



CITY OF DULUTH

Community Planning Division

411 W 1st St, Rm 208 * Duluth, Minnesota 55802-1197

Phone: 218/730.5580 Fax: 218/723-3559

| | | | | | |
|-----------------------------|---|---------------|---------------------------------|------------------------------------|--|
| File Number | PL 16-067 | | Contact | Steven Robertson, 218-730-5295 | |
| Type | SUP, Wireless Telecommunication | | Planning Commission Date | August 9, 2016 | |
| Deadline for Action | Application Date | July 22, 2016 | 60 Days | September 20, 2016 | |
| | Date Extension Letter Mailed | July 29, 2016 | 120 Days | November 19, 2016 | |
| Location of Subject | 3 Separate Sites on the St. Scholastica Campus, 1200 Kenwood Avenue | | | | |
| Applicant | Verizon, on Behalf of St. Scholastica | | Contact | Tom Brekke, Director of Facilities | |
| Agent | Jared Andrews, on behalf of Verizon | | Contact | Jared.andrews@jacobs.com | |
| Legal Description | | | | | |
| Site Visit Date | July 30, 2016 | | Sign Notice Date | July 25, 2016 | |
| Neighbor Letter Date | July 28, 2016 | | Number of Letters Sent | 53 | |

Proposal

Applicant is proposing to construct three stealth telecommunication facilities on three street light poles along a private street within the St. Scholastica campus. The facilities will be approximately 23 feet tall and will be stealthed; they will be designed to blend into the surrounding streetscape and not be visually intrusive. The facilities are being requested to bolster Verizon's current capacity (coverage is sufficient without the additional sites).

| | Current Zoning | Existing Land Use | Future Land Use Map Designation |
|----------------|-----------------------|--------------------------|--|
| Subject | MU-I | Educational | Institutional |
| North | R-1 | Residential | Traditional Neighborhood |
| South | R-C/R-1 | Undeveloped/Residential | Pres./Traditional Neigh. |
| East | R-1/P-1 | Residential | Traditional Neighborhood |
| West | R-C/R-1 | Undeveloped/Residential | Preservation |

Summary of Code Requirements

UDC Section 50-37.10. Special Use Permits. The Planning Commission shall approve the application or approve it with modifications if the commission determines that the application meets the following criteria: 1. The application is consistent with the Comprehensive Land Use Plan; 2. The application complies with all applicable provisions of this Chapter, including without limitation any use-specific standards applicable to the proposed use, development or redevelopment, and is consistent with any approved district plan for the area; 3. Without limiting the previous criteria, the commission may deny any application that would result in a random pattern of development with little contiguity to existing or programmed development or would cause anticipated negative fiscal or environmental impacts on the community.

Comprehensive Plan Governing Principle and/or Policies and Current History (if applicable):

Future Land Use: Applicable to university and college and public school campuses, large religious facilities or governmental campuses, cemeteries, etc. Applies primarily to existing facilities.

Principle #4 - Support emerging economic growth sectors Emerging economic sectors add economic, cultural and social diversity. These include higher education, medical, value-added manufacturing, commercial outdoor recreation, historic resources interpretation, arts and music, information technology and visitor services.

Governing Principles: #6 - Reinforce the place-specific. Public and private actions should reinforce cultural, physical and economic features which have traditionally defined Duluth, its open space and its neighborhoods. This includes commercial areas providing neighborhood goods and services, ravine parks and other natural features that define neighborhood edges and view corridors to the Lake or River which serve to provide location and context.

Review and Discussion Items

- 1) Applicant is applying for a Special Use Permit to construct three telecommunication facilities on three 23 foot tall street light poles along a private street within the St. Scholastica campus. The three facilities be stealthed; they will be designed to blend into the surrounding streetscape and not be visually intrusive. No new tower is being proposed. The proposed facilities are to support capacity and are not needed for coverage.
- 2) All three facilities will be identical in configuration and height. Each sector has its own capacity area served which is approximately 1,000 feet in diameter. Fiber will run underground and connect to the fiber in City right of way, eventually connecting to a nearby macro site. Ownership of the poles will be transferred to St. Scholastica. The applicant has provided sufficient structural and geotechnical information meeting code requirements (provided with the application, but not included with the staff report).
- 3) The code requires that new facilities follow a location standard: first they should be collocated on existing towers or other structures on city owned properties first, and then existing towers or other structures on other (private) property, and so forth down the location standard list. City staff consider this to be a collocation on existing structures on private property. If this had been proposed to be located on a public right of way, the application would have needed a concurrent use permit as well as a special use permit.
- 4) The city has the ability to regulate land use, however, the FCC preempts local review on the potential environmental effects of radio frequency (RF) emissions, assuming that the provider is in compliance with the Commission's RF rules. These three facilities are categorically excluded and will be in full compliance with the current FCC RF emissions guidelines. Applicant has agreed to perform, and provide written documentation, of a post construction RF emissions compliance.
- 5) The proposed location is within the Migratory Bird Flight Path area, which limits the height of new telecommunication facilities to no more than 75 feet. These will be no higher than approximately 23 feet.
- 6) Based on the design of the proposed facilities (one antenna per stealthed light pole) and the distance from the nearest private property owner, staff are not anticipating any visual impact and are recommending any additional screening be required. The interior of the base of the light poles will contain the remote radio units/equipment.
- 7) At the time that this memo was written, no written comments have been received.

Staff Recommendation:

Based on the above findings, Staff recommends Planning Commission approve the Special Use Permit subject to the following conditions:

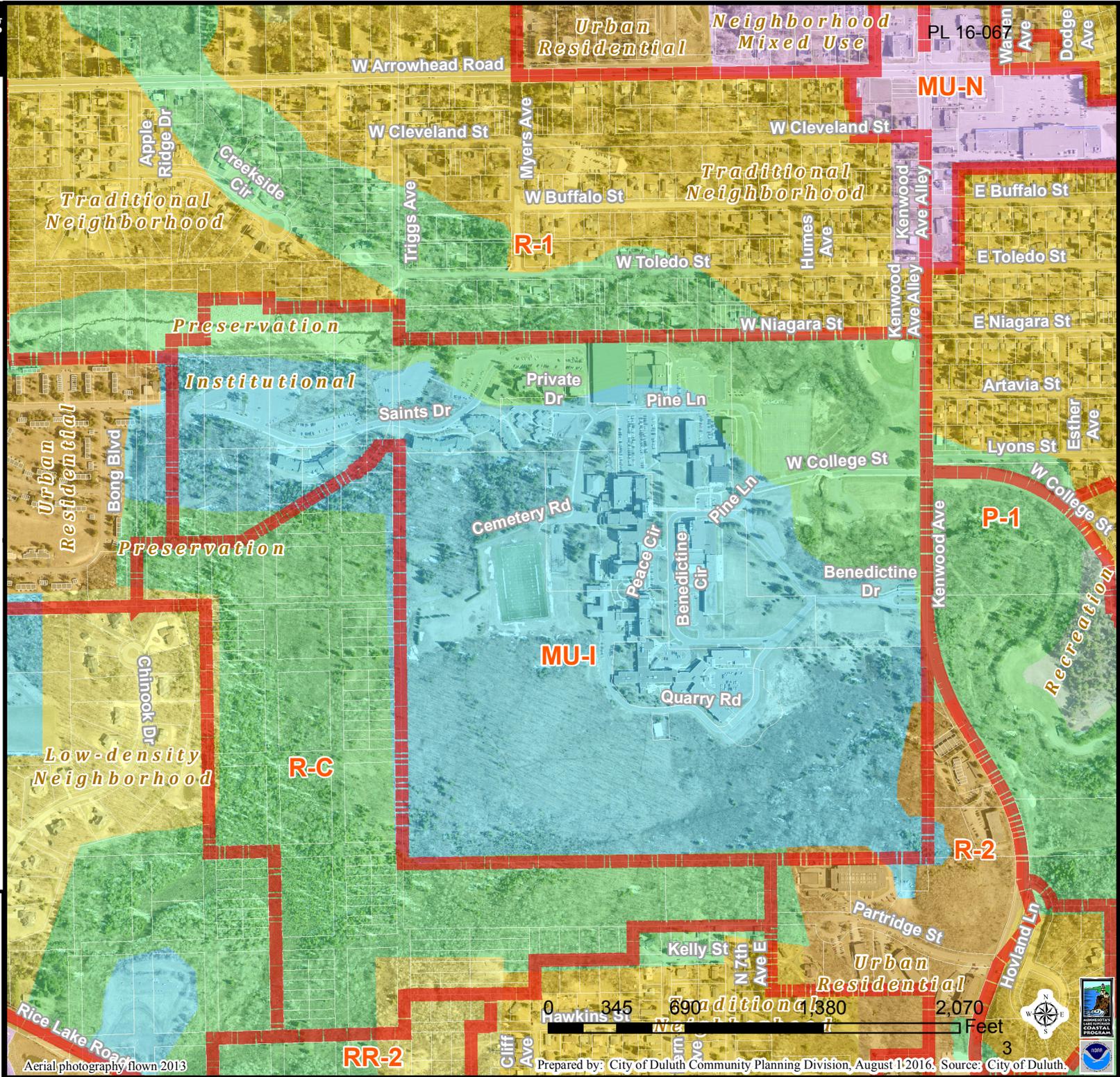
- 1) The project be limited to, constructed, and maintained according to construction drawings revised August 1, 2016, titled "DUL ST SCHOLASTICA SC X".
- 2) Applicant complies with requirements of items identified in the July 26, 2016 document from Center for Municipal Solutions, including but not limited to providing a \$25,000 removal bond, and provide written documentation of a post construction RF emissions compliance test.
- 3) In order to maintain very limited visual impact from the stealthed small cell sites, no vertical expansion of the facility is allowed beyond the approximately 23 feet approved in this SUP, and only one antenna per light pole is permitted.
- 4) Any alterations to the approved plans that do not alter major elements of the plan may be approved by the Land Use Supervisor without further Planning Commission approval; however, no such administrative approval shall constitute a variance from the provisions of Chapter 50.



Legend

-  Zoning Boundaries
- Future Land Use**
-  Preservation
-  Recreation
-  Rural Residential
-  Low-density Neighborhood
-  Traditional Neighborhood
-  Urban Residential
-  Neighborhood Commercial
-  Neighborhood Mixed Use
-  General Mixed Use
-  Central Business Secondary
-  Central Business Primary
-  Auto Oriented Commercial
-  Large-scale Commercial
-  Business Park
-  Tourism/Entertainment District
-  Medical District
-  Institutional
-  Commercial Waterfront
-  Industrial Waterfront
-  Light Industrial
-  Transportation and Utilities

The City of Duluth has tried to ensure that the information contained in this map or electronic document is accurate. The City of Duluth makes no warranty or guarantee concerning the accuracy or reliability. This drawing/data is neither a legally recorded map nor a survey and is not intended to be used as one. The drawing/data is a compilation of records, information and data located in various City, County and State offices and other sources affecting the area shown and is to be used for reference purposes only. The City of Duluth shall not be liable for errors contained within this data provided or for any damages in connection with the use of this information contained within.



Aerial photography flown 2013

0 345 690 1380 2,070 Feet

Kenwood

Proposed Node#2

Proposed Node#3

Proposed Node#1

DUL DULUTH ST SCHOLASTICA

Benedictine Ct

Pine Ln

Benedictine Dr

Quarry Rd

Wickham Ln



**YHC Inc. Midwest Consultant for
CENTER FOR MUNICIPAL SOLUTIONS
4252 N 139th Avenue, Omaha NE 68164
Phone 402-861-5982 yhcinc@cox.net**

July 26, 2016

Jared Andrews
Jcaobs
10801 Bush Lake Road
Bloomington, MN 55438

Re: **Duluth MN Verizon St. Scholastica College Small Cell Sites**

Dear Jared;

We have completed our initial review of the Application supplemental material received on July 1, 2016 and have the following comments. This review only identifies items that CMS considers as outstanding and lacking of appropriate information. Therefore only the sections that need additional information are listed below or sections where relief has been requested and recommended for approval.

Section 50-20.4 E Major Utility or Wireless Telecommunications Facility

Other Standards and Requirements:

Section r) Applicant shall clearly respond to this section on signage requirements. **Applicant referenced Exhibit E however the signage is not included in the construction plans for all three of the small cell site nodes. These signage installation instructions must be included in the plan sets. The sign detail and instructions have been included on the construction plans however it does not say where the sign will be posted. Is it attached to the pole and if so how is the contractor to know where to place the signage? Please correct.**

Section t) Applicant shall clearly respond to this section on removal bond requirements. **Applicant has provided a spreadsheet based on a \$1500 dismantle cost, a 3% annual cost increase for a 25 year period, multiplied by three for the three nodes. Is the 25 year period based on the proposed lease length and is it possible for this length of lease to be extended? The applicant has proposed a \$10,000 bond for all three nodes. No detailed professional engineer or contractor estimate for the dismantle cost of \$1500 was provided. This needs to be included and account for the following:**

- **Mobilization of equipment costs**
- **Removal and disposal of light pole**
- **Removal and disposal of concrete foundation & fill required to restore site to grade (compacted)**
- **Removal and disposal of antennas and equipment.**
- **Code compliant electrical disconnections and terminations.**

**YHC Inc. Midwest Consultant for
CENTER FOR MUNICIPAL SOLUTIONS
4252 N 139th Avenue, Omaha NE 68164
Phone 402-861-5982 yhcinc@cox.net**

The applicant provided a cost of over \$5,000 / site (current value) but has now requested relief / waiver of the bond requirement based on the fact the locations are on private property and the agreement between the two parties. The applicant has not provided copies of the agreements. CMS has previously advised the applicant that they can redact out lease rates on the lease agreements. Without documentation on ownership this application is no different than any other pole located on private property where a bond is to be provided. CMS recommends a minimum of one \$25,000 bond that covers the removal of these three nodes /wireless facilities.

Wireless Checklist: Applicants statement of compliance with the ordinance will include compliance with this checklist. See attached checklist.

General Site Information:

Survey of site. This is required information. **This section was not addressed as required in the application. The applicant has requested relief / waiver of the survey based on the approximate nearest property line. CMS recommends approval of this relief for these three nodes.**

RF Emission compliance. Required information, please note that if max power is exceeded this checklist referenced in the checklist it cannot be used. Applicant has 2 options, applicant can verify max ERP & emissions all carriers and provide a report documenting emissions compliance or, applicant can request timing relief and complete post const. survey of actual emissions compliance prior to C.O.C. **Line 19 information provided is for bandwidth not power. Values provided are to be cumulative totals for all frequencies. The form used was published by the FCC in the year 2000. We do have concerns that this form is appropriate for small cell sites that were not around at the time of this publication. We suggest that in addition to correcting the information on the form one of the following alternatives: 1. Applicant agree to post construction testing to verify RF emissions compliance, 2. Applicant complete a RF emissions study for these sites taking into consideration the 21' antenna height and the ground surfaces / changes around the perimeter of these nodes, 3. Provide documentation from the FCC that this Categorical Exclusion form is applicable to certify the emissions compliance for small cell nodes for these nodes.**

The applicant has agreed to complete post construction testing to verify RF compliance. CMS recommends approval of this item and directs the applicant to contact CMS prior to the commencement of this testing to verify locations and methods used. The testing results shall be reviewed by CMS prior to recommendation of certificate of compliance.

Visual impacts of new tower. This is required information **Applicant has requested the zone of visibility map be waived with justification based on height and viewshed. CMS recommends approval of this relief for these three nodes. CMS recommends approval of this relief for these three nodes.**



City of Duluth Special Use Permit

EXISTING CONDITIONS

Verizon Wireless Small Cell on St. Scholastica Light Poles



Site Acquisition | Telecommunications

Exhibit M—Node 1



City of Duluth Special Use Permit

EXISTING CONDITIONS

Verizon Wireless Small Cell on St. Scholastica Light Poles



Site Acquisition | Telecommunications

Exhibit M—Node 2



City of Duluth Special Use Permit

EXISTING CONDITIONS

Verizon Wireless Small Cell on St. Scholastica Light Poles



Site Acquisition | Telecommunications

Exhibit M—Node 3



ACTUAL PHOTOGRAPH BEFORE SIMULATION



PHOTO SIMULATION OF NEW INSTALLATION

PL 16-067



Jacobs Engineering Group, Inc.
2727 Patton Road
Roseville, Minnesota 55113
www.jacobs.com



Edge Consulting Engineers, Inc.
17645 Juniper Path, Suite 105
Lakeville, MN 55044
608.644.1449 voice
608.644.1549 fax
www.edgeconsult.com

PROJECT NO: 20151281316
EDGE PROJECT NO: 12242
DRAWN BY: MJM
CHECKED BY: OGD

| REV. | DATE | DESCRIPTION | |
|------|------------|------------------|-----|
| A | 07/20/2016 | PHOTO SIMULATION | MJM |
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PRELIMINARY - NOT FOR CONSTRUCTION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DUL ST SCHOLASTICA SC1
DULUTH, MINNESOTA
NEW LIGHT POLE
PHOTO SIMULATION

SHEET TITLE

PHOTO SIM 1

SHEET NUMBER

PS-1



ACTUAL PHOTOGRAPH BEFORE SIMULATION



PHOTO SIMULATION OF NEW INSTALLATION

PL 16-067



Jacobs Engineering Group, Inc.
2727 Patton Road
Roseville, Minnesota 55113
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Edge Consulting Engineers, Inc.
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608.644.1549 fax
www.edgeconsult.com

PROJECT NO: 20151281318
EDGE PROJECT NO: 12244
DRAWN BY: KJG
CHECKED BY: OGD

| REV. | DATE | DESCRIPTION | |
|------|------------|------------------|-----|
| A | 06/27/2016 | PHOTO SIMULATION | KJG |
| B | 06/30/2016 | PHOTO SIMULATION | KJG |
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DUL ST SCHOLASTICA SC1 3
DULUTH, MINNESOTA
REPLACEMENT LIGHT POLE
PHOTO SIMULATION

SHEET TITLE

PHOTO SIM 1

SHEET NUMBER

PS-1



ACTUAL PHOTOGRAPH BEFORE SIMULATION



PHOTO SIMULATION OF NEW INSTALLATION

PL 16-067



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DUL ST SCHOLASTICA SC1 3
DULUTH, MINNESOTA
REPLACEMENT LIGHT POLE
PHOTO SIMULATION

SHEET TITLE

PHOTO SIM 2

SHEET NUMBER

PS-2

12



SITE NAME: DUL ST SCHOLASTICA SC1 1

SITE NUMBER: 20151281316

SITE TYPE: SMALL CELL

POLE TYPE: PROPOSED 23' LIGHT POLE

PL 16-067



JACOBS

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| SITE INFORMATION | AREA MAP | PROJECT DESCRIPTION/SOW | SHEET INDEX | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|---|---|-----|-------------|-----|----------------------------|-----|-----------|-----|--------------------|-----|----------------|-----|------------------|-----|-----------------|-----|---------------|-----|-----------------|-----|------------------|-----|----------------|-----|-------------------|
| <p>APPROXIMATE ADDRESS: PINE LANE DULUTH, MINNESOTA 55811 ST LOUIS COUNTY</p> <p>LATITUDE & LONGITUDE: LAT: 46°-49'-02.33"N LONG: 92°-06'-21.06"W GROUND ELEVATION: 1252.8' AMSL (PER 1A CERTIFICATE)</p> <p>POLE HEIGHT: 23'-0" T.O.C.</p> <p>MAXIMUM APPURTENANCE HEIGHT: 23'-1" A.G.L.</p> | | <ul style="list-style-type: none"> INSTALLATION OF (1) REPLACEMENT 23-FT STEEL LIGHT POLE AND ASSOCIATED CONCRETE FOUNDATION INSTALLATION OF PANEL ANTENNA INSTALLATION OF ERICSSON RRU'S AND POWER CONVERTERS INSTALLATION OF LOAD CENTER/BREAKER BOX INSTALLATION OF FIBER CABLES FROM PROPOSED MMHH TO RADIOS INSTALLATION OF HAND HOLE/DEMARC FOR FIBER AT POLE BASE, BY VERIZON INSTALLATION OF CONDUIT FOR FIBER BETWEEN HAND HOLE AND POLE BASE (APPROX. 38'-6"), TO BE TRENCHED BELOW GRADE, BY VERIZON INSTALLATION OF CONDUIT FOR FIBER BETWEEN RIGHT-OF-WAY AND SC1 1 HAND HOLE (APPROX. 507'-6"), TO BE TRENCHED AND DIRECTIONALLY BORED BELOW GRADE, BY VERIZON INSTALLATION OF CONDUIT FOR ELECTRIC BETWEEN POLE BASE AND POWER SOURCE (APPROX. 143'-0"), TO BE TRENCHED AND DIRECTIONALLY BORED BELOW GRADE, BY VERIZON INSTALLATION OF GROUND RING AROUND POLE FOUNDATION INSTALLATION OF BUILDING PENETRATION THROUGH CONCRETE/BRICK WALL FOR ELECTRICAL CONDUIT ALL OTHER CONSTRUCTION RELATED ACTIVITIES TO BE COMPLETED BY OTHERS | <table border="1"> <thead> <tr> <th>NO:</th> <th>SHEET TITLE</th> </tr> </thead> <tbody> <tr><td>T-1</td><td>TITLE SHEET & PROJECT DATA</td></tr> <tr><td>C-1</td><td>SITE PLAN</td></tr> <tr><td>C-2</td><td>ENLARGED SITE PLAN</td></tr> <tr><td>A-1</td><td>POLE ELEVATION</td></tr> <tr><td>A-2</td><td>MOUNTING DETAILS</td></tr> <tr><td>A-3</td><td>ANTENNA DETAILS</td></tr> <tr><td>A-4</td><td>RADIO DETAILS</td></tr> <tr><td>E-1</td><td>CABLING DETAILS</td></tr> <tr><td>E-2</td><td>ELECTRICAL NOTES</td></tr> <tr><td>G-1</td><td>GROUNDING PLAN</td></tr> <tr><td>G-2</td><td>GROUNDING DETAILS</td></tr> </tbody> </table> | NO: | SHEET TITLE | T-1 | TITLE SHEET & PROJECT DATA | C-1 | SITE PLAN | C-2 | ENLARGED SITE PLAN | A-1 | POLE ELEVATION | A-2 | MOUNTING DETAILS | A-3 | ANTENNA DETAILS | A-4 | RADIO DETAILS | E-1 | CABLING DETAILS | E-2 | ELECTRICAL NOTES | G-1 | GROUNDING PLAN | G-2 | GROUNDING DETAILS |
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| C-2 | ENLARGED SITE PLAN | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A-1 | POLE ELEVATION | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A-2 | MOUNTING DETAILS | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| E-1 | CABLING DETAILS | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| G-2 | GROUNDING DETAILS | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>APPLICABLE CODES</p> | <p>LOCATION MAP</p> | <p>PROJECT DIRECTORY</p> | <p>11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>ALL WORK SHALL COMPLY WITH THE FOLLOWING APPLICABLE CODES: - 2012 INTERNATIONAL BUILDING CODE - 2014 NATIONAL ELECTRIC CODE - TIA/EIA-222-G OR LATEST EDITION</p> <p>IN THE EVENT OF CONFLICT, THE MOST RESTRICTIVE CODE SHALL PREVAIL</p> | | <p>LESSEE: VERIZON WIRELESS 10801 BUSH LAKE RD BLOOMINGTON, MN 55438 CONTACT: COURTNEY BEDNARZ PHONE: 952.946.4694</p> <p>LESSOR: COLLEGE OF SAINT SCHOLASTICA 1200 KENWOOD AVE DULUTH, MN 55811 CONTACT: TOM BREKKE PHONE: 218.723.6717</p> <p>RE ENGINEER: VERIZON WIRELESS 10801 BUSH LAKE RD BLOOMINGTON, MN 55438 CONTACT: MICHAEL KOCH PHONE: 612.720.3450</p> <p>ENGINEERING COMPANY: EDGE CONSULTING ENGINEERS, INC. 17645 JUNIPER PATH SUITE 105 LAKEVILLE, MN 55044 CONTACT: OTTO DINGFELDER III, P.E. PHONE: 608.644.1449</p> <p>SITE ACQUISITION: JACOBS ENGINEERING GROUP, INC. 2727 PATTON ROAD ROSEVILLE, MN 55113 CONTACT: JARED ANDREWS PHONE: 952.831.1043</p> | <p>THESE SITE PLANS ADHERE TO ALL OF THE REQUIREMENTS CALLED OUT IN THE JURISDICTION PLANNING AND ZONING FOR ANTENNAS AND SUPPORT STRUCTURES WHERE SITE IS LOCATED.</p> <p>CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS/CONDITIONS ON SITE. IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO PERFORMING ANY WORK OR BE RESPONSIBLE FOR THE SAME.</p> <p>ENGINEER OF RECORD</p> <p>EDGE CONSULTING ENGINEERS, INC. CONTACT: OTTO DINGFELDER III (PE # 49720 (MN)) PHONE: 608.644.1449</p> <p>STRUCTURAL REVIEW</p> <p>LIGHT POLE STRUCTURAL ANALYSIS COMPLETED BY OTHERS.</p> <p>CONTRACTOR TO REVIEW STRUCTURAL REPORT IN ITS ENTIRETY. ANY DISCREPANCIES OR DISAGREEMENTS BETWEEN THE REPORT AND THESE PLANS SHOULD BE RESOLVED PRIOR TO CONSTRUCTION.</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>LOCATION SCAN</p> | <p>11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED</p> <p>THESE SITE PLANS ADHERE TO ALL OF THE REQUIREMENTS CALLED OUT IN THE JURISDICTION PLANNING AND ZONING FOR ANTENNAS AND SUPPORT STRUCTURES WHERE SITE IS LOCATED.</p> <p>CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS/CONDITIONS ON SITE. IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO PERFORMING ANY WORK OR BE RESPONSIBLE FOR THE SAME.</p> <p>ENGINEER OF RECORD</p> <p>EDGE CONSULTING ENGINEERS, INC. CONTACT: OTTO DINGFELDER III (PE # 49720 (MN)) PHONE: 608.644.1449</p> <p>STRUCTURAL REVIEW</p> <p>LIGHT POLE STRUCTURAL ANALYSIS COMPLETED BY OTHERS.</p> <p>CONTRACTOR TO REVIEW STRUCTURAL REPORT IN ITS ENTIRETY. ANY DISCREPANCIES OR DISAGREEMENTS BETWEEN THE REPORT AND THESE PLANS SHOULD BE RESOLVED PRIOR TO CONSTRUCTION.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |

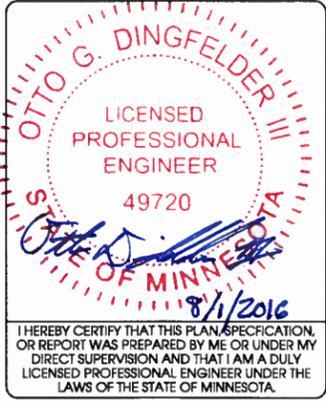
PROJECT NO: 20151281316

EDGE PROJECT NO: 12242

DRAWN BY: TKB, JDB, KJG

CHECKED BY: OGD

| REV. | DATE | DESCRIPTION | |
|------|------------|------------------------|-----|
| A | 05/31/2016 | PRELIM SMALL CELL DWGS | TKB |
| B | 06/06/2016 | PRELIM SMALL CELL DWGS | JDB |
| 0 | 06/20/2016 | FINAL SMALL CELL DWGS | TKB |
| 1 | 06/29/2016 | FINAL SMALL CELL DWGS | KJG |
| 2 | 07/21/2016 | FINAL SMALL CELL DWGS | MJM |
| 3 | 08/01/2016 | FINAL SMALL CELL DWGS | TKB |



DUL ST. SCHOLASTICA SC1 1
DULUTH, MINNESOTA
PROPOSED LIGHT POLE
SMALL CELL DRAWINGS

SHEET TITLE
TITLE SHEET & PROJECT DATA

SHEET NUMBER
T-1

LA 1220012242(CAD)PKA UPDATED Preliminary T1 Login



PL 16-067

verizon

JACOBS

Jacobs Engineering Group, Inc
2727 Patton Road
Roseville, Minnesota 55113
www.jacobs.com

Edge

Consulting Engineers, Inc.
17645 Juniper Path, Suite 105
Lakeville, MN 55044
608.644.1449 voice
608.644.1549 fax
www.edgeconsult.com

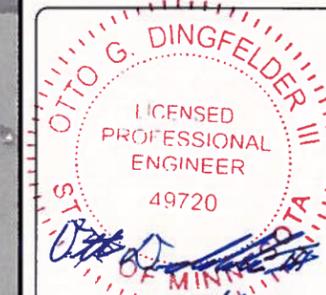
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| 1 | 06/29/2016 | FINAL SMALL CELL DWGS | KJG |
| 2 | 07/21/2016 | FINAL SMALL CELL DWGS | MJM |
| 3 | 08/01/2016 | FINAL SMALL CELL DWGS | TKB |



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DUL ST. SCHOLASTICA SC1 1
DULUTH, MINNESOTA
PROPOSED LIGHT POLE
SMALL CELL DRAWINGS

SHEET TITLE

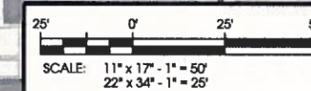
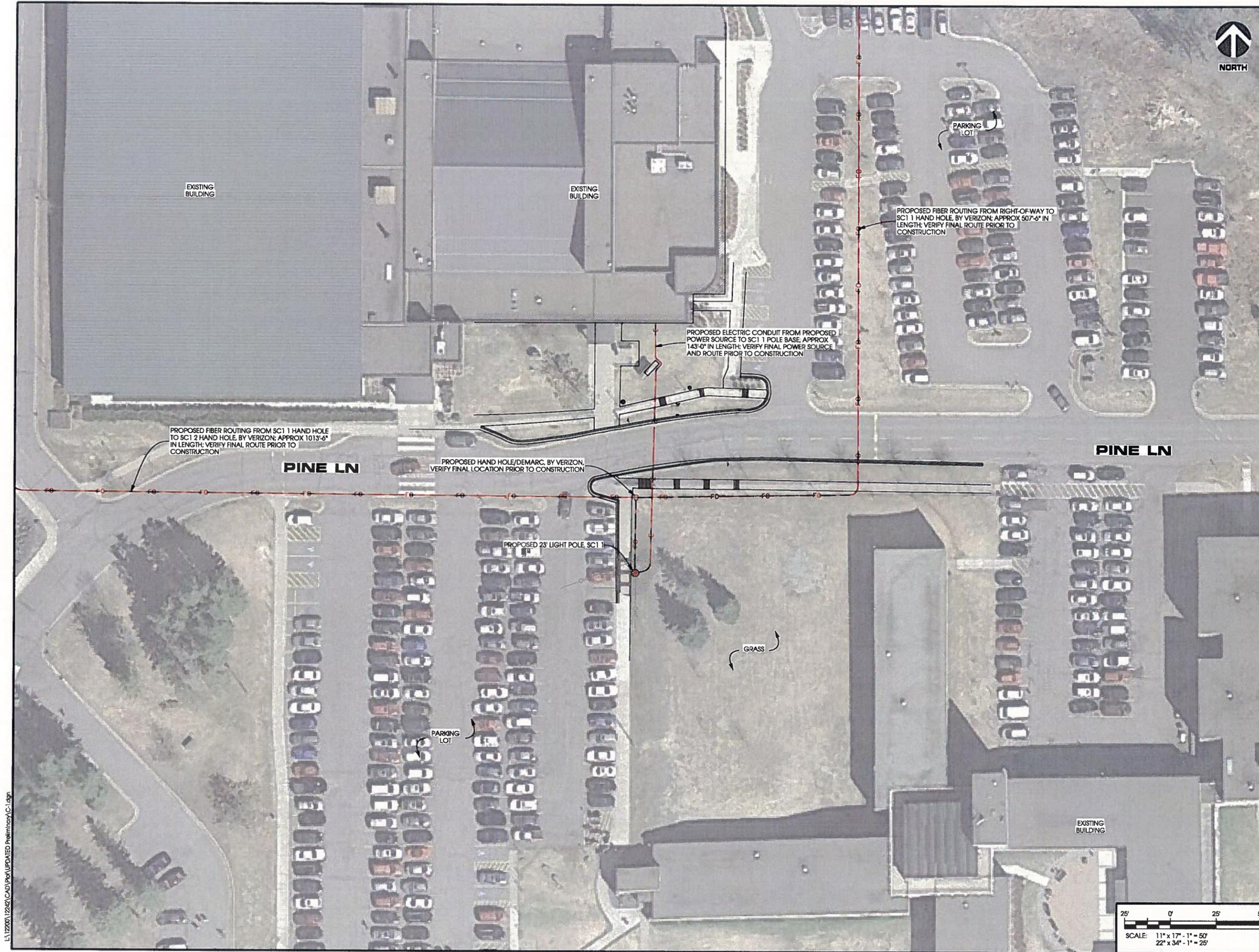
SITE PLAN

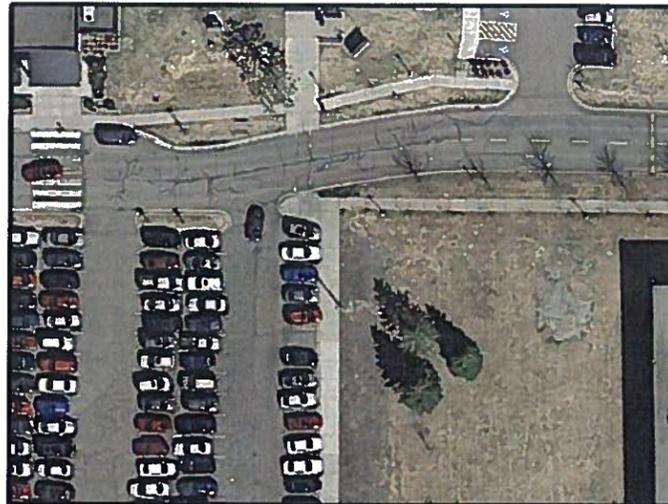
SHEET NUMBER

C-1

14

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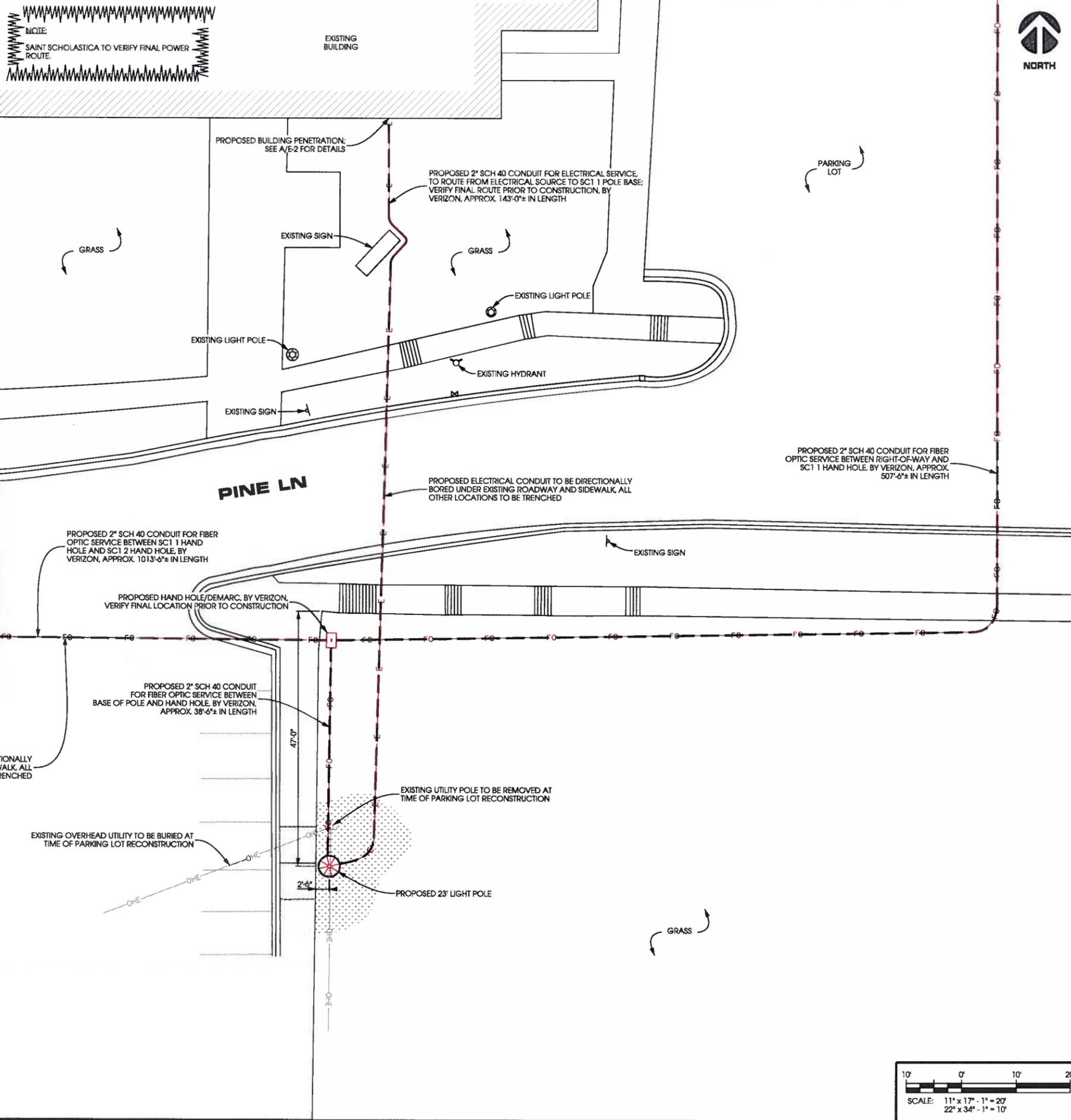




AERIAL OVERVIEW



**SITE OVERVIEW
(LOOKING EAST)**



NOTE:
SAINT SCHOLASTICA TO VERIFY FINAL POWER ROUTE.



PL 16-067



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Roseville, Minnesota 55113
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Consulting Engineers, Inc.
17645 Juniper Path, Suite 105
Lakeville, MN 55044
608.644.1449 voice
608.644.1549 fax
www.edgeconsult.com

| | |
|------------------|---------------|
| PROJECT NO: | 20151281316 |
| EDGE PROJECT NO: | 12242 |
| DRAWN BY: | TKB, JDB, KJG |
| CHECKED BY: | OGD |

| REV. | DATE | DESCRIPTION | BY |
|------|------------|------------------------|-----|
| A | 05/31/2016 | PRELIM SMALL CELL DWGS | TKB |
| B | 06/06/2016 | PRELIM SMALL CELL DWGS | JDB |
| 0 | 06/20/2016 | FINAL SMALL CELL DWGS | TKB |
| 1 | 06/29/2016 | FINAL SMALL CELL DWGS | KJG |
| 2 | 07/21/2016 | FINAL SMALL CELL DWGS | MJM |
| 3 | 08/01/2016 | FINAL SMALL CELL DWGS | TKB |

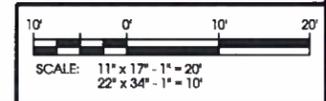


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DUL ST. SCHOLASTICA SC1 1
DULUTH, MINNESOTA
PROPOSED LIGHT POLE
SMALL CELL DRAWINGS

SHEET TITLE
**ENLARGED SITE
PLAN**

SHEET NUMBER
C-2



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PROJECT NO: 20151281316

EDGE PROJECT NO: 12242

DRAWN BY: TKB, JDB, KJG

CHECKED BY: OGD

| REV | DATE | DESCRIPTION |
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DUL ST. SCHOLASTICA SC1 1
DULUTH, MINNESOTA
PROPOSED LIGHT POLE
SMALL CELL DRAWINGS

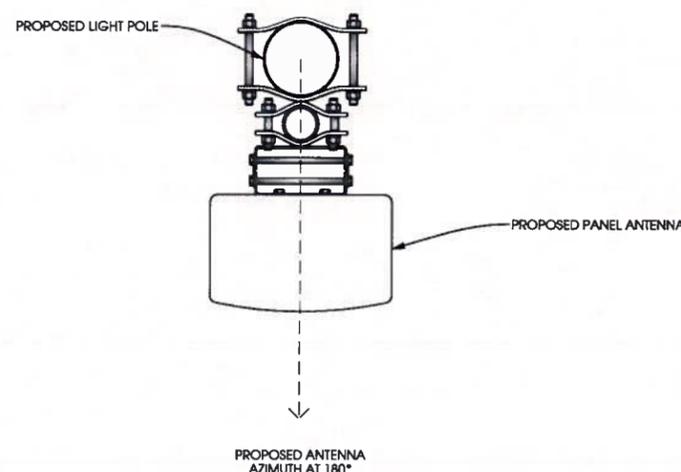
SHEET TITLE
POLE ELEVATION

SHEET NUMBER
A-1

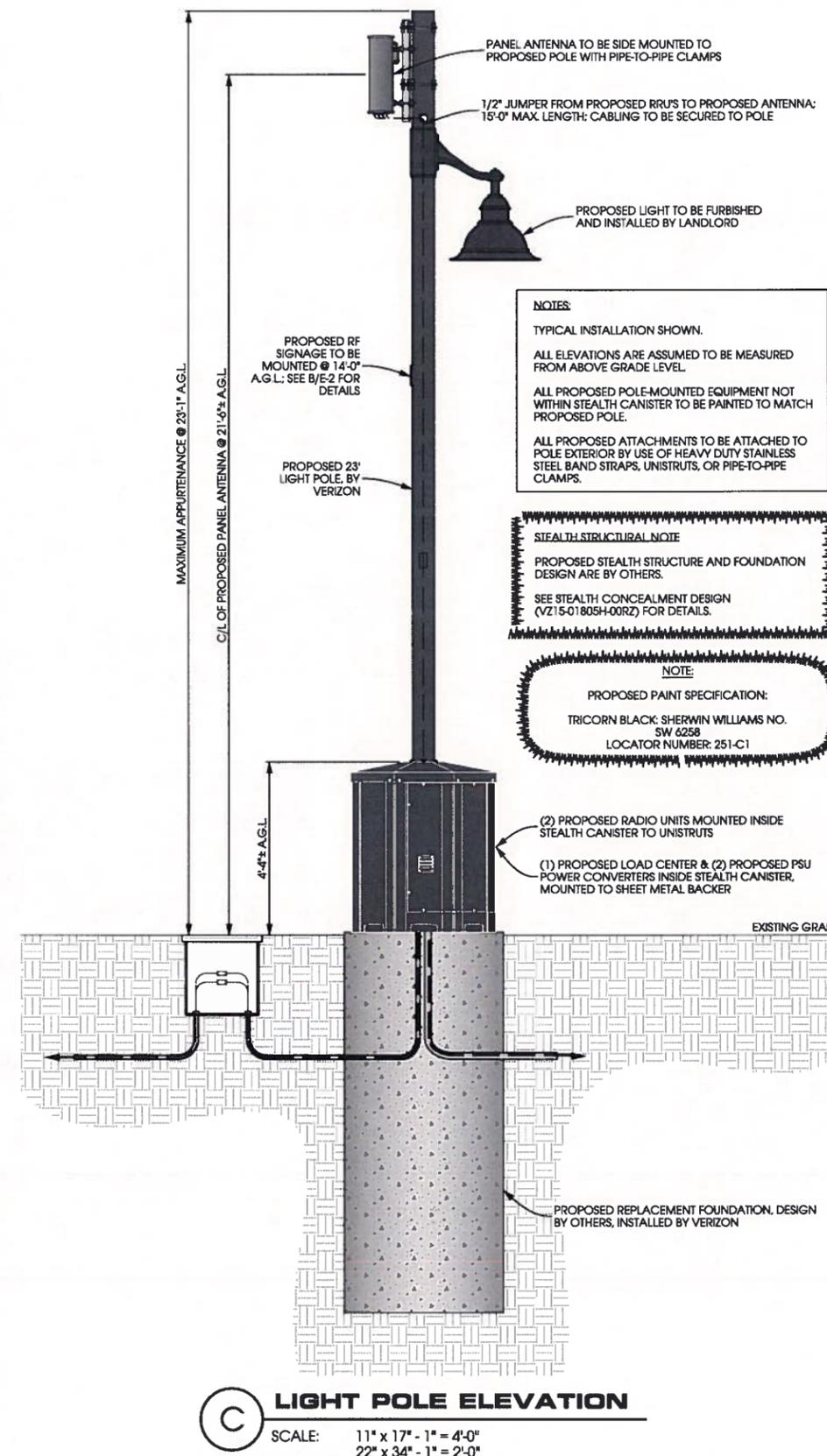
| NODE INFO | | | | RADIO | | | | ANTENNA | | | | | | | | |
|-----------|----------------------------------|------|--------|------------|-----|----------|---------|----------|-----|------|-------------|------|-----|--------------|-----------|--|
| PCI | Full Node Name: (Name SC1 Node#) | Band | eNB ID | Model | DU# | DU Port# | AZIMUTH | POSITION | QTY | MFR. | MODEL | PORT | C/L | ADJ ELECTILT | MECH TILT | |
| | ST SCHOLASTICA SC1 1 | LTE | 189811 | RRUS-B13 | 1 | A | 180 | 1.1 | 1 | CSS | XPCAP-265-B | +45 | 22 | 0 | 0 | |
| | | AWS | 489811 | RRUS-12 B4 | 2 | A | | 1.2 | | | | -45 | | | | |
| | Coordinates DEG | MIN | SEC | | | | | | | | | | | | | |
| | LATITUDE | 46 | 49 | 2.69 | | | | | | | | | | | | |
| | LONGITUDE | -92 | 6 | 20.74 | | | | | | | | | | | | |
| | Ground Elevation: | 1259 | | | | | | | | | | | | | | |

| COAX | | | | | | |
|------|--------|-----------|---------|------------|------|-----|
| QTY | TYPE | MFR. | MODEL | DIELECTRIC | DIA. | RUN |
| 1 | Jumper | Commscope | LFD4-50 | Foam | 1/2" | TBD |
| 1 | Jumper | Commscope | LFD4-50 | Foam | 1/2" | TBD |
| 1 | Jumper | Commscope | LFD4-50 | Foam | 1/2" | TBD |
| 1 | Jumper | Commscope | LFD4-50 | Foam | 1/2" | TBD |

A ANTENNA AND COAX
SCALE: NTS



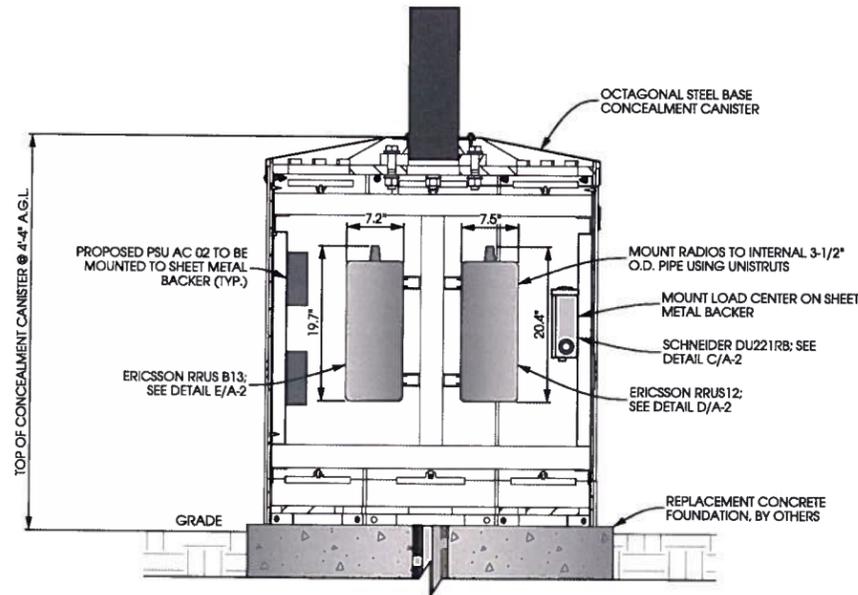
B ANTENNA ORIENTATION
SCALE: NTS



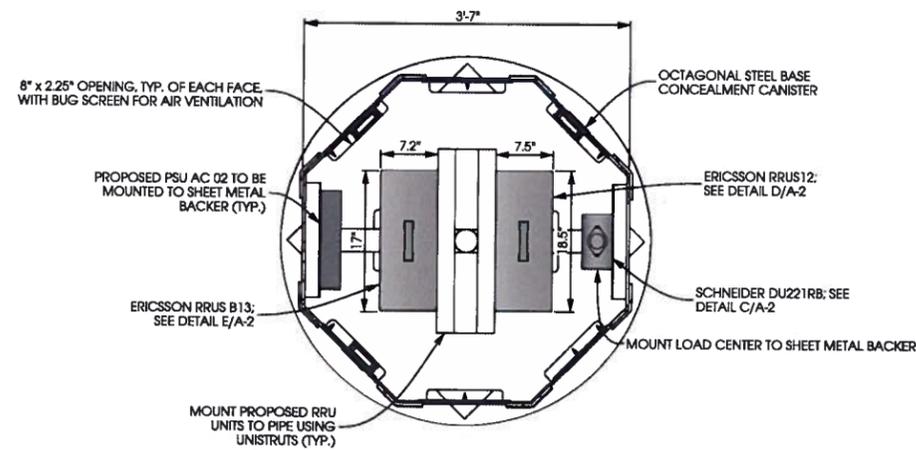
C LIGHT POLE ELEVATION
SCALE: 11" x 17" - 1" = 4'-0"
22" x 34" - 1" = 2'-0"

NOTE:
PAINT ALL EXTERIOR MOUNTED EQUIPMENT TO MATCH THE PROPOSED LIGHT POLE

RADIO MOUNTING NOTE:
PROPOSED RADIOS TO BE MOUNTED INSIDE STEALTH CANISTER BASE. VERIFY THE FINAL MOUNTING APPLICATION WITH THE FINAL DRAWINGS.



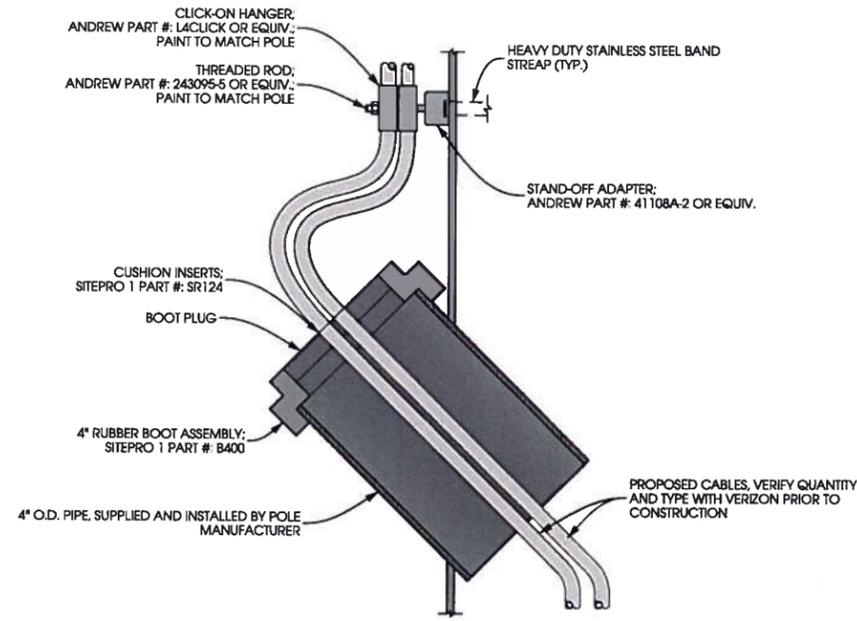
ELEVATION VIEW



PLAN VIEW

A RADIO MOUNTING DETAIL
SCALE: 11 x 17 - 1" = 2'-0"
22 x 34 - 1" = 1'-0"

NOTES:
ONE POLE PENETRATION SHOWN FOR CLARITY



B PENETRATION DETAIL
SCALE: NTS

SCHNEIDER ELECTRIC SQUARE D DU221RB
NUMBER OF POLES: 2
MAX. CURRENT RATING: 30 A
VOLTAGE RATING: 240 VAC
DIMENSIONS: 9.36" x 7.25" x 3.75"
WEIGHT: 4.62 lbs
CONTRACTOR TO INSTALL LED LIGHT



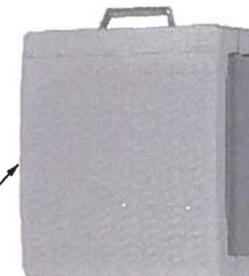
C LOAD CENTER DETAIL
SCALE: NTS

ERICSSON RRU512
- GSM, WCDMA, LTE
- 8 CARRIERS OVER 40 MHz IBW
- 4 CARRIERS WCDMA, LTE
- UP TO 20 MHz LTE
- UP TO 2 x 60 W
- IBW - UP TO 40 MHz
DIMENSIONS: 20.4" x 18.5" x 7.5"
WEIGHT: 58 LBS



D RADIO DETAIL
SCALE: NTS

ERICSSON RRU5 B13
- UP TO 10 MHz LTE
- UP TO 2 x 40 W
DIMENSIONS: 19.7" x 17" x 7.2"
WEIGHT: 51 LBS



E RADIO DETAIL
SCALE: NTS

PL 16-067



JACOBS

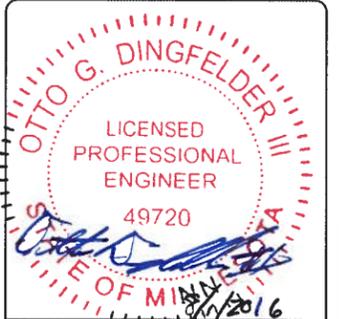
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DUL ST. SCHOLASTICA SC 1
DULUTH, MINNESOTA
PROPOSED LIGHT POLE
SMALL CELL DRAWINGS

SHEET TITLE
MOUNTING DETAILS

SHEET NUMBER

A-2



X7CAP-265 Dual Band Xpol, 63° & 65° H-Beams

698-896 MHz
1710-2170 MHz

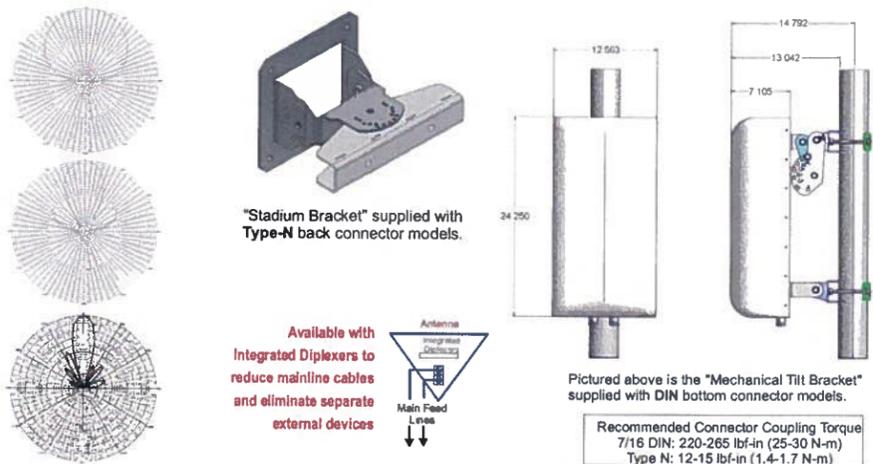
Electrical Specifications

| | |
|-------------------------------------|---|
| Frequency | 698-896 & 1710-2170 MHz |
| Polarization | Slant +/- 45 |
| Gain Low Band | 12.1 dBi |
| Gain High Band | 14.8 dBi |
| Horizontal Beam (3dB Points) | 63° & 65° |
| Vertical Beam (3dB Points) | 28° & 14.5° |
| Elect. Downtilt | 0° low, 0° high band |
| VSWR / Return Loss | <1.7:1 / 11.7 dB |
| Front-to-Back at Horizon | >27 dB |
| Impedance | 50 Ohms |
| Power Input Per Connector ("ip") | 250 CW at 800 MHz |
| Power Input Per Connector (no "ip") | 250 CW at 800 MHz and 125 CW at 1900 MHz |
| Isolation | < -26 dB |
| Intermodulation (2x20W) | <-150 dBc |

Mechanical Specifications

| | | |
|--------------------------------|---|--|
| Input Connector Options: | (7/16 DIN female) (N-Type female) | Bottom w/ Mech Tilt Pole Brkt Back w/ "Stadium Bracket" |
| Antenna Dimensions (LxWxD) | 24.0 x 12.5 x 7.1 in. (610 x 318 x 180mm) | |
| *Antenna Weight | 13.2 lbs | |
| Bracket Weight | 12.6 lbs | |
| RF Distribution | Printed Microstrip Substrate | |
| Radome | Ultra High-Strength Luran | |
| Weatherability | UV Stabilized, ASTM D1925 | |
| Radome Water Absorption | ASTM D570, 0.45% | |
| Environmental | MIL-STD-810E | |
| Wind Survival | 150mph (120mph w/"Stadium" Bkt) | |
| Front Wind Load @100mph | 62 lbf | |
| Equivalent Flat Plates @100mph | 1.25 sq-ft. (c=2) | |
| Mounting Brackets w/DIN conn. | Fits 3.5 inch Max. O.D. Pipe, 0-21 "MDT | |
| Mounting Brackets w/N conn. | "Stadium" Bkt, +/- 25° Lat. +/- 55° Vert. | |

[Link to Mechanical Drawing](#)



Ordering Information & Options

| | |
|--------------------|---|
| X7CAP-265-00ip-bot | Two Bottom mounted 7/16 DIN connectors, 0 deg EDT both bands. With Integrated Diplexer & mech. tilt pole bracket. |
| X7CAP-265-00-bot | Four Bottom mounted 7/16 DIN connectors, 0 deg EDT both bands. Supplied with mech. tilt pole bracket. |
| X7CAP-265-00ip-N | Two Back mounted Type-N connectors, 0 deg EDT both bands. With Integrated Diplexer & "Stadium" bracket. |
| X7CAP-265-00-N | Four Back mounted Type-N connectors, 0 deg EDT both bands. Supplied with "Stadium" bracket. |

*Antenna Weight may vary slightly with options.

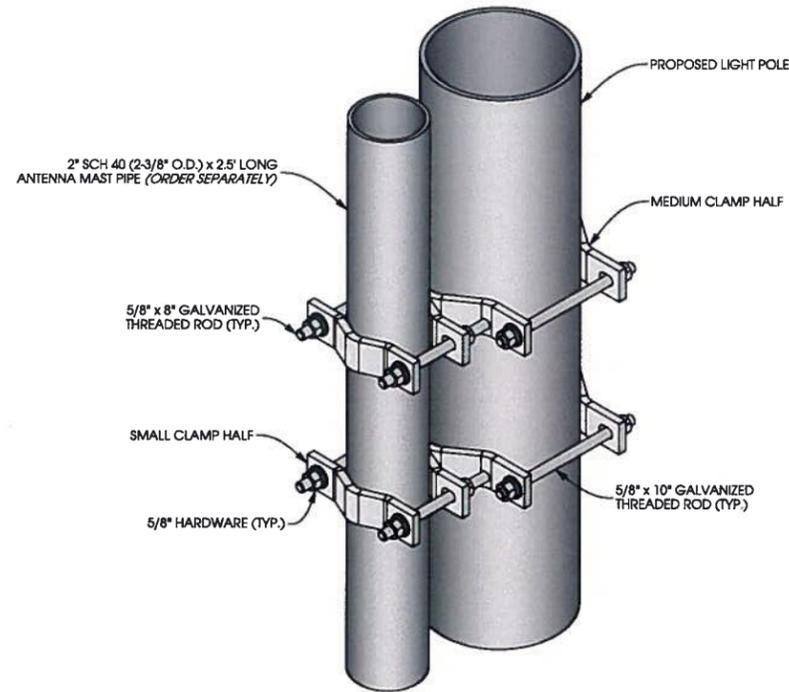
Published 120512
Subject to alteration

www.cssantenna.com



A ANTENNA SPECIFICATIONS

SCALE: NTS



B PIPE TO PIPE CLAMP

SCALE: NTS ANDREW PART #: JS-S100 OR EQUIV.

elecDirect Selection, Service & Quality Solutions **REMKE**
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TUFF-SEAL™ MULTIPLE HOLE BUSHINGS

The Tuff Seal family of Multiple Hole Bushings are ideal for use when multiple conductors need to be terminated into one fitting. Standard bushings are made from Neoprene but optional materials include silicone for high temperature applications and Viton® for enhanced corrosion resistance.

Remke Multiple Hole Bushings can be made to fit into cold connectors made from aluminum, nickel-plated aluminum, steel and stainless steel, nylon or brass.

| Part # | Bushing Size | Number of Holes | Connector Size | Std. Size | Part # | Bushing Size | Number of Holes | Connector Size | Std. Size |
|---------------|----------------|-----------------|----------------|-----------|--------------|---------------|-----------------|----------------|-----------|
| REM-00084-E | 8/16-00084-2 | 2 | .141" | 3/16" | REM-01070-E | 8/16-01070-3 | 3 | .215" | 5/16" |
| REM-10086-E | 8/16-10086-2 | 2 | .141" | 3/16" | REM-21082-E | 8/16-21082-3 | 3 | .281" | 9/16" |
| REM-154-E | 8/16-154-2 | 2 | .250" | 1/2" | REM-30194-E | 8/16-30194-3 | 3 | .360" | 3/4" |
| REM-10552-E | 8/16-10552-2 | 2 | .156" | 5/16" | REM-30218-E | 8/16-30218-3 | 3 | .315" | 5/8" |
| REM-10728-E | 8/16-10728-2 | 2 | .218" | 7/16" | REM-30202-E | 8/16-30202-3 | 3 | .281" | 5/8" |
| REM-13083-E | 8/16-13083-2 | 2 | .281" | 9/16" | REM-30202-E | 8/16-30202-3 | 3 | .281" | 5/8" |
| REM-120174-E | 8/16-120174-2 | 2 | .280" | 5/8" | REM-30202-E | 8/16-30202-3 | 3 | .281" | 5/8" |
| REM-1301884-E | 8/16-1301884-2 | 2 | .280" | 5/8" | REM-31053-E | 8/16-31053-4 | 4 | .136" | 3/8" |
| REM-12004-E | 8/16-12004-2 | 2 | .315" | 5/8" | REM-3004-E | 8/16-3004-4 | 4 | .187" | 3/8" |
| REM-130785-E | 8/16-130785-2 | 2 | .218" | 7/16" | REM-30782-E | 8/16-30782-4 | 4 | .217" | 9/16" |
| REM-1704-E | 8/16-1704-2 | 2 | .250" | 1/2" | REM-30782-E | 8/16-30782-4 | 4 | .217" | 9/16" |
| REM-10832-E | 8/16-10832-3 | 3 | .156" | 5/16" | REM-301884-E | 8/16-301884-4 | 4 | .280" | 5/8" |
| REM-10728-E | 8/16-10728-3 | 3 | .218" | 7/16" | REM-301884-E | 8/16-301884-4 | 4 | .280" | 5/8" |
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| REM-10832-E | 8/16-10832-3 | 3 | .218" | 7/16" | REM-3004-E | 8/16-3004-4 | 4 | .187" | 3/8" |
| REM-10832-E | 8/16-10832-3 | 3 | .218" | 7/16" | REM-30194-E | 8/16-30194-4 | 4 | .280" | 5/8" |
| REM-10832-E | 8/16-10832-3 | 3 | .218" | 7/16" | REM-3004-E | 8/16-3004-4 | 4 | .187" | 3/8" |
| REM-10832-E | 8/16-10832-3 | 3 | .218" | 7/16" | REM-30194-E | 8/16-30194-4 | 4 | .280" | 5/8" |
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| REM-10832-E | 8/16-10832-3 | 3 | .218" | 7/16" | REM-3004-E | 8/16-3004-4 | 4 | .187" | 3/8" |
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| REM-10832-E | 8/16-10832-3 | 3 | .218" | 7/16" | REM-3004-E | 8/16-3004-4 | 4 | .187" | |

RRUS 12

Table 2 lists the technical data for the RRUS 12.

Table 2 RRUS 12 Technical Data

| Description | Value |
|------------------------------|--|
| Maximum nominal output power | 2x10 W, 2x20 W, 2x30 W, 2x40 W, 2x50 W, and 2x60 W ⁽¹⁾⁽²⁾ (Subject to license handling) |
| Number of carriers | WCDMA and LTE: One to four carriers. GSM: One to eight carriers. CDMA: One to six carriers. (subject to license handling) |

| Description | Value |
|----------------------------------|-----------------------------|
| Frequency ⁽³⁾ | 1,920 to 1,980 MHz uplink |
| | 2,110 to 2,170 MHz downlink |
| | B1 for WCDMA and LTE |
| | 1,850 to 1,910 MHz uplink |
| | 1,930 to 1,990 MHz downlink |
| | B2 for GSM, WCDMA, and LTE |
| | 1,710 to 1,785 MHz uplink |
| | 1,805 to 1,880 MHz downlink |
| | B3 for GSM, WCDMA, and LTE |
| | 1,735 to 1,785 MHz uplink |
| | 1,830 to 1,880 MHz downlink |
| | B3A for GSM, WCDMA, and LTE |
| | 1,710 to 1,755 MHz uplink |
| | 2,110 to 2,155 MHz downlink |
| | B4 for WCDMA, and LTE |
| 824 to 849 MHz uplink | |
| 869 to 894 MHz downlink | |
| B5 for GSM, WCDMA, CDMA, and LTE | |
| 2,500 to 2,570 MHz uplink | |
| 2,620 to 2,690 MHz downlink | |
| B7 for LTE | |
| 880 to 915 MHz uplink | |
| 925 to 960 MHz downlink | |
| B8 for GSM, WCDMA, and LTE. | |
| 718 to 748 MHz uplink | |
| 773 to 803 MHz downlink | |
| B28A for LTE | |
| 703 to 733 MHz uplink | |
| 758 to 788 MHz downlink | |
| B28B for LTE | |

| Description | Value |
|---|---------|
| Dimensions with Solar Shield and Handle and Feet | |
| Height | 518 mm |
| Width | 470 mm |
| Depth | 190 mm |
| Dimensions without Solar Shield and without Handle or Feet | |
| Height | 418 mm |
| Width | 458 mm |
| Depth | 159 mm |
| Weight | |
| RRUS 12 B1, RRUS 12 B2, RRUS 12 B4, and RRUS 12 B7 | 22.4 kg |
| RRUS 12 B3, RRUS 12 B3A, RRUS 12 B5, and RRUS 12 B8 | 26.3 kg |
| RRUS 12 B28A | 23.7 kg |
| RRUS 12 B28B | 24.3 kg |
| Color | |
| Gray | |

(1) RRUS 12 B2 and RRUS 12 B5 support only horizontal mounting for 2x20 W and 2x40 W power levels.
(2) RRUS 12 B7 supports only 2x20 W, 2x30 W, and 2x40 W power levels.
(3) Information about IBW can be found in RBS Configurations.

The RRUS 12 size, height, width, and depth with solar shield, is shown in Figure 3.

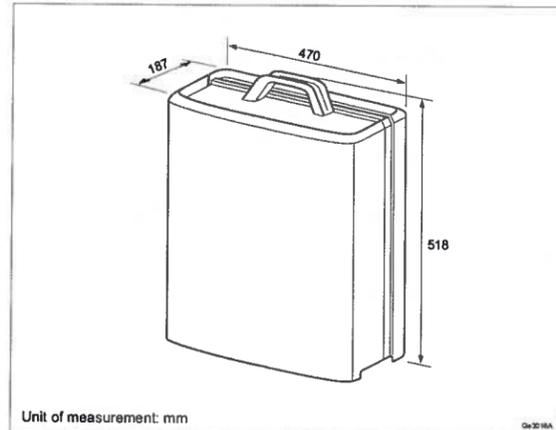


Figure 3 RRUS 12 Height, Width, and Depth with Solar Shield

RRUS 13

Table 3 lists the technical data for the RRUS 13.

Table 3 RRUS 13 Technical Data

| Description | Value |
|------------------------------|--|
| Maximum nominal output power | 2x10 W, 2x20 W, 2x30 W, 2x40 W, 2x50 W, and 2x60 W ⁽¹⁾⁽²⁾ (Subject to license handling) |
| Number of carriers | WCDMA: One to four carriers. LTE: One to four carriers. (subject to license handling) |

| Description | Value |
|--|-----------------------------|
| Frequency ⁽³⁾ | 1,920 to 1,980 MHz uplink |
| | 2,110 to 2,170 MHz downlink |
| | B1 for WCDMA and LTE |
| | 1,735 to 1,785 MHz uplink |
| | 1,830 to 1,880 MHz downlink |
| B3A for WCDMA and LTE. B3A is hardware prepared for GSM. | |
| 2,500 to 2,570 MHz uplink | |
| 2,620 to 2,690 MHz downlink | |
| B7 for LTE | |

| Dimensions with Solar Shield and Handle and Feet | |
|---|---------|
| Height | 518 mm |
| Width | 470 mm |
| Depth | 190 mm |
| Dimensions without Solar Shield and without Handle or Feet | |
| Height | 418 mm |
| Width | 458 mm |
| Depth | 159 mm |
| Weight | |
| RRUS 13 B1 | 22.4 kg |
| RRUS 13 B3A | 26.3 kg |
| RRUS 13 B7 | 22.4 kg |
| Color | |
| Gray | |

(1) RRUS 13 B1 and RRUS 13 B3A supports only horizontal mounting for 2x20 W and 2x40 W power levels.
(2) RRUS 13 B7 supports only 2x20 W, 2x30 W, and 2x40 W power levels for vertical mounting. Maximum 2x30 W can be used for horizontal mounting.
(3) Information about IBW can be found in RBS Configurations.

The RRUS 13 size, height, width, and depth with solar shield, is shown in Figure 3.

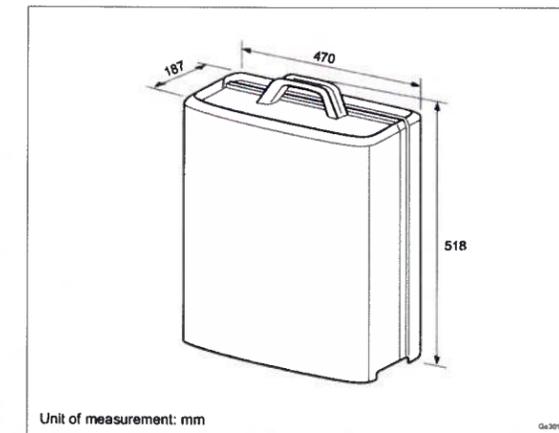


Figure 4 RRUS 13 Height, Width, and Depth with Solar Shield

PL 16-067

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| PROJECT NO: | 20151281316 |
| EDGE PROJECT NO: | 12242 |
| DRAWN BY: | TKB, JDB, KJG |
| CHECKED BY: | OGD |

| REV | DATE | DESCRIPTION | |
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| 2 | 07/21/2016 | FINAL SMALL CELL DWGS | MJM |
| 3 | 08/01/2016 | FINAL SMALL CELL DWGS | TKB |

OTTO G. DINGFELDER III
LICENSED PROFESSIONAL ENGINEER
49720

8/1/2016

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DUL. ST. SCHOLASTICA SC 1
DULUTH, MINNESOTA
PROPOSED LIGHT POLE
SMALL CELL DRAWINGS

SHEET TITLE
RADIO DETAILS

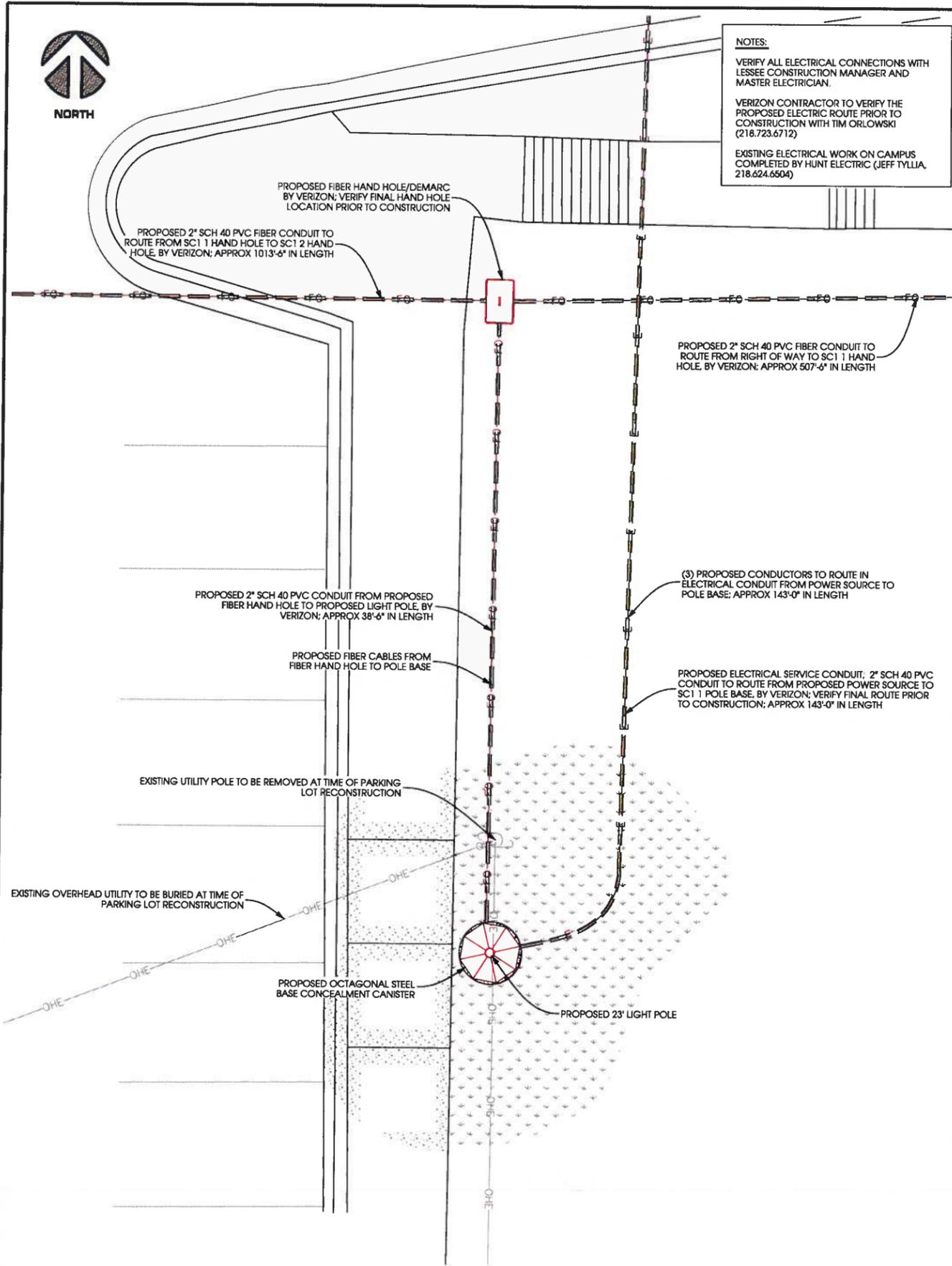
SHEET NUMBER
A-4

A RADIO SPECIFICATIONS
SCALE: NTS

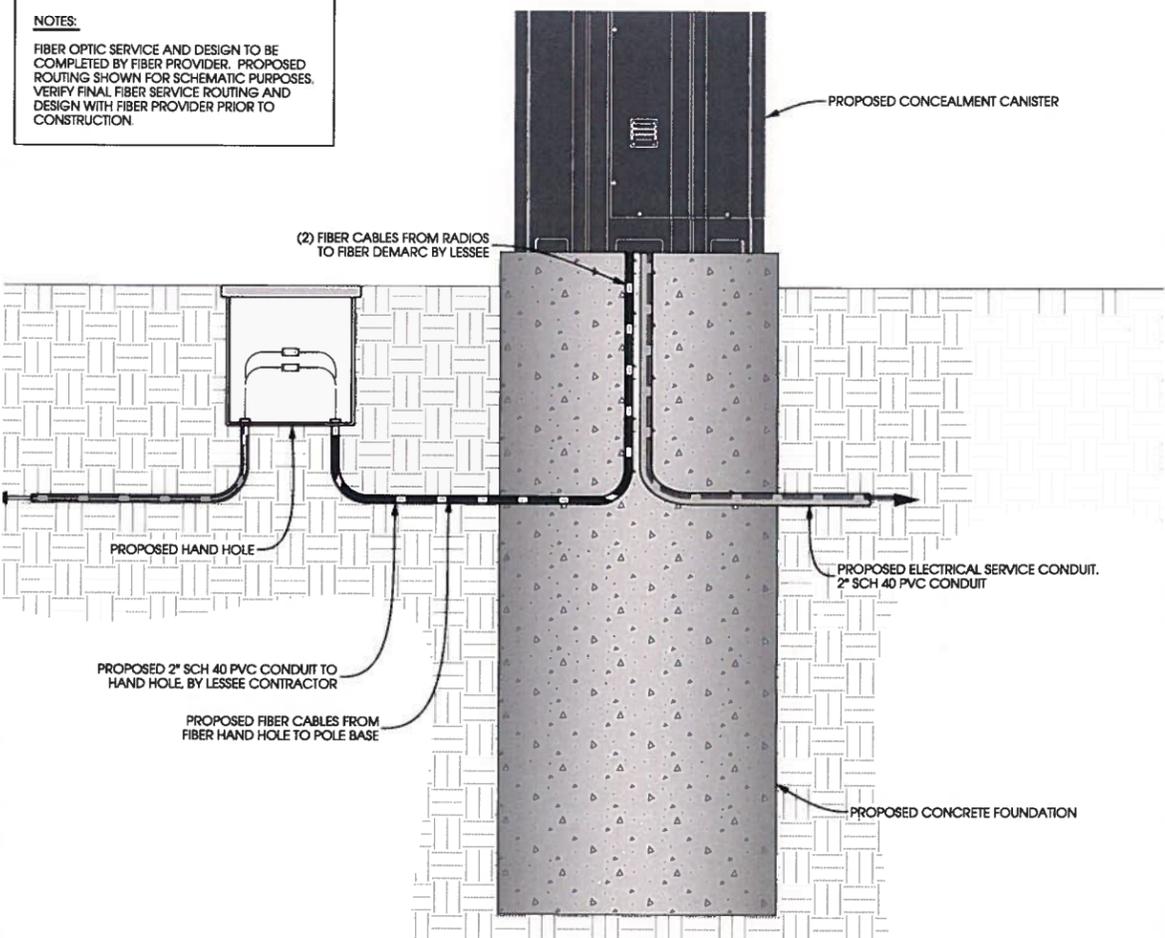
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SCALE: NTS



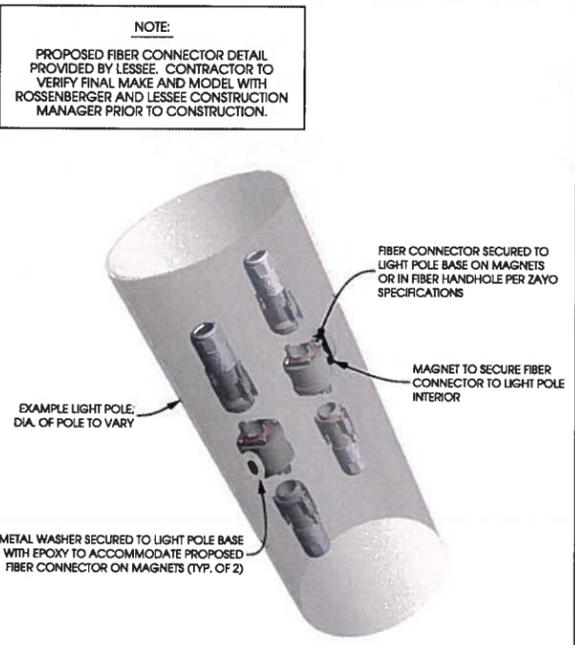
NORTH



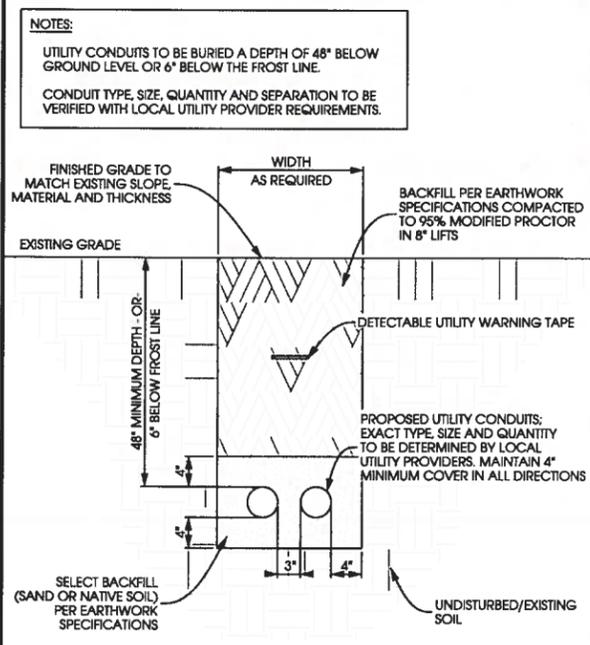
A PROPOSED CABLING DIAGRAM
 SCALE: NTS



B POWER AND FIBER ROUTING
 SCALE: NTS



C FIBER CONNECTOR
 SCALE: NTS



D UTILITY TRENCH DETAIL
 SCALE: NTS

PL 16-067



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| 2 | 07/21/2016 | FINAL SMALL CELL DWGS | MJM |
| 3 | 08/01/2016 | FINAL SMALL CELL DWGS | TKB |



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DUL ST. SCHOLASTICA SC1 1
 DULUTH, MINNESOTA
 PROPOSED LIGHT POLE
 SMALL CELL DRAWINGS

SHEET TITLE
CABLING DETAILS

SHEET NUMBER
E-1

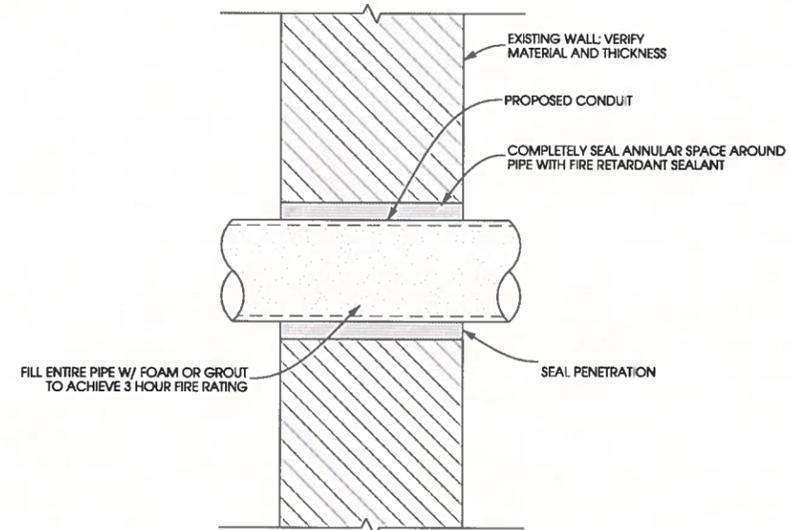
L:\12200\12242\CAD\Pls\UPDATED Preliminary E-1.dgn

GENERAL ELECTRICAL NOTES

1. SUBMITTAL OF BID INDICATES CONTRACTOR IS AWARE OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.
2. CONTRACTOR SHALL PERFORM ALL VERIFICATION OBSERVATION TESTS, AND EXAMINE WORK PRIOR TO THE ORDERING OF THE ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ARCHITECT LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
3. HEIGHTS SHALL BE VERIFIED WITH OWNER PRIOR TO INSTALLATION.
4. THESE PLANS ARE DIAGRAMMATIC ONLY. FOLLOW AS CLOSELY AS POSSIBLE.
5. EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANEL BOARD, PULLBOX, J-BOX, SWITCH BOX, ETC. IN COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ACT (O.S.H.A.)
6. CONTRACTOR SHALL PROVIDE LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AND AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
7. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED AND APPROVED BY THE UNDERWRITER'S LABORATORY AND SHALL BEAR THE INSPECTION LABEL "I" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF THE DIVISION OF INDUSTRIAL SAFETY AND ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSL, NEMA, AND NBFU.
8. CONTRACTOR SHALL CARRY OUT HIS WORK IN ACCORDANCE WITH ALL GOVERNING STATE, COUNTY AND LOCAL CODES AND O.S.H.A.
9. CONTRACTOR SHALL SECURE ALL NECESSARY BUILDING PERMITS.
10. COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF JOB ACCEPTANCE BY OWNER. ANY WORK, MATERIAL OR EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.
11. ALL CONDUIT ONLY (C.O.) SHALL HAVE A PULL WIRE OR ROPE.
12. PROVIDE CONSTRUCTION ENGINEER WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS, AND CIRCUITS.
13. ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO OWNER AT JOB COMPLETION.
14. USE T-TAP CONNECTIONS ON ALL MULTI-CIRCUITS WITH COMMON NEUTRAL CONDUCTOR.
15. ALL CONDUCTORS SHALL BE COPPER.
16. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THE MAXIMUM SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C.
17. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES AND DRAWINGS.
18. RECEPTACLES SHALL BE 20 AMPERE, 125 VOLT A.C., WHITE AS REQUIRED BY THE ARCHITECT OR APPROVED EQUAL.
19. WALL SWITCHES SHALL BE SINGLE-POLE, HUBBELL #1201 OR EQUIVALENT, WHITE AS REQUIRED BY THE ARCHITECT.
20. PLASTIC PLATES FOR ALL SWITCHES, RECEPTACLES, TELEPHONE AND BLANKED OUTLETS, SHALL HAVE ENGRAVED LETTERING WHERE INDICATED ON THE DRAWINGS. WEATHERPROOF RECEPTACLES SHALL HAVE RACO #800, 1/2" RAISED WORK COVERS.
21. WIRE AND CABLE CONDUCTORS SHALL BE COPPER #12 AWG MINIMUM, NO BX OR ROMEX CABLE IS PERMITTED UNLESS SPECIFICALLY NOTED OTHERWISE ON DRAWINGS.
22. GROUND RODS SHALL BE AS SPECIFIED ON THE GROUNDING DRAWINGS.
23. METER SOCKET AMPERES, VOLTAGE, NUMBER OF PHASES SHALL BE AS NOTED ON THE DRAWINGS. MANUFACTURED BY SQUARE D COMPANY OR APPROVED EQUAL. IF HOST FACILITY REQUIRES THE NEW SERVICE TO BE SUB-METERED FROM THE EXISTING SERVICE, SUB-METER SHALL BE OF THE 10x OR 16x TYPE.
24. ALL MATERIALS SHALL BE U.L. LISTED.
25. CONDUIT:
 - A. SERVICE CONDUITS SHALL BE GRAY SCH.40 PVC BURIED MIN. 36", EXCEPT THAT SCH.80 SHALL BE USED UNDER ROADWAYS AND IN LOCATIONS SUBJECT TO CASUAL IMPACTS. BENDS SHALL BE MADE USING "WIDE SWEEP" (12" MIN. RADIUS) ELBOW FITTINGS. ANY CODE-REQUIRED RIGID STEEL CONDUIT SHALL BE U.L. LABEL, GALVANIZED INSIDE AND OUTSIDE. CONDUIT SHALL EXTEND MIN. 36" BELOW GRADE, WITH "SWEEP" ELBOWS (12" R. MIN.) ENDING IN PVC TRANSITION FITTINGS. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAP-WRAPPED WITH HUNTS PROCESS NO. 3 EXTENDING MIN. 12" ABOVE GRADE.
 - B. INTERIOR CONDUITS SHALL BE ELECTRICAL METALLIC TUBING HAVING U.L. LABEL, FITTINGS SHALL BE GLAND RING COMPRESSION TYPE.
 - C. FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR "SQUEEZE" TYPE. SEAL TIGHT FLEXIBLE CONDUIT. NO SUCH CONDUIT SHALL EXCEED SIX FEET IN LENGTH.
26. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS.
27. PATCH, REPAIR, AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.
28. PENETRATIONS IN FIRE RATED WALLS SHALL BE FIRE STOPPED IN ACCORDANCE WITH SECTION 712, PENETRATIONS - INTERNATIONAL BUILDING CODE (IBC)
29. DRILLING OR CORING HOLES IN CONCRETE WALLS OR DECKS, WHETHER FOR FASTENING OR ANCHORING PURPOSES, REQUIRES THAT TENDONS OR REINFORCING STEEL MUST BE SEARCHED FOR BY APPROPRIATE METHODS AND EQUIPMENT (X-RAY OR OTHER DEVICE) THAT CAN ACCURATELY LOCATE THEM. TENDONS OR REINFORCING MUST NOT BE DRILLED, CUT OR DAMAGED UNDER ANY CIRCUMSTANCES.
30. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO CONSTRUCTION ENGINEER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.
31. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF BOTH TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS TO BE PAID BY CONTRACTOR.
32. CONTRACTOR SHALL PROVIDE LABOR AND MATERIALS AS NECESSARY TO COMPLETE THE INSTALLATION OF ANY TOWER LIGHTING SYSTEM DESCRIBED IN THE RFQ.

ELECTRICAL NOTES

NOTES:
 CONTRACTOR TO ENSURE WATER TIGHTNESS AT ALL WALL AND FLOOR PENETRATIONS.
 GROUT & FIRE RETARDANT SEAL TO ACHIEVE 3-HOUR FIRE RATING



A BUILDING PENETRATION DETAIL
 SCALE: NTS

CAUTION SIGN INSTALLATION INSTRUCTIONS:

1. CLEAN THE AREA THOROUGHLY WITH RUBBING ALCOHOL OR SOAP AND WATER. DO NOT USE WINDEX OR SIMILAR PRODUCTS.
2. PREPARE THE STICKER FOR APPLICATION
3. PEEL THE WHITE PAPER BACKING OFF THE STICKER. IF THE STICKER CLINGS TO THE BACKING, SLOWLY REPLACE THE PAPER BACKING AND REPEAT STEP 2
4. SLOWLY LOWER THE STICKER ONTO THE SURFACE AND RUB IT IN PLACE FIRMLY



B CAUTION SIGN
 SCALE: NTS

PL 16-067



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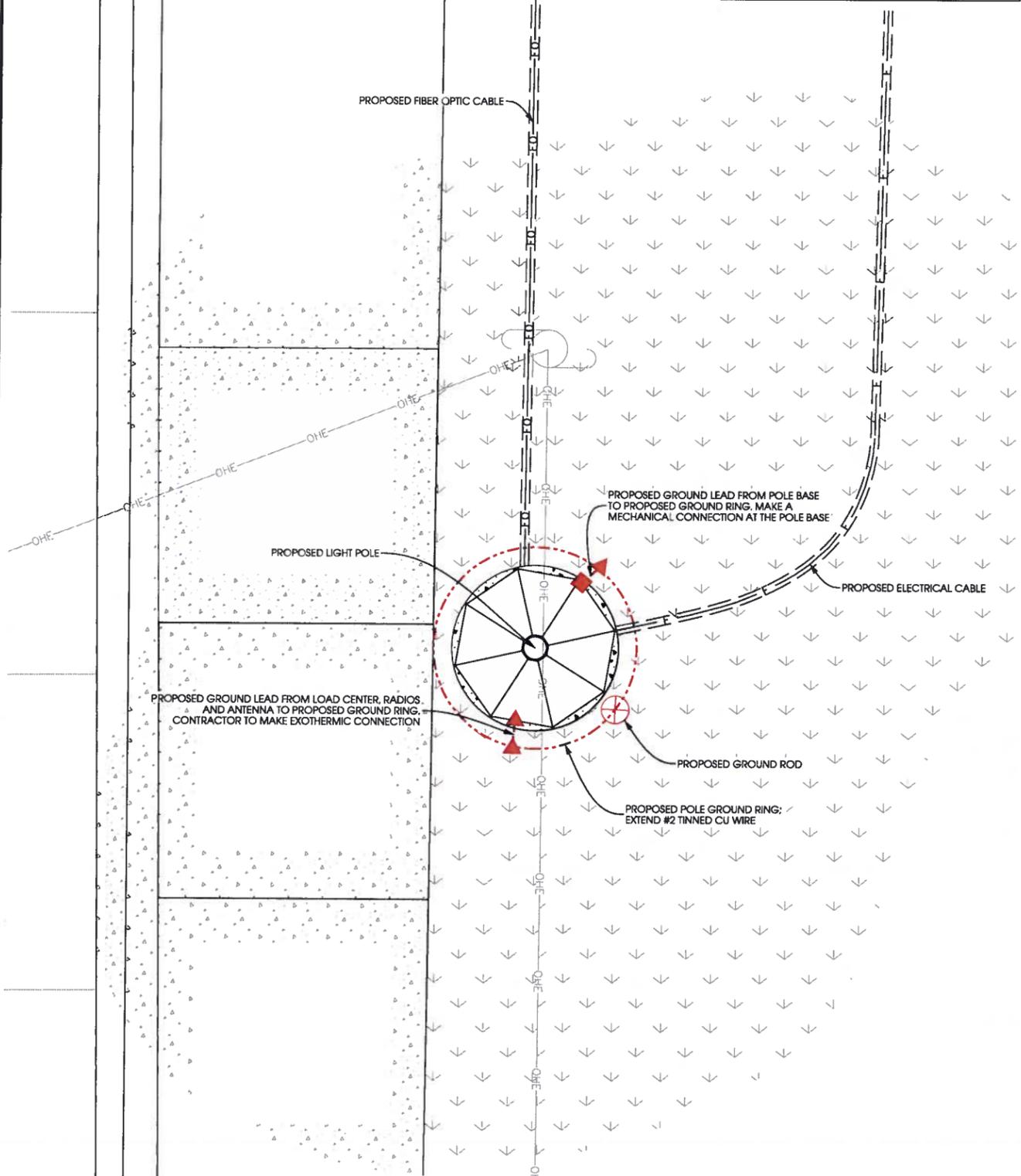
DUL ST. SCHOLASTICA SC 1 I
 DULUTH, MINNESOTA
 PROPOSED LIGHT POLE
 SMALL CELL DRAWINGS

SHEET TITLE
ELECTRICAL NOTES

SHEET NUMBER
E-2



NOTE:
 TYPICAL GROUNDING PLAN DEPICTED. HOWEVER, DUE TO SMALL GROUNDING FOOTPRINT, 5 OHMS RESISTANCE MAY NOT BE ACHIEVED. CONTRACTOR TO PERFORM GROUND RESISTANCE TEST AFTER COMPLETION OF CONSTRUCTION. PROJECT MANAGER TO REVIEW AND APPROVE GROUND RESISTANCE RESULTS. ADDITIONAL GROUNDING IMPROVEMENTS MAY BE NECESSARY.



A **PROPOSED GROUNDING DIAGRAM**
 SCALE: NTS

GROUNDING SYSTEM NOTES

- 1. SCOPE:**
 THIS SECTION COVERS THE SPECIFICATIONS FOR CELL SITE GROUNDING. THE AREAS OF FOCUS ARE: TOWER, BUILDING, AND INSTALLATION METHODS.
- 2. GENERAL:**
- 2.1 ALL GROUND RODS SHALL BE 5/8" COPPER CLAD STEEL 10 FT. LONG. GROUND RODS SHALL BE EQUALLY SPACED AT 10 FT. INTERVALS. REFER TO SITE GROUNDING PLAN FOR DETAILS AND PLACEMENT WITH GROUNDING.
 - 2.2 GROUNDING A SYSTEM SHALL BE MEGGAR TESTED TO ASSURE SATISFYING 5 OHMS OR LESS RESISTANCE.
 - 2.3 ALL CADWELD CONNECTIONS TO GALVANIZED MATERIAL SHALL BE PROPERLY PREPARED TO ASSURE A SATISFACTORY CADWELD. THE CADWELD CONNECTION SHALL BE COATED WITH A COLD GALVANIZING SPRAY.
 - 2.4 CONTRACTOR SHALL PROVIDE PHOTO DOCUMENTATION OF THE GROUND SYSTEM BY PROVIDING A CD TO VERIZON. REQUIRED PHOTOS SHALL INCLUDE:
 - * ALL BUSS BARS AND COAX GROUND CONNECTIONS.
 - * TOWER COUNTERPOISE.
 - * BUILDING COUNTERPOISE * CONNECTIONS TO POWER, TELCO, A.C., FENCING AND ICE BRIDGE.
 - * CONNECTIONS TO POWER, TELCO, A.C., FENCING AND ICE BRIDGE.
- 2.5 CONTRACTOR SHALL PROVIDE AS-BUILT PLANS SHOWING LOCATION AND DIMENSIONS OF BELOW GRADE GROUNDING FEATURES.
- 3. INSTALLATION:**
- 3.1 ALL EXTERIOR ABOVE AND BELOW GROUND CONNECTIONS SHALL BE CADWELD. NO ALUMINUM CONNECTORS SHALL BE USED UNLESS SPECIFIED OTHERWISE ON PLANS.
 - 3.2 NO RIGHT-ANGLE CADWELD CONNECTION (OTHER THAN GROUND RODS TO GROUND RING CONNECTION) SHALL BE USED. ALL WIRE-TO-WIRE CONNECTIONS SHALL UTILIZE "Y-TYPE" CONNECTIONS.
 - 3.3 ALL VERTICAL JUMPERS SHALL NOT BE WELDED WITHIN TWO (2) FT. OF THE GROUND ROD.
 - 3.4 KOPR SHIELD REQUIRED FOR ALL MECHANICAL CONNECTIONS.
 - 3.5 ALL CADWELDS FINISHED WITH COLD GALVANIZED SHIELD.
- 4. TOWER:**
- 4.1 A #2 SOLID BARE COPPER WIRE SHALL BE BURIED A MINIMUM FOUR (4) FT. UNDERGROUND AND ENIRCLE TOWER FOUNDATION TWO (2) FT. FROM THE FOUNDATION. THIS GROUNDING SYSTEM SHALL BE CONNECTED TO THE BUILDING GROUND RING IN TWO (2) PLACES USING CADWELD CONNECTIONS. SUCH CONNECTIONS SHALL BE "Y-TYPE" CADWELD CONNECTIONS.
 - 4.2 THREE (3) #2 SOLID BARE COPPER WIRES SHALL BE RUN FROM THE TOWER GROUND RING TO THE TOWER. THESE WIRES SHALL BE CONNECTED TO THE TOWER USING A CADWELD CONNECTION. NO SHARP BENDS SHALL BE PLACED IN THESE GROUND LEADS.
 - 4.3 GROUND SYSTEM SHALL INCLUDE THE INSTALLATION OF AN ISOLATED LIGHTNING ROD AT THE TOP OF THE TOWER ABOVE THE HIGHEST ANTENNA. A #2 INSULATED COPPER WIRE SHALL BE CONNECTED TO THE TOWER LIGHTNING ROD USING AN APPROVED MECHANICAL CONNECTOR, OR CADWELDED, TO TOWER STEEL.
- 5. BUILDING:**
- 5.1 A #2 SOLID BARE COPPER WIRE SHALL BE BURIED A MINIMUM OF FOUR (4) FT. UNDERGROUND AND ENIRCLE BUILDING FOUNDATION TWO (2) FEET FROM THE FOUNDATION. GROUND RING CORNERS SHALL BE INSTALLED WITH A MINIMUM TWO FOOT RADIUS (NO SHARP RIGHT ANGLE BENDS).
 - 5.2 A #2 SOLID BARE COPPER WIRE SHALL BE INSTALLED FROM THE BUILDING GROUND RING AND CONNECTED TO THE COPPER BUS BAR LOCATED ON THE OUTSIDE OF BUILDING UNDER THE WAVEGUIDE PORT WITH A MINIMUM NINE (9) INCHES RADIUS. A "Y-TYPE" OR "PARALLEL-TYPE" CADWELD CONNECTION SHALL BE USED FOR ALL CONNECTIONS TO THE GROUND RING.
 - 5.3 ONE (1) ADDITIONAL #2 SOLID BARE GROUND WIRE LEAD SHALL BE INSTALLED DIRECTLY BELOW THE ELECTRICAL SERVICE ENTRANCE PORT (GROUND LUG ON THE MAIN DISCONNECT INSIDE THE BUILDING). THIS WIRE SHALL BE CONNECTED TO THE BUILDING GROUND RING USING "Y-TYPE" CADWELD CONNECTION.
 - 5.4 ONE (1) ADDITIONAL #2 SOLID BARE COPPER GROUND WIRE LEAD SHALL BE INSTALLED DIRECTLY BELOW EACH HVAC UNIT.
- 6. FENCING:**
- 6.1 A #2 SOLID BARE COPPER GROUND WIRE SHALL BE INSTALLED FROM THE FENCE CORNER POSTS TO THE GROUND RING AND SHALL BE BURIED A MINIMUM FOUR (4) FT. UNDERGROUND. THESE RUNS SHALL INCLUDE GROUND RODS EQUALLY SPACED AT 10 FT. INTERVALS. THESE RUNS SHALL BE BROUGHT ABOVE GROUND LEVEL AND SUPPORTED ABOVE GROUND WITH TEMPORARY POSTS UNTIL PERMANENT FENCING IS INSTALLED. GROUND WIRE SHALL BE CONNECTED TO THE FENCE POSTS USING CADWELD TYPE CONNECTIONS.
- 7. EXISTING GROUND SYSTEMS:**
- 7.1 CONTRACTOR SHALL PROVIDE CONNECTIONS TO ALL EXISTING GROUND SYSTEMS AT THE SITE (SCADA, TELEMETRY, ETC.).
- 8. COMPLIANCE:**
- 8.1 ELECTRICAL CODE COMPLIANCE
 COMPLY WITH APPLICABLE LOCAL ELECTRICAL CODES REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION, AND NEC AS APPLICABLE TO ELECTRICAL GROUNDING AND BONDING, PERTAINING TO SYSTEMS, CIRCUITS AND EQUIPMENT.
 - 8.2 UL COMPLIANCE
 COMPLY WITH APPLICABLE REQUIREMENTS OF UL467, 486A AND 869 PERTAINING TO GROUNDING AND BONDING OF SYSTEMS, CIRCUITS AND EQUIPMENT. USE GROUNDING AND BONDING PRODUCTS WHICH ARE UL-LISTED AND LABELED FOR THEIR INTENDED USAGE.
 - 8.3 IEEE COMPLIANCE
 COMPLY WITH APPLICABLE REQUIREMENTS OF RECOMMENDED INSTALLATION PRACTICES OF IEEE STANDARDS 80, 81, 141 AND 142 PERTAINING TO GROUNDING AND BONDING OF SYSTEMS, CIRCUITS AND EQUIPMENT.

GROUNDING NOTES

PL 16-067



JACOBS

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| | |
|------------------|---------------|
| PROJECT NO: | 20151281316 |
| EDGE PROJECT NO: | 12242 |
| DRAWN BY: | TKB, JDB, KJG |
| CHECKED BY: | OGD |

| REV. | DATE | DESCRIPTION | |
|------|------------|------------------------|-----|
| A | 05/31/2016 | PRELIM SMALL CELL DWGS | TKB |
| B | 06/06/2016 | PRELIM SMALL CELL DWGS | JDB |
| 0 | 06/20/2016 | FINAL SMALL CELL DWGS | TKB |
| 1 | 06/29/2016 | FINAL SMALL CELL DWGS | KJG |
| 2 | 07/21/2016 | FINAL SMALL CELL DWGS | MJM |
| 3 | 08/01/2016 | FINAL SMALL CELL DWGS | TKB |



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DUL ST. SCHOLASTICA SC1 1
 DULUTH, MINNESOTA
 PROPOSED LIGHT POLE
 SMALL CELL DRAWINGS

SHEET TITLE
GROUNDING PLAN

SHEET NUMBER
G-1

L:\122001\122421\CAD\1\Plan\UPDATED Preliminary\G-1.dgn

NOTES:

BURNDY TYPES SHOWN ARE EXAMPLES. CONSULT WITH PROJECT MANAGER FOR OTHER POSSIBLE TYPES OF BURNDY CONNECTIONS THAT CAN BE USED IN STANDARD OR SPECIALLY DESIGNED GROUNDING PLANS.

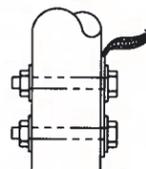
CONTRACTOR TO PROVIDE ALL REQUIRED BURNDY CONNECTIONS.



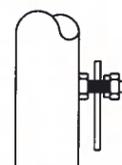
TYPE YGIBS



TYPE YA3CL-2TC38



TYPE BD18092



TYPE KC TO PIPE



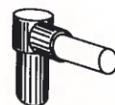
TYPE KC TO FLAT SURFACE

A BURNDY DETAILS
SCALE: NTS

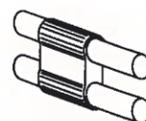
NOTES:

CADWELD TYPES SHOWN ARE EXAMPLES. CONSULT WITH PROJECT MANAGER FOR OTHER POSSIBLE TYPES OF CADWELDS THAT CAN BE USED IN STANDARD OR SPECIALLY DESIGNED GROUNDING PLANS.

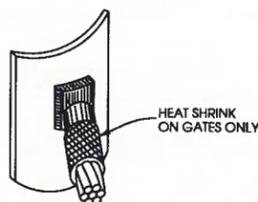
CONTRACTOR TO PROVIDE ALL REQUIRED CADWELD CONNECTIONS.



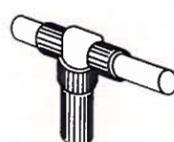
TYPE GR



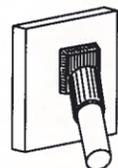
TYPE PT



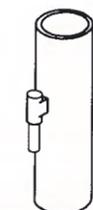
TYPE VBC



TYPE GT



TYPE VB (TOWER GROUND TAB)

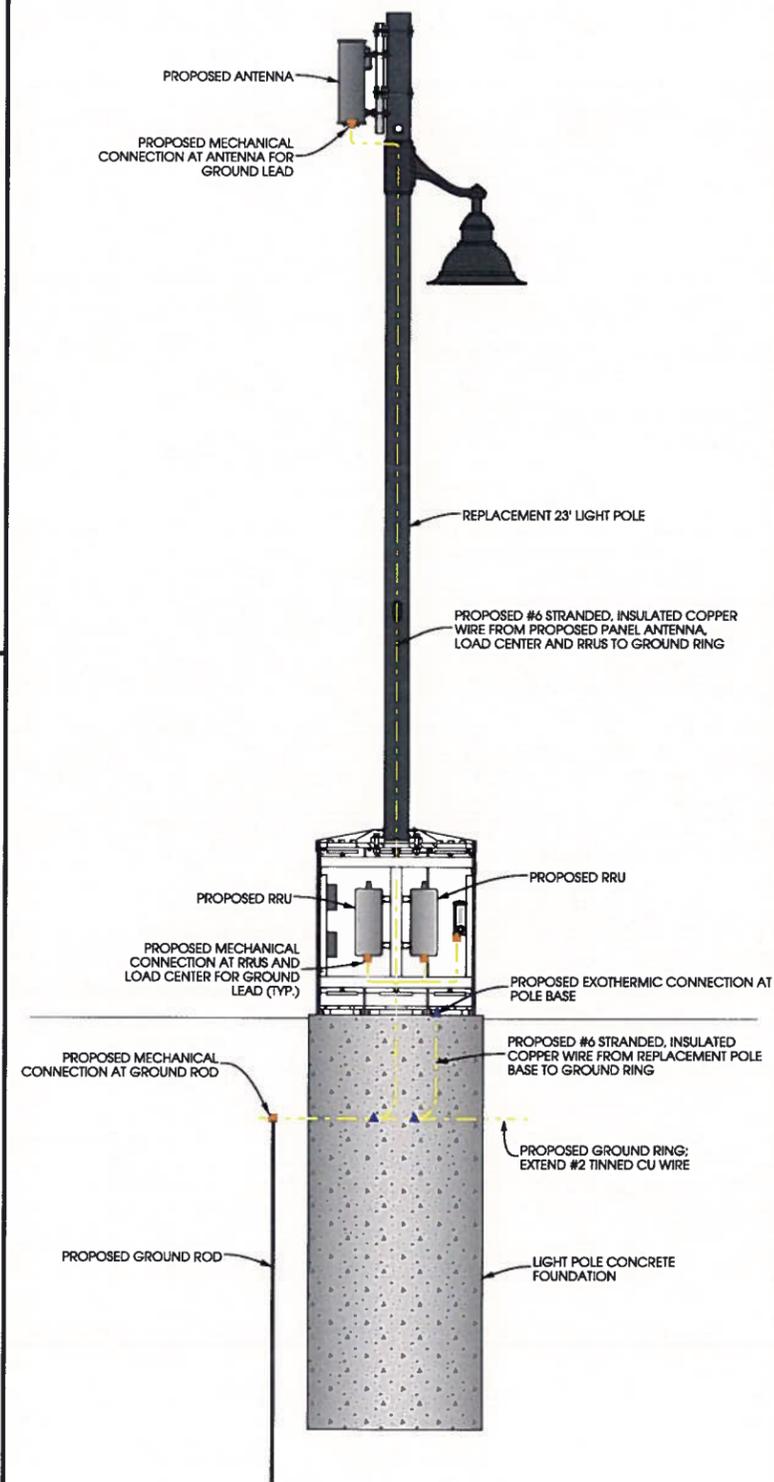


TYPE VT
SOLID COPPER WIRE TO POST CONNECTION
- FENCE LEAD TO FENCE POST
- LEADS TO UTILITY RACK & ICE BRIDGE POSTS

B CADWELD DETAILS
SCALE: NTS

GROUNDING CONNECTION LEGEND:

- EXOTHERMIC
- MECHANICAL



C TYPICAL GROUNDING SCHEMATIC
SCALE: NTS

PL 16-067



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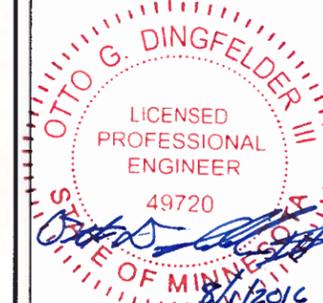
PROJECT NO: 20151281316

EDGE PROJECT NO: 12242

DRAWN BY: TKB, JDB, KJG

CHECKED BY: OGD

| REV | DATE | DESCRIPTION | |
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| 3 | 08/01/2016 | FINAL SMALL CELL DWGS | TKB |



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DUL ST. SCHOLASTICA SC 1
DULUTH, MINNESOTA
PROPOSED LIGHT POLE
SMALL CELL DRAWINGS

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

G-2

D. Response to items listed in Section 50-20.4.E

50-20.4. E. Major utility or wireless telecommunications facility.

1. Policy.

Overall policy and desired goals for special use permits for wireless telecommunications facilities. In order to ensure that the placement, construction and modification of wireless telecommunications facilities protects the city's health, safety, public welfare, environmental features, the nature and character of the community and neighborhood and other aspects of the quality of life specifically listed elsewhere in this Section 50-20.4.E, the city has adopted an overall policy with respect to a special use permit for wireless telecommunications facilities for the express purpose of achieving the following goals:

- (a) Requiring a special use permit for any new, co-location or modification of a wireless telecommunications facility;
- (b) Implementing an application process for person(s) seeking a special use permit for wireless telecommunications facilities;
- (c) Establishing a policy for examining an application for and issuing a special use permit for wireless telecommunications facilities that is both fair and consistent;
- (d) Promoting and encouraging, wherever possible, the sharing and co-location of wireless telecommunications facilities among service providers;
- (e) Promoting and encouraging, wherever possible, the placement, height and quantity of wireless telecommunications facilities in such a manner, including but not limited to the use of stealth technology, to minimize adverse aesthetic and visual impacts on the land, property, buildings, and other facilities adjacent to, surrounding and in generally the same area as the requested location of such wireless telecommunications facilities, which shall mean using the least visually and physically intrusive facility that is not technologically or commercially impracticable under the facts and circumstances;
- (f) That in granting a special use permit, the city has found that the facility shall be the most appropriate site as regards being the least visually intrusive among those available in the city;

Verizon Wireless understands the City's goals and policies and has taken them into account with the proposed small cell installation on the St. Scholastica light poles. The proposed small cells are diminutive in nature and their very purpose is to serve to off load capacity without the need to introduce new larger macro sites. The proposed collocated small cells on light poles are the least visually intrusive solution to solve the capacity issues faced with Sector 1 of Verizon's Kenwood macro site. The antennas are designed to blend in with the light pole structures and will only be able to be seen on the College of St. Scholastica property. Verizon has worked with the College to come up with a design that best fits the surrounding environment.

2. Applicability and exemptions.

- (a) Except as otherwise provided by subsection (b) below, no person shall be permitted to site, place, build, construct, modify or prepare any site for the placement or use of, wireless telecommunications facilities after July 25, 2010, without having first obtained a special use permit for wireless

telecommunications facilities. All legally permitted wireless telecommunications facilities, constructed as permitted, existing on or before July 25, 2010, shall be allowed to continue as they presently exist, provided however, that any visible modification of an existing wireless telecommunications facility will require the complete facility and any new installation to comply with this Section 50-20.4.E. Any repair and maintenance of a wireless facility does not require an application for a special use permit;

- (b) The following shall be exempt from the requirements of this Section 50-20.4.E:
- (i) The city's fire, police, department of transportation or other public service facilities owned and operated by the city or those owned and operated by county, the state or federal government;
 - (ii) Any facilities expressly exempt from the city's siting, building and permitting authority;
 - (iii) Over-the-air reception devices including the reception antennas for direct broadcast satellites (DBS), multichannel multipoint distribution (wireless cable) providers (MMDS), television broadcast stations (TVBS) and other customer-end antennas that receive and transmit fixed wireless signals that are primarily used for reception;
 - (iv) Facilities exclusively for private, non-commercial radio and television reception and private citizen's bands, licensed amateur radio and other similar non-commercial telecommunications;
 - (v) Facilities exclusively for providing unlicensed spread spectrum technologies (such as IEEE 802.11a, b, g (Wi-Fi) and Bluetooth) where the facility does not require a new tower;

Verizon has read, understands and is willing to comply.

3. Location standards.

- (a) Wireless telecommunications facilities shall be located, sited and erected in accordance with the following priorities, (i) being the highest priority and (vii) being the lowest priority:
- (i) On existing towers or other structures on city owned properties;
 - (ii) On existing towers or other structures on other property in the city;
 - (iii) A new tower on city owned properties, other than property designated for park use, or in the Park and Open Space (P-1) district;
 - (iv) A new tower on city owned properties designated for park use, or in the Park and Open Space (P-1) district;
 - (v) A new tower on properties in Industrial-General (I-G) and Industrial-Waterfront (I-W) districts;
 - (vi) A new tower on properties in form districts or mixed use districts, other than the Mixed-Use Neighborhood (MU-N) district;
 - (vii) A new tower on properties in residential, Mixed-Use Neighborhood (MU-N), and Airport (AP) districts;
- (b) If the proposed site is not proposed for the highest priority listed above, then a detailed explanation must be provided as to why a site of a higher priority was not selected. The person seeking such an exception must satisfactorily demonstrate the reason or reasons why such a permit should be granted for the

proposed site, and the hardship that would be incurred by the applicant if the permit were not granted for the proposed site;

The colocation on St. Scholastica light poles is the highest priority available from the above referenced priority list. No city owned properties or structures exist on the College of St. Scholastica Campus. Therefore, a small cell solution with low visual impact on St. Scholastica light poles is proposed as the 2nd highest priority on the above referenced list.

- (c) An applicant may not by-pass sites of higher priority by stating the site proposed is the only site leased or selected. An application shall address co-location as an option. If such option is not proposed, the applicant must explain to the reasonable satisfaction of the city why co-location is commercially or otherwise impracticable. Agreements between providers limiting or prohibiting co-location shall not be a valid basis for any claim of commercial impracticability or hardship;

Colocation on St. Scholastica light poles is what is being proposed which is the highest priority available from the priority list.

- (d) The applicant shall submit a written report demonstrating the applicant's review of the above locations in order of priority, demonstrating the technological reason for the site selection. If appropriate, based on selecting a site of lower priority, a detailed written explanation as to why sites of a higher priority were not selected shall be included with the application;

No city owned assets or property exists on or near the site to off load capacity to meet the radio frequency objectives. The light poles are owned by the College of St. Scholastica and not the City.

- (e) The city may approve any site located within an area in the above list of priorities, provided that the city finds that the proposed site is in the best interest of the health, safety and welfare of the city and its inhabitants and will not have a deleterious effect on the nature and character of the community and neighborhood;

This proposed colocation, small cell solution meets the requirement of priority (ii) above and there are no city owned properties on the College of St. Scholastica Campus. Therefore, a higher priority does not exist as an option for consideration. Verizon has worked extensively with St. Scholastica to design an installation that will work in harmony with the other buildings and structures on campus.

4. Other standards and requirements. The following requirements are applicable to all wireless telecommunications facilities.

- (a) To the extent that the holder of a special use permit for wireless telecommunications facilities has not received relief, or is otherwise exempt from appropriate state or federal agency rules or regulations, then the holder of such special use permit shall adhere to, and comply with, all applicable rules, regulations, standards, and provisions of any state or federal agency, including, but not limited to, the FAA and the FCC. Specifically included in this requirement are any rules and regulations regarding height, lighting, security, electrical and RF emission standards;

Verizon has read, understands and is willing to comply. Verizon Wireless continues to operate and comply with ongoing state and federal rules and regulations. Please see attached Exhibit C, FCC license and Exhibit D, FAA TOWAIR Reports.

- (b) To the extent that applicable rules, regulations, standards and provisions of any state or federal agency, including but not limited to the FAA and the FCC, and specifically including any rules and regulations regarding height, lighting and security are changed or are modified during the duration of a special use permit

for wireless telecommunications facilities, then the holder of such special use permit shall conform the permitted wireless telecommunications facilities to the applicable changed or modified rule, regulation, standard or provision within a maximum of 24 months of the effective date of the applicable changed or modified rule, regulation, standard or provision, or sooner as may be required by the issuing entity;

Verizon has read, understands and is willing to comply. Verizon Wireless continues to operate and comply with ongoing state and federal rules and regulations.

- (c) The wireless telecommunications facility and any and all accessory or associated facilities shall maximize the use of building materials, colors and textures designed to blend with the structure to which it may be affixed and to harmonize with the natural surroundings; this shall include the utilization of stealth or concealment technology as may be required by the city. Facilities located within the migratory bird flight path shall utilize stealth or concealment technology;

The collocation of 2 foot high small cell panel antennas, painted to match the light pole, are being used to meet this requirement. In addition, the remote radio units will be concealed in the base of the light pole. The small cell nodes are connected back to the macro site via underground fiber optic line, and no other equipment will be visible.

- (d) All utilities at a wireless telecommunications facilities site shall be installed underground whenever possible and in compliance with all laws, ordinances, rules and regulations of the city, including specifically, but not limited to, the city and state building and electrical codes, where appropriate;

Verizon has read, understands and is willing to comply. All utilities, including fiber and electric are proposed to be underground, meeting this requirement.

- (e) At a telecommunications site, an access road, turn-around space and parking shall be provided to assure adequate emergency and service access. Maximum use of existing roads, whether public or private, shall be made to the extent practicable. Road construction shall at all times minimize ground disturbance and the cutting of vegetation. Road grades shall closely follow natural contours to assure minimal visual disturbance and reduce soil erosion;

No roads are proposed or required. There is adequate turnaround and parking space available within the St. Scholastica internal street and parking system. Power and fiber will be directionally bored eliminating impact on streets and vegetation.

- (f) All wireless telecommunications facilities shall be constructed, operated, maintained, repaired, provided for removal of, modified or restored in strict compliance with all current applicable technical, safety and safety-related codes adopted by the city, state, or federal government, including but not limited to the most recent editions of the ANSI Code, as well as accepted and responsible workmanlike industry practices and recommended practices of the National Association of Tower Erectors. The codes referred to are codes that include, but are not limited to, construction, building, electrical, fire, safety, health and land use codes. In the event of a conflict between or among any of the preceding, the more stringent shall apply;

No telecommunication tower is proposed. Antennas are to be collocated on St. Scholastica light poles. The light poles will meet building code structural requirements as well as all applicable health and safety standards and codes.

- (g) A holder of a special use permit granted under this Section 50-20.4.E shall obtain, at its own expense, all permits and licenses required by applicable law, rule, regulation or code, and must maintain the same, in full force and effect, for

as long as required by the city or other governmental entity or agency having jurisdiction over the applicant;

Verizon has read, understands and is willing to comply. Verizon will comply with all Federal, State and local regulations.

- (h) The holder of a special use permit shall notify the city of any intended modification of a wireless telecommunication facility and shall apply to the city to modify, relocate or rebuild a wireless telecommunications facility;

Verizon has read, understands and is willing to comply.

- (i) All new towers shall be structurally designed to accommodate at least four additional antenna arrays equal to those of the applicant, and located as close to the applicant’s antenna as possible without causing interference. This requirement may be waived, provided that the applicant, in writing, demonstrates that the provisions of future shared usage of the tower is not technologically feasible, is commercially impracticable or creates an unnecessary and unreasonable burden, based upon:
 - (i) The foreseeable number of FCC licenses available for the area;
 - (ii) The kind of wireless telecommunications facilities site and structure proposed;
 - (iii) The number of existing and potential licenses without wireless telecommunications facilities spaces/sites;
 - (iv) Available space on existing and approved towers;

No telecommunication tower is proposed. The antennas will be collocated on St. Scholastica light poles. Additional collocations are not feasible on these light poles. Small cells are low-impact and designed to fit in with the surrounding environment.

- (j) New guyed towers are prohibited;

Not Applicable. No guyed towers are proposed as part of this application.

- (k) Tower condition inspections shall be conducted every three years for a guyed tower and five years for monopoles and self-supporting towers. All inspections shall be documented in a report such as an ANSI report as per Annex E, Tower Maintenance and Inspection Procedures, ANSI/TIA/EIA-222G or most recent version. The inspection report shall be provided to the building official within two days of a request by the city for such records;

Not Applicable. No telecommunication tower is proposed. The proposed antennas will be collocated on St. Scholastica light poles.

- (l) The owner of a proposed new tower, and the owner’s successors in interest, shall negotiate in good faith for the shared use of the proposed tower by other wireless service providers in the future, and shall:
 - (i) Respond within 60 days to a request for information from a potential shared-use applicant;
 - (ii) Negotiate in good faith concerning future requests for shared use of the new tower by other telecommunications providers;
 - (iii) Allow shared use of the new tower if another telecommunications provider agrees in writing to pay reasonable charges. The charges may include, but are not limited to, a pro rata share of the cost of site selection, planning, project administration, land costs, site design, construction and maintenance financing, return on equity, less

depreciation, and all of the costs of adapting the tower or equipment to accommodate a shared user without causing electromagnetic interference;

This section is not applicable since no telecommunication tower is being proposed and Verizon's antennas are proposed to be collocated on light poles owned by St. Scholastica. However, the owner has not granted Verizon exclusive rights.

- (m) No tower constructed after July 25, 2010, including allowing for all attachments, shall exceed a height that shall permit operation without required artificial lighting of any kind in accordance with city, state or federal statute, law, code, rule or regulation;

Verizon has read, understands and is willing to comply. No telecommunication tower is proposed. Due to the minimal height, no FAA registration or additional lighting is required.

- (n) No tower constructed after July 25, 2010, including allowing for all attachments, shall exceed 75 feet in height within the migratory bird flight path;

The overall height of the light poles are 23.5 feet.

- (o) Wireless telecommunications facilities shall not be artificially lighted or marked, except as required by law;

This structure is a light pole. However, no additional lighting is proposed nor required for the purposes of the proposed collocated antennas.

- (p) Towers shall be galvanized or painted with a rust-preventive paint of an appropriate color to harmonize with the surroundings and shall be maintained in accordance with the requirements of this Section 50-20.4.E;

This is not applicable as no telecommunication tower is being proposed. However, the proposed antennas will be painted with a rust preventative paint to match the light pole.

- (q) Wireless telecommunications facilities and antennas shall be located, fenced or otherwise secured in a manner that prevents unauthorized access. All antennas, towers and other supporting structures, including guy anchor points and wires, shall be made inaccessible to individuals and constructed or shielded in such a manner that they cannot be climbed or collided with. Transmitters and telecommunications control points shall be installed in such a manner that they are readily accessible only to persons authorized to operate or service them;

The bottom of the proposed antennas will be 21.5 feet from grade on top of the light poles and accessible only to authorized individuals. The base of the light poles that contain the remote radio units will be locked and secured.

- (r) Wireless telecommunications facilities shall contain a sign no larger than four square feet in order to provide adequate notification to persons in the immediate area of the presence of RF radiation or to control exposure to RF radiation within a given area. A sign of the same size is also to be installed to contain the name(s) of the owner(s) and operator(s) of the antenna(s) as well as emergency phone number(s). The sign shall be on the equipment shelter or cabinet of the applicant and be visible from the access point of the site and must identify the equipment owner of the shelter or cabinet. On tower sites, an FCC registration sign as applicable is also to be present. The signs shall not be lighted, unless applicable law, rule or regulation requires lighting. No other signage, including advertising, shall be permitted;

Verizon has read, understands and is willing to comply. There is FCC required signage that will be placed on the pole specific to the proposed small cell installations.

Please see attached Exhibit E. A copy of the signage, along with installation instructions is included in the construction drawings for each small cell location.

- (s) All proposed towers and any other proposed wireless telecommunications facility structures shall be set back from abutting parcels, recorded rights-of-way and road and street lines by the following distances: A distance equal to the height of the proposed tower or wireless telecommunications facility structure plus ten percent of the height of the tower or structure, or the existing setback requirement of the underlying zone district, whichever is greater. Any accessory structure shall be located so as to comply with the applicable minimum setback requirements for the property on which it is situated;

Verizon has read, understands and is willing to comply. The nearest neighboring property not owned by the college is approximately 300 feet from small cell node #3 and 350 feet from small cell node #2. This property is the wooded land owned by the State of Minnesota south of the west dormitories. The nearest residential neighboring property is approximately 460 feet from the nearest small cell node #1. The highest point of the proposed antennas is 23.5 feet above grade and there are no accessory structures associated with this installation. Please see Exhibit I Air Photo / Parcel Map. Exhibit I has been provided in lieu of a survey of the entire St. Scholastica campus given the distances to property lines and the magnitude of the campus property. We hereby request a waiver to providing a survey due to these reasons as was discussed at pre-application meetings.

- (t) The applicant and the owner of record of any proposed wireless telecommunications facilities property site shall, at its cost and expense, be jointly required to execute and file with the city a bond, or other form of security acceptable to the city as to type of security and the form and manner of execution, in an amount that shall be set in accordance with Section 31-6(a) of the City Code, and with such sureties as are deemed sufficient by the city to assure the faithful performance of the terms and conditions of this Section 50-20.4.E and conditions of any special use permit issued. The full amount of the bond or security shall remain in full force and effect throughout the term of the special use permit and until any necessary site restoration is completed to restore the site to a condition comparable to that which existed prior to the issuance of the original special use permit;

As discussed in the pre-application meeting, the cost to dismantle a small cell installation is much less than that of a macro tower site. Given the nature of the small cell being collocated on the St. Scholastica light pole, if the small cell was decommissioned, the light and pole would remain with the college. Verizon has provided a formal quote, as requested, in Exhibit J. However, Verizon is requesting a waiver of the bond requirement due to the fact that the locations are on private property and the placement, use, maintenance and removal of poles is governed by the agreement between the two parties. Due to the Non-Disclosure Agreement between Verizon Wireless and St. Scholastica, we are unable to release copies of the Agreements.

- (u) A holder of a special use permit for wireless telecommunications facilities shall secure and at all times maintain for the duration of the special use permit commercial general liability insurance for personal injuries, death and property damage, and umbrella insurance coverage in the following amounts: \$1,000,000 per occurrence/\$2,000,000 aggregate;
 - (i) For a wireless telecommunications facility on city property, the policy shall specifically include the city and its officers, employees, agents and consultants as additional insureds. The amounts of such coverage

shall be established as a condition of the special use permit and shall be consistent with the liability limits provided in MSA 466.04;

- (ii) The insurance policies shall be issued by an agent or representative of an insurance company licensed to do business in the state and with a Best's rating of at least A;
- (iii) The insurance policies shall contain an endorsement obligating the insurance company to furnish the building official with at least 30 days prior written notice in advance of the cancellation of the insurance;
- (iv) Renewal or replacement policies or certificates shall be delivered to the building official at least 15 days before the expiration of the insurance that such policies are to renew or replace;
- (v) No permit necessary to the site preparation or construction of a permitted wireless telecommunications facilities may be issued until the holder of the special use permit shall file with the city building official a copy of the required policies or certificates representing the insurance in the required amounts;
- (vi) Notwithstanding the requirements noted in this subsection no insurance shall be required in those instances where the city, county, state or a federal agency applies for and secures a special use permit for wireless telecommunications facilities.

Verizon has read, understands and is willing to comply. A copy of Verizon's Evidence of Insurance is attached as Exhibit P.

- (v) All special use permits approved for wireless telecommunication facilities located on city property after July 25, 2010, shall contain a provision with respect to indemnification. Such provision shall require the applicant, to the extent permitted by law, to at all times defend, indemnify, protect, save, hold harmless, and exempt the city, and its officers, employees, agents and consultants from any and all penalties, damages, costs, or charges arising out of any and all claims, suits, demands, causes of action, or award of damages, whether compensatory or punitive, or expenses arising therefrom, either at law or in equity, which might arise out of, or are caused by, the placement, construction, erection, modification, location, products performance, use, operation, maintenance, repair, installation, replacement, removal or restoration of said facility, excepting, however, any portion of such claims, suits, demands, causes of action or award of damages as may be attributable to the negligent or intentional acts or omissions of the city, or its servants or agents. With respect to the penalties, damages or charges referenced herein, reasonable attorneys' fees, consultants' fees, and expert witness fees are included in those costs that are recoverable by the city. An indemnification provision will not be required in those instances where the city itself applies for and secures a special use permit for wireless telecommunications facilities;

Verizon has read, understands and is willing to comply.

5. Additional provisions for special use permit review. In addition to those standards and criteria in Section 50-37.1 Common procedures and Section 50-37.10 Special and interim use permits, each application for a special use permit for a wireless telecommunications facility shall comply with the following additional standards:

- (a) The city may hire any consultant or expert necessary to assist the city in reviewing and evaluating an application for a special use permit for a wireless

telecommunications facility, including the construction and modification of the site, once permitted, and any site inspections. An applicant shall deposit with the city funds sufficient to reimburse the city for all reasonable costs of consultant and expert evaluation and consultation to the city in connection with the review of any application including where applicable, the lease negotiation, the pre-approval evaluation, and the construction and modification of the site, once permitted. The initial deposit shall be set in accordance with Section 31-6(a) of the City Code;

Verizon has read, understands and acknowledges this section.

- (b) The placement of the deposit with the city shall precede the pre-application meeting. The city will maintain a separate escrow account for all such funds.

The city’s consultants shall invoice the city for its services related to the application. The total amount of the funds needed for the review of the application may vary depending on the scope and complexity of the project, the completeness of the application and other information as may be needed to complete the necessary review, analysis and inspection of any construction or modification. If at any time during the process this escrow account has a balance less than \$2,500, the applicant shall immediately, upon notification by the city, replenish said escrow account so that it has a balance of at least \$5,000. Such additional escrow funds shall be deposited with the city before any further action or consideration is taken on the application. In the event that the amount held in escrow by the city is more than the amount of the actual invoicing at the conclusion of the project, the remaining balance shall, upon request of the applicant, be refunded to the applicant;

Verizon has read, understands and is willing to comply. An escrow deposit in the amount of \$8,500.00 has been submitted to the City.

- (c) The land use supervisor will administratively approve an application to collocate on an existing wireless telecommunication facility upon receiving a complete application, if the application meets all the requirements of the Chapter and would not substantially change the physical dimensions of the wireless telecommunication facility. Substantial changes shall mean:

- (i) the mounting of the proposed antenna on the tower would increase the existing height of the tower by more than 10%, or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty feet, whichever is greater, except that the mounting of the proposed antenna may exceed the size limits set forth in this paragraph if necessary to avoid interference with existing antennas; or
- (ii) the mounting of the proposed antenna would involve the installation of more than the standard number of new equipment cabinets for the technology involved, not to exceed four, or more than one new equipment shelter; or
- (ii) the mounting of the proposed antenna would involve adding an appurtenance to the body of the tower that would protrude from the edge of the tower more than twenty feet, or more than the width of the tower structure at the level of the appurtenance, whichever is greater, except that the mounting of the proposed antenna may exceed the size limits set forth in this paragraph if necessary to shelter the antenna from inclement weather or to connect the antenna to the tower via cable; or

- (iv) the mounting of the proposed antenna would involve excavation outside the current tower site, defined as the current boundaries of the leased or owned property; or
- (v) the mounting of the proposed antenna would defeat the concealment elements of the eligible support structure; or
- (vi) the mounting of the proposed antenna would not comply with conditions associated with the siting approval of the construction or modification of the eligible support structure or base station equipment.

Verizon has read, understands and acknowledges this section.

- (d) At any stage prior to issuing a special use permit the city may require such additional information as it deems necessary to confirm compliance with this UDC;

Verizon has read, understands and acknowledges this section.

- (e) The city may refer any application or part of an application to any advisory, other committee or commission for a non-binding recommendation;

Verizon has read, understands and acknowledges this section.

- (f) Notwithstanding that a potential site may be situated in an area of highest priority or highest available priority, the city may disapprove an application for any of the following reasons:
 - (i) Conflict with safety and safety-related codes and requirements;
 - (ii) Conflict with the historic nature or character of a neighborhood or historical district;
 - (iii) The use or construction of wireless telecommunications facilities that is contrary to an already stated purpose of a specific zoning or land use designation;
 - (iv) The placement and location of wireless telecommunications facilities that would create an unacceptable risk, or the reasonable probability of such, to residents, the public, employees and agents of the city or employees of the service provider or other service providers;
 - (v) Conflicts with the provisions of this Section 50-20.4.E; (vi) The failure of the applicant to provide additional requested information in sufficient time for the city to comply with the requirements of MSA 15.99;

Verizon has read, understands and acknowledges this section.

- (g) Except for necessary building permits, once a special use permit has been granted, no additional zoning approvals shall be required by the city for the wireless telecommunications facilities covered by the special use permit;

Verizon has read, understands and acknowledges this section.

- (h) In order to verify that the holder of a special use permit for wireless telecommunications facilities and any and all lessees, renters and licensees of wireless telecommunications facilities, place and construct such facilities, including towers and antennas, in accordance with all applicable technical, safety, fire, building and zoning codes, laws, ordinances and regulations and other applicable requirements, the city may inspect all facets of said permit holder's, renter's, lessee's or licensee's placement, construction, modification

and maintenance of such facilities, including, but not limited to, towers, antennas and buildings or other structures constructed or located on the permitted site;

Verizon has read, understands and acknowledges this section.

6. Relief and appeal.

Any applicant desiring relief, waiver or exemption from any aspect or requirement of this Section 50-20.4.E may request relief, waiver or exemption in the submitted application for either a special use permit, or in the case of an existing or previously granted special use permit a request for modification of its tower and/or facilities. The requested relief, and any relief granted by the city, may be temporary or permanent, partial or complete. The burden of proving the need for the requested relief, waiver or exemption is solely on the applicant to prove. The applicant shall bear all costs of the city in considering the request and the relief, waiver or exemption. No such relief or exemption shall be approved unless the applicant demonstrates by clear and convincing evidence that if granted, the relief, waiver or exemption will have no significant affect on the health, safety and welfare of the city, its residents and other service providers;

Verizon has read, understands and acknowledges this section.

E. Application Materials

1. SITING CRITERIA

Verizon Wireless has been experiencing significant capacity issues on Sector 1 of its Kenwood macro site. In order to continue to provide quality service to its customers, Verizon wireless has proposed a small cell solution at the College of St. Scholastica. Verizon has worked with the College on its proposed design to minimize visual impact and to collocate at existing light pole locations. Verizon has proposed new LED light pole replacements that will accommodate 2 foot long small cell panel antennas in addition to the LED lights. In determining siting locations we have reviewed the ordinance and analyzed existing structures in the area. A collocation small cell solution was proposed in order to avoid the need for a new tower facility (lesser priority sites). There are no City owned structures in the proposed search ring (The College of St. Scholastica). Therefore, St. Scholastica light poles were determined to be the highest priority sites available in the area, and could accommodate low impact small cells, without the need to build a new tower.

2. RIGHT TO PROCEED

The subject property is owned by the College of St. Scholastica. Attached to this application is Exhibit B, a letter of consent from St. Scholastica to proceed with applications for this project. **A letter from Verizon Wireless is attached as Exhibit O authorizing their consultants from Jacobs to work on this project.**

3. OPERATION IN SAFE MANNER

Verizon Wireless is committed to providing excellent service in a safe, professional manner. Verizon Wireless is licensed by the FCC and agrees to comply with all applicable conditions, laws, rules, and regulations as it applies to this small cell application project. The construction of this collocated small cell system is legally permissible, including the fact that Verizon Wireless is authorized to do business in the State of Minnesota. The necessary safety signage will be posted on the site as required. A copy of the safety signage is attached as Exhibit E. **A picture of the RF safety signage is also included in the construction drawings along with installation instructions.**

4. DESCRIPTION OF PROJECT

Verizon Wireless is proposing a low impact small cell solution at the College of St. Scholastica Campus. Three nodes are currently proposed on St. Scholastica light poles. Each node will help to offload needed capacity for sector 1 of Verizon's Kenwood macro site that serves to cover the area.

5. NEED FOR FACILITY

Attached as Exhibit F, is Verizon's Radio Frequency propagation study and analysis of the need for this project. **The RF Justification document has been updated to include more detailed technical information regarding the macro site and the capacity issues, as well as information regarding the radios.**

6. GENERAL SITE INFORMATION

The site is owned by the college of St. Scholastica and is addressed as 1200 Kenwood Avenue. Contact information for both the owner and the applicant is provided in Exhibit A. The property is zoned MU-I; Mixed Use Institutional. Existing structures include all campus buildings, dormitories, light poles, etc. Attached is Exhibit I, which shows the buildings on campus, as well as Exhibit M, which shows an example of the existing light pole fixtures on campus. The height of structures varies significantly. In this application, the proposed small cells will be on three existing light pole locations that will be approximately 23.5 feet in height from grade. These locations are significantly shorter than the surrounding buildings and trees on campus and are targeted in specific locations to off load capacity from the macro site. Dense, mature trees surround the entire campus. The St. Scholastica light poles and proposed small cell antennas will not be able to be seen from any surrounding properties. The nearest neighboring residential property is approximately 460 feet away from the nearest small cell node #1 located across from the Burns Wellness Center. **Please see Exhibit I Air Photo / Parcel Map. Exhibit I has been provided in lieu of a survey of the entire St. Scholastica campus given the distances to property lines and the magnitude of the campus property. We hereby request a waiver to providing a survey due to these reasons as was discussed during the pre-application meeting.**

7. SITE APPEARANCE

Attached as Exhibit M, are pictures showing the current condition of the property and light poles as they exist. Exhibit N shows photo simulations of what the proposed antenna attachments would look like after construction. Verizon has worked with the College of St. Scholastica to come up with a design that fits in with the existing light poles on campus.

8. SPECIFIC PROJECT INFORMATION

Attached as Exhibit K, are the proposed engineered construction drawings. These detail the size, dimensions and location of the structure and antennas and include specification sheets of the equipment. Due to the fact that the antennas are to be collocated on existing light poles, the capacity of the poles will not allow for additional users. The construction drawings detail the light poles, antennas and all related fixtures, including height above pre-existing grade, materials, color and lighting.

The frequency, modulation, class of service, and maximum effective radiated power (ERP) in watts is described for each of the frequencies in Exhibit G.

9. RF EMISSIONS, COMPLIANCE WITH FCC RF GUIDELINES

Please note, these small cell antennas and related equipment are categorically excluded as shown in the attached Exhibit G, and will be in full compliance with the current FCC RF Emissions guidelines. **Per the City's request, Verizon Wireless will agree to post construction testing to verify RF emissions compliance.**

10. STATEMENT OF NON-INTERFERENCE

A signed statement that the proposed installation will not cause physical or RF interference with other telecommunications devices is attached as Exhibit H.

11. FCC LICENSE

A copy of Verizon Wireless's FCC Licenses are provided in Exhibit C.

12. GEOTECHNICAL

A geotechnical report is provided in Exhibit L.

13. STRUCTURAL ANALYSIS

The structural calculations for the light pole design have been included along with the light pole design drawings as Exhibit Q.

14. COMPLIANCE WITH FAA REGULATION PART 77

Attached in Exhibit D are the FAA Towair Reports for each of the 3 light pole nodes indicating that the poles do not require registration.

15. COLOCATION OR MODIFICATION OF EXISTING FACILITY

This application is for the colocation of small cell antennas on 3 light pole structures, owned by the College of St. Scholastica, that are not telecommunication towers. Therefore an ANSI report is not applicable.

16. SCREENING

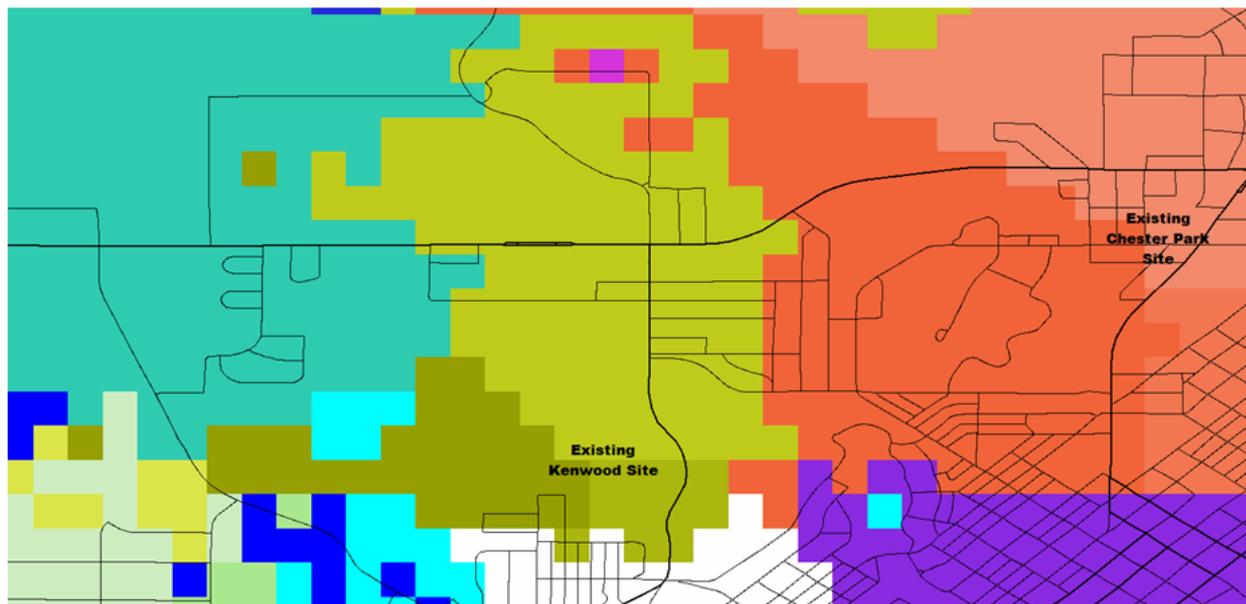
The 3 proposed small cell nodes at the College of St. Scholastica are targeted specifically on campus and completely screened from view from surrounding properties. Mature trees surround the property and the closest neighboring property is approximately 460 feet from node #1 located across from the Burns Wellness Commons. **Exhibit I shows the locations of the nodes in relation to the property lines.**

17. VISUAL IMPACT

The visual impact of the 23.5 foot light poles with small cell antennas will be negligible. Verizon has worked with the college on the preferred design of each node. Each light pole and small cell antenna will be over 450 feet from any neighboring property and will not be able to be seen off campus due to the mature trees, significant distance and minimal height. A “Zone of Visibility Map” with one mile radius is not applicable in this circumstance, and we ask that this requirement to be waived as this is not a new macro cell tower. There are no guy wires, fencing, or accessory buildings, etc. that would necessitate the need for screening. Attached in Exhibit N are before and after photo simulations that show what the proposed light poles and small cells would look like on campus. There are no areas or properties off campus where the nodes can be seen.

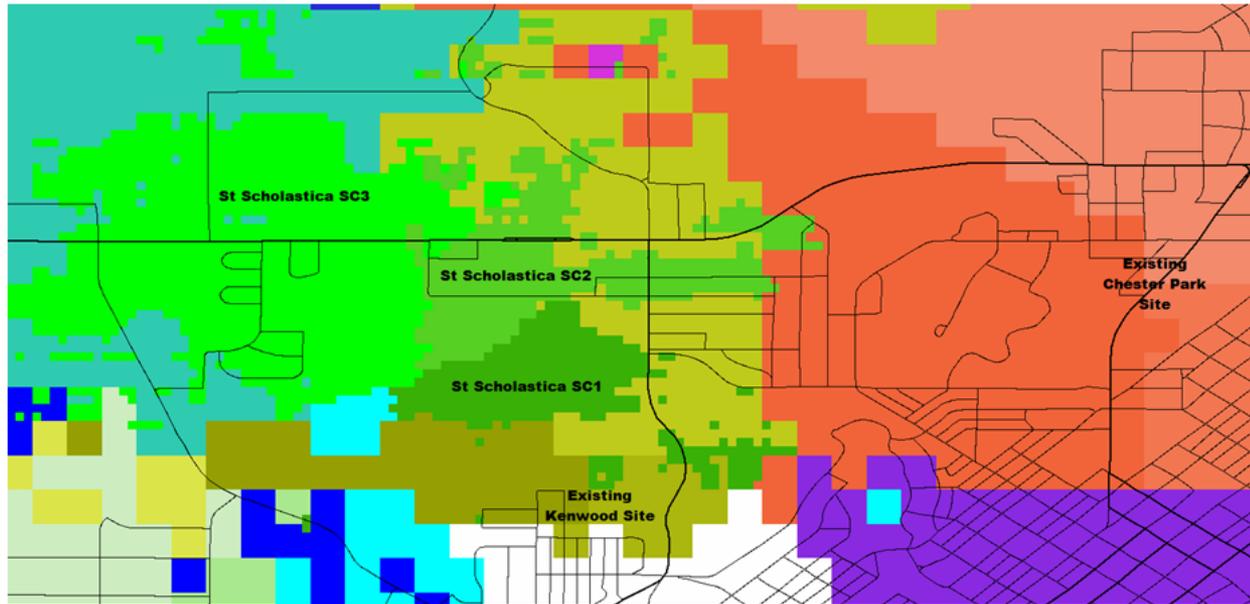
Map of Existing Best Server Coverage in Area Surrounding Proposed Site

Proposed DUL ST SCHOLASTICA SC – *not simulated*



Map showing existing Best Server coverage in the area surrounding the proposed site. The areas of interest are the sage green colors representing the three sectors of the *existing* Kenwood site. These three sectors (particularly the west-facing sector) serve the St Scholastica campus as well as the surrounding area. The goal of the proposed site will be to take over some of the coverage from the *existing* Kenwood site.

Proposed DUL ST SCHOLASTICA SC – Simulated



Map showing predicted Best Server coverage in the area surrounding the proposed site, including the effect of the proposed site. The large service area of the existing Kenwood site (shown in shades of sage green) has been balanced by the addition of the three *new* sectors from the proposed DUL ST SCHOLASTICA SC site (shown in shades of green). The end result will be a dramatically improved user experience on the LTE data network.