-1/2" X 2" GALV. U-BOLT		0.66	23.86
23	93	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	3.17
24	186	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	1.47
25	107	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	7.66
					TOTAL WT. #	459.70



TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE: SAWED, SHEARED AND GAS CUT EDGES (± 0.030") DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES BENDS ARE ± 1/2 DEGREE ALL OTHER MACHINING (± 0.030") ALL OTHER ASSEMBLY (± 0.060")

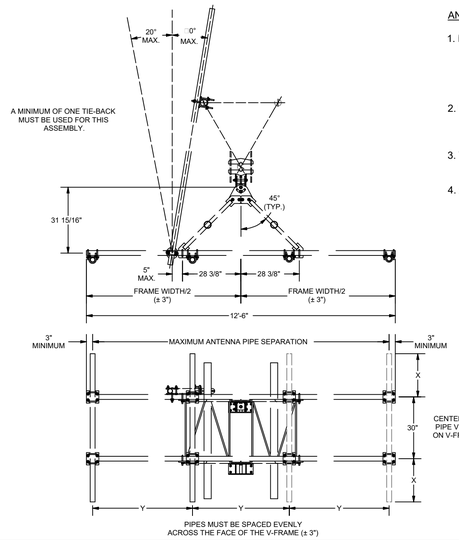
REV	DESCRIPTION OF REVISIONS	CPD BY	DATE
	REVISION HISTORY		
B	UPDATED BCAM VERSION 1 TO BCAM VERSION 2		CEK 8/22/2018
A	CHANGED LEG CONNECTION HARDWARE		CEK 6/9/2017

PROPRIETARY NOTE: THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION: 12'-6" V-FRAME ASSEMBLY W/ STIFF ARM AND RRU MOUNTING PIPE

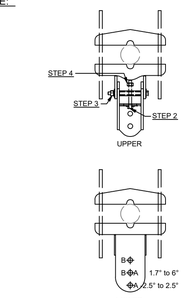
SITE PRO 1 — Engineering Support Team: 1-888-753-7446 — Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX — valmont SOLMAR

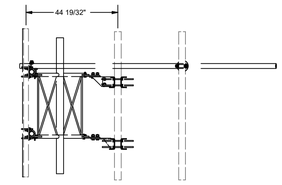
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
10142	CEK 4/8/2014		VFA12-RRU	1 OF 3
CLASS SUB: 81 01	DRAWING USAGE: CUSTOMER	CHECKED BY: BMC 8/22/2018	DWG. NO.: VFA12-RRU	



ANGLE CALIBRATING PROCEDURE:

1. MEASURE TOWER TAPER AND PICK LOWER BRACKET HOLE:
   - HOLE A = -2.5° TO 2.5°
   - HOLE B = 1.7° TO 6°
2. USE CALIBRATING BOLT TO ADJUST FRAME TO DESIRED TAPER
3. TORQUE LOCKING BOLTS TO 50 ft.-lbs.
4. ADVANCE LOCKING NUT TO POSITIONING PLATE, THEN TIGHTEN.





TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE: SAWED, SHEARED AND GAS CUT EDGES (± 0.030") DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES BENDS ARE ± 1/2 DEGREE ALL OTHER MACHINING (± 0.030") ALL OTHER ASSEMBLY (± 0.060")

REV	DESCRIPTION OF REVISIONS	CPD BY	DATE
	REVISION HISTORY		
B	UPDATED BCAM VERSION 1 TO BCAM VERSION 2		CEK 8/22/2018
A	CHANGED LEG CONNECTION HARDWARE		CEK 6/9/2017

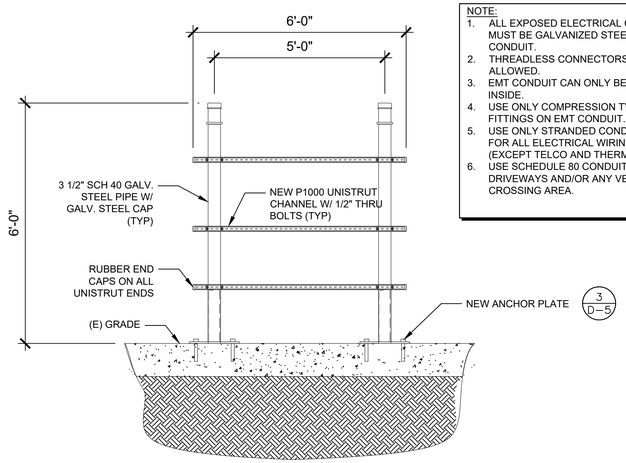
PROPRIETARY NOTE: THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION: 12'-6" V-FRAME ASSEMBLY W/ STIFF ARM AND RRU MOUNTING PIPE

SITE PRO 1 — Engineering Support Team: 1-888-753-7446 — Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX — valmont SOLMAR

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
10142	CEK 4/8/2014		VFA12-RRU	2 OF 3
CLASS SUB: 81 01	DRAWING USAGE: CUSTOMER	CHECKED BY: BMC 8/22/2018	DWG. NO.: VFA12-RRU	

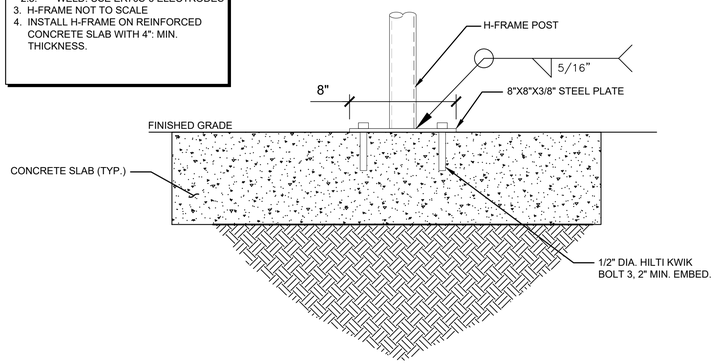
N.T.S. — VFA12-RRU MOUNT DETAILS | 2



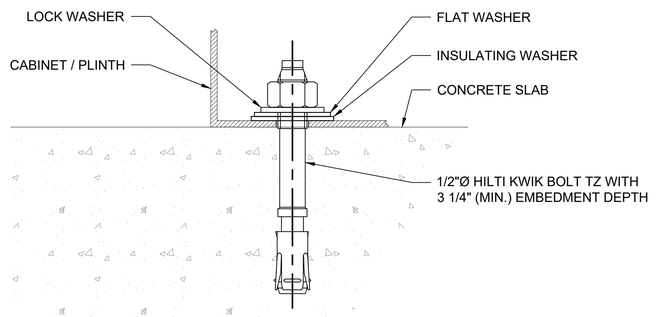
NOTE:
1. ALL EXPOSED ELECTRICAL CONDUIT MUST BE GALVANIZED STEEL RIGID CONDUIT.
2. THREADLESS CONNECTORS ARE NOT ALLOWED.
3. EMT CONDUIT CAN ONLY BE USED INSIDE.
4. USE ONLY COMPRESSION TYPE FITTINGS ON EMT CONDUIT.
5. USE ONLY STRANDED CONDUCTORS FOR ALL ELECTRICAL WIRING. (EXCEPT TELCO AND THERMOSTAT)
6. USE SCHEDULE 80 CONDUIT UNDER DRIVEWAYS AND/OR ANY VEHICLE CROSSING AREA.

N.T.S. — H-FRAME DETAIL | 5

NOTE:
1. ALL NEW STEEL SHALL BE HOT DIPPED GALVANIZED.
2. ALL STRUCTURAL STEEL SHALL CONFORM TO THE LISTED REQUIREMENTS U.N.O. IN THESE DRAWINGS:
   - 2.1. PIPE: ASTM A53B (GR35)
   - 2.2. PLATE: ASTM A36 (GR36)
   - 2.3. THRU BOLTS: A325N
   - 2.4. ANCHOR BOLT: 1/2" X 2" EMBED. HILTI KWIK BOLT 3
   - 2.5. WELD: USE ER70S-6 ELECTRODES
3. H-FRAME NOT TO SCALE
4. INSTALL H-FRAME ON REINFORCED CONCRETE SLAB WITH 4": MIN. THICKNESS.



N.T.S. — H-FRAME ANCHOR DETAIL | 3



N.T.S. — CABINET TO CONCRETE MOUNTING | 1

T-MOBILE
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SURESITE
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY:	BWG
CHECKED BY:	RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A

9KX0421A

997 LIVINGSTON RD.
CROSSVILLE, TN 38555

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

SHEET TITLE

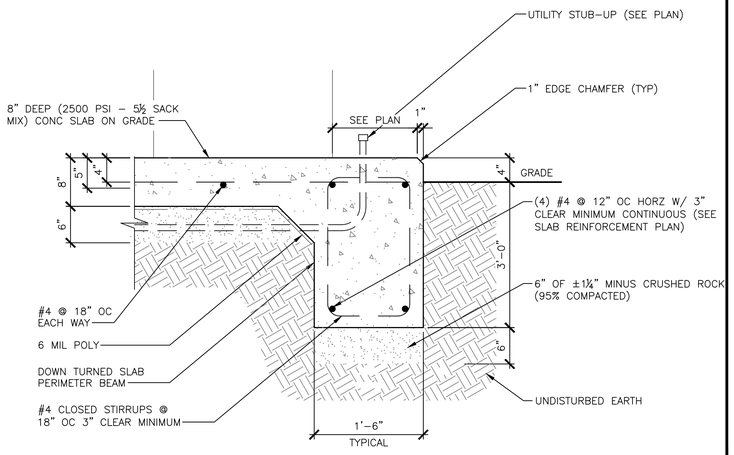
EQUIPMENT DETAILS

SHEET NUMBER

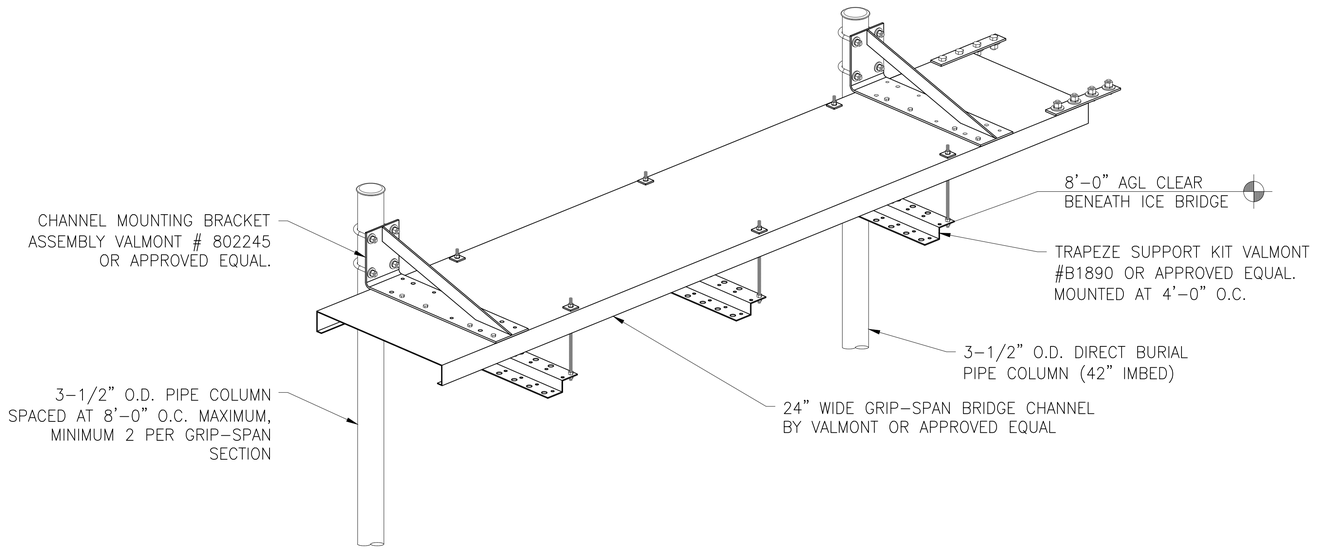
D-5

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

NOTE:
CONTRACTOR SHALL VERIFY THAT SOIL CONDITIONS ALLOW PERIMETER TRENCH TO FORM PERIMETER BEAM OTHERWISE OUTSIDE EDGE FORM WORK SHALL BE REQUIRED.

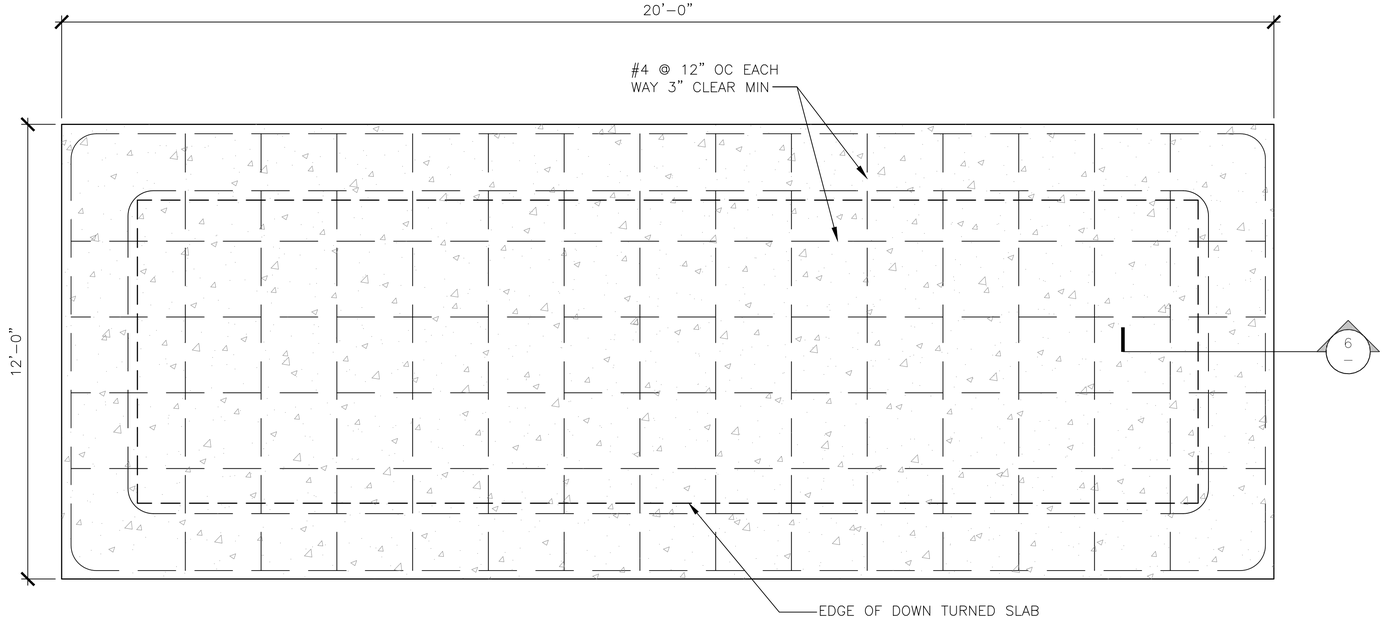


N.T.S. CONCRETE PAD DETAIL 6

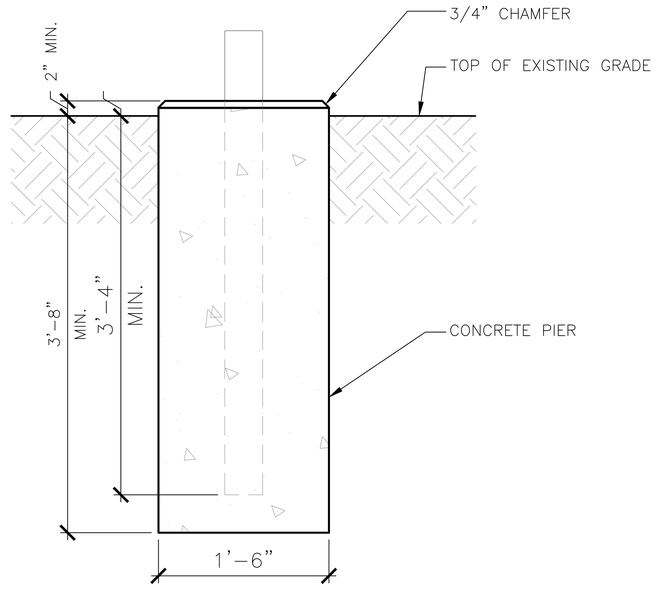


N.T.S. ICE BRIDGE DETAIL 2

SEE CONCRETE NOTES & STRUCTURAL STEEL NOTES ON SHEET G-1



N.T.S. CONCRETE PAD DETAIL 3



N.T.S. BRIDGE POST DETAIL 1

T-Mobile
T-MOBILE
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SURESITE
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY:	BWG
CHECKED BY:	RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A

9KX0421A
997 LIVINGSTON RD.
CROSSVILLE, TN 38555

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
D-6

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

NOT USED 6

NOT USED 5

NOT USED 4

NOT USED 3

N.T.S.

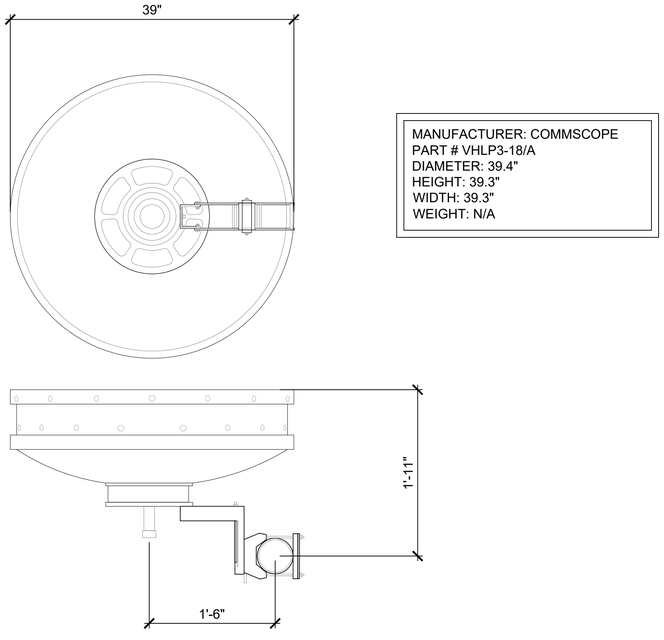
RADIO SPECIFICATIONS

MANUFACTURER: CERAGON
MODEL: IP-20D
HEIGHT: 12.4"
WIDTH: 11.2"
DEPTH: 4.2"

WEIGHT: 26.5 LBS

CERAGON IP-20D DETAILS 2

N.T.S.



MANUFACTURER: COMMSCOPE
PART # VHLP3-18/A
DIAMETER: 39.4"
HEIGHT: 39.3"
WIDTH: 39.3"
WEIGHT: N/A

COMMSCOPE VHLP3-18/A DETAILS 1

T-MOBILE
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SURESITE
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY: BWG

CHECKED BY: RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A

9KX0421A

997 LIVINGSTON RD.
CROSSVILLE, TN 38555

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

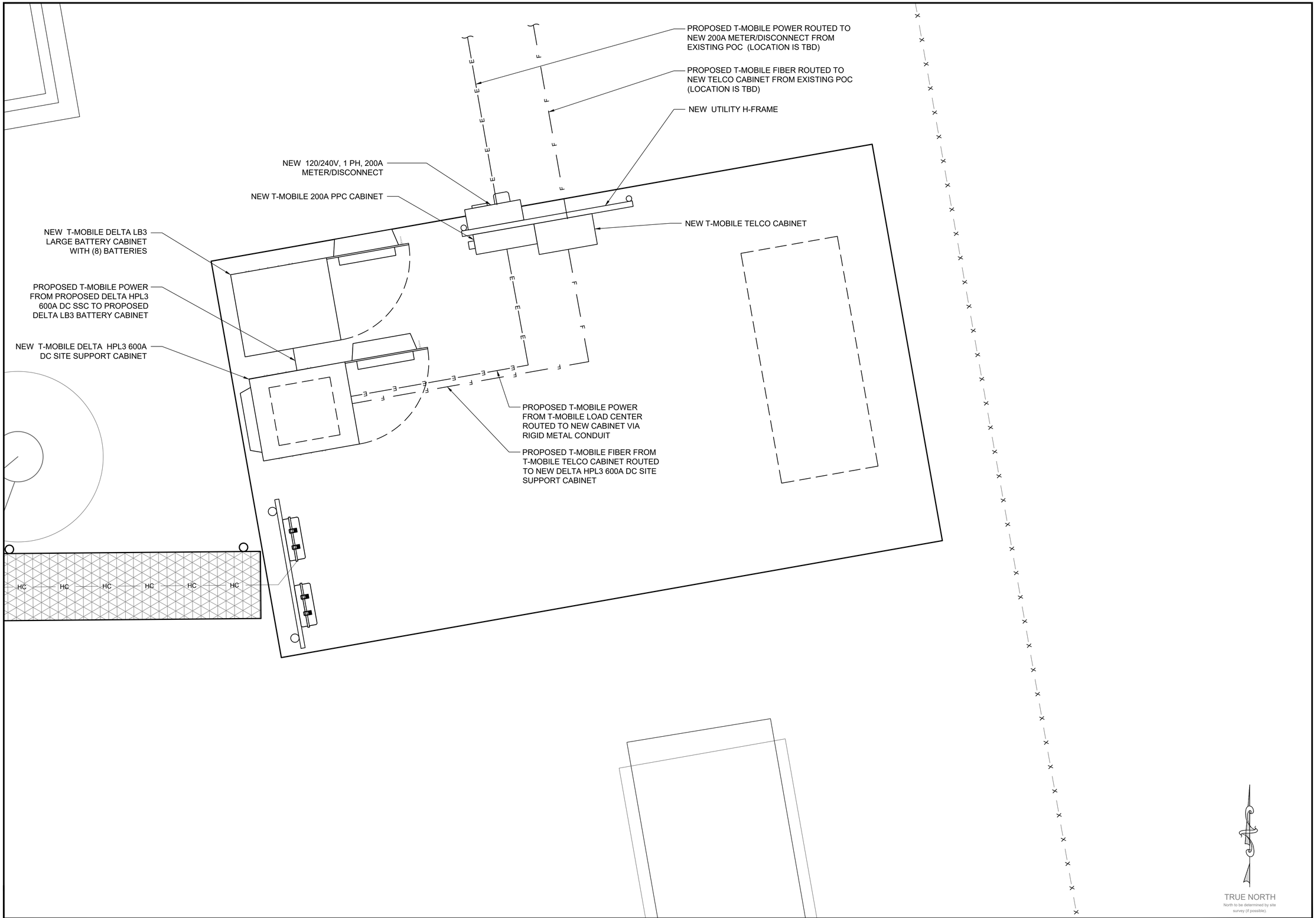
SHEET TITLE

EQUIPMENT DETAILS

SHEET NUMBER

D-7

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.



22"x34" SCALE: 3/8" = 1'-0"
11"x17" SCALE: 3/16" = 1'-0"

2' 1' 0" 2'

ELECTRICAL PLAN | 1

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

T-MOBILE
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SUREsite
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY:	BWG
CHECKED BY:	RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A

9KX0421A

997 LIVINGSTON RD.
CROSSVILLE, TN 38555

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

SHEET TITLE

ELECTRICAL PLAN

SHEET NUMBER

E-1

KEY NOTES

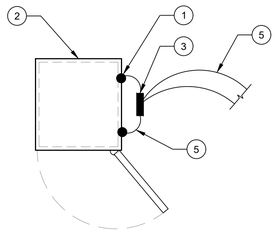
1. MECHANICAL CONNECTION
2. NEW T-MOBILE EQUIPMENT CABINET
3. MASTER GROUND BUS BAR AT EQUIPMENT (DETAIL 7/G-2) (CONTRACTOR TO FIELD VERIFY LOCATION)
4. ANTENNA GROUND BUS BAR NEAR ANTENNAS (CONTRACTOR TO FIELD VERIFY LOCATION)
5. (2) #2 AWG INSULATED COPPER GROUND WIRES FROM NEW CABINET TO MASTER GROUND BAR
6. AWG 2 INSULATED COPPER GROUND WIRE TO GROUND RING
7. AWG 6 INSULATED COPPER GROUND WIRE FROM ANTENNA GROUND KIT TO ANTENNA BUS BAR (TYP.)
8. AWG 2 INSULATED COPPER GROUND FROM RRU, PIPE MOUNT TO ANTENNA BUS BAR
9. AWG 2 INSULATED COPPER GROUND WIRE CONNECTED TO MASTER GROUND BUS BAR.
10. AWG 2 TO BUILDING STEEL OR (E) BUILDING SERVICE GROUND
11. COPPER CLAD GROUND ROD SEE DETAIL 8, G-2
12. GROUND TEST WELL SEE DETAIL 6, G-2
13. EXOTHERMIC WELD (CADWELD/THERMOWELD) CONNECTION

LEGEND

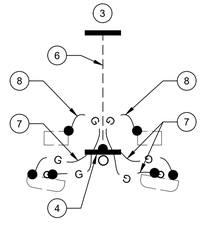
- ● MECHANICAL CONNECTION
- ■ EXOTHERMIC WELD (CADWELD/ THERMOWELD) CONNECTION.
- —G— #2 AWG INSULATED, COPPER WIRE (UNLESS OTHERWISE SPECIFIED).

GENERAL NOTES:

1. PLAN DRAWINGS SHOWN HEREIN ARE DIAGRAMMATIC AND DO NOT NECESSARILY DEPICT THE EXACT EQUIPMENT QUANTITIES, LOCATION, LAYOUT AND CONFIGURATION. REFER TO ARCHITECTURAL PLANS FOR EXACT EQUIPMENT LOCATION, LAYOUT AND CONFIGURATION.
2. PLAN DRAWINGS SHOWN HEREIN DO NOT NECESSARILY DEPICT ELECTRICAL REQUIREMENTS OF INDIVIDUAL EQUIPMENT AND DEVICES SUCH AS THE EQUIPMENT GROUNDING REQUIREMENTS, POWER REQUIREMENTS AND TELCO RACEWAY REQUIREMENTS.
3. REFER TO A-1 FOR THE LOCATION OF POWER AND TELCO POINT OF CONNECTIONS, THE DISTANCE OF THE RUN AND THE SUGGESTED CONDUIT ROUTING. FIELD VERIFY EXISTING CONDITIONS SPECIFICALLY FOR CONDUIT ROUTING PRIOR TO BID.



EQUIPMENT GROUNDING

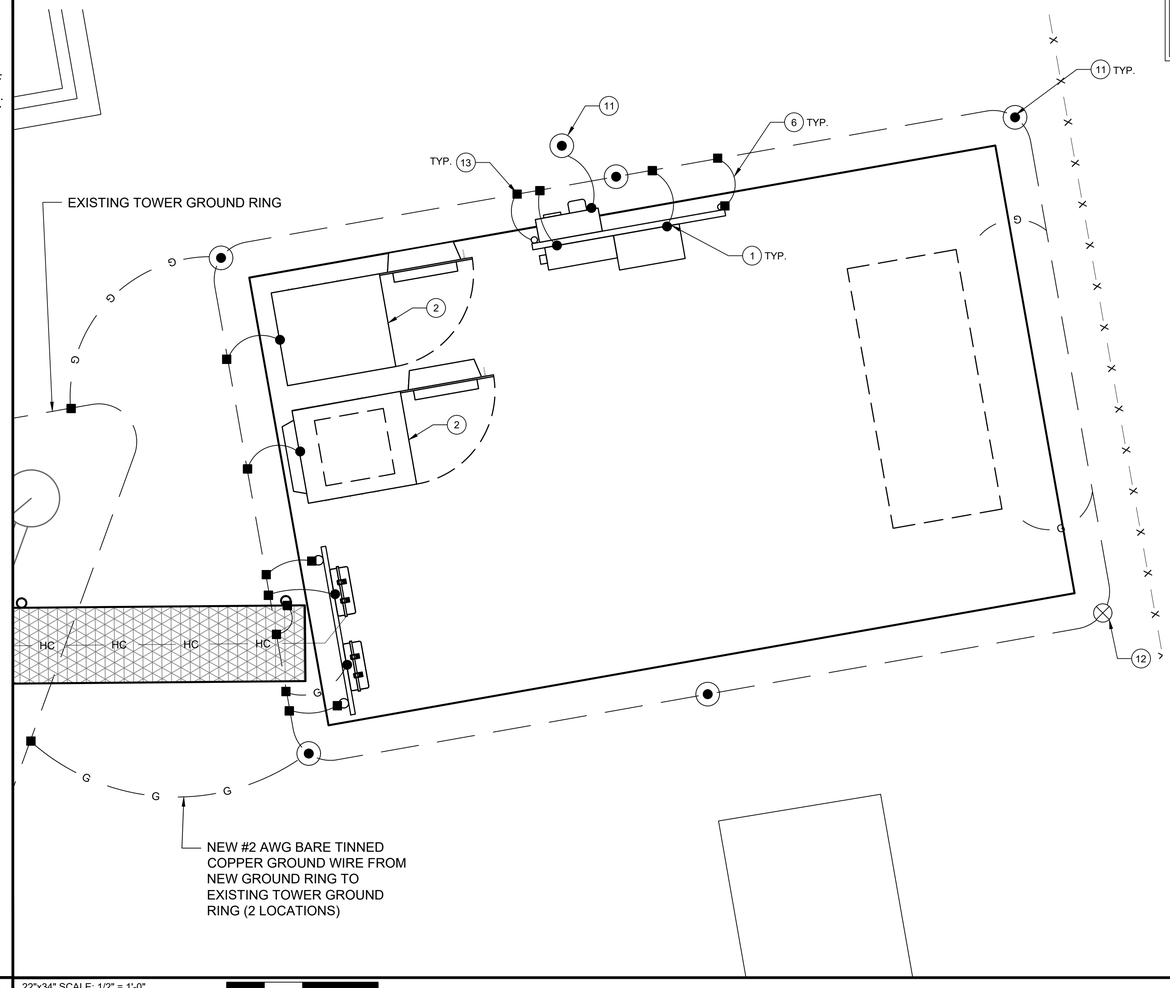


TYP. ANTENNA GROUNDING

1. ALL DETAILS ARE SHOWN IN GENERAL TERMS. ACTUAL GROUNDING INSTALLATION AND CONSTRUCTION MAY VARY DUE TO SITE SPECIFIC CONDITIONS.
2. GROUND ALL ANTENNA BASES, FRAMES, CABLE RUNS, AND OTHER METALLIC COMPONENTS USING #2 GROUND WIRES AND CONNECT TO SURFACE MOUNTED GROUND BUS BARS AS SHOWN. FOLLOW ANTENNA AND BTS MANUFACTURER'S PRACTICES FOR GROUNDING REQUIREMENTS. GROUND COAX SHIELD AT BOTH ENDS USING MANUFACTURERS PRACTICES. ALL UNDERGROUND WATER PIPES, METAL CONDUITS AND GROUNDS THAT ARE A PART OF THIS SYSTEM SHALL BE BONDED TOGETHER.
3. ALL GROUND CONNECTIONS SHALL BE #2 AWG U.N.O. ALL WIRES SHALL BE COPPER THHN/THWN. ALL GROUND WIRE SHALL BE SOLID TIN COATED OR STRANDED GREEN INSULATED WIRE.
4. CONTRACTOR TO VERIFY AND TEST GROUND TO SOURCE, 5 OHMS MAXIMUM. PROVIDE SUPPLEMENT GROUNDING RODS AS REQUIRED TO ACHIEVE SPECIFIED OHMS READING. GROUNDING AND OTHER OPTIONAL TESTING WILL BE WITNESSED BY THE T-MOBILE REPRESENTATIVE.
5. NOTIFY ARCHITECT/ENGINEER IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO SITE SOIL CONDITIONS.
6. BARE GROUNDING CONDUCTOR SHALL BE HARD DRAWN TINNED COPPER SIZES AS NOTED ON PLAN.
7. ALL HORIZONTALLY RUN GROUNDING CONDUCTORS SHALL BE INSTALLED MINIMUM 12" BELOW GRADE/FROST-LINE IN TRENCH, U.N.O., AND BACK FILL SHALL BE COMPACTED AS REQUIRED BY ARCHITECT.
8. ALL GROUND CONDUCTORS SHALL BE RUN AS STRAIGHT AND SHORT AS POSSIBLE, WITH A MINIMUM 12" BENDING RADIUS NOT LESS THAN 90 DEGREES.
9. ALL SUPPORT STRUCTURES, CABLE CHANNEL WAYS OR WIRE GUIDES SHALL BE BONDED TO GROUND SYSTEM AT A POINT NEAREST THE MAIN GROUNDING BUS "MGB" (OR DIRECTLY TO GROUND-RING).
10. ACCEPTABLE CONNECTIONS FOR GROUNDING SYSTEM SHALL BE:
    A. BURNDY, HY-GRADE U.L. LISTED CONNECTORS FOR INDOOR USE OR AS APPROVED BY T-MOBILE PROJECT MANAGER.
    B. CADWELD, EXOTHERMIC WELDS (WELDED CONNECTIONS).
    C. TWO -(2) HOLE TINNED COPPER COMPRESSION (LONG BARREL) FITTINGS (BUS BAR CONNECTIONS).
11. ALL CRIMPED CONNECTIONS SHALL HAVE EMBOSSED MANUFACTURER'S DIEMARK VISIBLE AT THE CRIMP (RESULTING FROM USE OF PROPER CRIMPING DEVICES).
12. PRIOR TO ANY LUG-BUSSBAR CONNECTIONS, THE BUS BAR SHALL BE CLEANED BY USE OF "SCOTCH-BRITE' OR PLAIN STEEL WOOL AS TO REMOVE ALL SURFACE OXIDATION AND CONTAMINANTS. A COATING OF "NO-OX-ID" SHALL BE APPLIED TO THE CONNECTION SURFACES.
13. ALL CONNECTION HARDWARE SHALL BE TYPE 316 SS (NOT ATTRACTED TO MAGNETS).
14. THE GROUND RING SHALL BE INSTALLED 24" MINIMUM BEYOND ANY BUILDING DRIP LINE.
15. ELECTRICAL SERVICE EQUIPMENT GROUNDING SHALL COMPLY WITH NEC, ARTICLE 250-82 AND SHALL BOND ALL EXISTING AND NEW GROUNDING ELECTRODES. NEW GROUNDING ELECTRODE SHALL INCLUDE BUT NOT LIMITED TO GROUND RODS, GROUND RING IF SERVICE IS WITHIN THE RADIO EQUIPMENT LOCATION, BUILDING STEEL IF APPLICABLE, COLD WATER CONNECTIONS MUST BE MADE ON THE STREET SIDE OF MAIN SHUT-OFF VALVE.

GROUNDING NOTES | 2

NOTE: THIS PLAN IS NOT INTENDED TO SHOW ALL EXISTING GROUNDING. ONLY PROPOSED GROUNDING AND MAIN GROUND BARS ARE DEPICTED



TRUE NORTH
North to be determined by site survey (if possible).

GROUNDING SCHEMATIC | 3

22"x34" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"
2' 1' 0" 2'

GROUNDING PLAN | 1

T-MOBILE
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SURESITE
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY:	BWG
CHECKED BY:	RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A

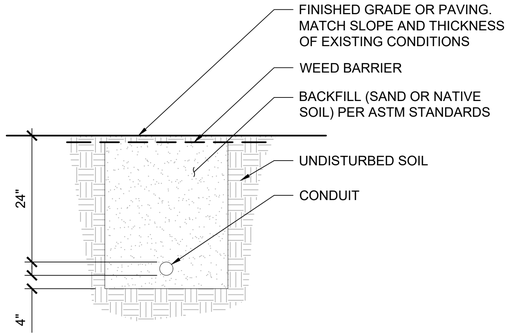
9KX0421A
997 LIVINGSTON RD.
CROSSVILLE, TN 38555

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

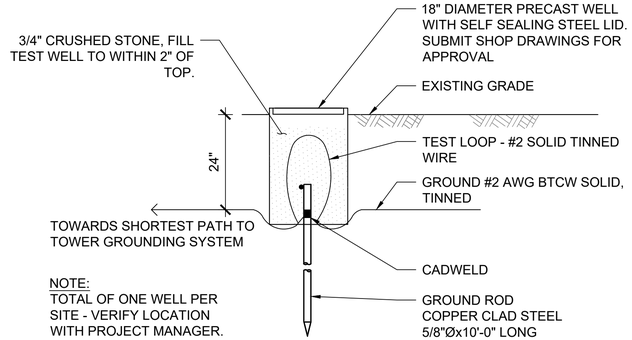
SHEET TITLE
GROUNDING PLAN AND SCHEMATIC

SHEET NUMBER
G-1

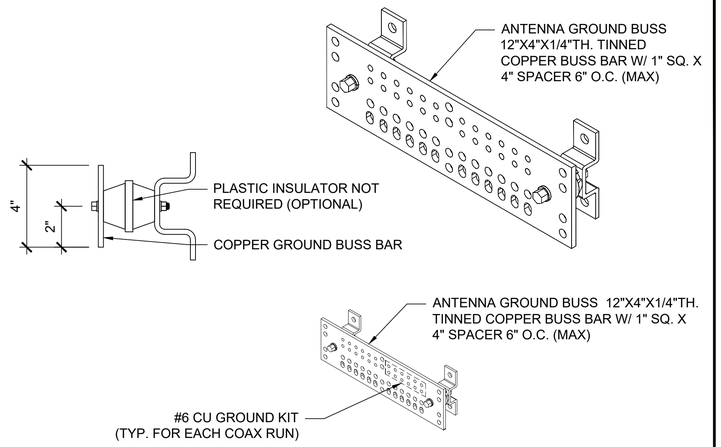
THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.



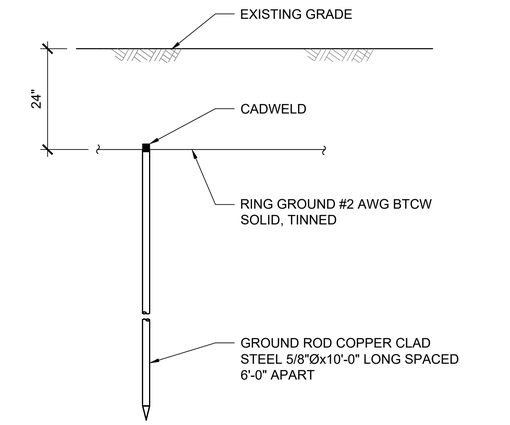
N.T.S. CONDUIT TRENCH DETAIL 9



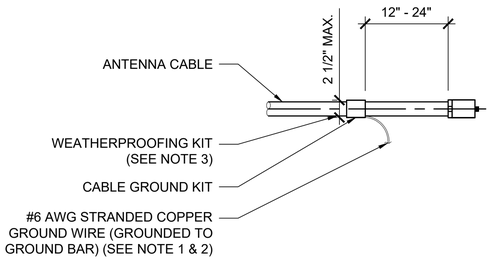
N.T.S. TEST WELL DETAIL 6



N.T.S. GROUND BAR DETAIL 3

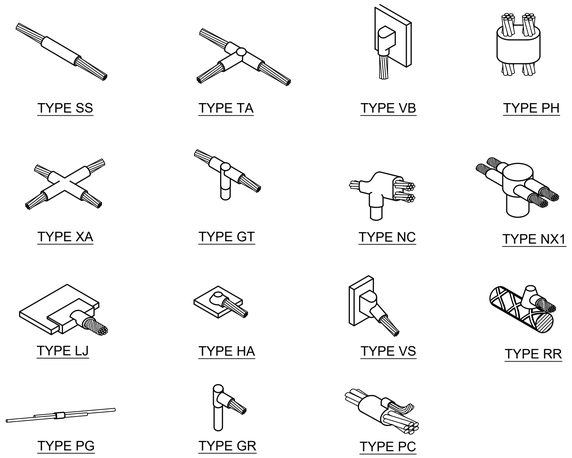


N.T.S. GROUND ROD DETAIL 8

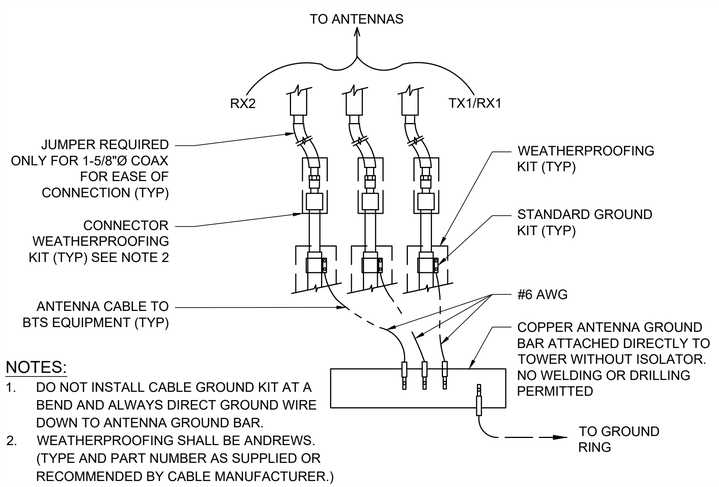


NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

N.T.S. COAX GROUND KIT DETAIL 5

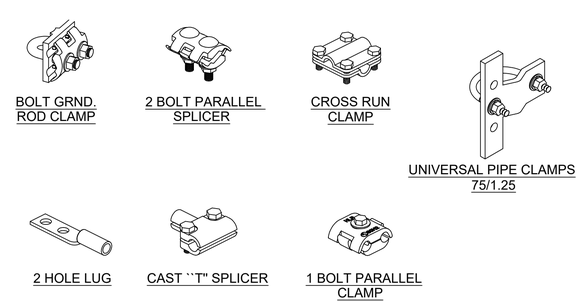


N.T.S. CAD WELD CONNECTION DETAIL 2

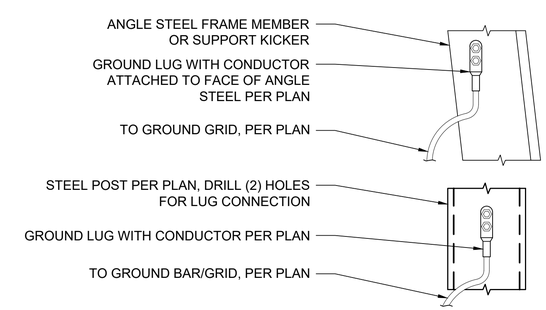


NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHERPROOFING SHALL BE ANDREWS. (TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.)

ANTENNA GROUND BAR 7



N.T.S. GROUND CLAMP DETAIL 4



N.T.S. FRAME GROUNDING DETAIL 1

T-MOBILE
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SURESITE
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY:	BWG
CHECKED BY:	RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A
9KX0421A
997 LIVINGSTON RD.
CROSSVILLE, TN 38555

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-2

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

NEW ANTENNA SCHEDULE

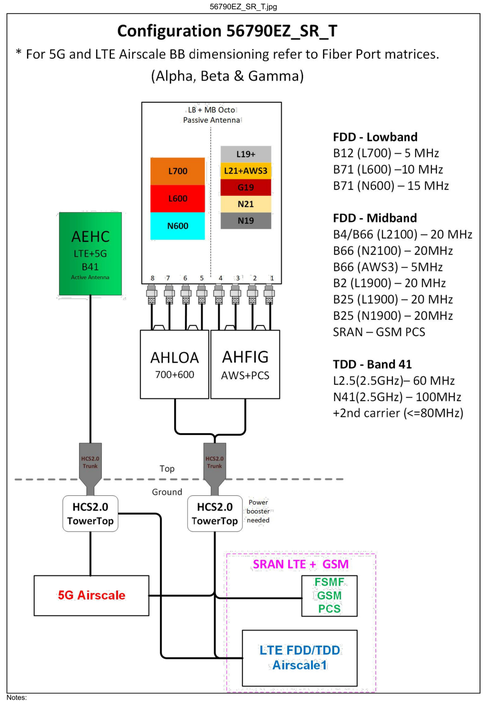
POSITION		ANTENNA TECH	ANTENNA MODEL	ANTENNA SIZE	ANTENNA AZIMUTH	RAD CENTER	TMA/RRU	CABLE TYPE	CABLE LENGTH
ALPHA SECTOR	A1	L600/N600 L700/L1900 G1900/L2100 N1900/N2100	COMMSCOPE FFVV-65C-R3-V1 (OCTO)	8'-0"	0°	220'-0"	AHLOA RRU AHFIG RRU	HCS 2.0 12#6AWG 24 SM FIBER PR (SHARED) (2) HCS 2.0 TOP JUMPER 10AWG 2 FIBER PR	250'-0" 15'-0"
	A2	L2500 N2500	NOKIA AEHC MASSIVE MIMO	3'-2"	0°	220'-0"	-	HCS 2.0 12#6AWG 24 SM FIBER PR (SHARED) HCS 2.0 TOP JUMPER 10AWG 2 FIBER PR	250'-0" 15'-0"
BETA SECTOR	B1	L600/N600 L700/L1900 G1900/L2100 N1900/N2100	COMMSCOPE FFVV-65C-R3-V1 (OCTO)	8'-0"	150°	220'-0"	AHLOA RRU AHFIG RRU	HCS 2.0 12#6AWG 24 SM FIBER PR (SHARED) (2) HCS 2.0 TOP JUMPER 10AWG 2 FIBER PR	250'-0" 15'-0"
	B2	L2500 N2500	NOKIA AEHC MASSIVE MIMO	3'-2"	150°	220'-0"	-	HCS 2.0 12#6AWG 24 SM FIBER PR (SHARED) HCS 2.0 TOP JUMPER 10AWG 2 FIBER PR	250'-0" 15'-0"
GAMMA SECTOR	C1	L600/N600 L700/L1900 G1900/L2100 N1900/N2100	COMMSCOPE FFVV-65C-R3-V1 (OCTO)	8'-0"	270°	220'-0"	AHLOA RRU AHFIG RRU	HCS 2.0 12#6AWG 24 SM FIBER PR (SHARED) (2) HCS 2.0 TOP JUMPER 10AWG 2 FIBER PR	250'-0" 15'-0"
	C2	L2500 N2500	NOKIA AEHC MASSIVE MIMO	3'-2"	270°	220'-0"	-	HCS 2.0 12#6AWG 24 SM FIBER PR (SHARED) HCS 2.0 TOP JUMPER 10AWG 2 FIBER PR	250'-0" 15'-0"
DELTA SECTOR	D1	-	ANDREW VHLP3-18A	3'-0"	94.76°	220'-0"	CERAGON IP-20D ODU & OMT	.323" DC POWER CABLE W/ (2) 14AWG CONDUCTORS 4.8MM FIBER CABLE	250'-0" 250'-0"
TOTAL			(3) COMMSCOPE FFVV-65C-R3-V1 (OCTO) (3) NOKIA AEHC MASSIVE MIMO (1) ANDREW VHLP3-18A				(3) AHLOA RRU (3) AHFIG RRU (1) CERAGONIP-20D ODU & OMT	(2) HCS 2.0 12#6AWG 24 SM FIBER PR (9) HCS 2.0 TOP JUMPER 10AWG 2 FIBER PR (1) .323" DC POWER CABLE W/ (2) 14AWG CONDUCTORS (1) 4.8mm FIBER CABLE	

NOTE:
1. DO NOT NUSE RFDS COAX/CAB/E/FIBER LENGTHS FOR CUT LENGTHS: ESTIMATES ONLY.
2. CONFIRM THAT THE GENERAL CONTRACTOR IS USING LATEST VERSION OF RFDS

8/1/22, 2:49 PM 9KX0421A_L600_1_2022-08-01

Section 3 - Proposed Template Images

56790EZ_SR_T.jpg



Notes:

https://rfds-prod-web-core-secure.geo.cf.t-mobile.com/DataSheet/Printout/afbfe2b3-4375-4c0c-b991-8159723084c1?layoutId=2f977660-fec0-40fc-a93… 2/8

NOT USED | 2

NEW ANTENNA SCHEDULE & RFDS SCHEMATIC | 1

T-MOBILE
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SURESITE
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY:	BWG
CHECKED BY:	RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A
9KX0421A
997 LIVINGSTON RD.
CROSSVILLE, TN 38555

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

SHEET TITLE
ANTENNA SCHEDULES

SHEET NUMBER
RF-1

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

RAN Template:	A&L Template:
56790EZ_SR_T	56790EZ_SR_T

9KX0421A_L600_1

Print Name: Standard
PORs: L600_L600 Coverage

Section 5 - RAN Equipment

Existing RAN Equipment

----- This section is intentionally blank. -----

Proposed RAN Equipment

Template: 56790EZ_SR_T

	1	2	3	4
Enclosure				
Enclosure Type	Delta HPL3 600A DC plant	Tower Top Mount (Nokia)	Ancillary Equipment (Nokia)	Delta LB3 Battery Cabinet (4 strings)
Baseband	ASIL **(x 2)**			
Baseband Submodule	ABIO N2500; ABIO L2500 (DARK); ABIO L700 L600 N600; ABIO L2100 L1900 N1900 (DARK) N2100 (DARK)			
Baseband Subrack	AMIA			
Hybrid Cable System	Voltage Booster PowerPlus w/ 2 Amplifier Raycap; Extra Amplifier for PowerPlus Voltage Booster Raycap		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 (DARK) N1900 (DARK) N2100 (DARK)		
Transport System	CSR IXRe V2 (Gen2)			

RAN Scope of Work:

8/1/2022: RC updated to 220' instead of 217' as per CD

Transmission details		
SITE ID:	9KX0124A	9KX0421A
CLUSTER_ID:	KX_036	[CLUSTER_ID_B]
[CALL_SIGN_LABEL]:	[CALL_SIGN_A]	[CALL_SIGN_B]
ASR #:	1043671	
AAV_CONTRACT_ID:	IRN44	[AAV_CONTRACT_ID_B]
AAV_CONTRACT_STATUS:	Selected	Not Available
Ethernet Installed:	Ethernet	No
Latitude:	35-57-34.3 N	35-57-49.0 N
Longitude:	84-58-49.5 W	85-02-25.1 W
Azimuth (deg):	274.80 Deg	94.76 Deg
Vertical angle (deg):	0.24 Down	0.20 Up
Elevation:	1843.83 ft	1801.18 ft
Antenna model:	VHLP3-18A	VHLP3-18A
Antenna manufacturer:	ANDREW CORPORATION	ANDREW CORPORATION
Antenna Id:	222	222
Antenna gain (dBi):	43.50 dBi	43.50 dBi
Antenna diameter:	2.95 ft	2.95 ft
Antenna CL:	246.00 ft AGL	220.00 ft AGL
Diversity Antenna model:		
Diversity Antenna manufacturer:		
Diversity Antenna Id:		
Diversity Antenna gain (dBi):		
Diversity Antenna diameter:		
Diversity Antenna CL:		
Branch Loss Tx/Rx (dB):	0.50/0.50	0.50/0.50
Attenuator Common/Tx/Rx (dB):		
Waveguide #1 Model, Len, Loss(dB):		
Waveguide #2 Model, Len, Loss(dB):		
Waveguide #3 Model, Len, Loss(dB):		
Total Waveguide Loss (dB):		
Other Losses (dB):	0.00	0.00
Frequency (GHz):	18.00 GHz	
Path length:	3.37 mi	
Free space loss (dB):	132.23 dB	
Atmospheric absorption loss (dB):	0.29 dB	
Obstruction Loss (dB):	0.00 dB (Not Calculated)	
Field margin (dB):	1.00 dB	
Net path loss (dB):	47.03 dB	47.03 dB
Configuration:	2+0/DP/DM/OMT	2+0/DP/DM/OMT
Radio model:	IP20D-D18-80X-A_4501	IP20D-D18-80X-A_4501
Radio manufacturer:	Ceragon Networks	Ceragon Networks
Radio Id:	749	749
Frequency Plan: Frequency (MHz):	Low: N/A	High: N/A
Polarization:	N/A	N/A
Emission designator:	80M0D7W	80M0D7W
Climatic factor:	1.00	

RAN Template:	A&L Template:
56790EZ_SR_T	56790EZ_SR_T

9KX0421A_L600_1

Print Name: Standard
PORs: L600_L600 Coverage

Section 6 - A&L Equipment

Existing Template: Custom
Proposed Template: 56790EZ_SR_T

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

	1				2
Coverage Type	A - Outdoor Macro				
Antenna	1				2
Antenna Model	Commscope - FFVV-65C-R3-V1 (Octo)				AEHC (Active Antenna - Massive MIMO)
Azimuth	0				0
M. Tilt	0				0
Height	220				220
Ports	P1	P2	P3	P4	P5
Active Tech.	L700 L600 N600	L700 L600 N600	L2100 L1900	L2100 L1900	N2500
Dark Tech.			G1900 N1900 N2100	G1900 N1900 N2100	L2500
Restricted Tech.					
Decomm. Tech.					
E. Tilt	2	2	2	2	
Cables					
TMAs					
Diplexers / Combiners					
Radio					
Sector Equipment					

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:
56790EZ_SR_T	56790EZ_SR_T

9KX0421A_L600_1

Print Name: Standard
PORs: L600_L600 Coverage

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

	1				2
Coverage Type	A - Outdoor Macro				
Antenna	1				2
Antenna Model	Commscope - FFVV-65C-R3-V1 (Octo)				AEHC (Active Antenna - Massive MIMO)
Azimuth	150				150
M. Tilt	0				0
Height	220				220
Ports	P1	P2	P3	P4	P5
Active Tech.	L700 L600 N600	L700 L600 N600	L2100 L1900	L2100 L1900	N2500
Dark Tech.			G1900 N1900 N2100	G1900 N1900 N2100	L2500
Restricted Tech.					
Decomm. Tech.					
E. Tilt	2	2	2	2	
Cables					
TMAs					
Diplexers / Combiners					
Radio					
Sector Equipment					

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:
56790EZ_SR_T	56790EZ_SR_T

9KX0421A_L600_1

Print Name: Standard
PORs: L600_L600 Coverage

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

	1				2
Coverage Type	A - Outdoor Macro				
Antenna	1				2
Antenna Model	Commscope - FFVV-65C-R3-V1 (Octo)				AEHC (Active Antenna - Massive MIMO)
Azimuth	270				270
M. Tilt	0				0
Height	220				220
Ports	P1	P2	P3	P4	P5
Active Tech.	L700 L600 N600	L700 L600 N600	L2100 L1900	L2100 L1900	N2500
Dark Tech.			G1900 N1900 N2100	G1900 N1900 N2100	L2500
Restricted Tech.					
Decomm. Tech.					
E. Tilt	2	2	2	2	
Cables					
TMAs					
Diplexers / Combiners					
Radio					
Sector Equipment					

Unconnected Equipment:

Scope of Work:

T-MOBILE
3800 EZELL ROAD, SUITE 815
NASHVILLE, TN 37211

SURESITE
3659 GREEN ROAD, SUITE 214
CLEVELAND, OH 44122

DRAWN BY:	BWG
CHECKED BY:	RGL

REVISIONS

NO.	DATE	DESCRIPTION	INITIAL
A	11.15.21	ISSUED FOR 90% CD REVIEW	RGL
0	11.29.21	100% CD	BWG
1	07.29.22	MICROWAVE ADD	RGL
2	08.01.22	UPDATED RFDS	RGL
3	10.12.22	REVISED EQUIPMENT AREA	RGL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

9KX0421A

9KX0421A

997 LIVINGSTON RD.
CROSSVILLE, TN 38555

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

SHEET TITLE

RFDS INFORMATION

SHEET NUMBER

RF-2

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.