

MEMORANDUM

To: Historic District Commissioners

From: Jill Thacher, Historic Preservation Coordinator

Date: March 12, 2020

Re: Addition to Staff Approvals List

Wireless providers are proposing new small cell antennas and equipment in and near downtown Ann Arbor. The city's Cellular Infrastructure Manager, Manny Montoya, provided a description of this next wave of cellular technology:

A small cell wireless facility ("**SCWF**") consists of smaller cellular antennas and associated equipment mounted on traffic signals, street lights, utility and communication poles at an average height of 40'. These SCWFs are enhancements to the taller, traditional cell towers, which have been the prevailing technology behind the wireless network for decades. SCWFs, at the present time, have a signal range of approximately 400-500 feet which requires a more numerous and denser implementation in order to meet coverage and capacity demands for today's mobile connectivity. The City has engaged an outside consultant to assist, guide, and ensure the City is within all FCC and State regulatory parameters for SCWF in the public Right Of Way. The purpose of these guidelines are to establish general standards, consistent with all applicable state and federal laws, for the design, aesthetics installation, placement, and co-location of each SCWF in the City of Ann Arbor.

Three of Ann Arbor's historic districts, the Old Fourth Ward, Old West Side, and Broadway, are drawn in such a manner that street right of way is included within the district boundaries. Imagine a circle drawn on a map, where everything within the circle is in the historic district. The city's other eleven districts are parcel based. That is, they follow property lines of specific parcels and do not include streets.

In those three districts that include street right of way, a certificate of appropriateness is required to add this privately-owned equipment, whether it is on new or existing utility poles. A large number of these SCWFs, possibly 250-300, are expected to be installed in and near downtown. Perhaps as many as 100 will be in these three historic districts. Because federal requirements dictate

a short turn-around time for approval of small cell applications by cities, staff is requesting the ability to staff approve these applications. If granted, staff will report back to the HDC in a few months with details on the types and numbers of applications, and whether the staff approval process needs to be further refined.

For installations in any of the other eleven historic districts (especially in the downtown) staff is reviewing right of way applications for the work's compatibility with nearby buildings within the district. Planning and engineering staff will make recommendations to the applicant on ways to modify or adjust the work if it seems necessary.

Staff would like to propose an addition to the Staff Approvals list, per this suggested motion:

I move that a new item be added to the staff approvals list, to read as follows: 37) Small cell wireless facilities on existing or new utility poles that do not destroy, distract from, or obscure historic character or architectural features.

Attachments: Example applications

GENERAL NOTES

1. UNDERGROUND UTILITY INFORMATION PRESENTED HEREIN HAS BEEN DETERMINED BASED ON SURFACE EVIDENCE AND PLANS ON RECORD. ALL UNDERGROUND UTILITIES SHALL BE LOCATED IN THE FIELD BY CONTRACTOR PRIOR TO COMMENCEMENT OF SITE WORK. CONTRACTOR SHALL CALL MISS DIG A MINIMUM OF 72 HOURS PRIOR TO PLANNED CONSTRUCTION ACTIVITY.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE STREET OPENING PERMIT. ALL WORK SHALL BE COMPLETED BY CONTRACTOR IN ACCORDANCE WITH ALL GUIDELINES AND REGULATIONS OUTLINED IN WORK PERMITS FURNISHED BY TEMSCO, P.C. AND/OR JURISDICTIONAL AUTHORITY. THE RIGHT OF WAY ENCROACHMENT PERMIT HAS BEEN APPLIED FOR BY TEMSCO, P.C. AND IS THE CONTRACTOR'S RESPONSIBILITY TO REQUEST A COPY.
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA-70 (2017 ED.), NESC 2017, AND ALL CURRENT LOCAL BUILDING CODES AND STANDARDS.
4. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, EQUIPMENT, AND LABOR TO COMPLETE INSTALLATION OF SYSTEMS SHOWN ON THESE PLANS AS SPECIFIED HEREIN. THE INTENT OF THESE SPECIFICATIONS AND CONTRACT DRAWINGS IS TO PROVIDE DETAILS OF THE VARIOUS SYSTEMS DESCRIBED HEREIN AND INDICATED ON THESE DRAWINGS. ANY LISTING OR INDICATION OF ITEMS FURNISHED OR WORK TO BE PERFORMED SHALL NOT BE COMPLETE IN ITSELF AND SHALL NOT LIMIT THE GENERAL REQUIREMENTS TO FURNISH AND INSTALL EQUIPMENT, ACCESSORIES, CONTROLS, ETC., TO COMPLETE THE CONTRACT IN A SUBSTANTIAL AND FULLY FUNCTIONAL MANNER. ANY DEVIATION FROM THE APPROVED CONTRACT DOCUMENTS SHALL BE PERFORMED AT THE CONTRACTOR'S RISK.
5. THE CONTRACTOR SHALL VISIT THE SITE WITH PLANS AND SPECIFICATIONS IN HAND AND SHALL BECOME THOROUGHLY FAMILIAR WITH ALL CONDITIONS UNDER WHICH CONSTRUCTION ACTIVITIES WILL BE PERFORMED. THE CONTRACTOR SHALL CONFIRM PRIOR TO COMMENCING WORK THAT SUCH EXAMINATION HAS BEEN MADE AND DIFFICULTIES, IF ANY, NOTED AND REPORTED TO THE ENGINEER. CLAIMS FOR EXTRA COST OF LABOR, MATERIALS, AND EQUIPMENT REQUIRED FOR ANY DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN WILL NOT BE RECOGNIZED.
6. ALL WORK SHALL BE GUARANTEED AGAINST DEFECTS CAUSED BY INSUFFICIENT QUALITY OF MATERIALS AND WORKMANSHIP FOR A PERIOD OF TWELVE MONTHS FOLLOWING THE SUBSTANTIAL COMPLETION OF THE PROJECT UNLESS STATED OTHERWISE IN ADDITIONAL CONTRACT DOCUMENTATION. CONTRACTOR SHALL REPAIR OR REPLACE ANY DEFECTS IN MATERIALS OR WORKMANSHIP THAT OCCUR IN THE WARRANTY PERIOD AT THEIR EXPENSE.
7. THE CONTRACTOR SHALL PROVIDE A STATE DEPARTMENT OF TRANSPORTATION COMPLIANT TRAFFIC CONTROL PLAN IF REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
8. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND/OR ERECTION OF ANY MATERIALS OR EQUIPMENT. ANY UNFORESEEN CONDITIONS SHALL BE REPORTED TO THE ENGINEER.
9. THE CONTRACTOR SHALL CLEAN AND REMOVE DEBRIS AND SEDIMENT DEPOSITED ON PUBLIC STREETS, SIDEWALKS, ADJACENT AREAS, OR OTHER PUBLIC WAYS DUE TO ANY CONSTRUCTION ACTIVITY ON A DAILY BASIS TO THE SATISFACTION OF THE VERIZON REPRESENTATIVE AND OWNER.
10. CONTRACTOR SHALL INCORPORATE PROVISIONS (AS NECESSARY) IN CONSTRUCTION TO PROTECT EXISTING STRUCTURES, PHYSICAL FEATURES, AND MAINTAIN SITE STABILITY DURING CONSTRUCTION. CONTRACTOR SHALL RESTORE ALL AREAS TO ORIGINAL CONDITION AND AS DIRECTED BY PLANS.
11. THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ANY CHANGES AND DEVIATION FROM APPROVED PLANS NOT AUTHORIZED BY THE ENGINEER.
12. DETAILS SHOWN ARE INTENDED TO SHOW END RESULT BASED ON ENGINEERING DESIGN. ANY MODIFICATION TO SUIT FIELD DIMENSIONS AND/OR CONDITIONS SHALL BE SUBMITTED TO THE ENGINEER AND VERIZON FOR REVIEW AND APPROVAL PRIOR TO EXECUTING WORK.
13. BEFORE THE FINAL ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT AND MATERIALS, REPAIR OR REPLACE PRIVATE OR PUBLIC PROPERTY WHICH MAY HAVE BEEN DAMAGED OR DESTROYED DURING CONSTRUCTION, CLEAN ALL AREAS WITHIN AND ADJACENT TO THE PROJECT WHICH HAD BEEN OBSTRUCTED BY HIS/HER OPERATIONS, AND LEAVE THE PROJECT SITE NEAT AND ACCEPTABLE TO THE OWNER'S REPRESENTATIVE.
14. ENVIRONMENTAL IMPACT ASSESSMENTS, IF REQUIRED, SHALL BE DONE BY OTHERS.
15. CONTRACTOR SHALL COORDINATE ALL UTILITY CONNECTIONS WITH THE APPROPRIATE UTILITY SERVICE PROVIDERS.
16. ELECTRICAL UTILITY PROVIDER SHALL BE RESPONSIBLE FOR ALL AERIAL POWER ROUTING, UNDERGROUND TRENCHING AND OR BORING FOR ELECTRIC SERVICE, UNLESS OTHERWISE NOTED.
17. CONTRACTOR SHALL TRIM ANY TREE/VEGETATION THAT ENCROACHES ONTO PROPOSED POLE LOCATION IF REQUIRED PENDING APPROVAL FROM THE ARBORIST OF THE AUTHORITY HAVING JURISDICTION.
18. CONCEALMENT SCREENS AND/OR WRAPS SHALL NOT TO BE INSTALLED AROUND PROPOSED RF EQUIPMENT, UNLESS OTHERWISE NOTED.
19. CONTRACTOR SHALL ABIDE BY PERMITTED CONSTRUCTION HOURS ACCORDING TO THE AUTHORITY HAVING JURISDICTION.
20. CONTRACTOR SHALL COORDINATE FOR CITY/TOWN INSPECTION OF FINAL CONSTRUCTION, INCLUDING RESTORATION WORK AT LEAST 3 DAYS IN ADVANCE

MATERIAL NOTES

1. ALL MATERIALS FURNISHED UNDER THIS CONTRACT SHALL BE NEW UNLESS OTHERWISE NOTED.
2. ALL EQUIPMENT, CONDUCTORS, AND DEVICES SHALL COMPLY WITH THE MOST STRINGENT OF THE FOLLOWING CODES: NESC 2017, NFPA 70 (2017 ED.), THE ELECTRICAL UTILITY PROVIDER'S SPECIFICATIONS AND THE CODE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
3. ALL EQUIPMENT, RACEWAYS, CABLES, AND CONDUCTORS SHALL BE ANCHORED TO THE UTILITY POLE OR LIGHTING FIXTURE PER THE APPLICABLE CODE REQUIREMENTS. PVC CONDUIT SHALL BE SECURED AND SUPPORTED PER NFPA 70 (2017 ED.) SECTION 352.30
4. ALL GROUND CONDUCTORS, ELECTRODES, AND CONNECTIONS SHALL BE IN ACCORDANCE WITH NESC REQUIREMENTS AND LOCAL UTILITY SPECIFICATIONS. GROUND CONDUCTORS SHALL NOT BE SMALLER THAN #6 AWG COPPER, UNLESS OTHERWISE NOTED.
5. BOLT HOLES SHALL BE PUNCHED OR DRILLED. FLAME CUT HOLES ARE NOT ACCEPTABLE.
6. INSTALL ALL EQUIPMENT AND DEVICES PLUMB AND LEVEL, ACCURATELY FITTED AND FREE FROM DISTORTIONS AND/OR DEFECTS.
7. NOTIFY THE ENGINEER PRIOR TO FIELD CUTTING OR MODIFYING APPROVED EQUIPMENT.
8. ALL BOLTS, ANCHORS, AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 - ZINC COATING (HOT-DIP)
9. ALL ELECTRICAL EQUIPMENT SHALL BE HOUSED IN NEMA 3R ENCLOSURES.
10. WHEN APPLICABLE, ALL PROPOSED NEW WOOD UTILITY POLES SHALL BE CONSTRUCTION GRADE C OR BETTER
11. ALL PROPOSED NEW WOOD UTILITY POLES SHALL BE CLASS 2, UNLESS OTHERWISE SPECIFIED.
12. EQUIPMENT SHALL BE INSTALLED PER MANUFACTURER RECOMMENDATION.

ELECTRICAL NOTES

1. ELECTRICAL SERVICE SHALL BE 120V/240V SINGLE-PHASE, 100A, 3 WIRE.
2. CONDUCTORS SHALL BE INSTALLED IN LISTED RACEWAYS AS INDICATED ON THESE DRAWINGS.
3. CONTRACTOR SHALL VERIFY THAT CIRCUIT BREAKERS ARE COMPATIBLE WITH LOAD CENTER. TANDEM BREAKERS SHALL BE USED AS REQUIRED AND BASED ON THE AVAILABILITY OF SPACES IN THE LOAD CENTER.
4. ALL WIRING EXPOSED TO EXTERIOR CONDITIONS SHALL BE RATED FOR ITS APPLICATION IN ACCORDANCE WITH THE MOST STRINGENT PROVISIONS OF NFPA 70 (2017 ED.) AND THE APPLICABLE STATE ELECTRICAL CODE.
5. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG OR AS INDICATED ON THESE DRAWINGS. CONDUCTORS SHALL BE COPPER AND SHALL BE RATED FOR 600V WITH THHN/THWN INSULATION UNLESS NOTED OTHERWISE. THE USE OF ALUMINUM CONDUCTORS SHALL BE LIMITED TO THE SERVICE FEEDERS FURNISHED BY THE ELECTRICAL UTILITY.
6. CONDUCTORS SHALL BE COLOR CODED IN ACCORDANCE WITH NEC STANDARDS.
7. ELECTRICAL MATERIALS, DEVICES, CONDUCTORS, APPLIANCES, AND EQUIPMENT SHALL BE LABELED/LISTED BY UL.
8. PROVIDE GROUNDING MATERIALS AND SYSTEMS AS INDICATED ON THESE DRAWINGS, AND IN COMPLIANCE WITH THE REQUIREMENTS OF UL-467, NEC ARTICLE 250, AND THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
9. WHERE CONFLICTS MAY OCCUR BETWEEN CODES, STANDARDS AND OTHER REQUIREMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENFORCING THE MOST STRINGENT APPLICABLE REQUIREMENT.
10. ELECTRICAL NEUTRALS, RACEWAYS AND NON-CURRENT CARRYING PARTS OF ELECTRICAL EQUIPMENT AND ASSOCIATED ENCLOSURES SHALL BE GROUNDED IN ACCORDANCE WITH NEC ARTICLE 250. THIS SHALL INCLUDE NEUTRAL CONDUCTORS, CONDUITS, SUPPORTS, CABINETS, BOXES, GROUND BUSES, ETC. THE NEUTRAL CONDUCTOR FOR EACH SYSTEM SHALL BE GROUNDED AT A SINGLE POINT.

UTILITY COORDINATION

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE POWER AND TELECOMMUNICATIONS COMPANIES, AND SHALL COMPLY WITH THE SERVICE REQUIREMENTS FOR EACH UTILITY COMPANY.
2. UPON COMPLETION OF THE INSTALLATION, OPERATE AND ADJUST THE EQUIPMENT AND SYSTEMS TO MEET SPECIFIED PERFORMANCE REQUIREMENTS. THE TESTING SHALL BE DONE BY QUALIFIED PERSONNEL.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF ELECTRICAL SYSTEMS SHOWN ON THESE PLANS UP TO THE POINT OF SERVICE OF THE ELECTRICAL UTILITY PROVIDER.
 - A. FOR AERIAL POWER DELIVERY, THE POINT OF SERVICE SHALL BE AT THE WEATHER HEAD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LEAVING SUFFICIENT WIRE LENGTH BEYOND THE WEATHER HEAD TO PERMIT ATTACHMENT BY THE ELECTRICAL UTILITY PROVIDER AND IN ACCORDANCE WITH THE SERVICE REQUIREMENTS OF THE ELECTRICAL UTILITY PROVIDER.
 - B. FOR UNDERGROUND POWER DELIVERY, THE POINT OF SERVICE SHALL BE AT THE ELECTRIC UTILITY-OWNED POWER SOURCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF SERVICE CONDUCTORS, RISER AND UNDERGROUND CONDUIT TO THE POWER SOURCE.
 - B.1. THE CONTRACTOR SHALL BE REQUIRED TO HAND-DIG WITHIN 3 FEET OF THE POWER SOURCE. ELECTRIC UTILITY PERSONNEL WILL ASSIST THE CONTRACTOR IN INSTALLING THE LAST 3 FEET OF CONDUIT, THE SWEEP, AND IN PULLING THE CABLE TO THE SOURCE.
 - B.2. ONLY ELECTRIC UTILITY PERSONNEL OR AUTHORIZED CONTRACTORS MAY OPEN TRANSFORMERS OR SERVICE PEDESTALS.
 - B.3. IF THE POWER ROUTE CROSSES ONTO PRIVATE PROPERTY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE ELECTRIC UTILITY PLANNER FOR COMPLETION OF THAT PORTION BY ELECTRIC UTILITY CREWS.
 - B.4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE CABLE LENGTH FOR APPROPRIATE TERMINATION AT THE POWER SOURCE BY ELECTRIC UTILITY PERSONNEL. 6'-0" MINIMUM EXTRA CABLE SHALL BE REQUIRED FOR TRANSFORMER OR PEDESTAL SOURCES, AND 5'-0" MINIMUM EXTRA FOR SECONDARY CABLE POLE SOURCES, UNLESS OTHERWISE DIRECTED BY ELECTRIC UTILITY PERSONNEL.

CONSTRUCTION DRAWING
PREPARED FOR:

verizon

CONSTRUCTION DRAWING
PREPARED BY:

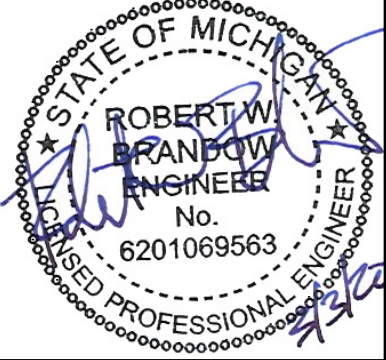
TEMSCO, P.C.

ON BEHALF OF:

TILSON
On a Mission

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PORTLAND, ME 04101
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ENGINEER SEAL:



REVISION HISTORY:

REV	DATE	ISSUED FOR	DRAFTER
	02/05/20	ISSUED FOR PERMIT	ACM
	02/25/20	UPDATED NOTES	PRF

PROJECT INFORMATION:

SITE NAME: 42527-A

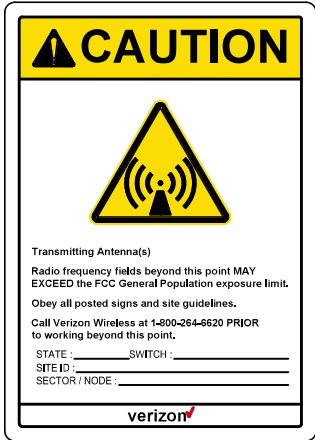
1210 WEST HURON STREET
ANN ARBOR, MI 48103
WASHTENAW COUNTY

SHEET TITLE:

GENERAL NOTES

DRAWN: ACM	SHEET NO.: CD-1	REV: B
CHECKED: GM		
APPROVED: GM		

NOTE: SIGNS AND DECALS SHALL BE PROVIDED BY VERIZON WIRELESS



RF WARNING SIGN DETAIL
NOT TO SCALE



EMERGENCY CONTACT DECAL
(TO BE INSTALLED ON BREAKER PANEL)
NOT TO SCALE

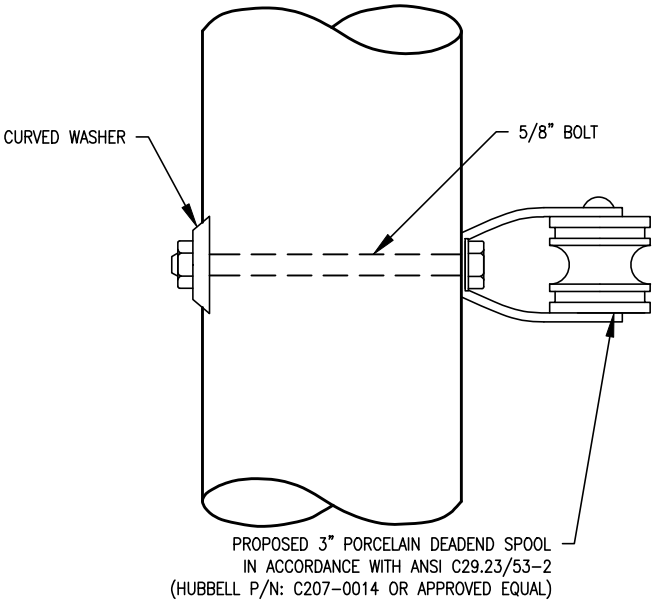


SHOCK HAZARD SIGN DETAIL
NOT TO SCALE



FAULT CURRENT SIGN DETAIL
NOT TO SCALE

POLE LENGTH TO MAX. RAD CENTER (FT)		
POLE LENGTH	POLE TOP (AGL)	MAX. RAD CENTER (AGL)
45.0	38.5	36.0
50.0	43.0	41.0
55.0	47.5	45.0
60.0	52.0	50.0
65.0	56.5	54.0
70.0	61.0	59.0
75.0	65.5	63.0
80.0	70.0	68.0



SECONDARY DEADEND SPOOL DETAIL
NOT TO SCALE

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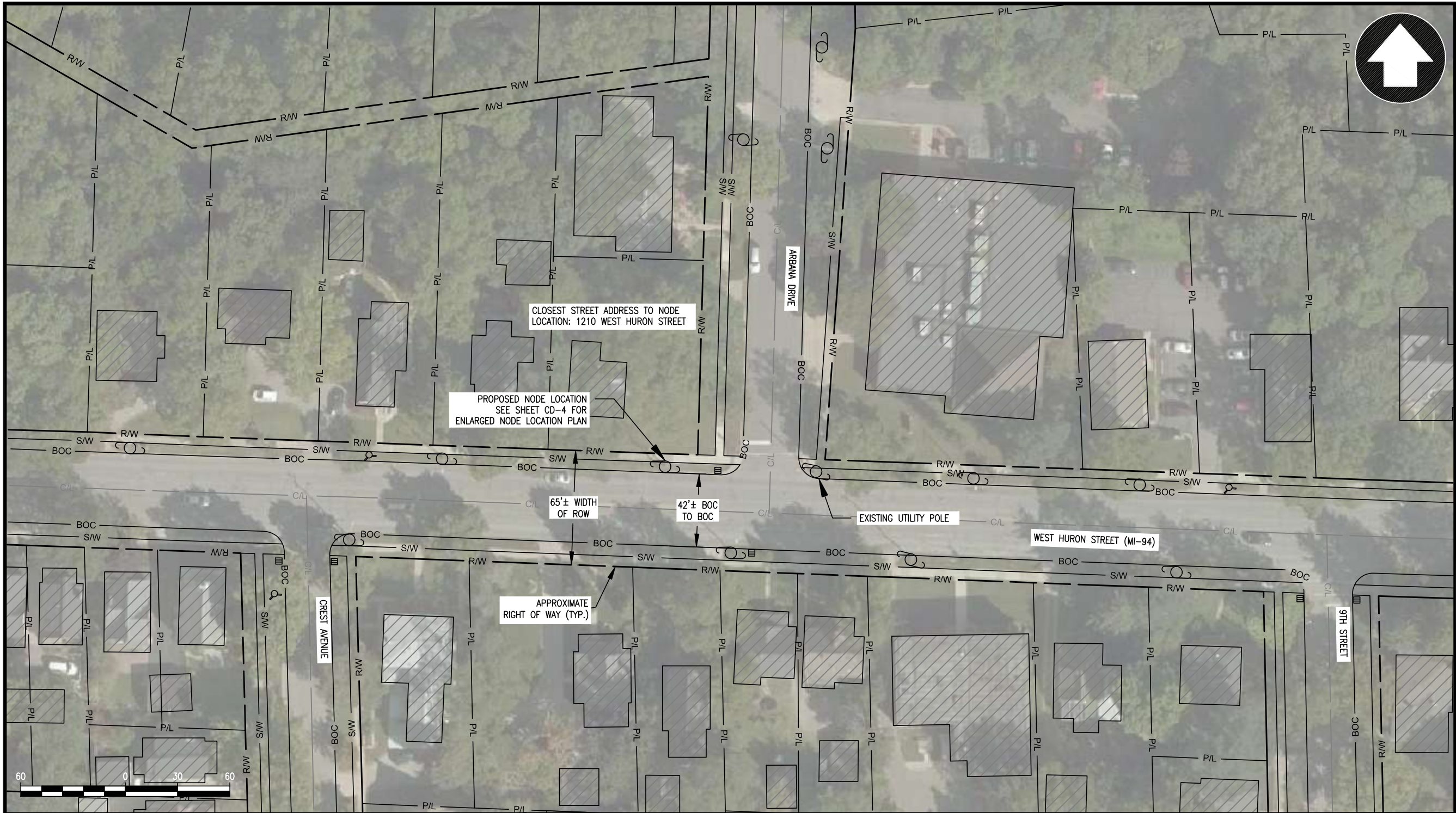
PROJECT INFORMATION:

SITE NAME: 42527-A

1210 WEST HURON STREET
ANN ARBOR, MI 48103
WASHTENAW COUNTY

SHEET TITLE:
TYPICAL PROJECT DETAILS

DRAWN: ACM	SHEET NO.:	REV:
CHECKED: GM	CD-2	B
APPROVED: GM		



CONTRACTOR NOTES:

1. SURFACE FEATURES SHOWN ON THIS DRAWING HAVE BEEN OBTAINED FROM AERIAL IMAGERY AND GIS RESOURCES, AND ARE PROVIDED FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS AND FIELD CONDITIONS PRIOR TO STARTING WORK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROTECT EXISTING FEATURES (TO REMAIN) WITHIN THE AREA OF WORK, AND TO REPAIR OR RESTORE EXISTING FEATURES WHICH ARE DAMAGED, DESTROYED, OR OTHERWISE ALTERED AS A RESULT OF THE CONTRACTOR'S SCOPE OF WORK.
2. EXISTING UNDERGROUND AND OVERHEAD UTILITIES SHOWN ON THIS DRAWING ARE FOR REFERENCE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE PRESENCE OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES PRIOR TO STARTING WORK. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY DAMAGE WHICH OCCURS AS A RESULT OF THE CONTRACTOR'S FAILURE TO LOCATE AND PROTECT EXISTING UTILITIES.
3. ALL SIDEWALK AND PAVEMENT SURFACES ALTERED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
4. BEFORE COMMENCING ANY EXCAVATIONS, CONTRACTOR TO NOTIFY EACH UTILITY OWNER HAVING UNDERGROUND UTILITIES LOCATED IN THE PROJECT LIMITS NOT LESS THAN TWO OR MORE THAN 10 WORKING DAYS PRIOR TO STARTING. CALL MISS DIG (1.800.482.7171) NO LESS THAN 72 HOURS AND NO MORE THAN 14 WORKING DAYS BEFORE WORK COMMENCES.

PROPOSED NODE LOCATION PLAN

SCALE 1:60

UTILITY NOTES:

1. POWER ROUTE SHALL BE AT THE DISCRETION OF DTE ELECTRIC PLANNING.
2. FIBEROPTIC SERVICE SHALL BE ROUTED TO THE SITE UNDER SEPARATE PERMIT.

LEGEND

SIDEWALK	— S/W —	ROW	— R/W —
BACK OF CURB	— BOC —	STORM WATER	— SD —
EDGE OF PAVEMENT	— EOP —	OVERHEAD ELECTRIC	— OE —
CENTER LINE	— C/L —	UNDERGROUND ELECTRIC	— UE —
PROPERTY LINE	— P/L —	EXISTING BUILDING	
UTILITY POLE		CATCH BASIN	
INTEGRATED POLE		HYDRANT	
LIGHT POLE		WATER UTILITY	
TRAFFIC SIGNAL		ELECTRICAL MANHOLE	
		CUSTOMER SERVICE POINT	

CONSTRUCTION DRAWING
PREPARED FOR:

verizon

CONSTRUCTION DRAWING
PREPARED BY:

TEMSCO, P.C.

ON BEHALF OF:

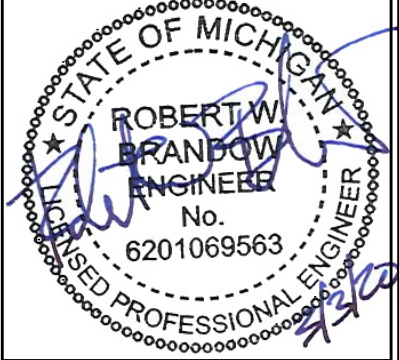
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WASHTENAW COUNTY

SHEET TITLE:

PROPOSED NODE
LOCATION PLAN

DRAWN: ACM

SHEET NO.:

REV:

CHECKED: GM

CD-3

B

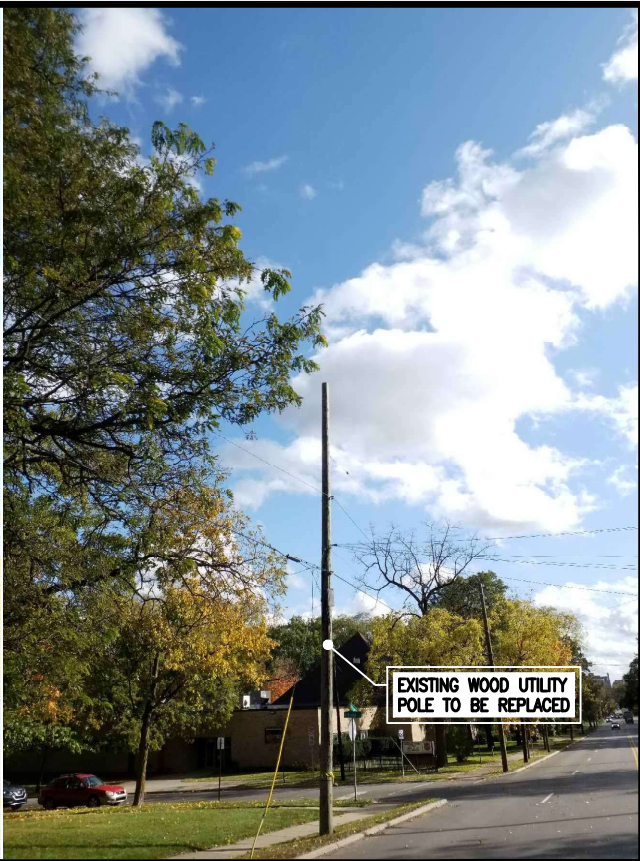
APPROVED: GM



ENLARGED NODE LOCATION PLAN
SCALE 1:20



PROPOSED NODE LOCATION
PHOTO 1



PROPOSED NODE LOCATION
PHOTO 2

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EDGE OF PAVEMENT	— EOP —	OVERHEAD ELECTRIC	— OE —
CENTER LINE	— C/L —	UNDERGROUND ELECTRIC	— UE —
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UTILITY POLE		UTILITY	
INTEGRATED POLE		ELECTRICAL MANHOLE	
LIGHT POLE		CUSTOMER SERVICE POINT	
TRAFFIC SIGNAL			
CATCH BASIN			
HYDRANT			

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verizon

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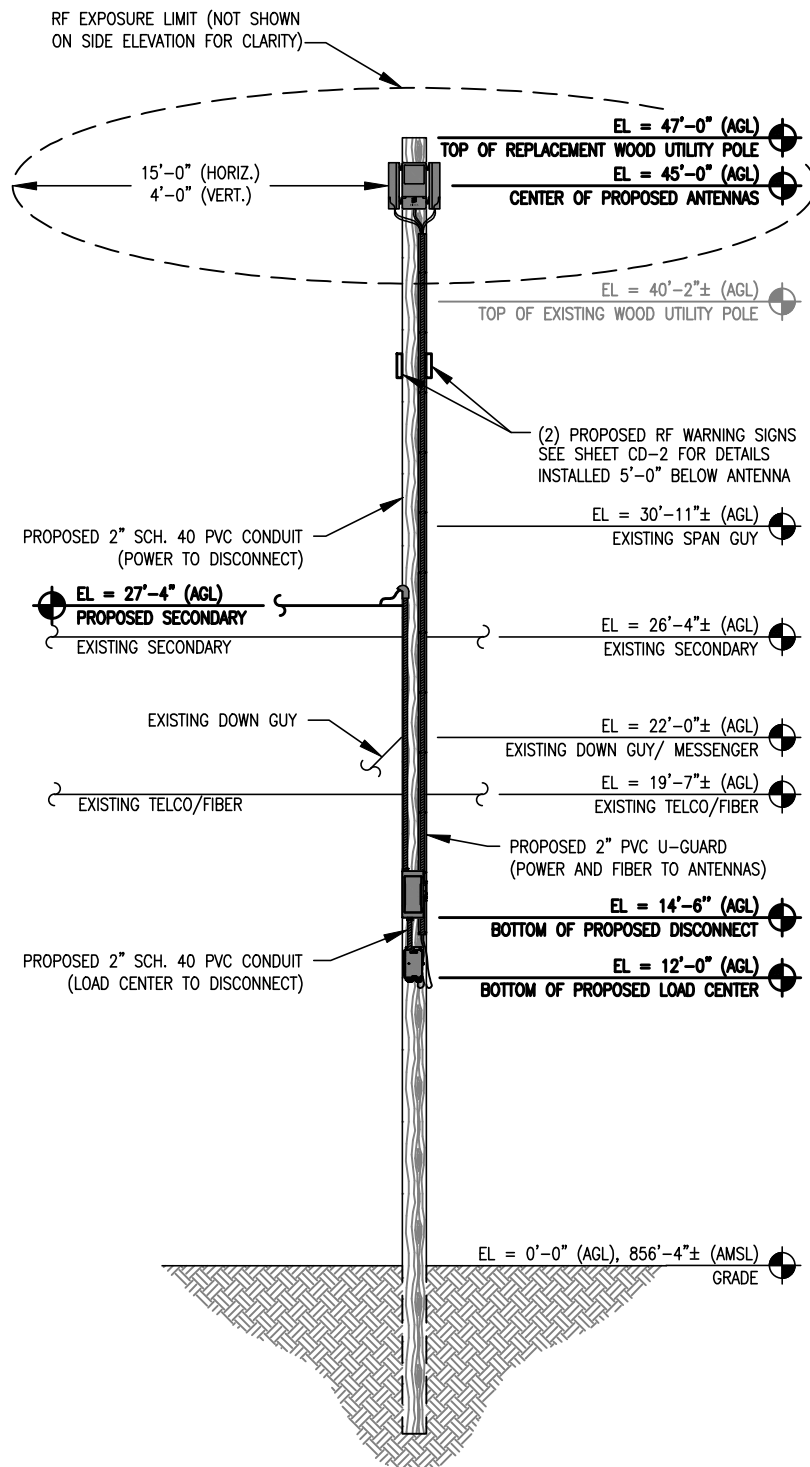
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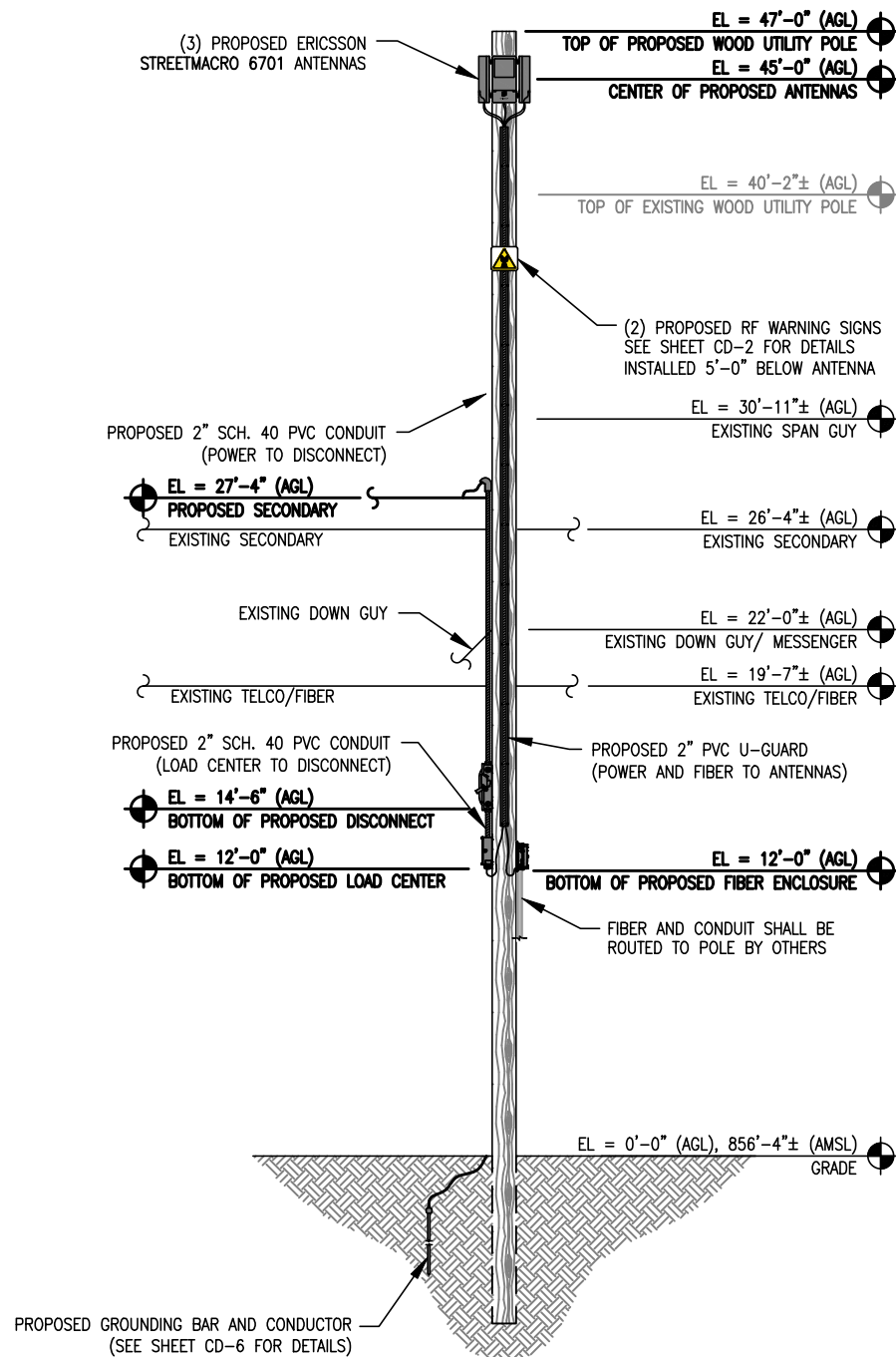
SHEET TITLE:

**ENLARGED NODE
LOCATION PLAN**

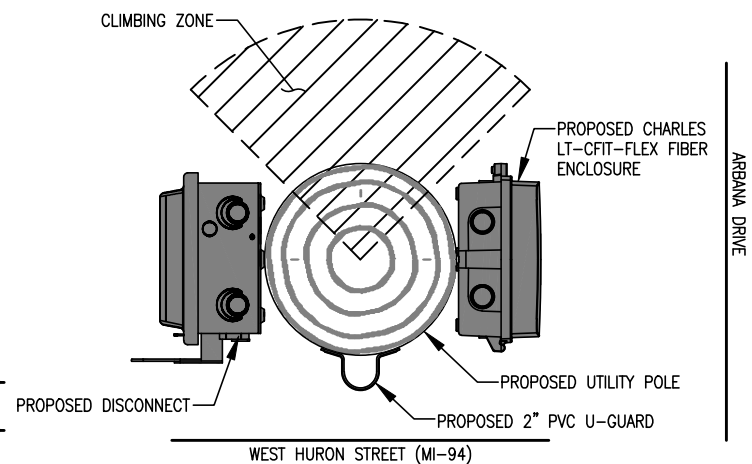
DRAWN: ACM	SHEET NO.:	REV:
CHECKED: GM	CD-4	B
APPROVED: GM		



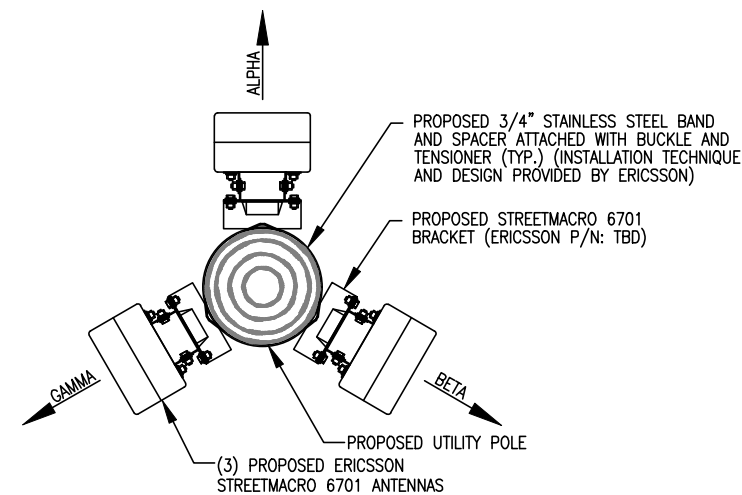
FRONT ELEVATION W/ PROPOSED EQUIPMENT
NOT TO SCALE



SIDE ELEVATION W/ PROPOSED EQUIPMENT
NOT TO SCALE



EQUIPMENT ORIENTATION PLAN
NOT TO SCALE



ANTENNA ORIENTATION PLAN
NOT TO SCALE

- NOTES:
1. CONTRACTOR SHALL REFER TO VERIZON WIRELESS RFDS FOR AZIMUTH AND MECHANICAL DOWNTILT REQUIREMENTS.
 2. WHERE PRACTICAL, EQUIPMENT AND CABLE RACEWAYS SHOULD NOT BE INSTALLED ON EITHER FACE OF THE POLE THAT IS NEAREST TO THE ROAD.

SUPPORT OF RIGID PVC CONDUIT	
CONDUIT SIZE (TRADE SIZE, IN.)	MAX. SPACING BETWEEN SUPPORTS (FT.)
1/2 - 1	3
1 1/4 - 2	5
2 1/2 - 3	6
3 1/2 - 5	7
6	8

NOTE: PVC CONDUIT SHALL BE SUPPORTED AS REQUIRED IN THE TABLE ABOVE. PVC CONDUIT SHALL ALSO BE SECURELY FASTENED WITHIN 3'-0" OF EACH OUTLET BOX, JUNCTION BOX, CONDUIT BODY OR OTHER TERMINATION.

CONSTRUCTION DRAWING
PREPARED FOR:

verizon

CONSTRUCTION DRAWING
PREPARED BY:

TEMSCO, P.C.
ON BEHALF OF:

TILSON

On a Mission

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INFO@TILSONTECH.COM TILSONTECH.COM

ENGINEER SEAL:

STATE OF MICHIGAN

ROBERT W. BRANOW
ENGINEER
No. 6201069563

PROFESSIONAL ENGINEER

REVISION HISTORY:			
REV	DATE	ISSUED FOR	DRAFTER
A	02/05/20	ISSUED FOR PERMIT	ACM
B	02/25/20	UPDATED NOTES	PRF

PROJECT INFORMATION:

SITE NAME: 42527-A

1210 WEST HURON STREET
ANN ARBOR, MI 48103
WASHTENAW COUNTY

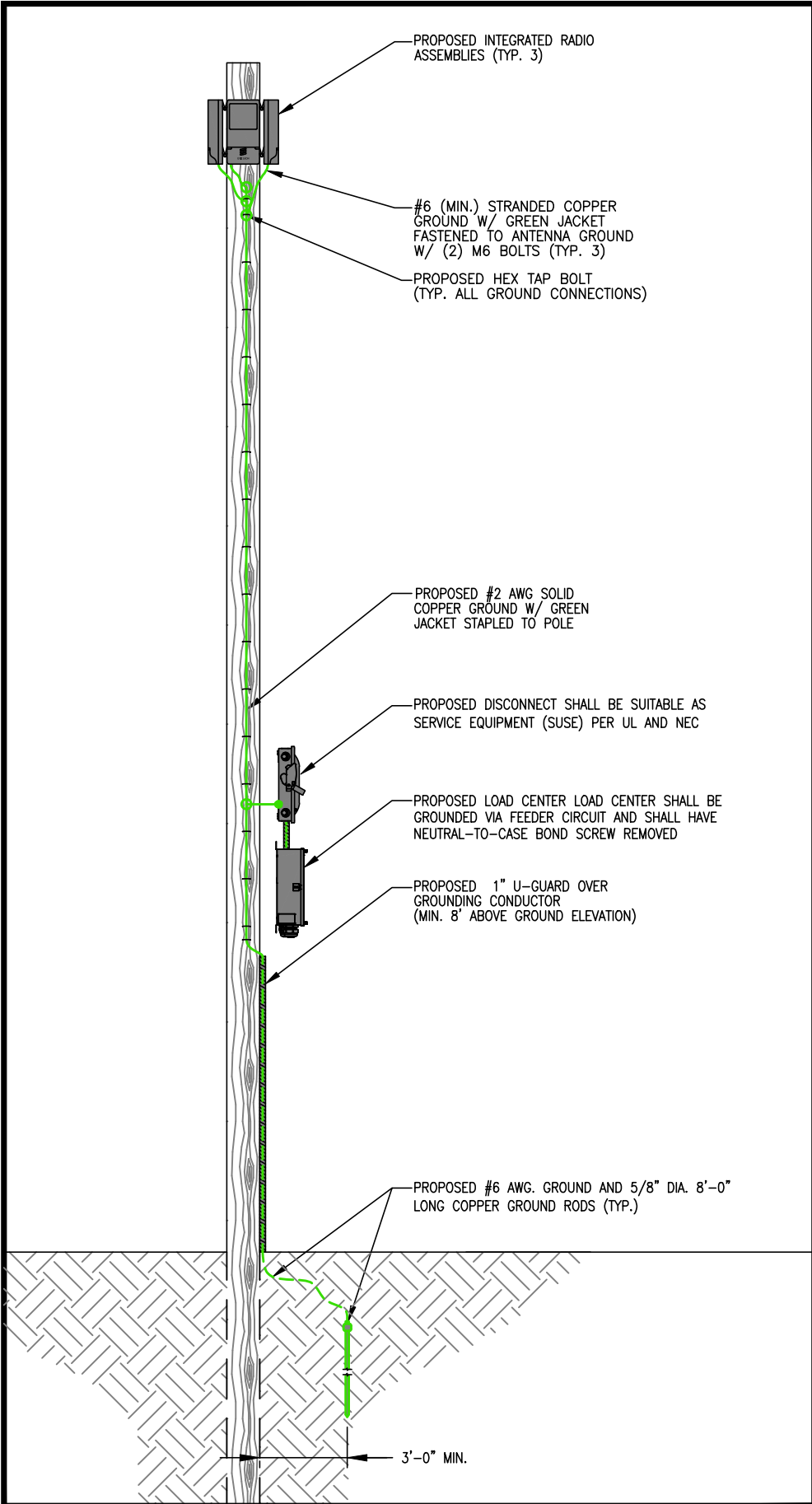
SHEET TITLE:

REPLACEMENT 55'
CLASS 2 WOOD UTILITY
POLE ELEVATIONS &
ORIENTATIONS

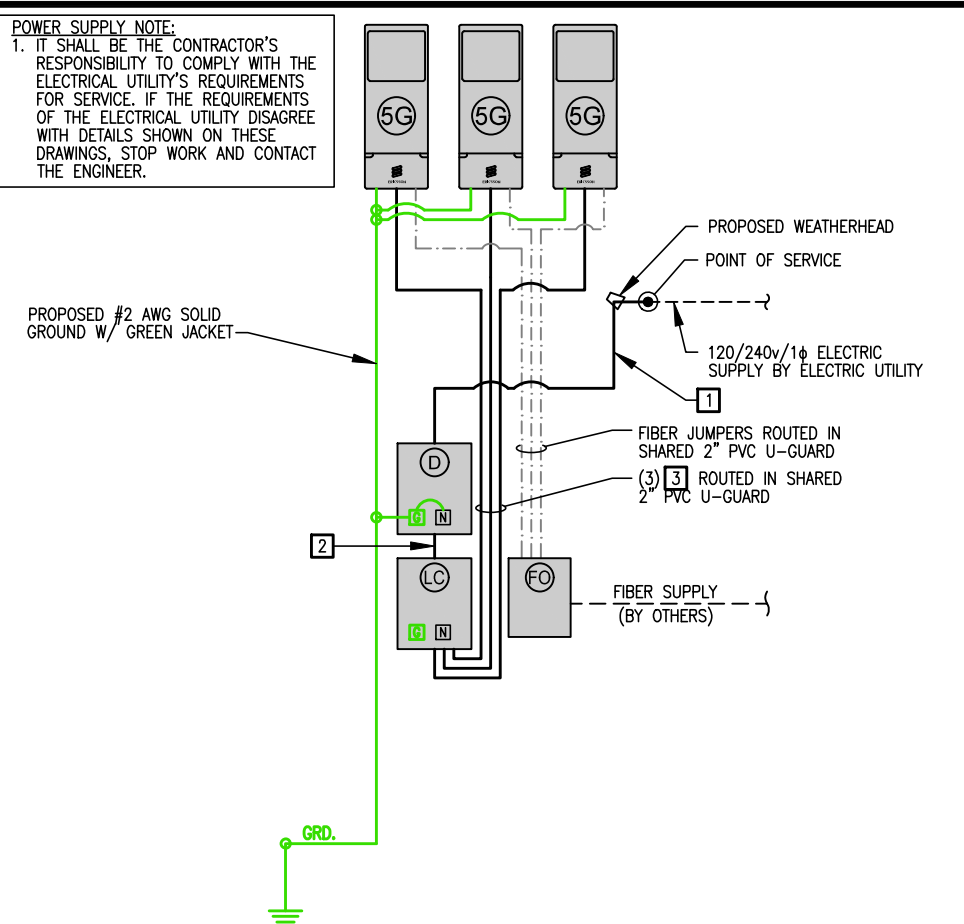
DRAWN: ACM
CHECKED: GM
APPROVED: GM

SHEET NO.:
CD-5

REV:
B



UTILITY POLE GROUNDING DIAGRAM
NOT TO SCALE



- LEGEND:**
- (D) 120V/240V/ 1φ 100A LOCKABLE DISCONNECT
 - (LC) 120V/240V/ 1φ LOAD CENTER
 - (5G) ERICSSON INTEGRATED RADIO/ANTENNA ASSEMBLY REF. "EQUIPMENT DETAILS" SHEET
 - (FO) FIBER ENCLOSURE (CHARLES LT-CFIT-FLEX OR APPROVED EQUAL)

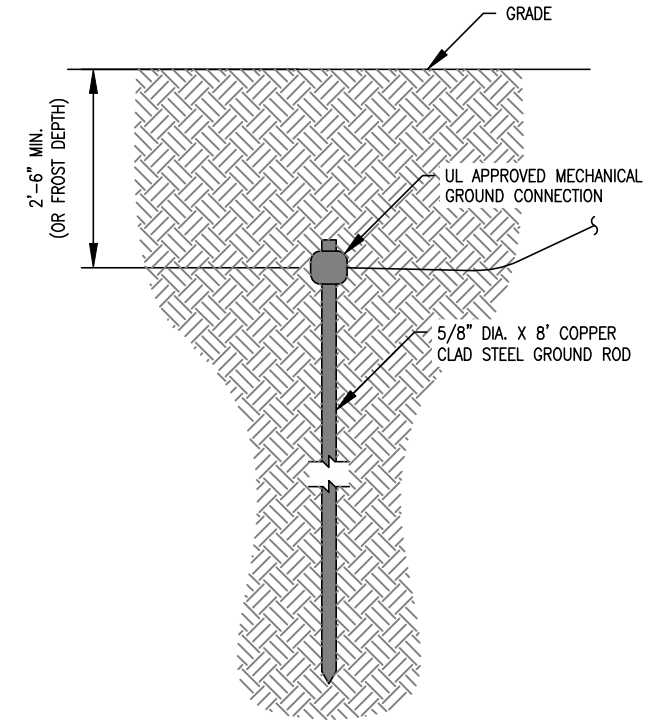
- CABLE SCHEDULE:**
- 1 (3) #3 AWG TYPE SE PVC JACKETED
 - 2 (3) #3 AWG & (1) #3 AWG GROUND THHN/THWN
 - 3 (2) #14 AWG & (1) #14 GROUND ARMORLITE TYPE MC PVC JACKETED

POWER SUPPLY NOTE:
1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH THE ELECTRICAL UTILITY'S REQUIREMENTS FOR SERVICE. IF THE REQUIREMENTS OF THE ELECTRICAL UTILITY DISAGREE WITH DETAILS SHOWN ON THESE DRAWINGS, STOP WORK AND CONTACT THE ENGINEER.

GENERAL WIRING DIAGRAM
NOT TO SCALE

POWER PANEL SCHEDULE					
VOLT	120/240V	NO. SPACES		6	
AMP	100	NEUTRAL CASE BOND		NO	
PHASE	1	ENCLOSURE		NEMA 3R	
WIRES	3	INTERNAL SPD		NO	
NO.	LOAD SERVED	VA		AMP/POLE	COMMENT
		ØA	ØB		
1	5G RADIO/ANTENNA (ALPHA)	-	300	15 / 1	TANDEM BREAKER
	SPARE	-	-	15 / 1	TANDEM BREAKER
2	5G RADIO/ANTENNA (BETA)	300	-	15 / 1	TANDEM BREAKER
	SPARE	-	-	15 / 1	TANDEM BREAKER
3	5G RADIO/ANTENNA (GAMMA)	-	300	15 / 1	TANDEM BREAKER
	SPARE	-	-	15 / 1	TANDEM BREAKER
4	SPACE	-	-	-	-
5	SPACE	-	-	-	-
6	SPACE	-	-	-	-
TOTAL VA		300	-	SUITABLE AS SERVICE EQUIPMENT (SUSE) PER UL AND NEC	
		-	600		
		900	-		

POWER PANEL SCHEDULE
NOT TO SCALE



GROUND ROD DETAIL
NOT TO SCALE

CONSTRUCTION DRAWING
PREPARED FOR:

verizon

CONSTRUCTION DRAWING
PREPARED BY:

TEMSCO, P.C.
ON BEHALF OF:
TILSON
On a Mission

16 MIDDLE STREET, 4TH FLOOR,
PORTLAND, ME 04101
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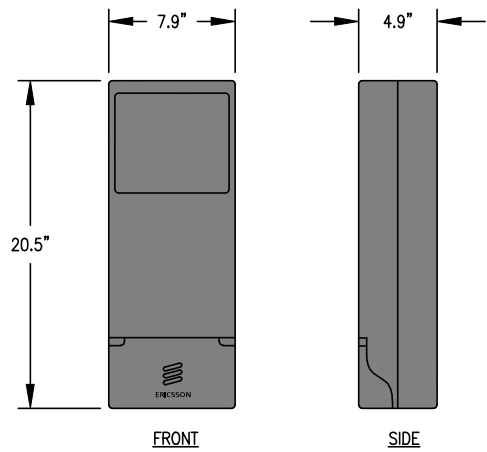
1210 WEST HURON STREET
ANN ARBOR, MI 48103
WASHTENAW COUNTY

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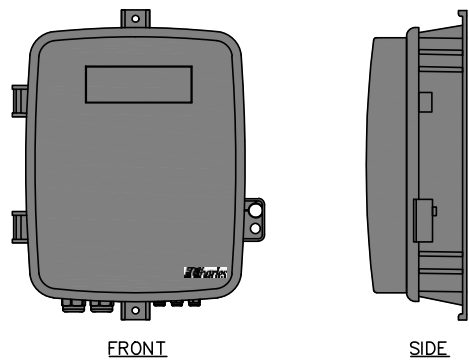
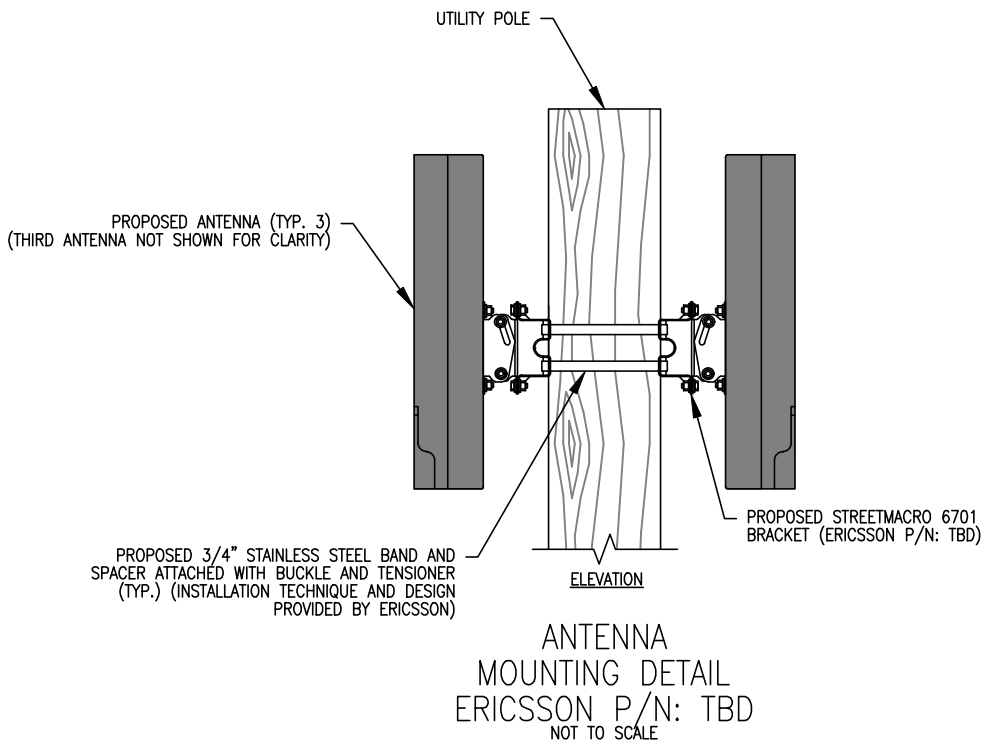
**POLE GROUNDING
AND WIRING**

DRAWN: ACM	SHEET NO.:	REV:
CHECKED: GM	CD-6	B
APPROVED: GM		

NOTE: CONTRACTOR SHALL REFER TO LATEST RFDS DOCUMENT ISSUED BY VERIZON WIRELESS. IF DISCREPANCIES ARE ENCOUNTERED BETWEEN THESE DRAWINGS AND THE LATEST RFDS, CONTACT THE ENGINEER PRIOR TO INSTALLATION OF EQUIPMENT.



ERICSSON INTEGRATED ANTENNA/RADIO DETAILS
M/N: STREETMACRO 6701
ORIENTATION: SEE VERIZON WIRELESS RFDS
ELECTRICAL TILT: SEE VERIZON WIRELESS RFDS
NOT TO SCALE



CHARLES LT-CFIT-FLEX FIBER ENCLOSURE
NOT TO SCALE

ATTACHED EQUIPMENT: ANTENNAS		
EQUIPMENT	DIMENSIONS (INCHES)	VOLUME (CUBIC FEET)
ERICSSON STREETMACO 6701	20.5x7.9x4.9	0.46
ERICSSON STREETMACO 6701	20.5x7.9x4.9	0.46
ERICSSON STREETMACO 6701	20.5x7.9x4.9	0.46
TOTAL	N/A	1.38
ATTACHED EQUIPMENT: ANCILLARY		
EQUIPMENT	DIMENSIONS (INCHES)	VOLUME (CUBIC FEET)
6 POSITION LOAD CENTER	12.7x8.9x4.3	0.30
DISCONNECT	23.1x12.0x8.6	1.40
CFIT BOX	15.0x12.0x5.5	0.60
TOTAL	N/A	2.30

PRODUCT SPECIFICATIONS	
DIMENSIONS	15" HEIGHT X 12" WIDTH X 5.5" DEPTH
WEIGHT	4 LBS (EMPTY)
MATERIAL	RUGGED UL94-5VA GRAY POLYCARBONATE
SUPPORTED FIBER CONNECTOR TYPES	SC, LC, MPO
SECURITY FEATURES	216-HEX 1/4 TURN LOCK PADLOCK HASP
MOUNTING	WALL OR POLE MOUNT
COMPLIANCE	DESIGNED TO MEET OR EXCEED GR-950, GR-2898, NEMA 4, AND IP66

CONSTRUCTION DRAWING
PREPARED FOR:

verizon

CONSTRUCTION DRAWING
PREPARED BY:

TEMSCO, P.C.

ON BEHALF OF:

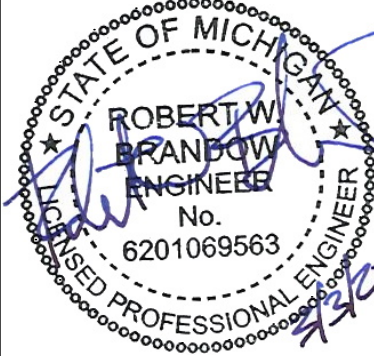
TILSON
On a Mission

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WASHTENAW COUNTY

SHEET TITLE:

EQUIPMENT DETAILS

DRAWN: ACM

SHEET NO.:

REV:

CHECKED: GM

APPROVED: GM

CD-7

B

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GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
GENERAL CONTRACTOR
CONTRACTOR: (CONSTRUCTION)
OWNER – VERIZON WIRELESS
2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND VERIZON WIRELESS PROJECT SPECIFICATIONS.
3. GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE APPROPRIATE PROVISIONS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER’S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE ENGINEER PRIOR TO PROCEEDING.
10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFIRM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
11. GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
12. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMAN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
13. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. CONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
14. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
15. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
16. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR’S EXPENSE TO THE SATISFACTION OF THE OWNER.
17. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
18. GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.
19. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
20. THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
21. THE GENERAL CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2-A OT 2-A:10-B:C AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.
22. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.
23. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.

24. THE AREAS OF THE OWNER’S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
25. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.
26. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUNDING. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
27. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE-APPROVED BY THE LOCAL JURISDICTION.
28. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
29. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
30. CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
31. CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
32. STRUCTURE IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY VERIZON WIRELESS TECHNICIANS.
33. NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
34. CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
35. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
36. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
37. ALL CABLE INSTALLATIONS TO FOLLOW MANUFACTURER’S INSTRUCTIONS AND RECOMMENDATIONS.

ANTENNA MOUNTING:

38. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA-222 OR APPLICABLE LOCAL CODES.
39. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.
40. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
41. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
42. ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER’S RECOMMENDATIONS.
43. CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER’S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
44. PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB, ANTENNA AZIMUTHS SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN +/- 5% AS DEFINED BY THE RFDS. ANTENNA DOWNTILTS SHALL BE WITHIN +/-0.5% AS DEFINED BY THE RFDS.

TORQUE REQUIREMENTS:

45. ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH TO THE MANUFACTURES SPECIFIED TORQUE.
46. ALL RF CONNECTIONS, GROUNDING HARDWARE AND ANTENNA HARDWARE SHALL HAVE A TORQUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.

A. RF CONNECTION BOTH SIDES OF THE CONNECTOR.

B. GROUNDING AND ANTENNA HARDWARE ON THE NUT SIDE STARTING FROM THE THREADS TO THE SOLID SURFACE. EXAMPLE OF SOLID SURFACE: GROUND BAR, ANTENNA BRACKET METAL.

COAXIAL CABLE NOTES:

47. TYPES AND SIZES OF THE ANTENNA CABLE ARE BASED ON ESTIMATED LENGTHS. PRIOR TO ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
48. CONTRACTOR SHALL VERIFY THE DOWN-TILT OF EACH ANTENNA WITH A DIGITAL LEVEL.
49. CONTRACTOR SHALL CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION.
50. ALL JUMPERS TO THE ANTENNAS SHALL BE 1/2" DIA. LDF AND SHALL NOT EXCEED 6'-0".
51. TYPES AND SIZES OF THE ANTENNA CABLE ARE BASED ON ESTIMATED LENGTHS. PRIOR TO ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
52. ALL COAXIAL CABLE SHALL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, AT DISTANCES NOT TO EXCEED 4'-0" OC.
53. CONTRACTOR SHALL FOLLOW ALL MANUFACTURER’S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ANTENNAS, AND ALL OTHER EQUIPMENT.
54. CONTRACTOR SHALL WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF-AMALGAMATING TAPE.

GENERAL CABLE & EQUIPMENT NOTES:

55. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ANTENNA, TMAS, DIPLEXERS, AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.
56. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER MANUFACTURER’S RECOMMENDATIONS.
57. CONTRACTOR SHALL REFERENCE THE STRUCTURAL ANALYSIS / DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION / ROUTING.
58. ALL OUTDOOR RF CONNECTORS/CONNECTIONS SHALL BE WEATHERPROOFED, EXCEPT THE RET CONNECTORS, USING BUTYL TAPE AFTER INSTALLATION AND FINAL CONNECTIONS ARE MADE. BUTYL TAPE SHALL HAVE A MINIMUM OF ONE-HALF TAPE WIDTH OVERLAP ON EACH TURN AND EACH LAYER SHALL BE WRAPPED THREE TIMES. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING. BUTYL BLEEDING IS NOT ALLOWED.
59. IF REQUIRED TO PAINT ANTENNAS AND/OR COAX:

A. TEMPERATURE SHALL BE ABOVE 50° F, OR PAINTING TO BE PERFORMED IN A MANNER CONSISTENT WITH THE PAINT MANUFACTURER’S INSTRUCTIONS FOR COLD WEATHER PAINTING.

B. PAINT COLOR MUST BE APPROVED BY BUILDING OWNER/LANDLORD.

C. FOR REGULATED TOWERS, FAA/FCC APPROVED PAINT IS REQUIRED.

D. DO NOT PAINT OVER COLOR CODING OR ON EQUIPMENT MODEL NUMBERS.
60. ALL PROPOSED GROUND BAR DOWNLEADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUND BAR DOWNLEADS A MINIMUM DISTANCE OF 4'-0" BELOW GROUND BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.
61. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER MANUFACTURER’S SPECIFICATION & RECOMMENDATIONS.

ROW CONSTRUCTION NOTES STANDALONE:

62. NO BOLT THREADS TO PROTRUDE MORE THAN 1-1/2" [.038M].
63. 90 SHORT SWEEPS UNDER ANTENNA ARM. ALL CABLES MUST ONLY TRANSITION ON THE INSIDE OR BOTTOM OF ARMS (NO CABLE ON TOP OF ARMS).
64. USE 90 CONNECTOR AT CABLE CONNECTION TO ANTENNAS.
65. PLACE GPS ON ARM WITH SOUTHERN SKY EXPOSURE AT MINIMUM 6’ [1.83] FROM TRANSMIT ANTENNA, WHICH IS 24’ [.61M] AWAY FROM CENTER OF POLE.
66. USE 1/2" [.013M] CABLE ON ANTENNAS UNLESS OTHERWISE SPECIFIED.
67. FILL VOID AROUND CABLES AT CONDUIT OPENING WITH FOAM SEALANT TO PREVENT WATER INTRUSION.
68. THE MINIMUM SIZE OF ALL ANTENNA POLE WILL BE ANSI CLASS 3, UNLESS NOTED OTHERWISE.

MAINTENANCE OF TRAFFIC:

69. DURING THE CONSTRUCTION PERIOD, STREETS AND / OR STREET TRAFFIC LANES MAY BE CLOSED TEMPORARILY, WITH THE WRITTEN PERMISSION OBTAINED BY CONTRACTOR FROM THE GOVERNING AUTHORITY.
70. ANY STREET CLOSURE OR PORTION THEREOF MUST COMPLY WITH THE STATE AUTHORITIES DEPARTMENT OF TRANSPORTATION STANDARDS IN ADDITION TO THE MANUAL OF UNIFORM CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS.
71. ALL REQUIRED CONSTRUCTION TRAFFIC MAINTENANCE AND CONTROLS SHALL BE IN ACCORDANCE WITH THE STATE AUTHORITIES DEPARTMENT OF TRANSPORTATION STANDARDS IN ADDITION TO THE MANUAL OF UNIFORM CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS AND SHALL BE DESIGNED, PLANNED, PROVIDED, ERECTED AND MAINTAINED BY THE CONTRACTOR PER THE APPLICABLE STANDARDS. THE CONTRACTOR SHALL MAINTAIN SAFE AND SATISFACTORY ACCESS TO ALL ABUTTING PROPERTIES AND INTERSECTING STREETS AT ALL TIMES DURING THE CONSTRUCTION OF THE IMPROVEMENTS ANTICIPATED. DRIVEWAYS MUST BE MAINTAINED AND ALL TRENCHES SHALL BE BACKFILLED AT THE END OF EACH WORK DAY.
73. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY SAFEGUARDS SUCH AS BARRICADES, SATISFACTORY BARRIERS, LIGHTING, FLAGMEN, ETC. TO AVOID DAMAGE AND/OR INJURY TO VEHICLES AND PERSONS TRAVERSING THE CONSTRUCTION AREA.
74. THE CONTRACTOR SHALL SUBMIT A FORMAL TRAFFIC CONTROL PLAN THAT MEETS ALL REQUIREMENTS OF THE CURRENT ADOPTED STANDARDS OF THE STATE AUTHORITIES DEPARTMENT OF TRANSPORTATION STANDARDS IN ADDITION TO THE MANUAL OF UNIFORM CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS. THIS SUBMITTAL AND DESIGN IS NOT UNDER THE CONTROL OF KIMLEY-HORN.



PLANS PREPARED BY:



39111 SIX MILE ROAD
LIVONIA, MI 48152
PHONE: (734) 591-7208
WWW.KIMLEY-HORN.COM

REV: DATE: DESCRIPTION: BY:

0	12/17/19	ISSUED FOR CONSTRUCTION	REL

DRAWN BY: CHECKED BY:

REL

KLD

KH PROJECT NUMBER:

KHCHI-55

ENGINEER SEAL:



PROJECT INFORMATION:

SITE NAME: 33036 - C

203 E WASHINGTON STREET
ANN ARBOR, MI 48104
WASHTENAW COUNTY

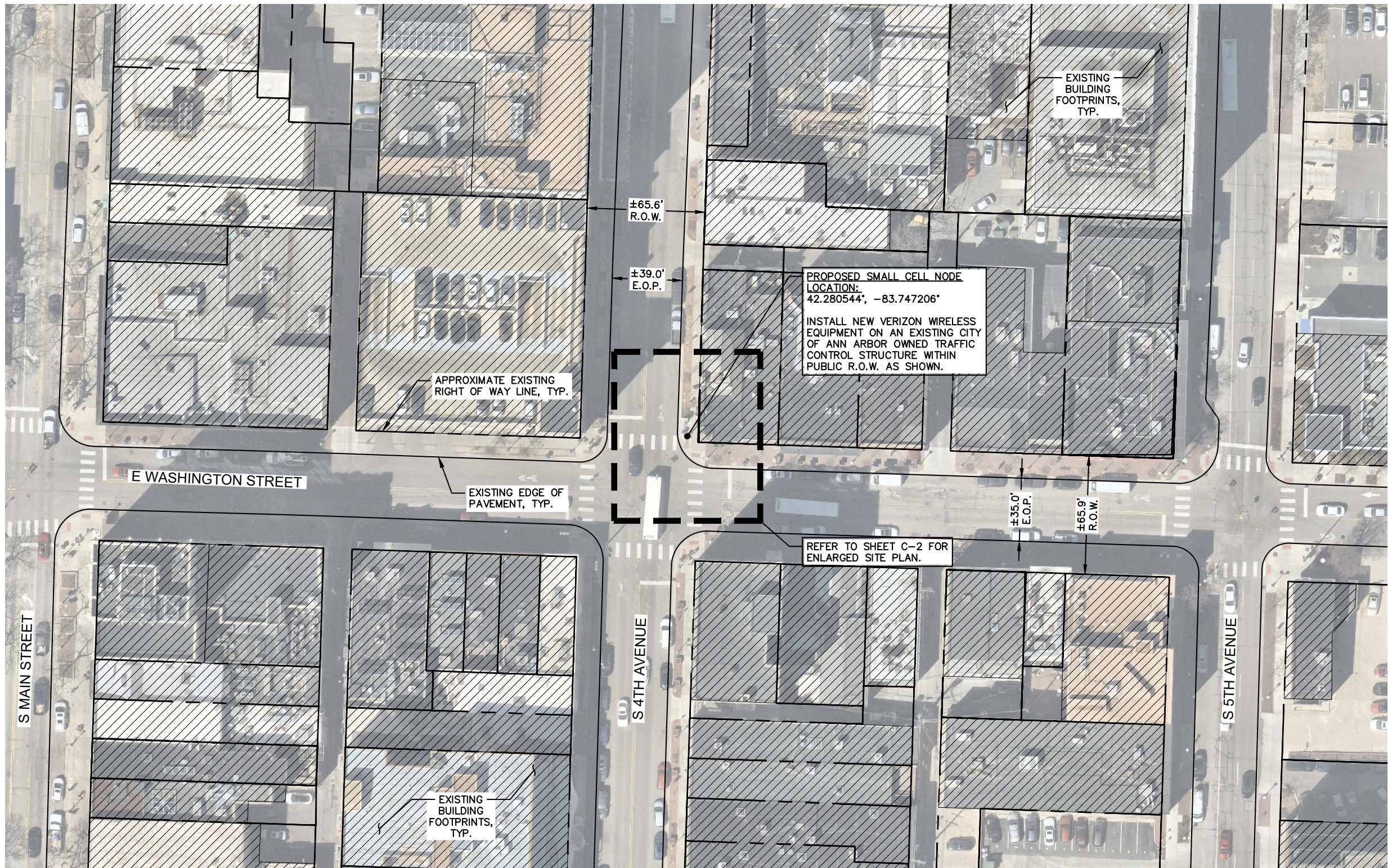
SHEET TITLE:

GENERAL NOTES

SHEET NUMBER:

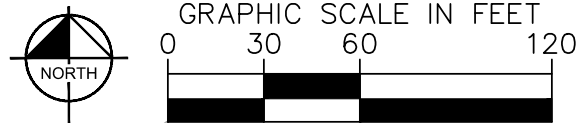
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- NOTES:**
1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
 2. INFORMATION SHOWN WAS OBTAINED FROM AERIAL IMAGERY AND COUNTY/CITY GIS (IF AVAILABLE), AND IS PROVIDED HERE FOR ILLUSTRATIVE PURPOSES ONLY. THE CONTRACTOR MUST FIELD VERIFY ALL MEASUREMENTS, UTILITY LOCATIONS, AND FIELD CONDITIONS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

OVERALL SITE PLAN
SCALE: 1" = 60'
SCALE BASED ON 11"X17" ONLY



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PLANS PREPARED BY:

Kimley»Horn
of Michigan, Inc.

39111 SIX MILE ROAD
LIVONIA, MI 48152
PHONE: (734) 591-7208
WWW.KIMLEY-HORN.COM

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DRAWN BY: CHECKED BY:

REL KLD

KH PROJECT NUMBER:

KHCHI-55

ENGINEER SEAL:



PROJECT INFORMATION:

SITE NAME: 33036 - C

203 E WASHINGTON STREET
ANN ARBOR, MI 48104
WASHTENAW COUNTY

SHEET TITLE:

**OVERALL
SITE PLAN**

SHEET NUMBER:

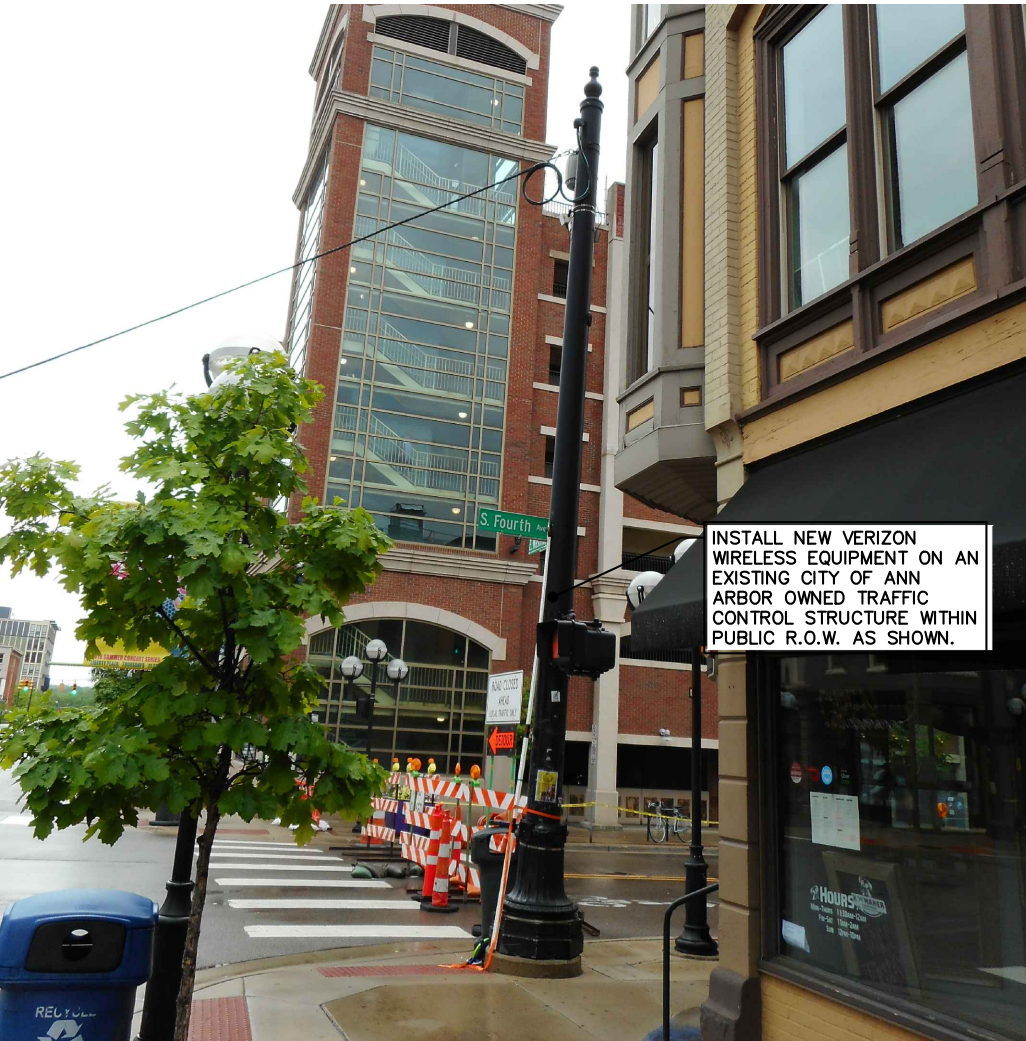
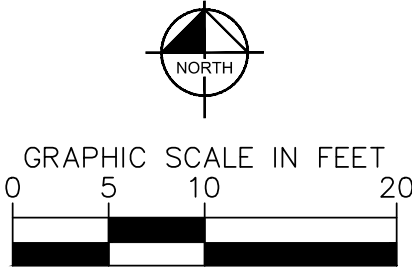
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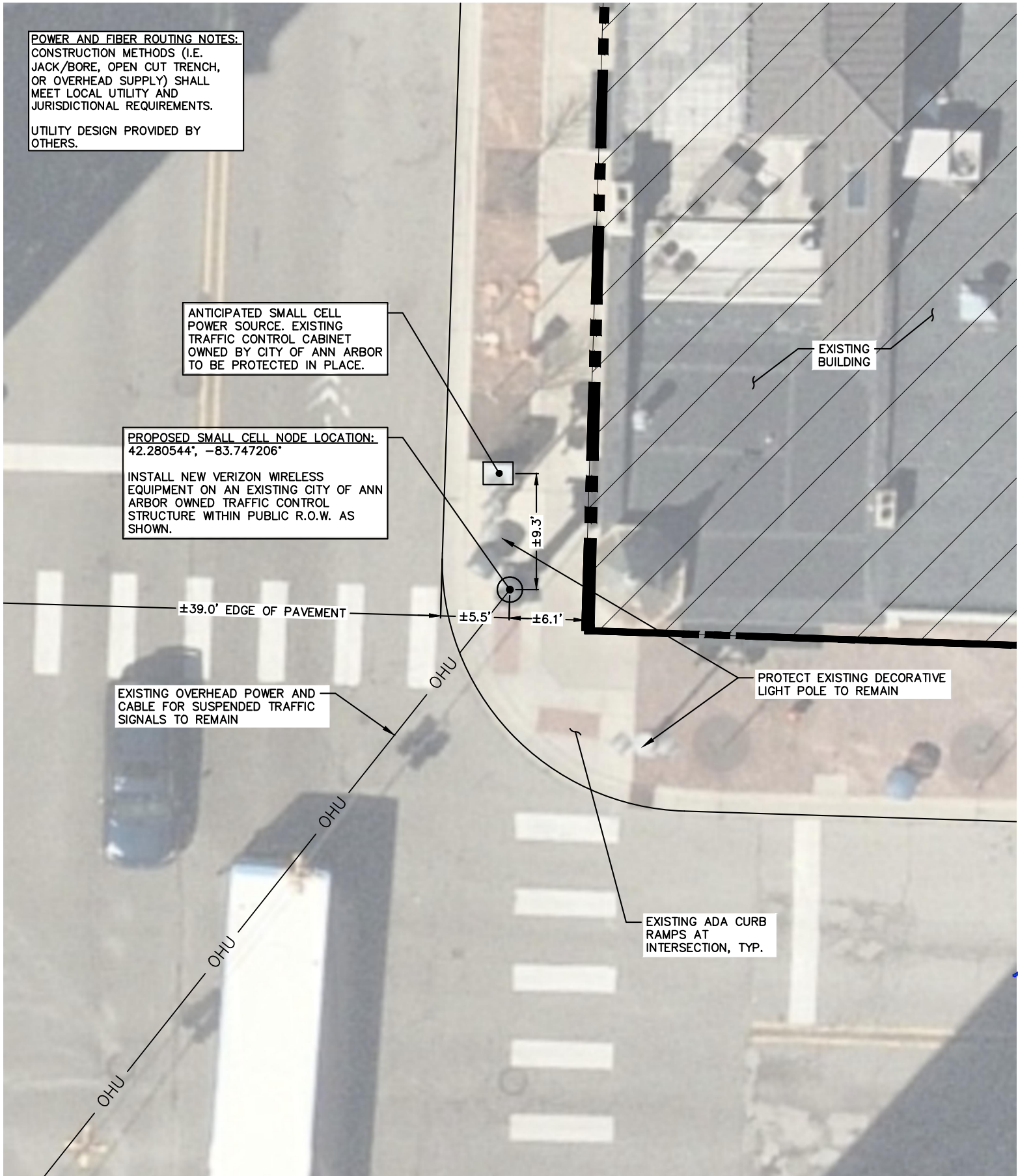
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LEGEND:

APPROXIMATE R.O.W. LINE	— — — — —
ELECTRIC (UNDERGROUND)	— E —
ELECTRIC (OVERHEAD)	— OHU —
FIBER	— F —
GAS LINE	— GAS —
STORM SEWER	— SD —
SANITARY SEWER	— S —
WATER LINE	— W —



1
C-2
PROPOSED NODE LOCATION
SCALE: N.T.S.
SCALE BASED ON 11"X17" ONLY



2
C-2
ENLARGED SITE PLAN
SCALE: 1" = 10'
SCALE BASED ON 11"X17" ONLY

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ENGINEER SEAL:



12/17/19

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WASHTENAW COUNTY

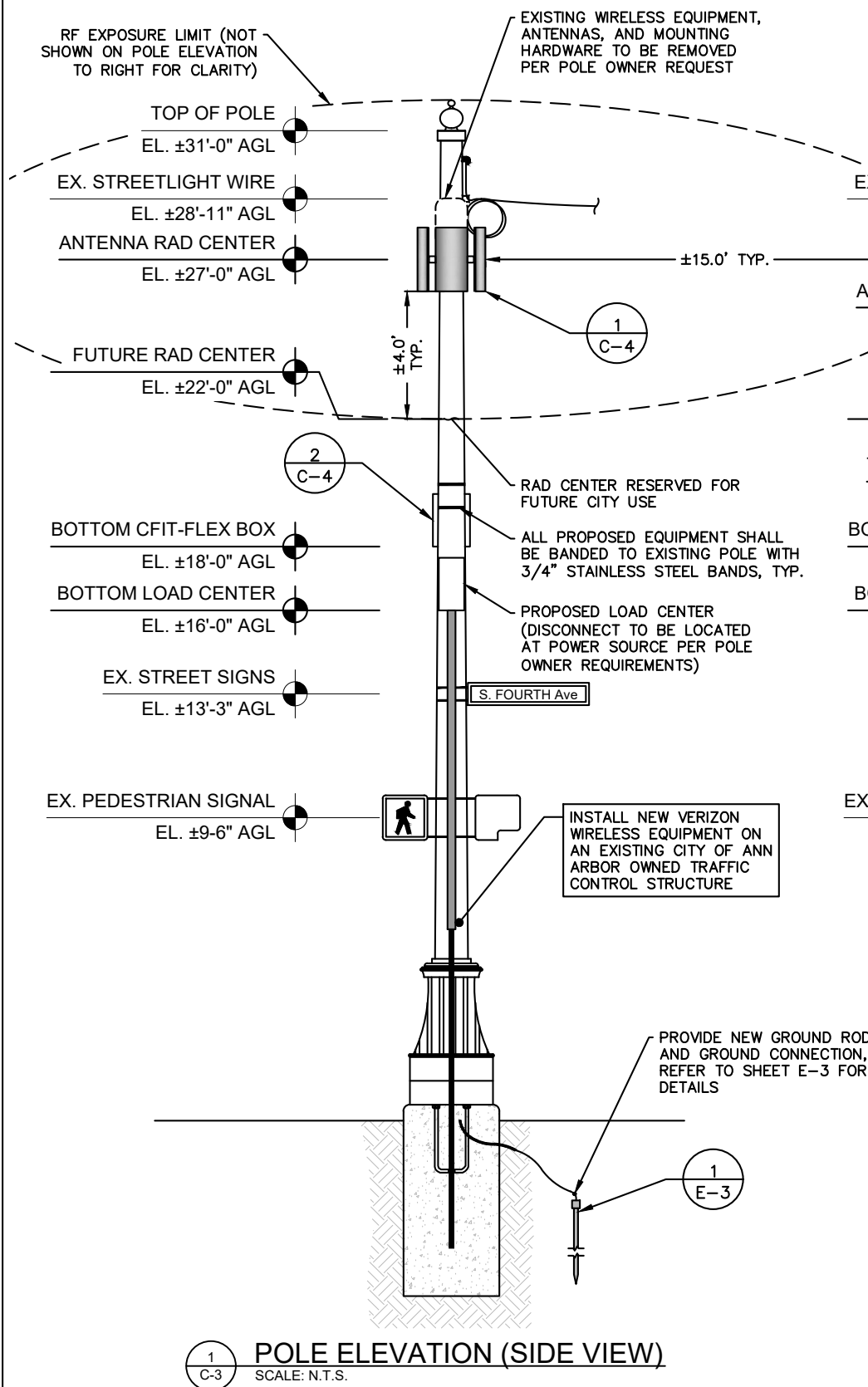
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**ENLARGED
SITE PLAN**

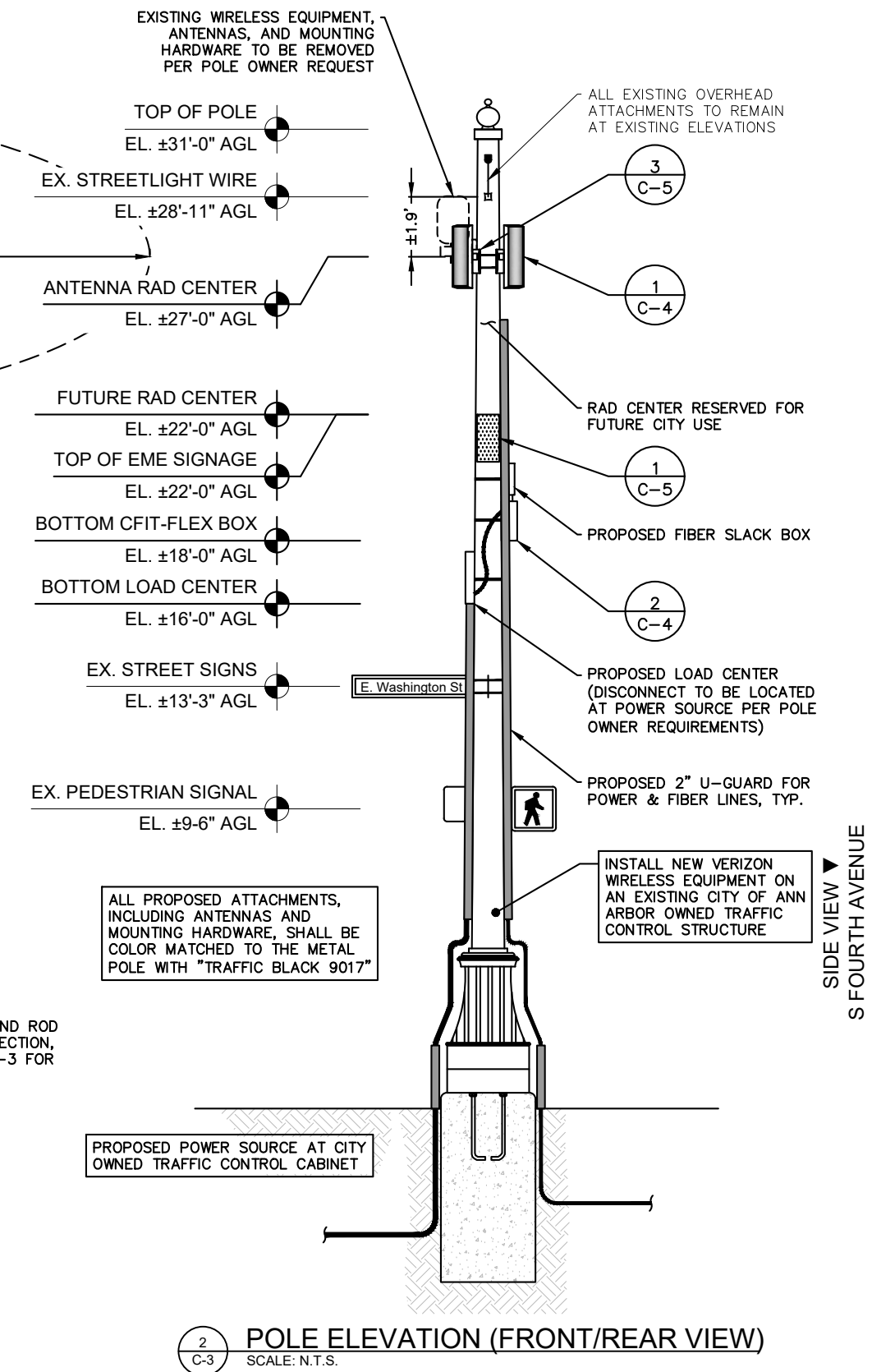
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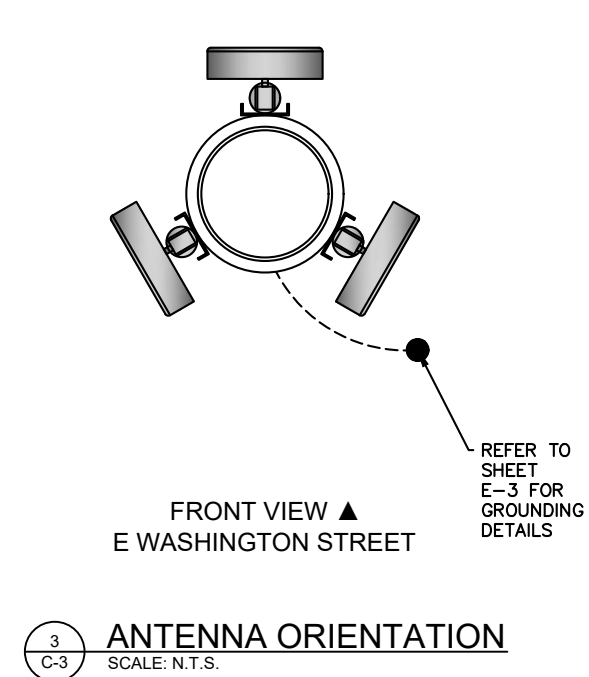
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1 C-3 POLE ELEVATION (SIDE VIEW)
SCALE: N.T.S.



2 C-3 POLE ELEVATION (FRONT/REAR VIEW)
SCALE: N.T.S.



3 C-3 ANTENNA ORIENTATION
SCALE: N.T.S.

**KEY NOTE
LEGEND:**

VIEW SHEET

- KEY NOTES:**
- 1 C-4 5G ANTENNA INTEGRATED RADIOS - ERICSSON AIR 5121
 - 2 C-4 COMPACT UNIVERSAL ENCLOSURE - CHARLES CFIT-FLEX BOX
 - 1 C-5 TWO (2) 12" X 18" RF WARNING SIGNS POSTED MIN. 5' BELOW BOTTOM OF ANTENNAS
 - 3 C-5 ANTENNA MOUNT
 - 1 E-3 GROUND ROD MIN. 3'-0" FROM POLE

- POLE ELEVATION NOTES:**
- ALL EQUIPMENT MAY BE ADJUSTED IN THE FIELD TO ACCOMMODATE FIELD CONDITIONS, LOCAL CODES, REGULATIONS, AND PROVISIONS OF THE CONTRACT.
 - POLE DESIGN, SPECIFICATIONS, AND ANALYSIS PROVIDED SEPARATELY.
 - ANTENNA ORIENTATION SHOWN FOR REFERENCE ONLY. SEE VERIZON WIRELESS RFDS FOR FINALIZED AZIMUTH AND MECHANICAL DOWNTILT INFORMATION.



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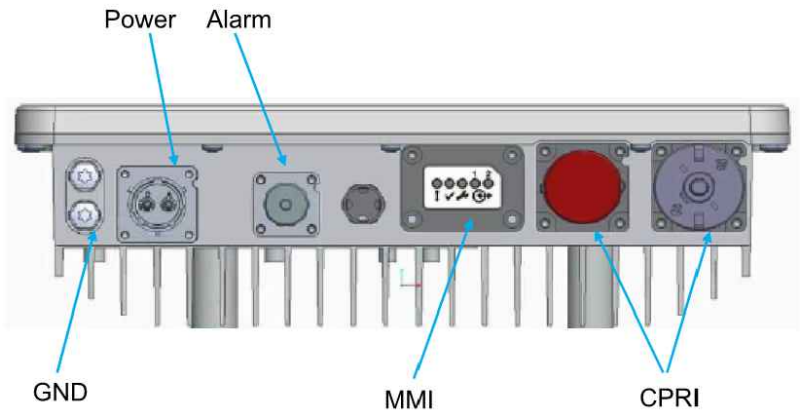
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POLE ELEVATIONS

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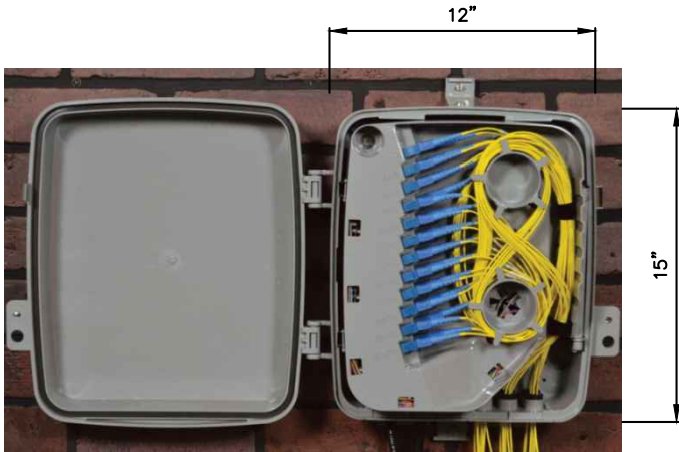
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SUMMARY OF CONNECTIONS			
DESIGNATION	QUANTITY	DESCRIPTION	CONNECTOR
DATA 1-2	2	CPRI 8	BULKHEAD, CIRCULAR CONNECTOR, SFP+
MMI	1	LED'S ON THE MAIN BOARD ARE DIRECTED TO THE OUTSIDE OF THE UNIT THROUGH LIGHT GUIDES AND CAN BE COVERED.	-
IP VENT PLUG	1	DEVICE FOR PRESSURE EQUALIZATION BETWEEN INSIDE AND OUTSIDE UNIT	-
EXTERNAL ALARM	1	EXTERNAL ALARM PORT	CIRCULAR 14 CONTACTS FEMALE PANEL CONNECTOR
POWER	1	110/250V AC	EXTERNAL CONTACTS CIRCULAR FEMALE
GND	1	DUAL LUG GROUNDING	-

1 5G ANTENNA INTEGRATED RADIO - ERICSSON AIR5121
SCALE: N.T.S.



PRODUCT SPECIFICATIONS	
DIMENSIONS	15" H X 12" W X 5.5" D
WEIGHT	4 LBS (EMPTY ENCLOSURE)
MATERIAL	RUGGED UL94-5VA GRAY POLYCARBONATE
SUPPORTED FIBER CONNECTOR TYPES	SC, LC, MPO
SECURITY FEATURES	216-HEX 1/4 TURN LOCK PADLOCK HASP
MOUNTING	WALL OR POLE MOUNT
COMPLIANCE	DESIGNED TO MEET OR EXCEED GR-950, GR-2898, NEMA 4, AND IP66

2 COMPACT UNIVERSAL ENCLOSURE - CHARLES CFIT-FLEX BOX
SCALE: N.T.S.

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FOR
REFERENCE
ONLY

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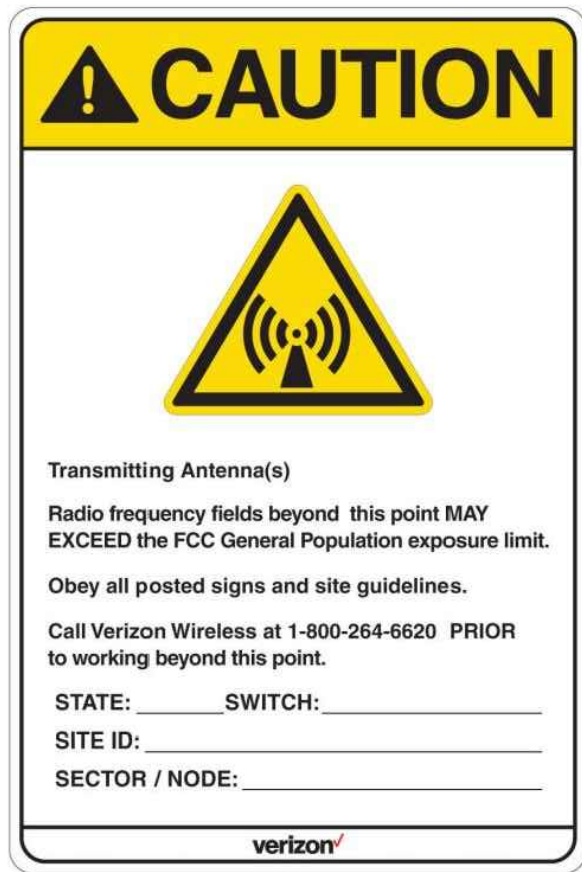
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WASHTENAW COUNTY

SHEET TITLE:

EQUIPMENT
DETAILS

SHEET NUMBER:

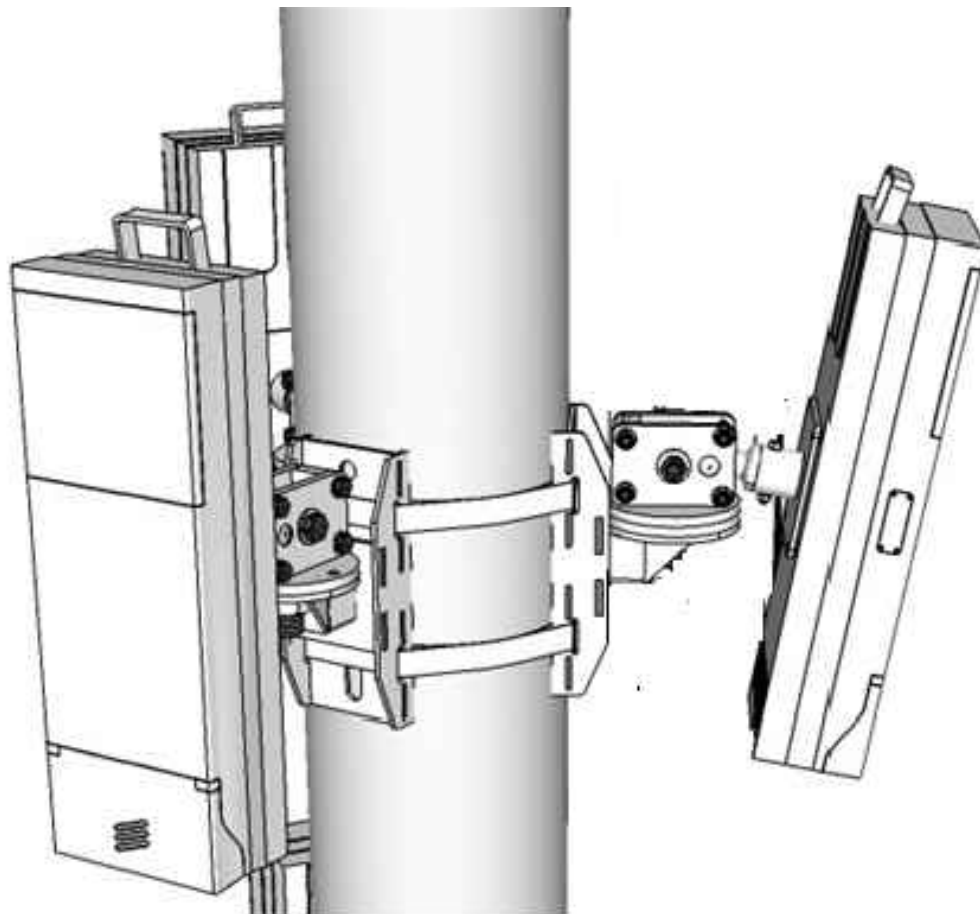
C-4



1 EXAMPLE RF WARNING SIGNS
SCALE: N.T.S.



2 DECAL TO BE INSTALLED ON BREAKER PANEL
SCALE: N.T.S.



3 ANTENNA WOOD POLE MOUNT
SCALE: N.T.S.



PLANS PREPARED BY: _____



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LIVONIA, MI 48152
PHONE: (734) 591-7208
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WASHTENAW COUNTY

SHEET TITLE: _____

EQUIPMENT
DETAILS

SHEET NUMBER: _____

C-5

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CODES, STANDARDS, AND SPECIFICATIONS

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL MATERIALS AND LABOR RELATED DIRECTLY OR INDIRECTLY TO ALL ELECTRICAL WORK DOCUMENTED IN THESE DRAWINGS SHALL BE PROVIDED AND PERFORMED IN CONFORMANCE WITH ALL CURRENT GOVERNING CODES, STANDARDS, AND PROFESSIONAL STANDARD OF CARE TO INCLUDE THE AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM), UNDERWRITERS LABORATORY (UL), NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA), AMERICAN STANDARDS ASSOCIATION (ASA), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), AND THE NATIONAL ELECTRICAL CODE (NEC).
2. MATERIALS SHALL BE NEW AND SHALL CONFORM TO ALL APPLICABLE CURRENT GOVERNING STANDARDS ESTABLISHED FOR EACH ITEM BY ASTM, UL, NEMA, ASA, AND NFPA.
3. ALL ELECTRICAL WORK SHALL COMPLY WITH ALL APPLICABLE STATE, COUNTY, AND MUNICIPAL CODES AND ORDINANCES, AS WELL AS ALL CURRENT GOVERNING STANDARDS AND PRACTICES AS REQUIRED BY NEC, NEMA, ANSI, NFPA, UBC, UL, IEEE, AND THE LOCAL UTILITY COMPANY.
4. ALL ELECTRICAL GROUNDING SHALL COMPLY WITH THE CURRENT EDITION OF THE NEC.
5. CONTRACTOR SHALL MAINTAIN UL LISTED FIRE RATINGS OF ANY WALL PENETRATIONS.
6. CONTRACTOR SHALL MAINTAIN A MINIMUM CLEARANCE IN FRONT OF ALL ELECTRICAL EQUIPMENT AS REQUIRED BY NEC.

GENERAL

7. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS AND ASSOCIATED FEES RELATED TO THE PROJECT AND SHALL DELIVER A COPY OF ALL PERMITS TO THE VERIZON REPRESENTATIVE.
8. CONTRACTOR SHALL SCHEDULE AND SHOULD ATTEND ALL INSPECTIONS REQUIRED BY THE JURISDICTION HAVING AUTHORITY.
9. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, ACCESSORIES, ETC., FOR A COMPLETE WORKING ELECTRICAL INSTALLATION.
10. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE BUILDING CODES AND LOCAL ORDINANCES, INSTALLED IN A NEAT MANNER, AND SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER.
11. CONTRACTOR SHALL PROTECT ADJACENT EQUIPMENT AND FINISHES FROM DAMAGE AND SHALL REPAIR TO ORIGINAL CONDITION ANY ITEMS DAMAGED AS A RESULT OF THE WORK
12. IF CONDUIT RUNS HAVE MORE THAN THREE (3) CONSECUTIVE 90 DEGREE TURNS, THEN CONTRACTOR SHALL INSTALL PULL BOXES AS REQUIRED BY NEC.
13. WHEN INSTALLING A NEW GROUND ROD, MAINTAIN 6' MINIMUM DISTANCE FROM EXISTING GROUND RODS.

MATERIALS

14. ALL EQUIPMENT AND MATERIALS SHOWN SHALL BE CONSIDERED NEW UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.
15. FINAL CONNECTIONS OF EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS, AND INSTRUCTIONS. THE ELECTRICAL CONTRACTOR SHALL PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT SUPPLIED BY VERIZON.
16. CONTRACTOR SHALL SEAL ALL CONDUITS ENTERING AN ENCLOSURE WITH CONDUIT SEALANT THAT IS COMPATIBLE WITH THE INSULATION OF THE CONDUCTORS IN THE CONDUIT.
17. CONDUIT RUNS SHALL HAVE A CONTINUOUS DOWNWARD SLOPE AWAY FROM ALL EQUIPMENT TO PREVENT WATER INFILTRATION.
18. CONTRACTOR SHALL FIELD DETERMINE ACTUAL CONDUIT ROUTING AND SHALL OBTAIN APPROVAL FROM VERIZON AND AHJ OF THE PROPOSED ROUTING PRIOR TO CONDUIT INSTALLATION.
19. ALL CONDUCTORS SHALL BE COPPER WITH THWN INSULATION AND ALL TERMINATIONS SHALL BE RATED FOR AT LEAST 75 DEGREES CELSIUS. INSULATION TO BE RATED SUNLIGHT RESISTANT WHERE EXPOSED.
20. ALL NEUTRAL CONDUCTORS SHALL HAVE WHITE INSULATION. ALL GROUND CONDUCTORS SHALL HAVE GREEN INSULATION. COLOR TAPE IDENTIFICATION OF THESE CONDUCTORS IS NOT PERMITTED.

PRE-CONSTRUCTION COORDINATION

21. CONTRACTOR SHALL VISIT THE SITE PRIOR TO BID AND NOTE EXISTING CONDITIONS THAT MIGHT AFFECT THEIR WORK. ALL SUCH CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO BID.
22. CONTRACTOR SHALL PROVIDE A UTILITY LOCATOR AND SHALL VERIFY THE ACTUAL LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
23. CONTRACTOR SHALL VERIFY, PRIOR TO ROUGH-IN, THAT SITE CONDITIONS ALLOW FOR THE PLACEMENT OF THE ELECTRICAL EQUIPMENT AS SHOWN ON THE PLANS.
24. ALL OUTAGES SHALL BE CONDUCTED AT A TIME AGREED UPON IN WRITING WITH THE BUILDING OWNER. POWER OUTAGE DURATION SHALL BE PRE-APPROVED IN WRITING BY THE BUILDING OWNER.
25. CONTRACTOR SHALL PERFORM AN ARC FLASH ANALYSIS AT THE LOAD CENTER ON THE VERIZON TELECOMMUNICATIONS CABINET AND PROVIDE ARC FLASH LABEL PER NEC.
26. WHEN A NEW ELECTRICAL SERVICE IS REQUIRED, CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRICAL UTILITY REGARDING THE EXACT LOCATION OF THE TRANSFORMER, ALL METERING REQUIREMENTS, AND CONDUIT ROUTING BETWEEN TRANSFORMER AND METER.
27. ALL CIRCUIT BREAKERS AND EQUIPMENT SHALL HAVE A MINIMUM AIC RATING OF 10,000 AMPS. IF THE RATING OF THE UTILITY TRANSFORMER PROVIDING THE ELECTRICAL SERVICE IS GREATER THAN 75 kVA, THE CONTRACTOR SHALL PERFORM A SHORT CIRCUIT CURRENT ANALYSIS TO DETERMINE THE REQUIRED AIC RATING FOR THE CIRCUIT BREAKERS AND THE EQUIPMENT. PRIOR TO PURCHASING EQUIPMENT, THE CONTRACTOR SHALL CONTACT THE ELECTRIC UTILITY AND OBTAIN IN WRITING THE MAXIMUM AVAILABLE FAULT CURRENT (AFC) AT THE UTILITY SERVICE POINT. PROVIDE MAX. AFC SIGNAGE AS REQUIRED PER NEC 110.24. THE CONTRACTOR SHALL ENSURE ALL ELECTRICAL EQUIPMENT, CIRCUIT BREAKERS, DISCONNECTS, FUSES, AND PANELBOARDS HAVE A FAULT CURRENT INTERRUPTING RATING GREATER THAN THE AVAILABLE FAULT CURRENT.



PLANS PREPARED BY:



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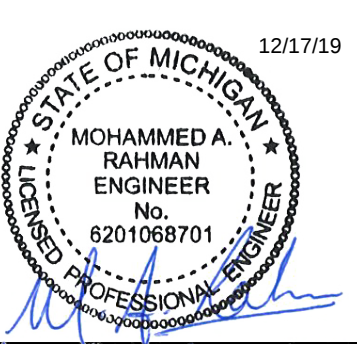
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ENGINEER SEAL:



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203 E WASHINGTON STREET
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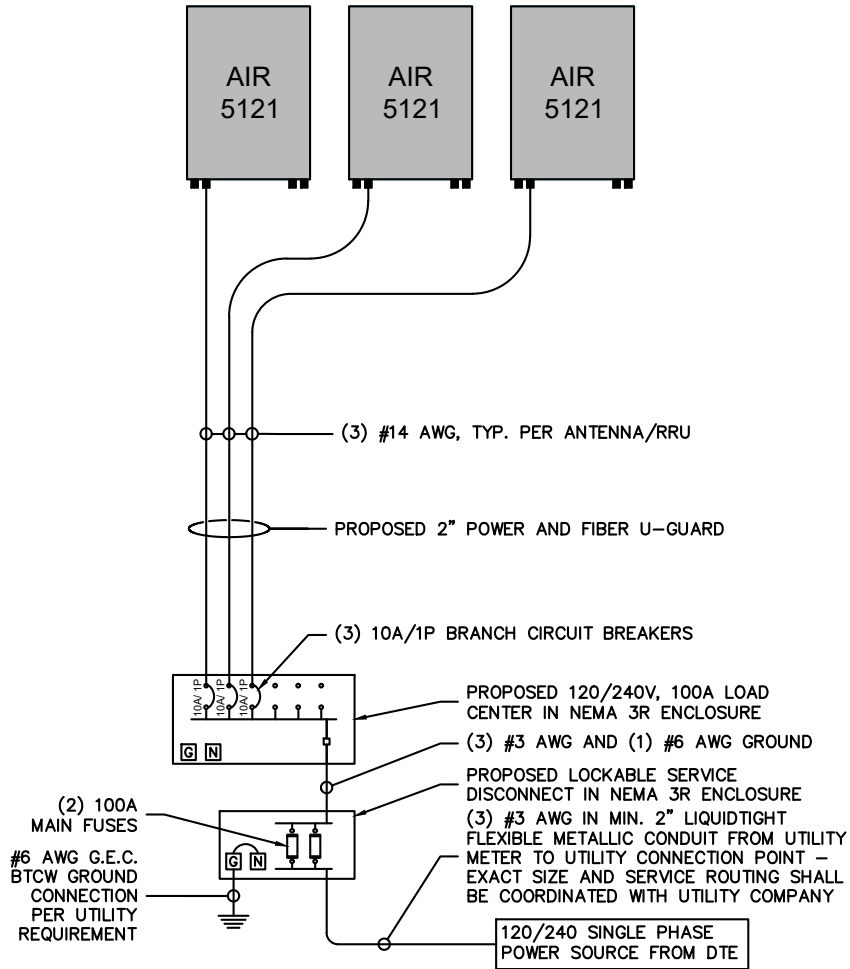
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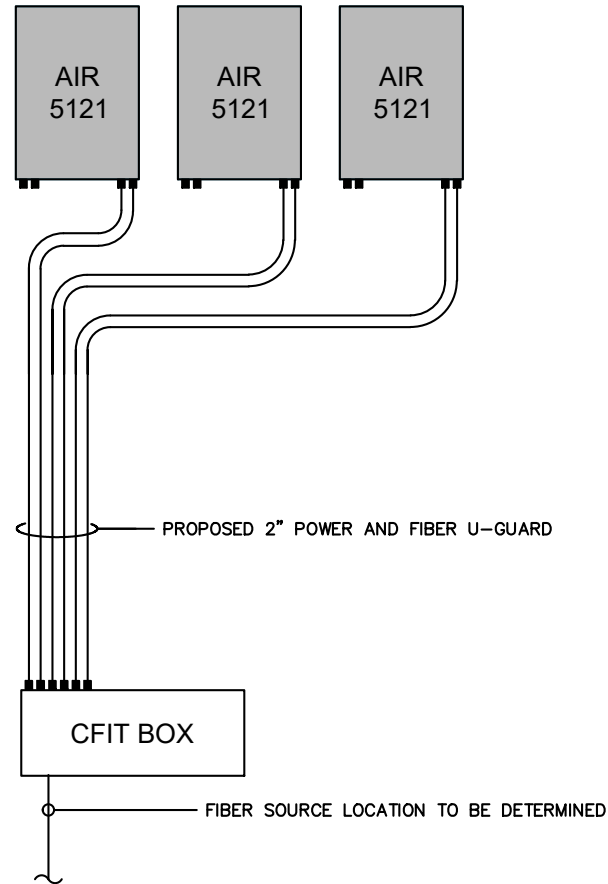
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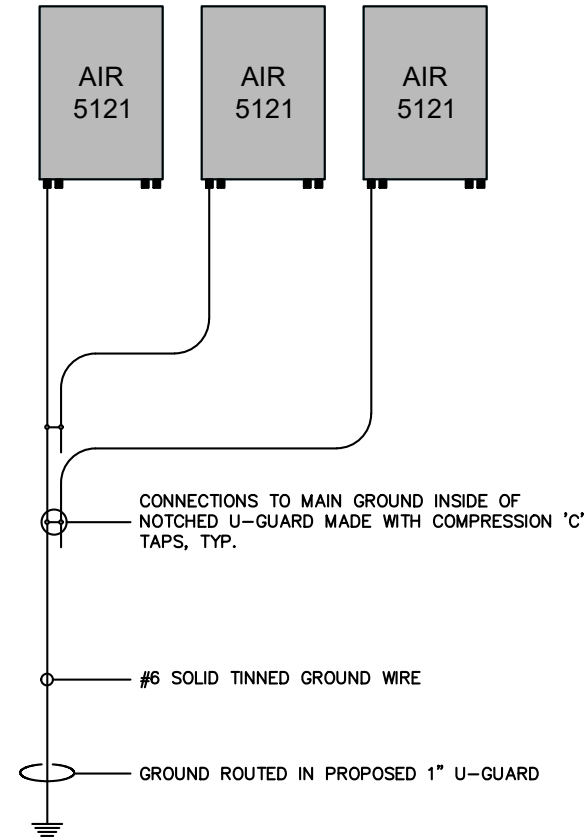
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1 POWER ROUTING DETAIL
E-2 SCALE: N.T.S.



2 FIBER ROUTING DETAIL
E-2 SCALE: N.T.S.



3 GROUND ROUTING DETAIL
E-2 SCALE: N.T.S.

VOLTAGE		120/240V		AIC RATING (MINIMUM)		10,000 AMPS	
MAIN BREAKER		100 AMP		BUSS RATING		100 AMPS	
MOUNT		SURFACE		NEUTRAL BAR		YES	
ENCLOSURE TYPE		NEMA 3R		GROUND BAR		YES	
PANEL STATUS		PROPOSED		N TO GROUND BOND		YES	
PHASE, WIRES		SINGLE, 3		INTERNAL TVSS/SPD		TBD	
CKT	LOAD DESCRIPTION	BREAKER AMPS	BREAKER POLES	BREAKER STATUS	SERVICE LOAD VA	USAGE FACTOR	PHASE A VA
1	AIR 5121	10	1	ON	300	1.00	300
2	AIR 5121	10	1	ON	300	1.00	300
3	AIR 5121	10	1	ON	300	1.00	300
4	---	---	---	N/A	0	1.00	0
5	---	---	---	N/A	0	1.00	0
6	---	---	---	N/A	0	1.00	0
							900

OVERALL LOAD SUMMARY	
TOTAL SERVICE LOAD kVA	0.90
AMPS	7.50

4 PANEL SCHEDULE
E-2 SCALE: N.T.S.

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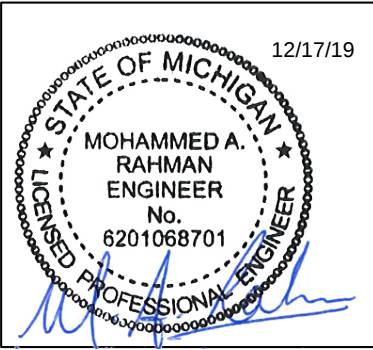
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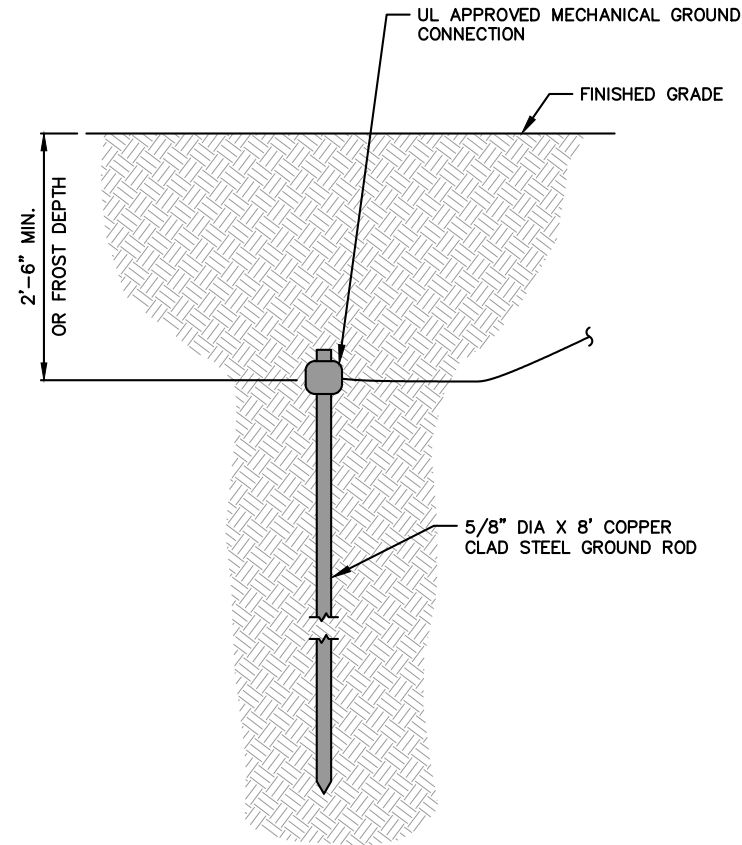
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& ROUTING DETAILS

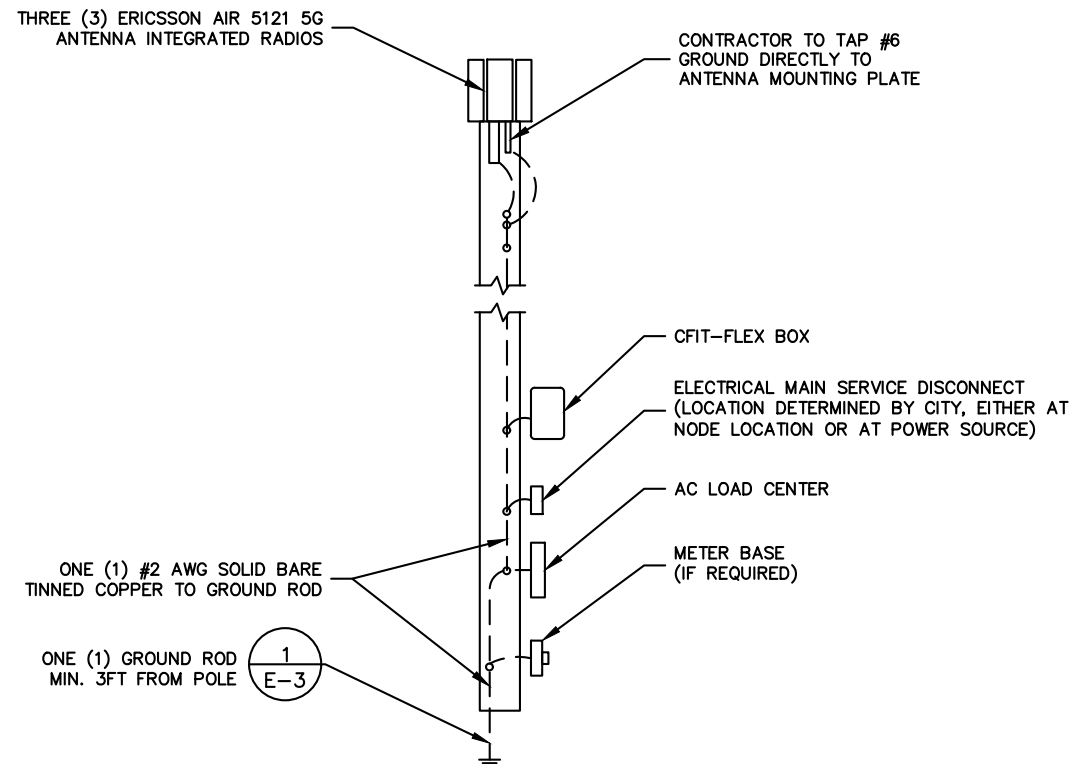
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E-2

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1
E-3
GROUND ROD
SCALE: N.T.S.



2
E-3
GROUNDING DIAGRAM
SCALE: N.T.S.

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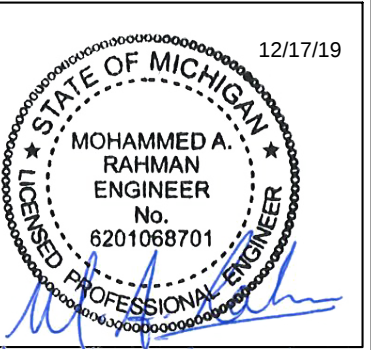
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WASHTENAW COUNTY

SHEET TITLE:

**ELECTRICAL &
GROUNDING DETAILS**

SHEET NUMBER:

E-3