

City of Napoleon, Ohio

Zoning Department
255 West Riverview Avenue, P.O. Box 151

Napoleon, OH 43545 Mark B. Spiess, Senior Engineering Technician / Zoning Administrator Telephone: (419) 592-4010 Fax; (419) 599-8393 www.napoleonohio.com

COMMERCIAL ZONING PERMIT

Issued Date:

July 18, 2019

Expiration Date:

July 18, 2020

Permit Number:

P-19-160

Job Location:

1575C Scott St.

Owner:

American Tower

1101 Perimeter Drive Schaumburg, IL 60173

Contractor:

T-Mobile

810-533-8038

Zone: C-4 Planned Commercial

Set Backs: Principle Building

Front: None Rear: None Side: None

Comments:

T-Mobile equipment upgrade at existing facility. Replace three antennas and upgrade ground equipment. No tower height increase and no compound expansion.

Permit Type: Zoning

Fee: \$50.00

Status: Paid

Amount Due: \$0.00

Mark B. Spiess

Sr. Eng. Tech/Zoning Admin.

M:\Forms\Permit - Commercial.docx



TooseosB - ATC #99044 City of Napoleon, Ohio

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Commercial Zoning Permit Application

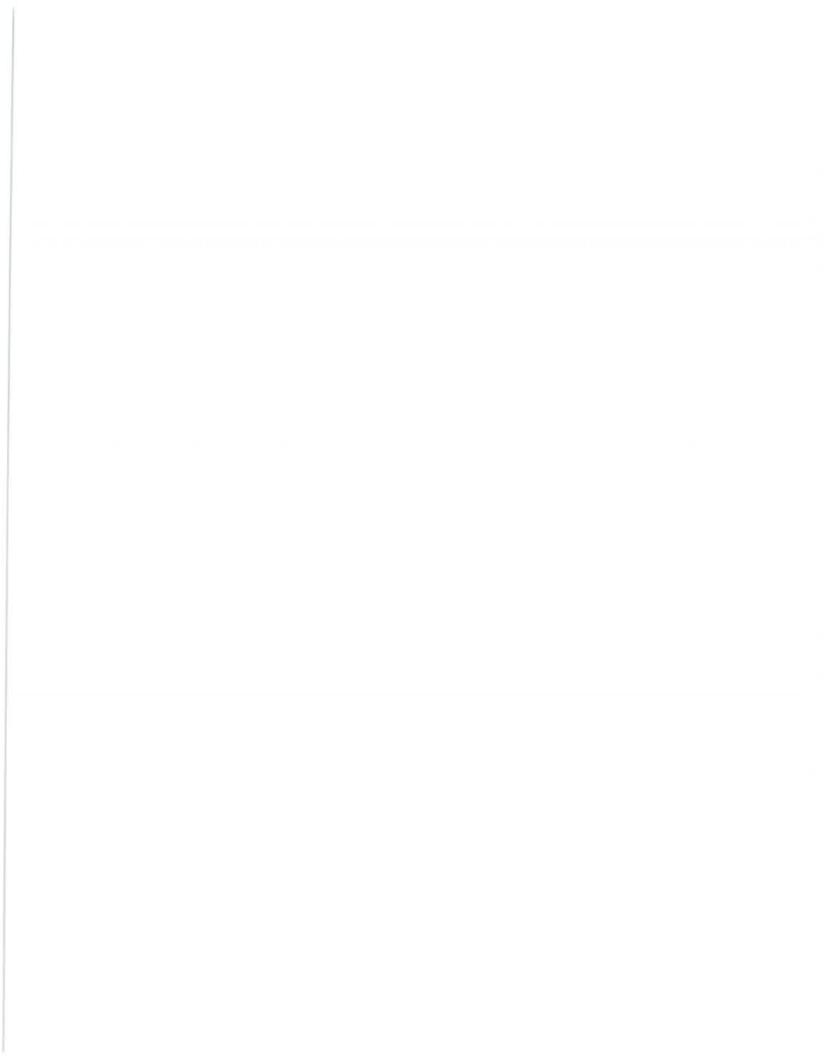
	N. Scott Street, Napoleon, OH 43545
Owner _ American Tower	Please call applicant _Telephone #_810-533-8038
Owner Address 1101 Perimeter Drive, Schal	umburg, IL 60173
Contractor	Cell Phone #
Description of Work to be Performed_ <u>T-M</u>	obile equipment upgrade at existing facility. Replace thre
antennas and upgrade ground equipment. No to	wer height increase and no compound expansion.
Estimated Completion Data 40/00/40	

Estimated Completion Date10/30/19Estimated Cost	\$10,000	
		TOTAL COST
Demo Permit - \$100.00 - See Separate Form	(MDEMO 100.1700.46690)	\$
Zoning Permit - \$50.00	(MZON 100.1700.46690)	\$ 500
Fence - \$25.00	(MZON 100.1700,46690)	\$
Garage and Shed Under 200 SF (Detached) - \$25.00	(MZON 100.1700.46690)	\$
Driveway/Sidewalk/Curbing - \$0.00	Transit Asset Tool Tool Tool	\$
Outside Water/Sewer Repair - \$0.00		\$
1" Water Tap, 5/8" Meter, Copper Setter and Transmitter - \$1,200.00(Outside City - \$1,	680) (MT.RDG 510 0000 47300)	\$
1" Water Tap, 3/4"Meter, Copper Setter and Transmitter - \$1,300.00(Outside City - \$1,	270) (MI DDC 510,0000,47300)	\$
1" Water Tap, 1" Meter, Copper Setter and Transmitter - \$1,400.00 (Outside City - \$1,	960) (MLBDG 510,0000,47300)	\$
1 1/2" Water Tap and Larger - See Operations Superintendent	700) (MLDDG SIU.GOOGT/SOO)	\$
Sanitary Sewer Tap - \$600.00	(MLBDG 510,0000,44730)	\$
Sanitary Sewer, Multifamily 51 ft or more - \$100.00 + \$10.00 for each 50 ft increment		\$
Plan Review - \$200.00	(MLBDG 510.0000.44730)	\$
Sewer Main Extension in Right of Way Inspection - 2% of Construction Cost	(MLBDG 510.0000.44730)	\$
	TOTAL FEE:	C = 1007
FULLY UNDERSTAND THAT NO EXCAVATION, CONSTRUCTION OR STRUCTURAL ALTERATION, POR ALTERATION OF ANY BUILDING STRUCTURE, SIGN, OR PART THEREOF AND NO USE OF THE A ERFORMED UNTIL THE PERMIT APPLIED FOR HEREIN HAS BEEN APPROVED AND ISSUED BY THIS hereby certify that I am the Owner of the named property, or that the proposed work is authorized by the Owner of recounts as his/her authorized agent and I agree to conform to all applicable laws of the jurisdiction. In addition, issued, I certify that the code official or the code official's authorized representative shall have the authority to enter area of the provisions of the code(s) applicable to such permit. HEREBY ACKNOWLEDGE THAT I HAVE READ AND FULLY UNDERSTAND THE ABOVE	BOVE SHALL BE UNDERTAKE E CITY OF NAPOLEON ZONING and that I have been authorized by if a permit for Work described in this as covered by such permit at any rea.	EN OR G DEPARTMEN by the Owner to ma
BATCH# 41545 CHECK# 14979	E: 7/16/19 DATE 7-18-19	

Applicant is Haley Law Firm, PLC. Please call Brandon Garrett with questions or when this permit is ready. Phone: 810-533-8038 Fax: 517-518-8639 Email: bgarrett@haleylawfirm.com

Address: 10059 Bergin Road, Howell, MI 48843

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F-Mobile

L600 PROJECT

Site Address

1515 N SCOTT STREET NAPOLEON, OH 43545

T-MOBILE Site # TO03805B T-MOBILE Site Name ATC 99044

ATC ASSET #

99044

SCOPE OF WORK

THE SCOPE OF WORK CONSISTS OF:

- INSTALLATION OF (3) NEW ANTENNAS INSTALLATION OF (3) NEW RF MODULES (AHLOA'S) & NEW RF JUMPERS INSTALLATION OF (3) NEW DIPLEXER'S

- INSTALLATION OF (2) NEW FRIA
 INSTALLATION OF (2) NEW AIRSCALE SM OUTDOOR AMOB W/ (1) ASIA
 MODULE, (2) NEW ABIA MODULES, (1) NEW ABIL AND (1) NEW ASIK
- REUSE EXISTING (6) 1-5/8" COAX CABLES & (1) 1.46" HYBRID CABLE REUSE EXISTING (1) FSME, (1) FSMF ON GROUND REUSE (2) COVP (1 ON GROUND & 1 ON ANTENNA LEVEL)

- REMOVÈ (3) DIPLÈXER ON GROUND
- REMOVE (3) FRBG ON GROUND REMOVE (3) ANTENNA
- REMOVE (3) TMA'S & (1) FRIE ON TOP
- REMOVE (1) ESMB , (1) FBBC ON GROUND RELOCATED (2) FXFC FROM GROUND LEVEL TO ANTENNA LEVEL

DRIVING DIRECTIONS

DRIVING DIRECTIONS FROM TOLEDO EXPRESS AIRPORT:

- DEPART E AIRPORT SERVICE RD TOWARD OH-2 / AIRPORT HWY 0.2 MI TURN LEFT ONTO OH-2 / AIRPORT HWY
- TURN LEFT ONTO US-20 ALT / OH-295 / WILKINS RD TURN RIGHT ONTO OH-295 / S BERKEY SOUTHERN RD 3.8 MI
- KEEP RIGHT TO STAY ON OH-295 / BERKEY SOUTHERN RD 4.4 MI TAKE RAMP RIGHT AND FOLLOW SIGNS FOR US-24 WEST
- AT EXIT 40, TAKE RAMP RIGHT FOR OH-108 / US-6 TOWARD NAPOLEON / WAUSEON
 TURN LEFT ONTO US-6 BR / OH-108 / SCOTT ST / N SCOTT ST 0.3 MI TURN RIGHT ONTO ROAD

ARRIVE AT 1515 N SCOTT STREET, NAPOLEON, OH 43545

TOTAL TRAVEL ESTIMATE: 29.2 MI, 42 MINUTES

PROFESSIONAL LICENSURE

CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF THE GOVERNING LOCAL BUILDING CODE.

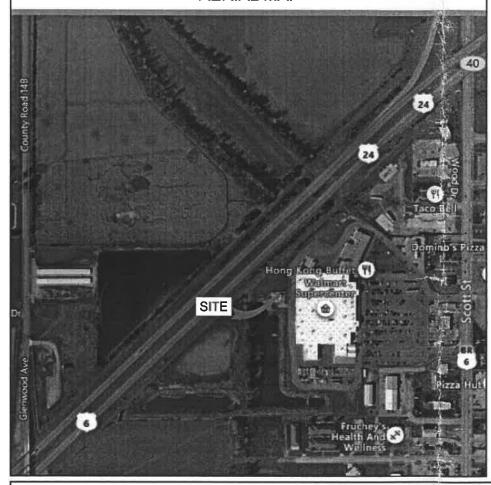


LICENSED PROFESSIONAL

EXPIRES:

SIGNED: 07/08/19

AERIAL MAP



SITE

SHEET INDEX NO. SHEET DESCRIPTION T-1 TITLE SHEET A-1 COMPOUND PLAN A-1A EXISTING & PROPOSED EQUIPMENT LAYOUT A-2 ELEVATION & DETAILS A-2A EXISTING & PROPOSED ANTENNA PLANS A-3 ANTENNA & CABLE SCHEDULE A-3A RFDS DIAGRAM A-4 NEW EQUIPMENT SPECIFICATION A-4A NEW EQUIPMENT SPECIFICATION EG-1 PROPOSED SITE GROUNDING DIAGRAM SP-1 GENERAL NOTES & SPECIFICATIONS

GENERAL NOTES

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS AT THE PROJECT SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE ROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

THE SEAL CERTIFIES ONLY THE CIVIL ENGINEERING DESIGN AND RELATED DETAILS SHOWN ON THESE PLANS. THIS SEAL DOES NOT CERTIFY ANY ARCHITECTURAL, ELECTRICAL, MECHANICAL, STRUCTURAL

FOR SITES WHERE A CRANE IS NECESSARY, THE CONTRACTOR SHALL CONFIRM AN UNOBSTRUCTED ROUTE FOR THE CRANE FROM PUBLIC ROAD TO TOWER SITE PRIOR TO CONSTRUCTION, NO AERIAL OBSTRUCTIONS UNDER FIFTEEN FEET ABOVE GRADE, INCLUDING AERIAL UTILITY LINES, ARE ALLOWED ALONG SAID CRANE ROUTE.

GC SHALL CONTACT THE A&E FIRM PRIOR TO BIDWALK AND CONSTRUCTION START TO CONFIRM THAT DRAWINGS ARE THE MOST RECENT SET.

PROJECT INFORMATION

SITE INFORMATION:

N 41° 24' 15.3" (NAD 83)

LONGITUDE:

SITE TYPE:

SELF SUPPORT TOWER

W 84° 08' 10.1" (NAD 83)

ATC PROJECT MANAGER:

JOHN BARON 1101 PERIMETER DRIVE. SUITE 700

SCHAUMBURG, IL 60173 PHONE: (847) 240-1508 EXT: 2586

PETER LICHOMSKI ARCHITECT. 49030 PONTIAC TRAIL, SUITE 400 WIXOM, MI 48393 CONTACT: PETER LICHOMSKI TEL: (248) 705-9212

TOWER OWNER:

AMERICAN TOWER CORPORATION 1101 PERIMETER DRIVE, SUITE 700

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

CODES:

- INTERNATIONAL BUILDING CODE 2012
- . NATIONAL ELECTRIC CODE (NEC)
- AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION
- TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G, STRUCTURAL STANDARDS FOR STEEL TOWER AND ANTENNA SUPPORTING STRUCTURES
- 6. TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS



Know what's below. Call before you dig.

CALL DIGGERS HOTLINE
FOR UNDERGROUND UTILITIES PRIOR
TO DIGGING

811 OR 1-800-382-5544

T. Mobile

8550 WEST BRYN MAWR AVE. SUITE 100 CHICAGO, IL 60631 MAIN: (773) 444-5400

Michigan 48393 248-705-9212

DRAWN BY: RC CHECKED BY: PI CHECKED BY APPROVED BY

No.	Revision/Issue	Date	Initial
0	FINAL CD	07/08/19	RC
1	REVISED CD	07/10/19	RC
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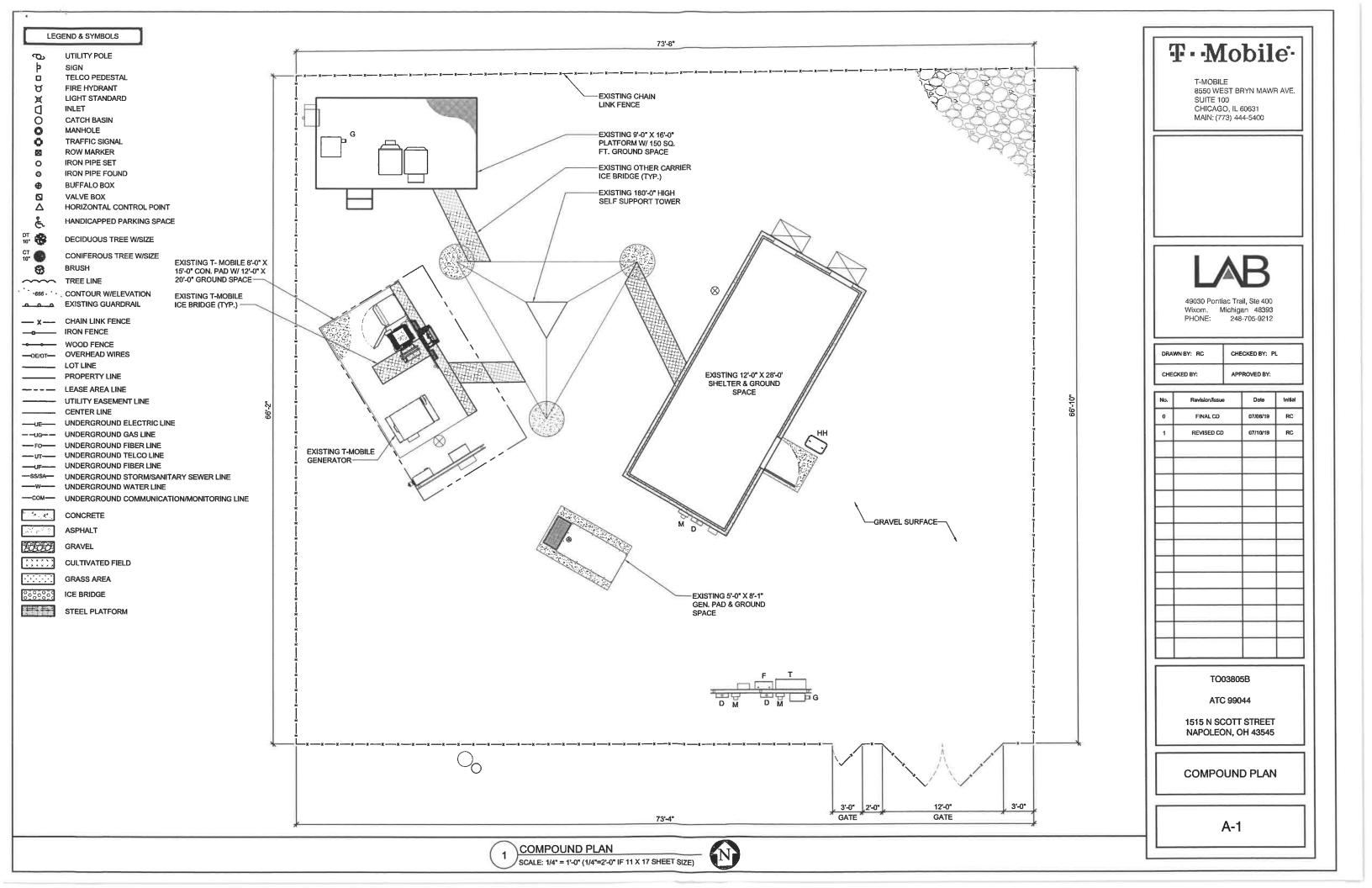
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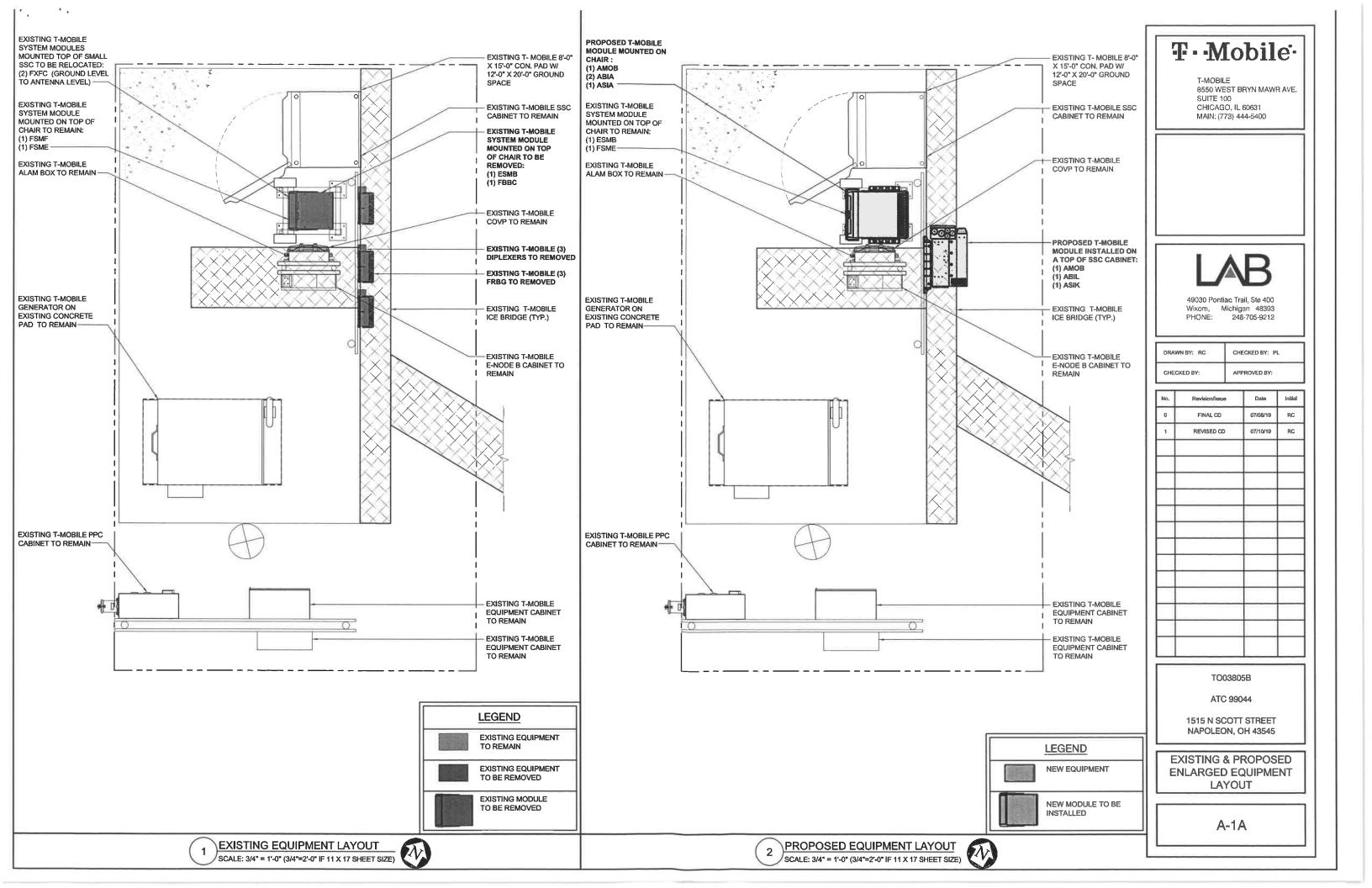
ATC 99044

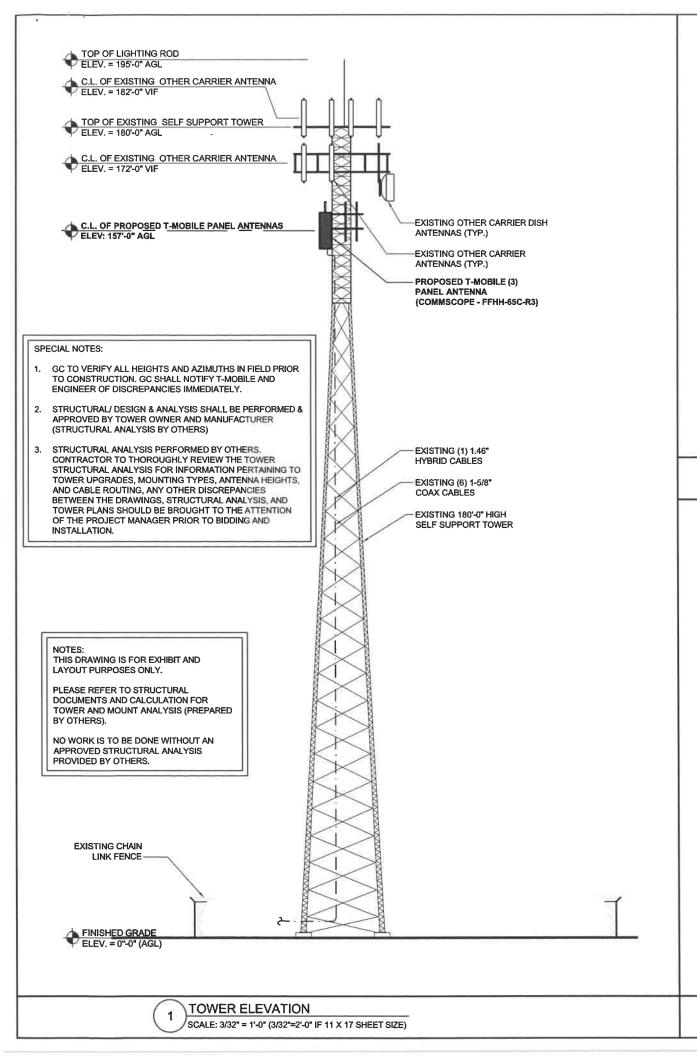
1515 N SCOTT STREET NAPOLEON, OH 43545

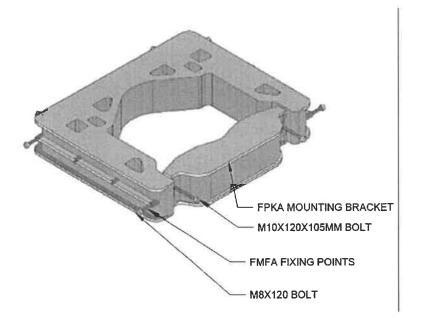
TITLE SHEET

T-1

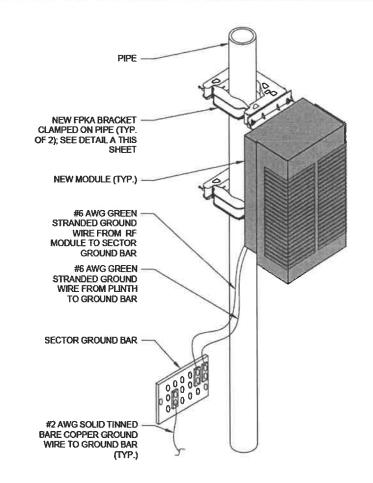








FPKA BRACKET DETAIL
SCALE: N.T.S.



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LAB

49030 Pontiac Trail, Ste 400 Wixom, Michigan 48393 PHONE: 248-705-9212

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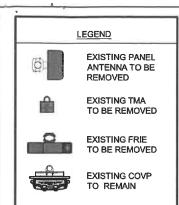
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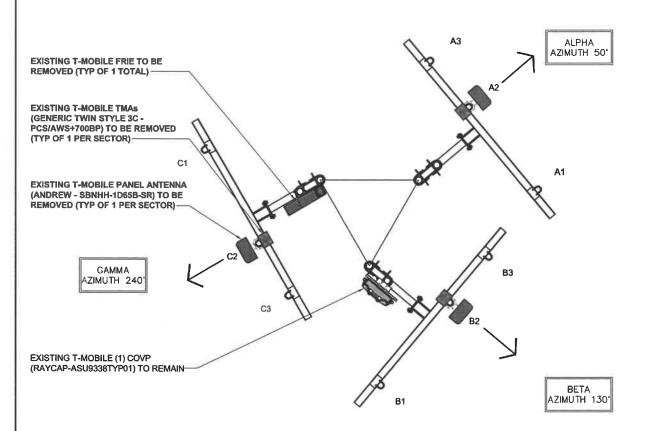
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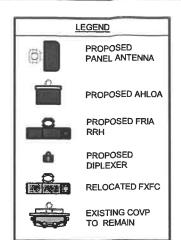
ELEVATION & DETAILS

A-2

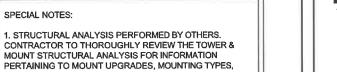
TYPICAL AHLOA UNIT MOUNTING DETAIL
SCALE: N.T.S.







SPECIAL NOTES: ANTENNA HEIGHTS, AND CABLE ROUTING, ANY OTHER DISCREPANCIES BETWEEN THE DRAWINGS, STRUCTURAL ANALYSIS, AND TOWER PLANS SHOULD BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER PRIOR TO BIDDING AND INSTALLATION.



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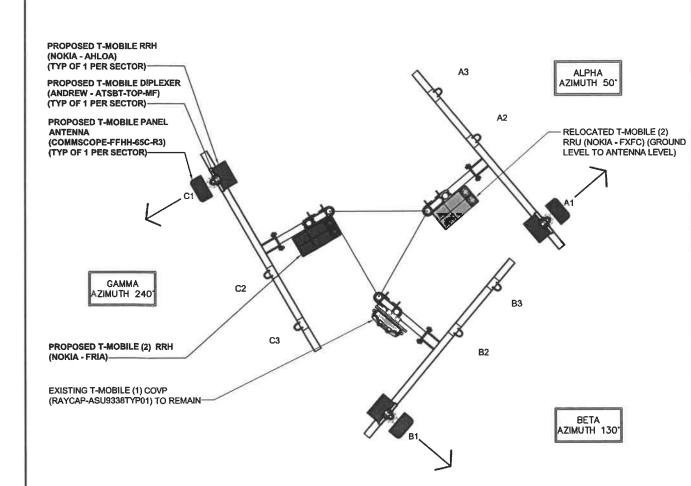
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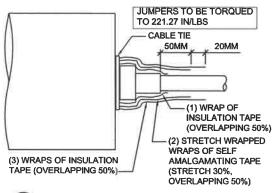
EXISTING & PROPOSED ANTENNA PLANS

A-2A

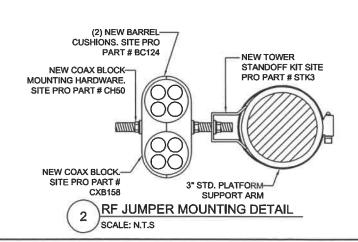


					NEW AN	ID EXISTING AN	TENNA AND	CABLE SCHEDULE		15771	T		
SECTOR	POS.	AZIMUTH	RAD CENTER	TECHNOLOGY	ANTENNA	STATUS	RRU TYPE	DIPLEXER	COVP	CABLE STATUS	COAX CABLE LENGTH	HCS FACTORY LENGTH	JUMPER LENGHT
	А3	-	-	-	-	-	-	-					
ALPHA	A2	50°	159'	-	-	-	(1) AHLOA & (2) FXFC	(1) ANDREW - ATSBT-TOP-MF					≤ 15'-0"
	A1	50°	157	LTE 600/700,N600, UMTS AWS, LTE/GSM PCS	(1) COMMSCOPE- FFHH-65C-R3	PROPOSED	-	-					
	В3	-	-	-	-	<u>-</u>	-	-		(1) EXISTING 1.58" HYBRID CABLE			
ВЕТА	B2	130°	159'	-	-	-	(1) AHLOA	(1) ANDREW - ATSBT-TOP-MF	(1) COVP (*)	& (6) EXISTING 1-5/8" COAX CABLES TO	EXISTING	EXISTING	≤ 15'-0"
	B1	130°	157	LTE 600/700,N600, UMTS AWS, LTE/GSM PCS	(1) COMMSCOPE- FFHH-65C-R3	PROPOSED	-	-		REMAIN			
	СЗ	-	-	-	-	-	-	-					
GAMMA	C2	240°	159'	-	-	-	(1) AHLOA & (2) FRIA	(1) ANDREW - ATSBT-TOP-MF					≤ 15'-0"
	C1	240°	157	LTE 600/700,N600, UMTS AWS, LTE/GSM PCS	(1) COMMSCOPE- FFHH-65C-R3	PROPOSED	-	-					

IMPORTANT NOTE: PLEASE REFER TO LATEST RFDS SHEET FOR NSN CONFIGURATION, GC TO CAP ALL UNUSED PORTS.







COAX COLOR CODING • ANTENNAS WILL BE LABELED (BACK OF ANTENNA VIEW) RIGHT TO LEFT 1-X PORTS COAX/JUMPER LINES WILL BE IDENTIFIED BY SECTOR COLOR AND BY NUMBER OF BANDS AROUND THE COAX/JUMPER

	DWE T-1'S + GPS DOWNLINK CABLE	ID W/LABEL MAKER
	MICROWAVE	ORANGE
	UNUSED COAX	PINK
1	FIBER ID	GRAY
	LMU	BROV/N * SECTOR COLOR BANBS (1 8.2)
	SECTOR F	THE PARTY OF PROPERTY OF THE PARTY OF THE PA
	SECTOR E	WHITE
	SECTOR D	YELLOW
li	SECTOR C	
	SECTOR B	GREEN
Ш	SECTOR A	RED THE REPORT OF THE PARTY OF

ANTENNA AND COAXIAL CABLE SCHEDULE

- ALL ANTENNAS SHALL BE FURNISHED WITH DOWNTILT BRACKETS. CONTRACTOR SHALL COORDINATE REQUIRED MECHANICAL DOWNTILT FOR EACH ANTENNA WITH RF ENGINEER, ANTENNA DOWNTILT SHALL BE SET AND VERIFIED BY A SMART LEVEL.
- 2. CONTRACTOR SHALL INSTALL COLOR CODE RINGS ON EACH OF THE HYBRID CABLES AND JUMPER CABLES WITH UV RESISTANT TAPE. ALL CABLE SHALL BE MARKED AT TOP AND BOTTOM WITH 2" COLOR TAPE OR STENCIL TAG. COLOR TAPE MAY BE OBTAINED FROM GRAYBAR ELECTRONICS

TAGGING COLOR AND NOTES SCALE: N.T.S

FRONT OF THE ANTENNA

ANTENNA #1 ANTENNA #2 ANTENNA #3 ANTENNA #4

EXAMPLE: COAX WITH FOUR BANDS OF

SECTOR AND THE 4TH PORT OF ANTENNA

RED TAPE WILL REPRESENT ALPHA

XX

XX

T·Mobile

8550 WEST BRYN MAWR AVE. SUITE 100 CHICAGO, IL 60631 MAIN: (773) 444-5400



Wixom, Michigan 48393 PHONE: 248-705-9212

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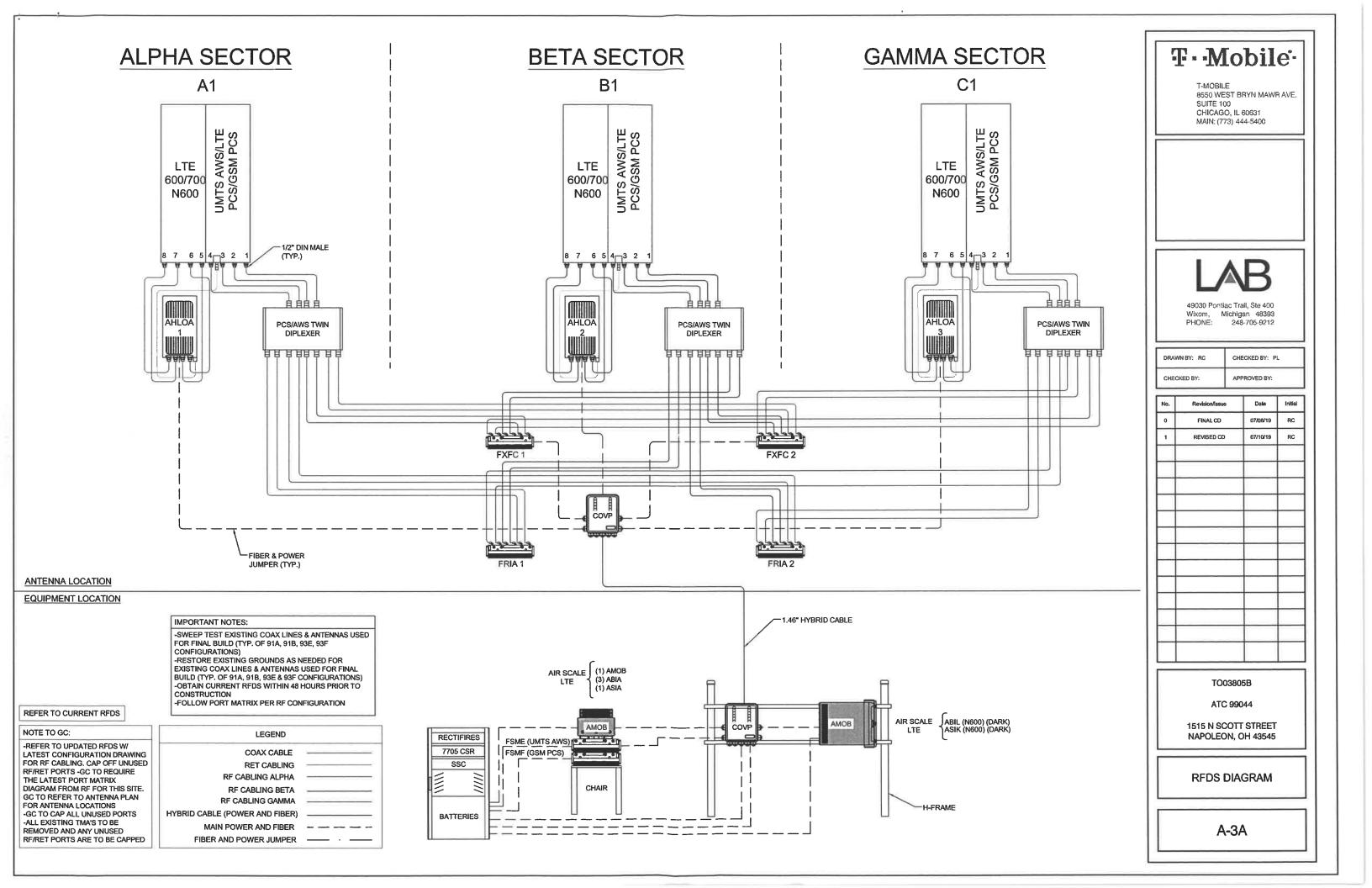
TO03805B

ATC 99044

1515 N SCOTT STREET NAPOLEON, OH 43545

ANTENNA & CABLE SCHEDULE

A-3



Product Specifications

AND LIGHTS ME

COMMSCOPE*

FFHH-65C-R3
8-port sector entensa, 4x 617-806 and 4x 1695-2360 MHz, 65* NPBW, 3x RET, 600 MHz-Raady Antenna Technology

Frequency Band, MHz	617-69E	698-806	1695-1880	1850-1990	1920-2200	2300-2360
Gein, dBi	15.3	15.5	17.8	18.2	18.9	19.6
Beamwidth, Horizontal, degrees	67	63	6.5	66	54	55
Beamwidth, Vertical, degrees	10.2	9.1	5.7	5.3	4.9	4.4
Beam Tilt, degrees	2-13	2-13	2-12	2-12	2-12	2-12
USLS (First Lobe), dB	19	17	20	19	19	21
Front-to-Back Ratio at 180°, dB	32	29	35	40	40	41
Isolation, dB	28	28	28	28	28	28
Isolation, Intersystem, dB	28	28	28	28	28	28
VSWR Return Loss, dB	1.5 [14.0	1.5 14.0	1.5] 14.0	1.5 14.0	1.5 14.0	1.5 14.0
PIM, 3rd Order, 2 x 20 W, dBc		-153	-153	-153	-153	-153
Input Power per Port at 50°C, maximum, watts	250	250	250	250	250	200
Potarization	±45°	±45°	±45°	±45*	±45°	£45°
Impedance	50 ohm	S0 ohm	50 ohm	50 ohm	50 chm	SØ ohro
Electrical Specifications,	BASTA*					
Frequency Band, Hitts	617-698	698-806	1695-1680	1850-1990	1920-2200	2300-2360
Gain by all Beam Tilts, average, dBi	15.0	15.2	17.4	17.9	18.5	19.3
Gain by all Beam Titts	*0.6	+0.5	+0.4	40.5	+0.6	40.5

| Electrical Specifications, BASTA* | Frequency Smrt, NtC | Freque

Commiscope® properts NGMN recommendations on Barre Station Assessed Standards (BASTA). To learn more about the benefits of BASTA

Mechanical Specifications
RF Connector Quantity, total

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page 1 of 4 Apa€ 10, 2018

Product Specifications

COMMSC@PE*

A 1-10 Female

RF Connector Interface
Coker
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Red Consector Interface
Red Consector Inte

Remote Electrical Tilt (RET) Information

Injust Voltage 10–30 Vsc
Informal RET High Board (2) | Low Board (1)
Fower Consumption, role state, maximum 1 W
Fower Consumption, normal conditions, maximum 10 W
Fower Consumption, maximum

Agency
Classe Rification
Color 2011/dS/EU
Chins Relet Styl 11364-2006
Above Maximum Concentration Value (MCV)



AirScale Dual RRH 4T4R B12/71 240W AHLOA (Draft)



Frequencies	Band 12 adjusted: Rx 698 – 715 MHz, TX 728 – 745 MHz Band 71: RX 663 MHz – 698 MHz, TX 617 MHz – 652 MHz		
Number of TX/RX paths/pipes	4 pipes; 2T2R, 2T4R, 4T4R for both bands		
Instantaneous Bandwidth IBW	16 MHz for B12 and 35MHz for B71 1 MHz below B12 NB loT future use		
Occupied Bandwidth OBW	52 MHz total across bands		
Output Power	60W per TX shared between bands		
Supply Voltage / Range	DC-48 V / -36 V to -60 V		
Typical Power Consumption	664W [ETSI Busy Hour Load at 4TX@60W (Both Bands Active)]		
	395W [ETSI Busy Hour Load at 4TX@30W (One Band Active])		
Antenna Ports			
Optical Ports			
ALD Control Interfaces	AISG3.0 from ANT1, 2, 3, 4 and RET (DC on ANT1 & ANT3)		
Other Interfaces	External Alarm MDR-26 Serial connector (4 inputs, 1 Output) DC Circular Power Connector		
Physical	560 mm x 308 mm x 189 mm Approximately 38kg with no covers or brackets		
Operating Temperature Range	-40°C to 55°C (with no solar load)		
Surge Protection	Class II 5A		
Installation Options	Vertical & Horizontal Book Mount, Pole & Wall Mount		

NOKIA

2 @ Nokia 2017

Confidential

ANTENNA (COMMSCOPE - FFHH-65C-R3)
MANUFACTURER DETAIL - FOR REFERENCE ONLY

SCALE: N.T.S.

RRH (AIRSCALE - AHLOA 4T4R B12/71 240W) DUAL RRH MANUFACTURER DETAIL - FOR REFERENCE ONLY

Supported Frequency bands | 3GPP Band 12/71

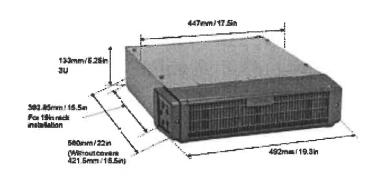
SCALE: N.T.S.

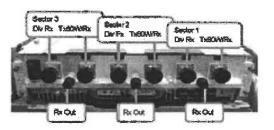
AirScale Subrack Outdoor AMOB datasheet

Datasheet **Environmental protection** 8U (954 mm) Height Feature description: Outdoor Subrack for AirScale System Module Indoor plug-in units 448mm (fits into 19 inch rack) High performance Heat Exchanger "HEX" 487mm (without conduit-plugs or fittings) Total 605mm (472mm from reck mounting surface) Compatible with Flex BTS mechanics stack/plintn/wall/pole/rackinstallation 23 kg AMOB enclosure 3 kg ASIA (Core Module) 2 kg ABIA (Expansion Module) . Compatible with the 3rd part 19" racks and cabinets if it follows clearances and airflow requirements 32 kg ¼ Capacity (1 Core + 3 Expansion) 41 kg Full (Capacity (2 Core + 6 Expansion) Possible to install AMOB inside FCOA cabinet Service doors on front and rear sides Operating Temperature -40°C up to+55°C (without solar radiation) Back to front airflow direction supported for Honzontal(FCOA 19 rack, Flexi stack) HEX Assembly (~4U) Airflow Direction Gearances for cooling PDU and Heater(~1U) Nominal supply voltage -40.5 -57.V.DC Support Max 18/1g inside Typical max =265W fall fans at highest speed) Cold start =600W (heater Cn 55W + fans at low speed) 2x 1 5T + 3x 1 * on each left and right side. Power consumption 3 @ Nokia 2016

AMOB MANUFACTURER DETAIL - FOR REFERENCE ONLY

SCALE: N.T.S.





RRH (NOKIA - FRIA) DUAL RRH MANUFACTURER DETAIL - FOR REFERENCE ONLY

SCALE: N.T.S.

T. Mobile.

T-MOBILE 8550 WEST BRYN MAWR AVE. SUITE 100 CHICAGO, IL 60631 MAIN: (773) 444-5400

LAB

49030 Pontiac Trail, Ste 400 Wixom, Michigan 48393 PHONE: 248-705-9212

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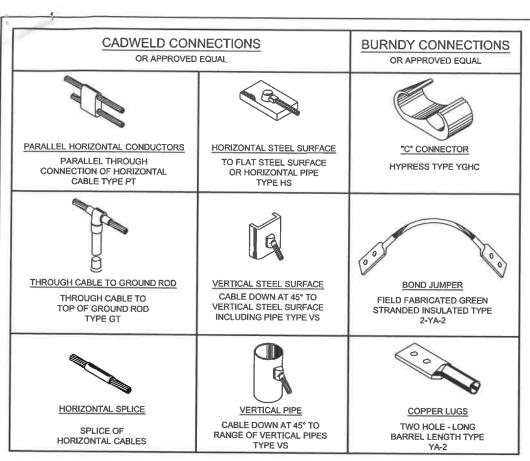
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ATC 99044

1515 N SCOTT STREET NAPOLEON, OH 43545

NEW EQUIPMENT SPECIFICATION

A-4



CADWELD DETAILS

GROUNDING DETAILS:

- UNDERGROUND AND OVERHEAD UTILITY LENGTHS TO BE DETERMINED FROM SITE PLAN.
 SEE ELECTRICAL SPECIFICATIONS SECTION 16000 FOR ALL ELECTRICAL AND GROUNDING INSTALLATION
- REQUIREMENTS
- FOR ORIENTATION OF SITE LAYOUT SEE SITE PLAN, DRAWING.
- UDA CABINET FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR.
- GROUND KITS PROVIDED BY OWNER SHALL BE RETROFITTED TO ACCOMMODATE 2 HOLE LUG CONNECTION
- CONTRACTOR RESPONSIBLE TO PROVIDE OWNER CERTIFICATION OF RESISTIVITY TESTING.
- GROUND RODS TO BE INSTALLED AT 10' CENTERS.
- ALL GROUND LEADS TO BE SLEEVED IN 3/4"Ø SCHEDULE 40 PVC CONDUIT AND SEALED W/ SILICON.
- GROUND BARS SUPPLIED BY OWNER AND INSTALLED BY CONTRACTOR.
- ALL BENDS IN GROUNDING SYSTEM MUST BE SMOOTH AND WELL ROUNDED AND MAINTAIN BENDING RADIUS.
- SEE SITE PLAN FOR COAXIAL ROUTING THIS SHEET IS INTENDED FOR GROUNDING CLARITY ONLY AND IS SCHEMATIC IN DETAIL
- GROUND KITS SHALL BE INSTALLED BETWEEN 8"-18" OF ALL CONNECTORS.
- 13. TOWER FOUNDATION DESIGN BY OWNER, INSTALLED BY CONTRACTOR.
- ADDITIONAL GROUND KITS TO BE PLACED AT 100' WHEN ANTENNA CENTERLINE IS 200' OR ABOVE.
- 15. ALL CONDUITS TO BE SEALED W/ SILICONE TO PROVIDE A WATER TIGHT SEAL

- #2 SOLID, TINNED BARE COPPER GROUND WIRE FROM ICE BRIDGE TO ICE BRIDGE POST.
- #2 SOLID, TINNED BARE COPPER GROUND WIRE, BOND ICE BRIDGE POST W/ VS TYPE CADWELD. (1 PER POST REQUIRED)
- #2 SOLID, TINNED BARE COPPER GROUND WIRE (3) FROM GROUND BAR TO EXISTING GROUND RING (
- #2 SOLID, TINNED BARE COPPER GROUND WIRE (4) FROM NEW H-FRAME POST TO EXISTING GROUND
- (5) NEW GROUND BAR
- (5A) EXISTING GROUND BAR
- #6 AWG GREEN STRANDED GROUND CU WIRE FROM NEW MODULES TO PLINTH
- #2 AWG GREEN STRANDED GROUND WIRE FROM (7) STEEL CUBE/PLINTH W/MODULES TO EXISTING
- #2 AWG BAR GROUND WIRE FROM MODULES
- #6 AWG GREEN STRANDED GROUND CU WIRE FROM MODULES TO PLINTH ON CABINET
- #2 AWG GREEN STRANDED CU GROUND WIRE FROM MODULE'S PLINTH ON CABINET TO EXISTING GROUND RING
- #6 AWG GREEN STRANDED GROUND CU WIRE FROM UNISTRUT CHAIR TO UNISTRUT CHAIR PLINTH
- #2 AWG SOLID TINNED BARE GROUND CU WIRE FROM CABINET TO EXISTING GROUND RING
- #2 AWG GREEN STRANDED CU GROUND WIRE
- FROM COVP TO GROUND BAR #2 AWG GREEN STRANDED CU GROUND WIRE
- FROM NEW ALARM BOX TO NEW GROUND BAR
- #6 AWG GREEN STRANDED CU GROUND WIRE FROM NEW HYBRID CABLE TO NEW GROUND BAR
- #2 AWG GREEN STRANDED GROUND WIRE FROM NEW RF MODULE TO NEW GROUND BAR
- #2 AWG GREEN STRANDED CU GROUND WIRE FROM NEW GROUND BAR TO EXISTING GROUND
- #2 AWG SOLID TINNED BARE GROUND CU WIRE FROM FCOA CABINET TO GROUND RING

SYMBOLS LEGEND: GROUND BAR

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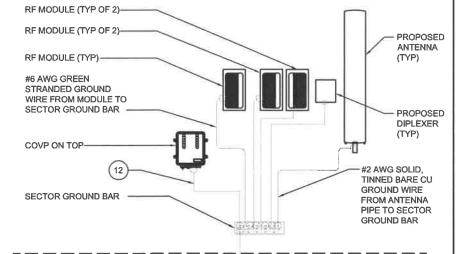
EXOTHERMIC WELD CONNECTION

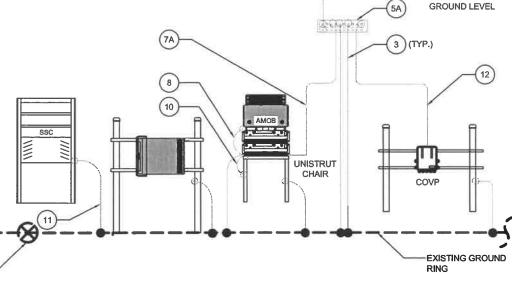
MECHANICAL CONNECTION

BOND DIRECTLY TO TOWER

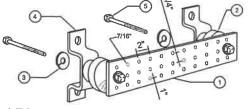
NOTE:

- EXISTING GROUNDING NOT SHOWN IN THIS DIAGRAM. GC TO VERIFY EXISTING **EQUIPMENT GROUNDING IN FIELD**
- GC TO V.I.F. AND INSTALL ANY MISSING T-MOBILE GROUND BAR ON SITE





TYPICAL GROUNDING DIAGRAM SCALE: N.T.S.

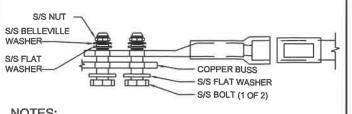


LEGEND

- 1- GROUND BUSS BAR, 1/4"X 4"X 24", CONFIRM w/T-MOBILE PROJECT MANAGER THE APPROVED BUSS MFR.HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
- 2- INSULATORS, CONFIRM THE APPROVED BUSS MFR. w/T-MOBILE
- 3-5/8" LOCKWASHERS, CONFIRM w/T-MOBILE THE APPROVED BUSS MFR. (NEWTON INSTRUMENT CO. CAT. NO. 3015-8 OR EQUIVALENT)
- 4- WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056 OR APPROVED EQUIVALENT (CONFIRM w/T-MOBILE THE APPROVED BUSS MFR.) 5-5/8-11 X 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1 OR APPROVED EQUIVALENT

STANDARD LUG CONNECTION OF GROUND LEADS TO **GROUND BAR DETAIL**

SCALE: N.T.S.

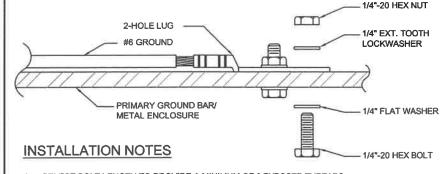


GROUND ROD (TYP.)

NOTES:

- ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
- 2. FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH KOPR-SHEILD.

GROUNDING - STANDARD GROUND BAR DETAIL



- SELECT BOLT LENGTH TO PROVIDE A MINIMUM OF 2 EXPOSED THREADS
- BURNISH MOUNTING SURFACE TO REMOVE PAINT IN THE AREA OF LUG CONTACT
- APPLY ANTI-OXIDANT COMPOUND TO MATING SURFACE OF LUG AND WIPE CLEAN EXCESS
- 4. USE SOLID COPPER WIRE AND MECHANICAL 2-HOLE LUG FOR ALL EXTERIOR GROUNDING

MECHANICAL GROUND CONNECTION SCALE: N.T.S.

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PROPOSED SITE GROUNDING DIAGRAM

EG-1

GENERAL NOTES:

- 1. OWNER FURNISHED MATERIALS, T-MOBILE "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL:
 - BTS EQUIPMENT FRAME (PLATFORM) AND ICERRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
 - AC/TELCO INTERFACE BOX(PPC)
 - ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
 - TOWER LIGHTING
 - TOWERS, MONOPOLE
 - GENERATORS & LIQUID PROPANE TANK
 - ANTENNA STANDARD BRACKETS, FRAMES, AND PIPES FOR
 - MOUNTING.
 - ANTENNAS (INSTALLED BY OTHERS)
- TRANSMISSION LINE
- TRANSMISSION LINE JUMPERS
- TRANSMISSION LINE CONNECTORS WITH
- WEATHERPROOFING KITS TRANSMISSION LINE GROUND KITS
- HANGERS
- HOISTING GRIPS
- BTS EQUIPMENT
- 2. CONTRACTOR TO FURNISH AND INSTALL THE FOLLOWING:

THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROOFS, BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR. 14. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF T-MOBILE TO APPLY FOR PERMITTING AND CONTRACTOR PONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.

T-MOBILE FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE T-MOBILE WAREHOUSE, NO LATER THAN 48-HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATED, PROTECTED AND INSTALL BE BY THE ROTECTED AND INSTALLED BY THE

CONTRACTOR WITH ALL APPURTENCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING UP.

- ALL EQUIPMENT FURNISHED AND WORK PERFORMED UNDER THE CONTRACT DOCUMENTS SHALL BE GUARANTEED AGAINST DEFECTS IN MATERIALS OR WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE, UNLESS NOTED OTHERWISE. ANY FAILURE OF EQUIPMENT OR WORK DUE TO DEFECTS IN MATERIALS OR WORKMANSHIP SHALL BE CORRECTED BY THE CONTRACTOR AT NO COST TO THE OWNER
- 5. ALL WORK, MATERIAL, AND EQUIPMENT SHALL COMPLY WITH ALL REQUIREMENTS OF THE LATEST EDITIONS AND INTERIM AMENDMENTS OF THE NATIONAL ELECTRICAL CODE (NEC). NATIONAL ELECTRICAL SAFETY CODE, OSHA, AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES. ALL ELECTRICAL EQUIPMENT PROVIDED UNDER THIS CONTRACT SHALL BE NEW (EXCEPT WHERE OTHERWISE NOTED) AND SHALL COMPLY WITH THE REQUIREMENTS OF THE UNDERWRITERS' LABORATORIES (U.L.) AND BEAR THE U.L. LABEL.
- 6. T-MOBILE OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS. EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO THE OWNER OR HIS ARCHITECT/ENGINEER.
- THE CONTRACTOR SHALL SUPPORT, BRACE AND SECURE EXISTING STRUCTURE AS REQUIRED. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PROTECTION OF ANY EXISTING STRUCTURES DURING CONSTRUCTION, FIELD VERIFY ALL EXISTING DIMENSIONS WHICH 5. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING AFFECT THE NEW CONSTRUCTION.
- 8. THE CONTRACTOR SHALL NOT ALLOW OR CAUSE ANY OF THE WORK TO BE COVERED UP OR ENCLOSED UNTIL IT HAS BEEN INSPECTED BY THE GOVERNING AUTHORITIES. ANY WORK THAT IS ENCLOSED OR COVERED UP BEFORE SUCH INSPECTION AND TEST SHALL BE UNCOVERED AT THE CONTRACTOR'S EXPENSE; AFTER IT HAS BEEN INSPECTED. THE CONTRACTOR SHALL RESTORE THE WORK TO ITS ORIGINAL CONDITION AT HIS OWN
- HAVE BEEN PLOTTED FROM AVAILABLE RECORDS. THE ARCHITECT/ENGINEER AND OWNER (T-MOBILE) ASSUME NO RESPONSIBILITY WHATEVER AS TO THE SPORICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS OR THE MANNER OF THEIR REMOVAL OR ADJUSTMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL SAID UTILITIES AND FACILITIES PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL ALSO OBTAIN FROM EACH UTILITY COMPANY DETAILED INFORMATION RELATIVE TO WORKING SCHEDULES AND METHODS OF REMOVING OR ADJUSTING AFFECTED UTILITIES.

GENERAL NOTES (CONT'D):

- 10. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES OR DOUBTS AS TO THE INTERPRETATION OF PLANS SHOULD BE IMMEDIATELY REPORTED TO THE PROJECT. MANAGER FOR RESOLUTION AND INSTRUCTION, AND NO FURTHER WORK SHALL BE PERFORMED UNTIL DISCREPANCY IS CHECKED AND CORRECTED BY THE ARCHITECT/ENGINEER. FAILURE TO SECURE SUCH INSTRUCTION MEANS CONTRACTOR WILL HAVE WORKED AT HIS OWN RISK AND EXPENSE.
- 11. CONTRACTORS SHALL CLEAN ENTIRE SITE AFTER EACH DAY OF CONSTRUCTION SUCH THAT NO PAPERS, TRASH, DEBRIS, WEEDS, BRUSH, OR ANY OTHER DEPOSITS REMAIN. ALL MATERIALS COLLECTED DURING CLEANING OPERATIONS SHALL BE PROPERLY DISPOSED OF OFF-SITE BY
- 12. ALL SITE WORK SHALL BE CAREFULLY COORDINATED BY THE CONTRACTOR WITH LOCAL GAS, ELECTRIC, TELEPHONE, AND ANY OTHER UTILITY COMPANIES HAVING JURISDICTION
- 13. DURING CONSTRUCTION, THE CONTRACTOR SHALL AT ALL TIMES MAINTAIN THE LITTLETER OF THE BUILDING/SITE WITHOUT INTERRUPTION, SHOULD IT BE NECESSARY TO INTERRUPT ANY SERVICE OR UTILITY, THE CONTRACTOR SHALL SECURE PERMISSION IN WRITING FROM THE BUILDING/PROPERTY OWNER FOR SUCH INTERRUPTION, AT LEAST 72 HOURS IN ADVANCE. ANY INTERRUPTION SHALL BE MADE WITH A MINIMUM AMOUNT OF INCONVENIENCE TO THE BUILDING/PROPERTY OWNER AND ANY SUCH SHUTDOWN TIME SHALL BE COORDINATED WITH THE BUILDING/PROPERTY OWNER.
- EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION.
- 15. CONTRACTOR SHALL SUBMIT AT THE END OF THE PROJECT A COMPLETE SET OF AS BUILT DRAWINGS TO T-MOBILE'S PROJECT ENGINEER
- 16. GC WILL NOT START THE CONSTRUCTION UNTIL AFTER THEY RECEIVE THE PRE CON PACKAGE AND HAVE A PRE CON WALK WITH THE PROJECT MANAGER

DIVISION 2 - SITE WORK:

- THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE PROJECT MANAGER, 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. THIS WILL INCLUDE BUT NOT LIMITED TO:
 - FALL PROTECTION
 - CONFINED SPACE
 - ELECTRICAL SAFETY
 - TRENCHING AND EXCAVATION

REMOVE FROM SITE/OWNER'S PROPERTY ALL WASTE MATERIALS, LIMITSON EXCAVATED MATERIAL INCLUDING MATERIAL CLASSIFIED LINSATISFACTORY CONTAMINATED OR DANGEROUS TRASH AND DEBRIS, AND DISPOSE OF IN A

- 3. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES. WHICH INTERFERE WITH THE EXECUTION OF THE WORK SHALL BE REMOVED. AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL
- THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE BUILDING OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDED, AND COVERED WITH MULCH

CONSTRUCTION, EROSION CONTROL MEASURES, AS REQUIRED DURING CONSTRUCTION.

CONTRACTOR IS RESPONSIBLE FOR LAYOUT AND CONSTRUCTION STAKING. CONTRACTOR SHALL ESTABLISH GRADE AND LINE STAKES PRIOR TO CONSTRUCTION.

LAB DOES NOT GUARANTEE OR WARRANT THAT THE AFOREMENTIONED EASEMENTS ARE SUFFICIENT FOR CONSTRUCTION TRAFFIC, GC SHALL CONSULT WITH A TAMORII F 9. ALL EXISTING UTILITIES, FACILITIES, CONDITIONS, AND THEIR DIMENSIONS SHOWN ON PLANS REPRESENTATIVE AND LANDLORD WITH EXACT LOGISTICS TO FACILITATE CONTRACTIBILITY OF THE SITE AND DELIVERY OF CRITICAL MATERIALS SUCH AS THE TOWER. STEEL, CONCRETE AND CRANES TO THE PROPOSED LEASE AREA, GC SHALL RESTORE SITE TO ORIGINAL CONDITIONS AND REPLACE ANY AND ALL DISTURBED TREES OR LANDSCAPING.

LAB IS NOT RESPONSIBLE FOR THE MAINTENANCE AND/OR OPERATIONAL FEASIBILITY.

SCOPE OF WORK FOR THESE PLANS DOES NOT INVOLVE VALUE ENGINEERING AS WELL AS NABILITY OPERATIONS OF THE SITE, ACCESS OR UTILITIES

DIVISION 3 - CONCRETE:

- 1. MINIMUM ALLOWABLE CONCRETE COMPRESSIVE STRENGTH SHALL BE 4000 PSI AT 28 DAYS WHEN TESTED IN ACCORDANCE WITH THE AMERICAN SOCIETY FOR TESTING AND MATERIALS METHODS STANDARDS ASTM C172, ASTM C31 AND ASTM C39 UNLESS OTHERWISE NOTED
- CONCRETE FOR ALL FOUNDATIONS: 540 LBS PER CUBIC YARD OF CONCRETE MINIMUM CEMENT CONTENT FOR 1-INCH MAXIMUM SIZE AGGREGATE, SI LIMP RANGE 3 INCHES TO 5 INCHES TOTAL AIR CONTENT 4 PERCENT TO 7 PERCENT BY VOLUME, AIR ENTRAINING ADMIXTURE REQUIRED TO CONTROL TOTAL AIR CONTENT, WATER REDUCING ADMIXTURE PERMITTED TO OBTAIN SLUMP OVER 3-INCHES.
- ALL CONCRETE CONSTRUCTION SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE AMERICAN CONCRETE INSTITUTE (ACI 318) BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE AND (ACI 301) STANDARD SPECIFICATION FOR STRUCTURAL
- REBARS SHALL BE ASTM A-615 DEFORMED TYPE WITH MINIMUM YIELD STRENGTH OF 60,000 PSI (40,000 PSI GRADE MAY BE USED FOR TIES & STIRRUPS).

WELDED WIRE FARRIC SHALL CONFORM TO ASTM A-185

- DETAILING SHALL BE IN ACCORDANCE WITH MANUAL OF STANDARD PRACTICE OF DETAILING REINFORCED CONCRETE STRUCTURES (ACI STD-315 LATEST EDITION).
- CHAMFER ALL EXPOSED EDGES OF CONCRETE 3/4". UNLESS OTHERWISE NOTED
- REINFORCING STEEL SHALL BE ACCURATELY PLACED AND ADEQUATELY SECURED IN POSITION, LOCATION OF REINFORCEMENT SHALL BE INDICATED ON THE DRAWINGS, THE FOLLOWING MINIMUM COVER (INCHES) FOR REINFORCEMENT SHALL BE PROVIDED. EXCEPT AS NOTED ON DRAWINGS.

MINIMUM COVER (INCHES) CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ... 3" EXPOSED TO EARTH OR WEATHER: #6 THROUGH #18 ... 2" #5 BAR AND SMALLER ... 1-1/2"

8. TESTS

CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ENGINEER AS THE WORK PROGRESSES. FAILURE TO DETECT ANY DEFECTIVE WORK OR MATERIAL SHALL NOT IN ANY WAY PREVENT LATER REJECTION WHEN SUCH DEFECT IS DISCOVERED NOR SHALL IT OBLIGATE THE ENGINEER FOR FINAL ACCEPTANCE.

- A. FIVE CONCRETE TEST CYLINDERS SHALL BE TAKEN OF THE TOWER PIER FOUNDATION. TWO SHALL BE TESTED @ THREE DAYS, TWO @ TWENTY-EIGHT DAYS. THE FIFTH CYLINDER SHALL BE KEPT SEPARATELY, IF REQUIRED TO BE USED IN THE FUTURE.
- B. ONE ADDITIONAL TEST CYLINDER SHALL BE TAKEN DURING COLD WEATHER AND CURED ON SITE UNDER SAME CONDITIONS AS CONCRETE IT REPRESENTS.
- C. ONE SLUMP TEST SHALL BE TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN.

9. PLACING CONCRETE

- A. THE ENGINEER SHALL BE NOTIFIED NOT LESS THAT 24 HOURS IN ADVANCE OF CONCRETE PLACEMENT, UNLESS INSPECTION IS WAIVED IN EACH CASE, PLACING OF CONCRETE SHALL BE PERFORMED ONLY IN THE PRESENCE OF THE ENGINEER. CONCRETE SHALL NOT BE PLACED UNTIL ALL FORMWORK, EMBEDDED PARTS, STEEL REINFORCEMENT, FOUNDATION SURFACES AND JOINTS INVOLVED IN THE PLACING HAVE BEEN APPROVED, AND UNTIL FACILITIES ACCEPTABLE TO THE T-MOBILE REPRESENTATIVE HAVE BEEN PROVIDED AND MADE READY FOR ACCOMPLISHMENT OF THE WORK AS SPECIFIED. CONCRETE MAY NOT BE ORDERED FOR PLACEMENT UNTIL ALL ITEMS HAVE BEEN APPROVED AND T-MOBILE HAS PERFORMED A FINAL INSPECTION AND GIVEN APPROVAL TO START PLACEMENT IN WRITING
- B. PLACEMENT OF CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301

10. PROTECTION

- A. IMMEDIATELY AFTER PLACEMENT, THE CONTRACTOR SHALL PROTECT THE CONCRETE FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL INJURY. FINISHED WORK SHALL BE PROTECTED.
- B. CONCRETE SHALL BE MAINTAINED WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR A PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.
- C. ALL CONCRETE SHALL BE WATER CURED BY CONTINUOUS (NOT PERIODIC) FINE MIST SPRAYING OR SPRINKLING ALL EXPOSED SURFACES, WATER SHALL BE CLEAN AND FREE FROM ACID. ALKALI, SALTS, OIL SEDIMENT, AND ORGANIC MATTER. SUCCESSFUL CURING SHALL BE OBTAINED BY USE OF AN AMPLE WATER SUPPLY UNDER PRESSURE IN PIPES, WITH ALL NECESSARY APPLIANCES OF SPRINKLERS, AND SPRAYING DEVICES.

ELECTRICAL NOTES:

1. ELECTRICAL DESIGN SHALL BE PERFORMED BY ELECTRICAL CONTRACTOR. STRUCTRUAL DESIGN SHALL BE PERFORMED BY GENERAL CONTRACTOR, ELECTRICAL CONTRACTOR SHALL ENSURE THAT ALL WORK COMPLIES WITH ALL APPLICABLE LOCAL AND STATE CODES AND NATIONAL ELECTRICAL CODE. 2. ALL SUGGESTED ELECTRICAL ELEMENTS (SUCH AS BREAKER SIZES, WIRE SIZES, CONDUITS SIZES ARE FOR ZONING PURPOSES ONLY, IT IS THE RESPONSIBILITY TO OF THE ELECTRICAL CONTRACTOR TO CONFIRM COMPLIANCE WITH LOCAL ELECTRICAL CODES AND PASS ALL APPLICABLE AND NECESSARY INSPECTIONS. IN SOME EVENTS, IT MAY BE NECESSARY TO PERFORM AN ELECTRICAL LOAD STUDY TO VERIFY THE CAPACITY OF THE EXISTING SERVICE. THIS IS NOT THE RESPONSIBILITY OF LAB. IT IS THE RESPONSIBILITY OF THE ELECTRICAL

3. CONTRACTOR SHALL FIELD LOCATE ALL BELOW GRADE GROUND LINES AND UTILITY LINES PRIOR TO CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR RELOCATION OF ALL UTILITIES AND GROUND LINES THAT MAY BECOME DISTURBED OR CONFLICTING IN THE COURSE OF CONSTRUCTION.

DIVISION 5 - STRUCTURAL STEEL:

1. DETAIL, FABRICATE AND ERECT STRUCTURAL STEEL IN ACCORDANCE WITH THE LATEST AISC MANUAL OF STEEL CONSTRUCTION (ASD), AWS D1.1, AND THE BASIC BUILDING CODE, STRUCTURAL STEEL SHALL BE AS FOLLOWS:

- A. ASTM A36, GRADE 36; ROLLED STEEL, RODS, PLATES, U-BOLTS AND ANCHOR BOLTS.
- B. ASTM A325 BOLTS, BEARING TYPE
- C. ALL STEEL SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123.
- 2. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE REQUIRED DURING CONSTRUCTION UNTIL ALL CONNECTIONS ARE COMPLETE.
- 3. ANY FIELD CHANGES OR SUBSTITUTIONS SHALL HAVE PRIOR APPROVAL FROM THE ENGINEER, AND T- MOBILE PROJECT MANAGER IN WRITING
- 4. TIGHTEN HIGH STRENGTH BOLTS TO A SNUG TIGHT CONDITION WHERE ALL PLIES IN A JOINT ARE IN FIRM CONTACT BY FITHER
 - A. A FEW IMPACTS OF A IMPACT WRENCH
 - B. THE FULL EFFORT OF A PERSON USING A SPUD WRENCH.

5. WELDING

- A. ALL WELDING SHALL BE DONE BY CERTIFIED WELDERS. CERTIFICATION DOCUMENTS SHALL BE MADE AVAILABLE FOR ENGINEER'S AND/OR OWNER'S REVIEW IF REQUESTED
- B. WELDING ELECTRODES FOR MANUAL SHIELDED METAL ARC WELDING SHALL CONFORM TO ASTM A-233, E70 SERIES, BARE ELECTRODES AND GRANULAR FLUX USED IN THE SUBMERGED ARC PROCESS SHALL CONFORM TO AISC SPECIFICATIONS.
- C. FIELD WELDING SHALL BE DONE AS PER AWSD1.1 REQUIREMENTS VISUAL INSPECTION IS ACCEPTABLE.

6. PROTECTION

A. UPON COMPLETION OF ERECTION INSPECT ALL GALVANIZED STEEL AND PAINT ANY FIELD CUTS, WELDS, OR GALVANIZED BREAKS WITH ZINC BASED PAINT, COLOR TO MATCH THE GALVANIZING PROCESS

DIVISION 13 - SPECIAL CONSTRUCTION ANTENNA INSTALLATION

1. WORK INCLUDED:

- A. ANTENNAS AND COAXIAL CABLES ARE FURNISHED BY T-MOBILE UNDER A SEPARATE CONTRACT, THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS, ERECTION SUB-CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL AND
- B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND T-MOBILE SPECIFICATIONS.
- C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS
- D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE AND PROVIDE PRINTOUT OF THAT TEST. PROPERTY
- E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU -PACKARD 87138 RF SCALAR NETWORK ANALYZER, SUBMIT FREQUENCY DOMAIN REFLECTOMETER(FDR) TESTS RESULTS TO THE PROJECT MANAGER, SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.
- F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANFOACTURER'S RECOMMENDATIONS, WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND FOLIPMENT PER MANFOACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNI FSS OTHERWISE STATED.

G. ANTENNA AND COAXIAL CABLE GROUNDING:

- 1. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RES CONNECTOR/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.
- 2. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS).

UNDER SEAL NOTE & COMMENTS:

CONSISTENT WITH APPLICABLE LICENSING LAWS THIS SEAL CERTIFIES ONLY THAT THE ARCHITECTURAL DESIGN WORK WAS PREPARED FITHER PERSONALLY BY ME OR LINDER MY IMMEDIATE AND DIRECT SUPERVISION AND CONTROL. THE SEAL IS NOT INTENDED TO AND DOES NOT IN FACT ATTEST TO ANY ENGINEERING WORK THAT WOULD FALL OUTSIDE THE SCOPE OF WHAT THE APPLICABLE LICENSING LAWS WOULD PERMIT AS THE PRACTICE OF ARCHITECTURE, SHOULD THE DETERMINATION BE MADE THAT THIS WORK IS NOT THE OF ARCHITECTURE, SHOULD THE BETERMINATION BY MORE THAT THIS WORK IS NOT THE EXCLUSIVE PRACTICE OF ARCHITECTURE AS THAT PRACTICE IS DEFINED BY APPLICABLE LAW, OR SHOULD THE DETERMINATION BE MADE THAT ANY OVERLAP IN RESPECTIVE DISCIPLINES FALLS OUTSIDE THAT SCOPE IN WHICH AN ARCHITECT IS PERMITTED TO PRACTICE, OR SHOULD THE DETERMINATION BE MADE THAT ADDITIONAL INFORMATION OF SEALS ARE REQUIRED, PLEASE CONTACT THE INDIVIDUAL WHOSE SEAL APPEARS HERE AT

T. Mobile.

8550 WEST BRYN MAWR AVE. SUITE 100 CHICAGO, IL 60631 MAIN: (773) 444-5400



49030 Pontiac Trail, Ste 400 Wixom, Michigan 48393 248-705-9212 PHONE:

DRAWN BY: RC CHECKED BY: PL CHECKED BY: APPROVED BY:

Revision/Issue	Date	Initial
FINAL CD	07/08/19	RC
REVISED CD	07/10/19	RC
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	FINAL CD	FINAL CD 07/08/19

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GENERAL NOTES & SPECIFICATION

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