



# CITY OF DULUTH

Community Planning Division

411 W 1<sup>st</sup> St, Rm 208 \* Duluth, Minnesota 55802-1197

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

<b>File Number</b>	PL 18-126, CUP	<b>Contact</b>	Steven Robertson, 218-730-5295	
<b>Type</b>	Concurrent Use Permit to Place Private Obstruction in the Public Right of Way/Public Facilities	<b>Planning Commission Date</b>	October 9, 2018	
<b>Deadline for Action</b>	<b>Application Date</b>	September 10, 2018		
	<b>Date Extension Letter Mailed</b>	N/A	<b>90 Days* (237.163)</b>	January 8, 2019
<b>Location of Subject</b>	One Site Near Spirit Mountain (8551 Grand Avenue)			
<b>Applicant</b>	Verizon Wireless	<b>Contact</b>		
<b>Agent</b>	Amy Dresch	<b>Contact</b>		
<b>Legal Description</b>	On-file			
<b>Site Visit Date</b>	September 26, 2018	<b>Sign Notice Date</b>	September 24, 2018	
<b>Neighbor Letter Date</b>	N/A for Concurrent Use	<b>Number of Letters Sent</b>	N/A for Concurrent Use	

**Proposal.** The applicant is proposing to install a small cell installation “on a Minnesota Power wood light pole in the right-of-way of Grand Avenue near the entrance of the Sprit Mountain Grand Avenue Chalet”. The proposed project will consist of replacing the existing 29-foot-tall wood light pole with a 34-foot wood pole and installing one small panel antenna mounted at the top of the pole along with two small radios mounted lower down on the pole and an electric meter mounted at the base of the pole.

**Recommended Action:** Recommend to the City Council (Ordinance) to Approve with Conditions.

	<b>Current Zoning</b>	<b>Existing Land Use</b>	<b>Future Land Use Map Designation</b>
<b>Subject</b>	MU-N	Public Recreation	Neighborhood Commercial
<b>North</b>	R-1	Public Recreation	Preservation
<b>South</b>	MU-P	Undeveloped	General Mixed Use
<b>East</b>	MU-P	Residential	Preservation
<b>West</b>	P-1, R-1	Public Recreation	Preservation

### Summary of Code Requirements

UDC Section 50-37.7.C. The planning commission shall review the application, and council shall approve the application or approve it with modifications, if it determines that:

- 1) The proposed concurrent use will not harm or inconvenience the health, safety and general welfare of the city;
- 2) No portion of a public easement proposed of use is being physically occupied by the public.

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

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.

The installation falls with the provisions of Minnesota Statute 237.162 and 247.1643, as amended in 2017.

Future Land Use: Neighborhood Commercial. Small- to moderate scale commercial, serving primarily the adjacent neighborhood(s). May include specialty retail; community gathering businesses such as coffee shops or lower intensity entertainment; offices; studios or housing above retail (storefront retail with vertical mixed use). Typically situated in or adjacent to residential neighborhoods. May transition to neighborhood mixed use.

### **Review and Discussion Items**

- 1) The applicant is proposing one small wireless facility on an existing Minnesota Power pole. The proposal will consist of replacing the existing 29-foot-tall wood light pole with a 34-foot wood pole and installing one small panel antenna mounted at the top of the pole along with two small radios mounted lower down on the pole and an electric meter mounted at the base of the pole.
- 2) Granting a concurrent use permit would give the applicant the ability to use dedicated public rights-of-way, with conditions, while preserving other existing public uses in the same right-of-way corridors. Concurrent use permits require a public hearing and recommendation by the Planning Commission, and is approved by the City Council via ordinance. Unlike street right-of-way vacations, concurrent use permits are not recorded at the County as they are voidable permits issued by the City to applicants who are private users of public rights-of-way.
- 3) Ownership of the pole will remain with Minnesota Power.
- 4) The site and replacement wooden pole will have a structure analysis by the manufacturer to ensure that they can support the weight of the private small cell facility and required public infrastructure.
- 5) Granting the proposed concurrent use permit will not harm or inconvenience the health, safety and general welfare of the city. The area proposed for the concurrent use permit will not take away from the public's ability to use the public right-of-way.
- 6) The UDC generally requires that new wireless 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. As these small wireless facilities would be located on existing infrastructure in public right of way, and as per the recent change in state statute, the city is processing these applications as concurrent use permits and not special use permits, and the UDC's use-specific standards do not apply in this specific situation.
- 7) The city has the ability to regulate land use; however, the Federal Communications Commission preempts local review on the potential environmental effects of radio frequency (RF) emissions, with the presumption that the applicant and service provider is in compliance with the Commission's RF rules. The applicant has submitted FCC categorical exclusion documentation for the site with the initial application.
- 8) At the time that this memo was written, no written comments from the public have been received. City Engineering was still reviewing the exhibits at the time this staff report was written, and will likely have some requests for changes related to some of the technical aspects of the installations in the right of way.

### **Staff Recommendation:**

Based on the above findings, Staff recommends that the Planning Commission recommend approval of the two concurrent use permits subject to the following conditions:

- 1) The project be limited to, constructed, and maintained according to construction drawings submitted and included with this staff report

- 2) Applicant, or his or her successors, shall remove the proposed obstructions at applicant's expense if directed to do so by the City with appropriate notice.
- 3) 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, all other changes must be approved by amending the City Council's approved ordinance.



Approx Location

Warwick St

Grand Ave

Bessemer St

Bayhill Dr

E Spirit Cove Dr

Caldwell St Alley  
N 85th Ave W

Riverside Dr

Manitou St

Manitou St Alley

Sunnyside St

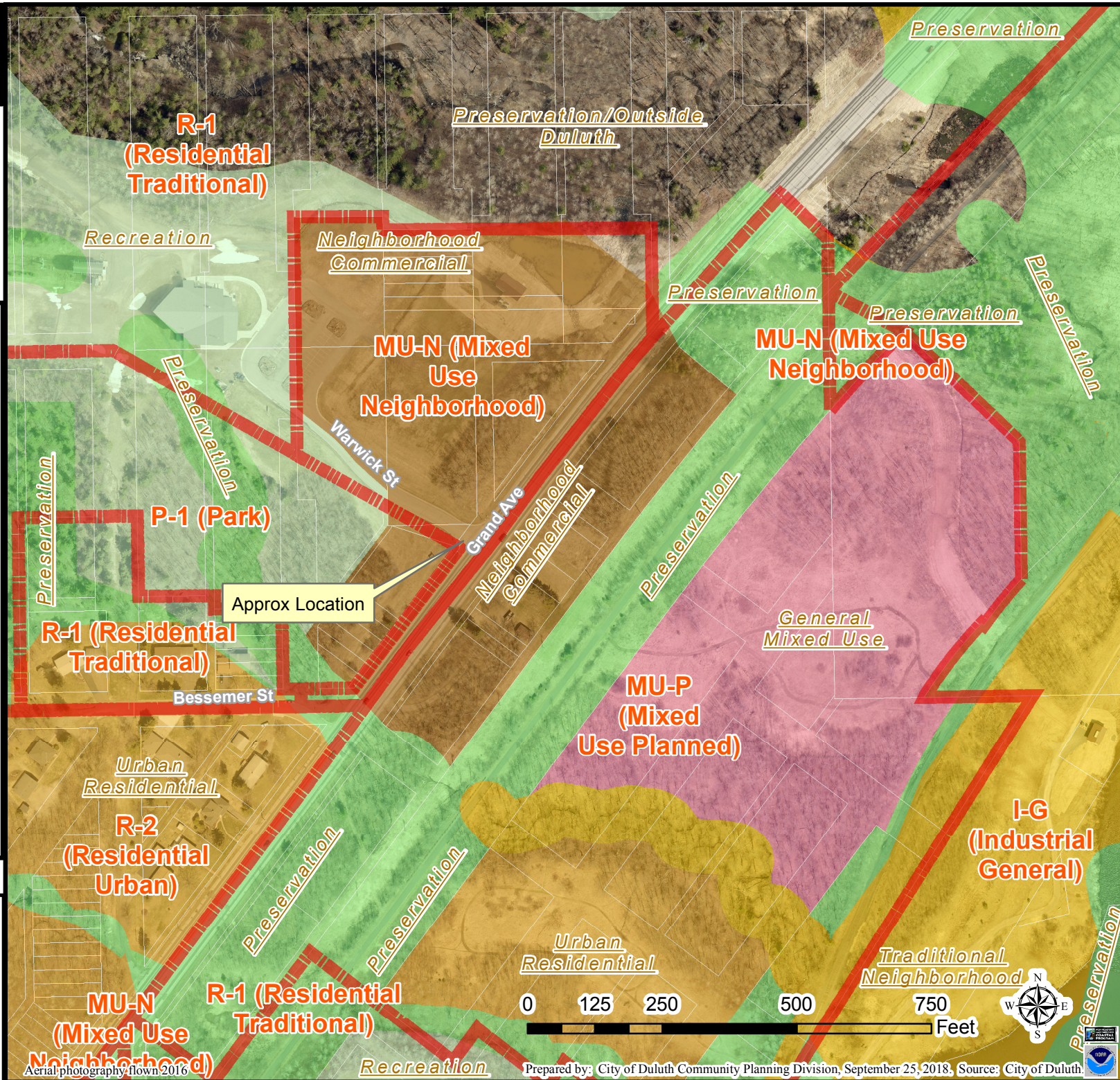
Cato Ave

E Penton Blvd Alley

### Legend

- Zoning Boundaries
- Future Land Use - Plus 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
- General Industrial
- Transportation and Utilities

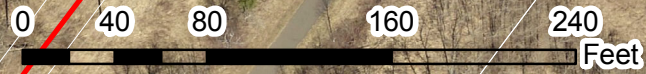
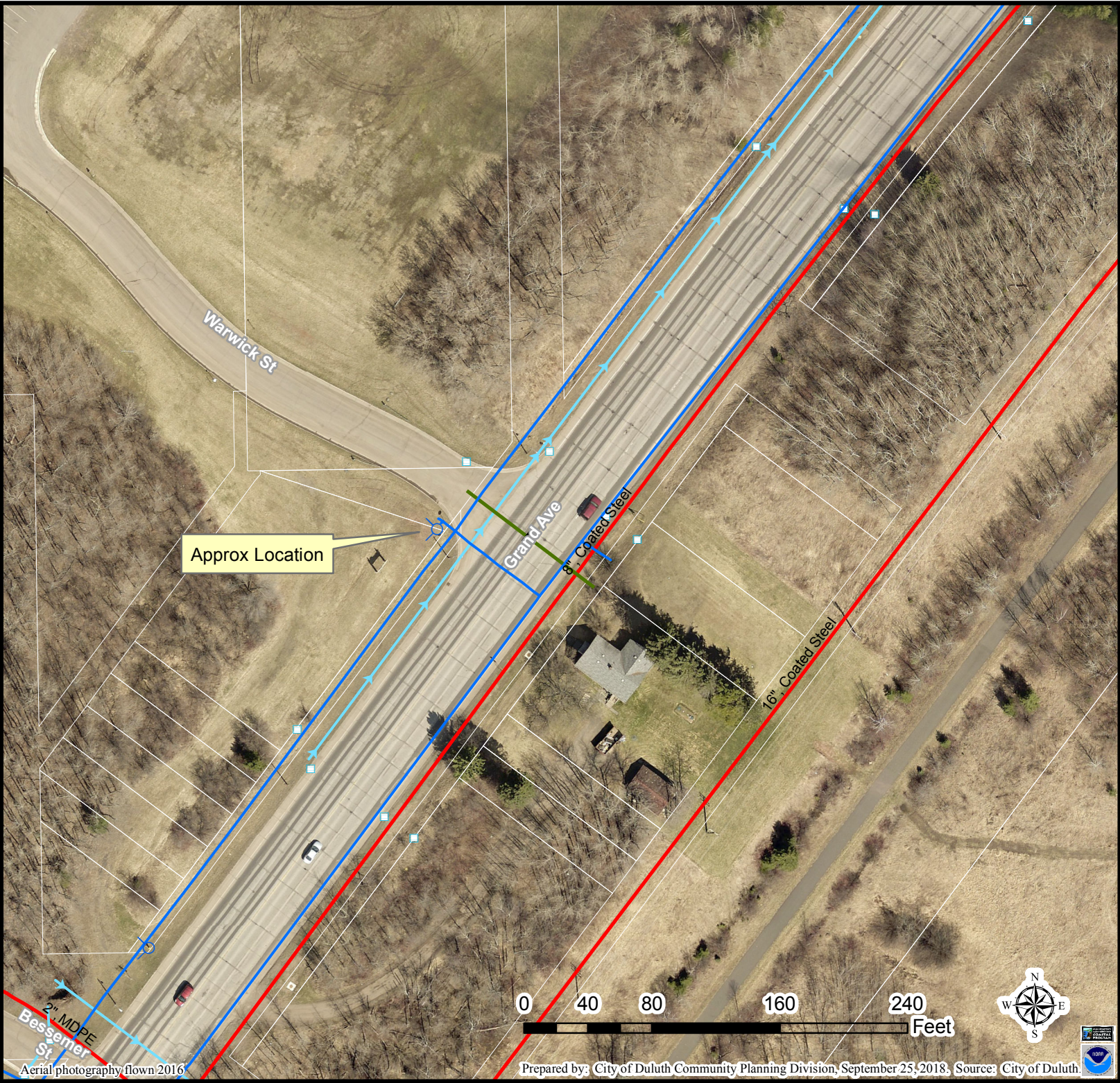
The City of Duluth has tried to ensure that the information contained in this map or electronic document is accurate. The City of Duluth makes no warranty or guarantee concerning the accuracy or reliability. This drawing/data is neither a legally recorded map nor a survey and is not intended to be used 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.



### Legend

- Gas Main
- Water Main
- Hydrant
- Sanitary Sewer Mains**
- CITY OF DULUTH
- WLSSD; PRIVATE
- Sanitary Sewer Forced Main
- Storage Basin
- Pump Station
- Storm Sewer Mains**
- Storm Sewer Pipe
- Storm Sewer Catch Basin

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**SITE NAME:** DUL SPIRIT MOUNTAIN SC1 1  
**SITE NUMBER:** 20130991644  
**LOCATION CODE:** 281691  
**SITE TYPE:** SMALL CELL  
**INSTALLATION TYPE:** REPLACEMENT LIGHT POLE



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



Edge  
 Consulting Engineers, Inc.

2101 Highway 13 W  
 Burnsville, MN 55337  
 608.644.1449 voice  
 608.644.1549 fax  
 www.edgeconsult.com

PROJECT NO: 20130991644  
 LOCATION CODE: 281691  
 EDGE PROJECT NO: 18936  
 CHECKED BY: OGD

REV.	DATE	DESCRIPTION	INT.
A	04/24/2018	PRELIM SMALL CELL DWGS	MWH
B	05/15/2018	PRELIM SMALL CELL DWGS	MWH
C	05/17/2018	PRELIM SMALL CELL DWGS	KJM
D	08/13/2018	FINAL SMALL CELL DWGS	MWH

SITE INFORMATION	REPLACEMENT POLE	PROJECT DESCRIPTION/SOW		SHEET INDEX	
		WORK PRODUCT	INSTALLED BY	NO:	SHEET TITLE
APPROXIMATE ADDRESS: 8551 GRAND AVE DULUTH, MN 55808 ST. LOUIS COUNTY  SITE COORDINATES: LAT: 46°-42'-51.58"N LONG: 92°-12'-13.98"W GROUND ELEVATION: 666.6' AMSL (PER 1A CERTIFICATE)		REPLACEMENT WOOD LIGHT POLE	MN POWER	G-001	TITLE SHEET & PROJECT DATA
		PROPOSED OVERHEAD ELECTRIC SERVICE	MN POWER	G-002	GENERAL SPECIFICATIONS
		FIBER CONDUIT, BETWEEN HAND HOLE AND POLE BASE, TO BE TRENCHED/DIRECTIONALLY BORED BELOW GRADE	FIBER PROVIDER	G-003	GENERAL SPECIFICATIONS
		FIBER CONDUIT, WITHIN RIGHT OF WAY, TO BE TRENCHED/DIRECTIONALLY BORED BELOW GRADE	FIBER PROVIDER	N/A	SURVEY
		FIBER CONDUIT, WITHIN RIGHT OF WAY, TO BE TRENCHED/DIRECTIONALLY BORED BELOW GRADE	FIBER PROVIDER	C-101	SITE PLAN
		FIBER HAND HOLE AT POLE BASE	FIBER PROVIDER	C-501	TRAFFIC CONTROL PLAN
		DIPLEXERS	VERIZON	T-201	SITE ELEVATION
		LOAD CENTER	VERIZON	T-501	ANTENNA DETAILS
		ERICSSON RRUS AND POWER CONVERTERS	VERIZON	T-502	EQUIPMENT DETAILS
		PANEL ANTENNAS	VERIZON	S-001	STRUCTURAL NOTES **
		ELECTRIC METER	VERIZON	S-501	STRUCTURAL DETAILS **
				E-101	UTILITY PLAN
				E-102	GROUNDING PLAN
				E-501	UTILITY DETAILS
				E-502	GROUNDING DETAILS

APPLICABLE CODES	LOCATION MAP	PROJECT DIRECTORY	
ALL WORK SHALL COMPLY WITH THE FOLLOWING APPLICABLE CODES: - 2012 INTERNATIONAL BUILDING CODE - 2014 NATIONAL ELECTRIC CODE - TIA/EIA-222-G OR LATEST EDITION  IN THE EVENT OF CONFLICT, THE MOST RESTRICTIVE CODE SHALL PREVAIL		<b>LESSEE:</b> VERIZON WIRELESS 10801 BUSH LAKE RD BLOOMINGTON, MN 55438 CONTACT: RICK WENTA PHONE: 952.946.4690	<b>LESSOR:</b> MINNESOTA POWER 30 W SUPERIOR ST DULUTH, MN 55802 CONTACT: JASON FISHER PHONE: 218.355.2397

LOCATION SCAN	PROJECT DIRECTORY
	<b>ENGINEERING COMPANY:</b> EDGE CONSULTING ENGINEERS, INC. 2101 HIGHWAY 13 W BURNSVILLE, MN 55337 CONTACT: OTTO DINGFELDER III, P.E. PHONE: 608.644.1449  <b>RE ENGINEER:</b> VERIZON WIRELESS 10801 BUSH LAKE RD BLOOMINGTON, MN 55438 CONTACT: MICHAEL KOCH

ENGINEER OF RECORD
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.

STRUCTURAL REVIEW
STRUCTURAL ANALYSIS COMPLETED BY: MN POWER  CONTRACTOR TO REVIEW STRUCTURAL REPORT IN ITS ENTIRETY. ANY DISCREPANCIES OR DISAGREEMENTS BETWEEN THE REPORT AND THESE PLANS SHOULD BE RESOLVED PRIOR TO CONSTRUCTION.

OTTO G. DINGFELDER III  
 LICENSED PROFESSIONAL ENGINEER  
 49720  
 8/13/2018  
 STATE OF MINNESOTA

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.

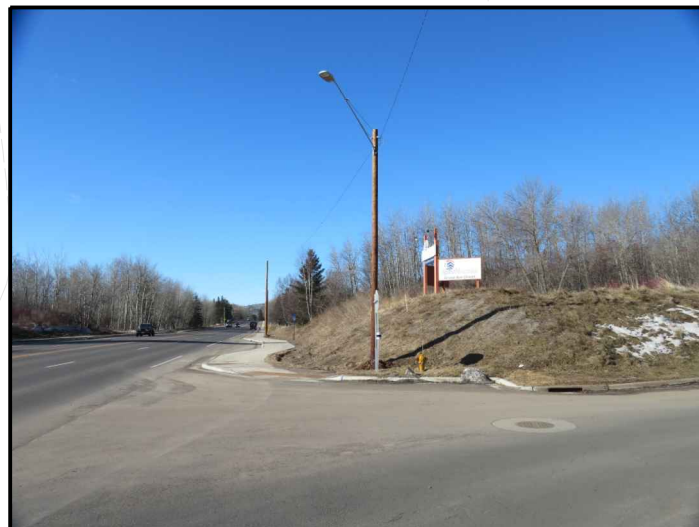
DUL SPIRIT MOUNTAIN SC1 1  
 DULUTH, MINNESOTA  
 REPLACEMENT LIGHT POLE  
 SMALL CELL DRAWINGS

SHEET TITLE  
**TITLE SHEET & PROJECT DATA**

SHEET NUMBER  
**G-001**



**A AERIAL OVERVIEW**



**B SITE OVERVIEW**

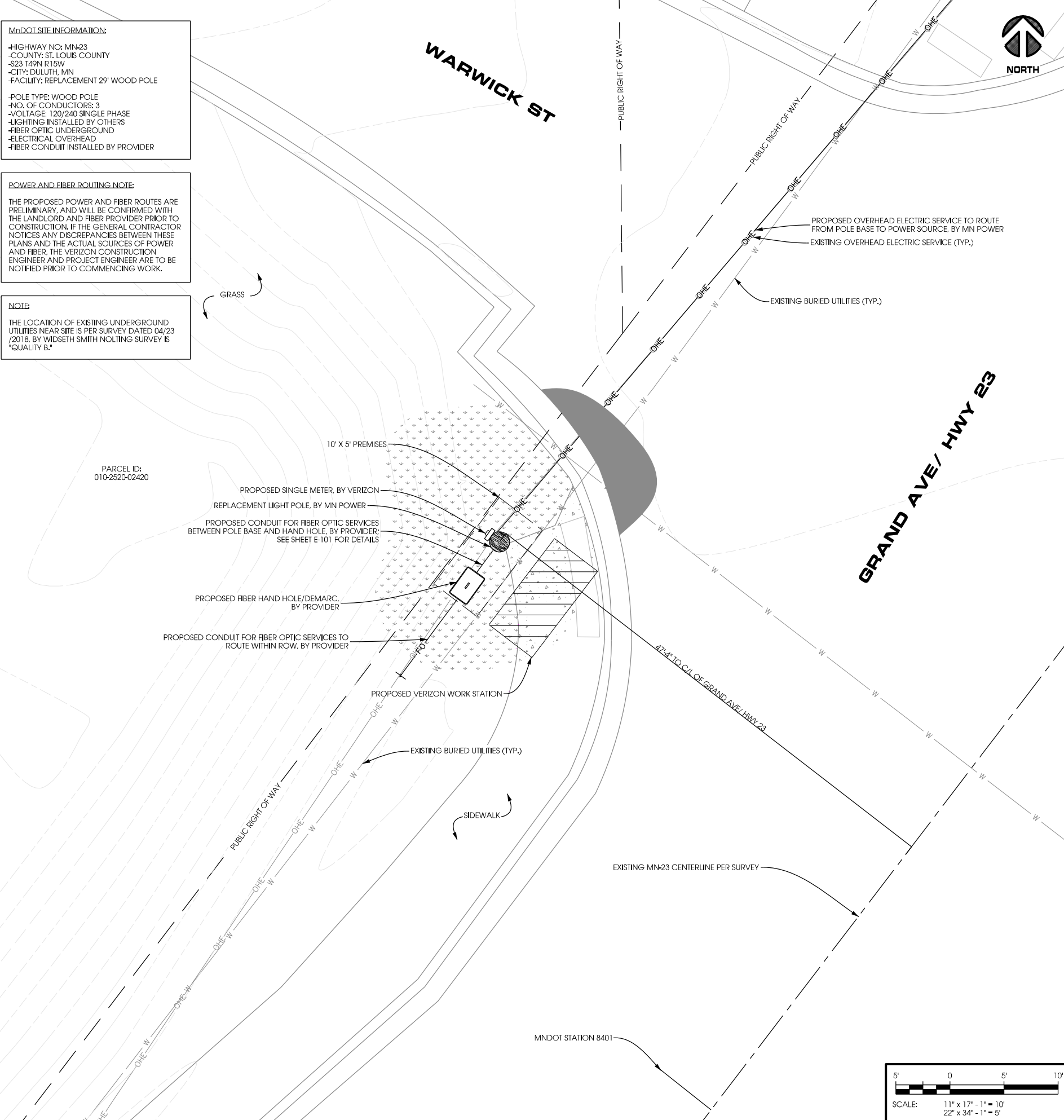


**C POLE BASE**

**MNDOT SITE INFORMATION:**  
 -HIGHWAY NO: MN-23  
 -COUNTY: ST. LOUIS COUNTY  
 -S23 T49N R15W  
 -CITY: DULUTH, MN  
 -FACILITY: REPLACEMENT 29' WOOD POLE  
 -POLE TYPE: WOOD POLE  
 -NO. OF CONDUCTORS: 3  
 -VOLTAGE: 120/240 SINGLE PHASE  
 -LIGHTING: INSTALLED BY OTHERS  
 -FIBER OPTIC UNDERGROUND  
 -ELECTRICAL OVERHEAD  
 -FIBER CONDUIT INSTALLED BY PROVIDER

**POWER AND FIBER ROUTING NOTE:**  
 THE PROPOSED POWER AND FIBER ROUTES ARE PRELIMINARY, AND WILL BE CONFIRMED WITH THE LANDLORD AND FIBER PROVIDER PRIOR TO CONSTRUCTION. IF THE GENERAL CONTRACTOR NOTICES ANY DISCREPANCIES BETWEEN THESE PLANS AND THE ACTUAL SOURCES OF POWER AND FIBER, THE VERIZON CONSTRUCTION ENGINEER AND PROJECT ENGINEER ARE TO BE NOTIFIED PRIOR TO COMMENCING WORK.

**NOTE:**  
 THE LOCATION OF EXISTING UNDERGROUND UTILITIES NEAR SITE IS PER SURVEY DATED 04/23 /2018, BY WIDSETH SMITH NOLTING SURVEY IS "QUALITY B."



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0	08/13/2018	FINAL SMALL CELL DWGS	MWH

**- APPROVED -  
 SEE SHEET G-001 FOR  
 ENGINEER SEAL**

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DUL SPIRIT MOUNTAIN SC 1  
 DULUTH, MINNESOTA  
 REPLACEMENT LIGHT POLE  
 SMALL CELL DRAWINGS

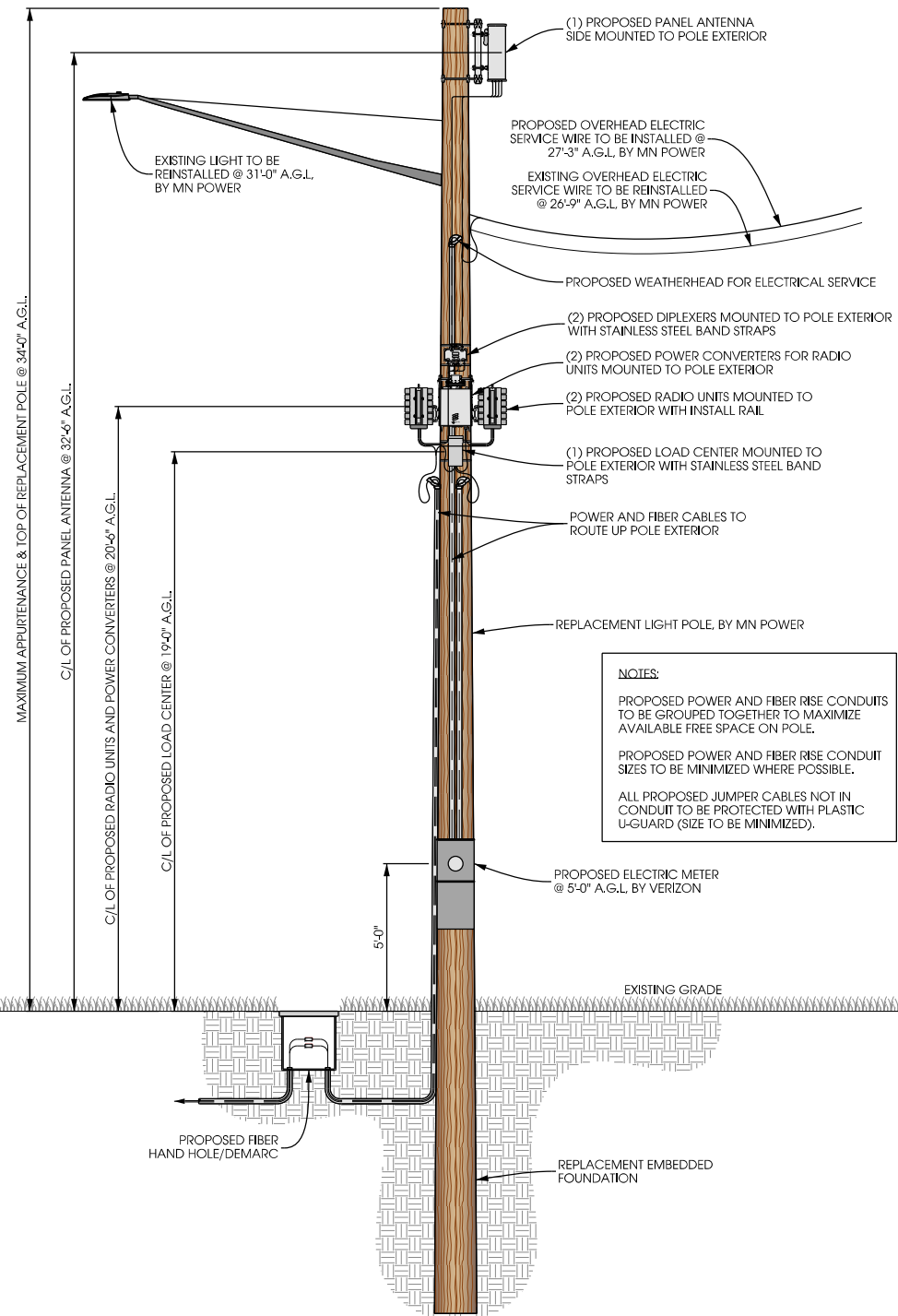
SHEET TITLE  
**SITE PLAN**

SHEET NUMBER  
**C-101**



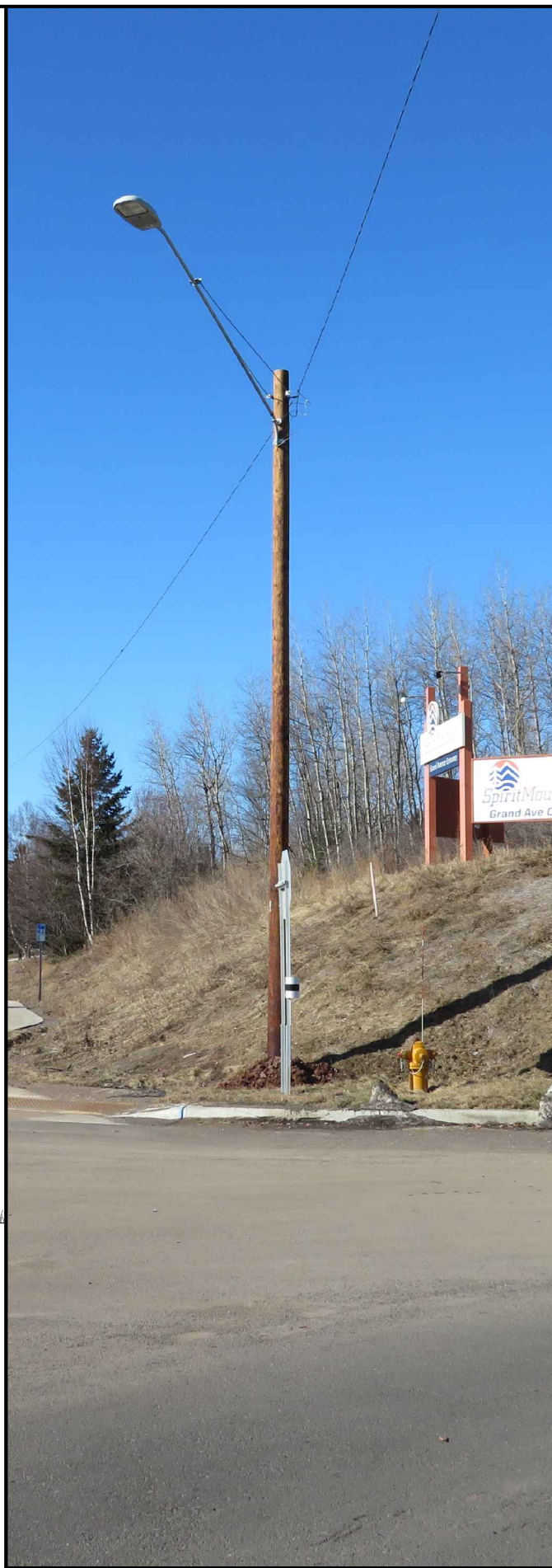
EXISTING POLE	
POLE HEIGHT:	29'-0" A.G.L.
MAXIMUM APPURTENANCE HEIGHT:	29'-0" A.G.L.
PROPOSED POLE	
POLE HEIGHT:	34'-0" A.G.L.
ANTENNA TIP HEIGHT:	33'-8" A.G.L.
MAXIMUM APPURTENANCE HEIGHT:	34'-0" A.G.L.

**NOTES:**  
TYPICAL INSTALLATION SHOWN.  
ALL ELEVATIONS ARE ASSUMED TO BE MEASURED FROM ABOVE GRADE LEVEL.

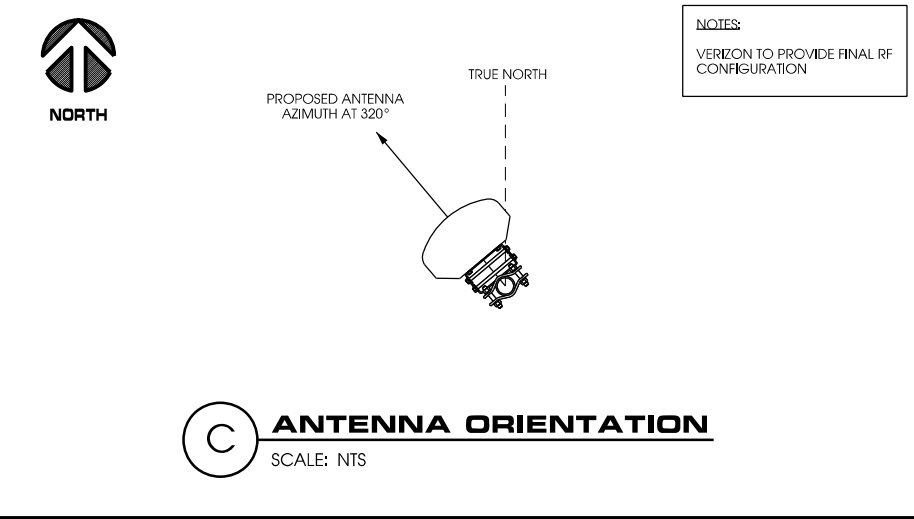


**NOTES:**  
PROPOSED POWER AND FIBER RISE CONDUITS TO BE GROUPED TOGETHER TO MAXIMIZE AVAILABLE FREE SPACE ON POLE.  
PROPOSED POWER AND FIBER RISE CONDUIT SIZES TO BE MINIMIZED WHERE POSSIBLE.  
ALL PROPOSED JUMPER CABLES NOT IN CONDUIT TO BE PROTECTED WITH PLASTIC U-GUARD (SIZE TO BE MINIMIZED).

**A POLE ELEVATION**  
SCALE: 11" x 17" - 1" = 6'-0"  
22" x 34" - 1" = 3'-0"



**B SITE ELEVATION**



ANTENNAS					
QUANTITY	MAKE	MODEL	CENTERLINE	TIP HEIGHT	AZIMUTH
1	JMA	X7CQAP-FRO-260	32'-6" AGL	33'-8" AGL	320°

EQUIPMENT			
QUANTITY	TYPE	MAKE	MODEL
1	RRU	ERICSSON	RRUS8843
1	RRU	ERICSSON	RRUS4449
2	PSU	ERICSSON	PSU 6302
2	DIPLEXER	COMMSCOPE	CBC1923T-4310 E11F13PO6

CABLING			
QUANTITY	TYPE	MAKE	MODEL
16	COAX	COMMSCOPE	LDF4-50

**D ANTENNA AND CABLING**  
SCALE: NTS



**E RF WARNING SIGNS**  
SCALE: NTS



PROJECT NO: 20130991644  
LOCATION CODE: 281691  
EDGE PROJECT NO: 18936  
CHECKED BY: OGD

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- APPROVED -  
SEE SHEET G-001 FOR  
ENGINEER SEAL

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DUL SPIRIT MOUNTAIN SC 1  
DULUTH, MINNESOTA  
REPLACEMENT LIGHT POLE  
SMALL CELL DRAWINGS

SHEET TITLE  
**SITE ELEVATION**

SHEET NUMBER  
**T-201**



September 7, 2018

Mr. Steven Robertson  
City Planner | Community Planning  
City of Duluth  
411 W. 1<sup>st</sup> Street, Room 208  
Duluth, MN 55802

via FedEx: 7731 6661 9587

Re: Concurrent Use of Streets Permit Application  
Verizon Small Cell Sites: DUL Spirit Mountain SC1

Dear Mr. Robertson,

Enclosed please find a Concurrent Use of Streets Permit Application for a Verizon Wireless small cell installation on a Minnesota Power wood light pole in the right-of-way of Grand Avenue near the entrance of the Spirit Mountain Grand Avenue Chalet. The proposed small cell installations consist of replacing the existing 29-ft. tall wood light pole with a 34-ft. wood pole and installing one (1) small panel antenna mounted at the top of the pole along with two (2) small radios mounted lower down on the pole and an electric meter mounted at the base of the pole. A set of design drawings for the proposed installation has been included. The elevation sheet in the design drawings for the proposed location contains the proposed distance between the antenna and the remote radio units to meet the Minnesota Power separation requirements.

It is important that cities like the City of Duluth encourage well-developed networks so that cellphones, tablets, and other “smart” devices will work properly when they are needed most. More than 50% of adults in the United States have only a wireless telephone with no traditional landline telephone service at all. That percentage will only rise as the next generation moves into adulthood, since more than 60% of children live in households that have a wireless phone as the only telephone. Here in the Midwest, 52.5% of adults live in households with no landline.<sup>1</sup> With these trends at work, wireless telephone users everywhere – including those in Duluth – require more cell sites to support the voice & data capabilities of their devices.

We look forward to working with the City to improve Verizon Wireless’ wireless coverage in the community.

Sincerely,

Amy Dresch

**JACOBS | TELECOM** | P: (612) 802-0452 | E: [amy.dresch@jacobs.com](mailto:amy.dresch@jacobs.com)

Enclosure

<sup>1</sup>See U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, *Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, January-June 2017(Dec. 2017)* at p.1 available at <https://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless201712.pdf>



DUL Spirit Mountain SC1

Proposed Site Candidate Location

Verizon Small Cell

verizon

JACOBS



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August 28, 2018

Mr. Steven Robertson  
City Planner | Community Planning  
City of Duluth  
411 W. 1<sup>st</sup> Street, room 208  
Duluth, MN 55802

Re: Verizon Wireless Small Cell Projects  
DUL Spirit Mountain SC1 | MN Power Pole ID 14647195 | Alden Conversation  
655239  
DUL Super One SC1 | MN Power Pole ID 11329030 | Alden Conversation  
655274  
DUL Super One SC2 | MN Power Pole ID 11406260 | Alden Conversation  
655286  
DUL Super One SC3 | MN Power Pole ID 11329005 | Alden Conversation  
655291

Dear Mr. Robertson,

As owner of the above referenced utility poles, we consent to allowing Verizon Wireless to apply for City permits for small cell wireless antennas and equipment on these poles.

As an attachment to our poles, Verizon will also be required to obtain an attachment permit from Minnesota Power and meet our attachment design standards.

Sincerely,

A handwritten signature in cursive script that reads "Jodi Corrow".

Jodi Corrow  
Distribution Assets Coordinator Sr.  
Minnesota Power



August 14, 2018

Mr. Steven Robertson, Senior Planner  
City of Duluth – Community Planning  
411 W. 1<sup>st</sup> Street, Room 208  
Duluth, MN 55802

Dear Mr. Robertson,

Cellular Inc. Network Corporation d/b/a Verizon Wireless is aware of the interference issues that can arise while co-locating with other carriers. In the event a collocation by an additional carrier is proposed, careful isolation studies will be performed to determine the correct vertical and horizontal separation between Verizon Wireless' antennas and any other carrier. This will avoid the possibility of our frequency interfering with other equipment. In addition, Verizon Wireless has acquired an FCC license, which exclusively entitles the company to operate within an assigned frequency range. This in turn eliminates any interference issues from CB radios, electronic appliances, pacemakers, fire and police equipment as well as other carriers. In the highly unlikely event that interference does occur, Verizon Wireless agrees to fully cooperate with the entity experiencing interference to identify and correct, to the extent reasonably possible, any issues caused by its installation.

Sincerely,

*Michael Koch*

Michael Koch  
RF Engineer – Northern MN Market

Optional Local Government Checklist (page 2)

**EVALUATION OF CATEGORICAL EXCLUSION**

- 12. Licensed Radio Service (see attached Table 1): Cellular Radiotelephone Service & Personal Communications Svc.
- 13. Structure Type (free-standing or building/roof-mounted): Light Pole
- 14. Antenna Type [omnidirectional or directional (includes sectored)]: Panel/directional
- 15. Height above ground of the lowest point of the antenna (in meters): 9.4488 (31 ft. AGL)
- 16.  Check if all of the following are true:
  - (a) This facility will be operated in the Multipoint Distribution Service, Paging and Radiotelephone Service, Cellular Radiotelephone Service, Narrowband or Broadband Personal Communications Service, Private Land Mobile Radio Services Paging Operations, Private Land Mobile Radio Service Specialized Mobile Radio, Local Multipoint Distribution Service, or service regulated under Part 74, Subpart I (see question 12).
  - (b) This facility will not be mounted on a building (see question 13).
  - (c) The lowest point of the antenna will be at least 10 meters above the ground (see question 15).

If box 16 is checked, this facility is categorically excluded and is unlikely to cause exposure in excess of the FCC's guidelines. The remainder of the checklist need not be completed. If box 16 is not checked, continue to question 17.

- 17. Enter the power threshold for categorical exclusion for this service from the attached Table 1 in watts ERP or EIRP\* (note: EIRP = (1.64) X ERP): (see below)
- 18. Enter the total number of channels if this will be an omnidirectional antenna, or the maximum number of channels in any sector if this will be a sectored antenna: (see below)
- 19. Enter the ERP or EIRP per channel (using the same units as in question 17): (see below)
- 20. Multiply answer 18 by answer 19: (see below)
- 21. Is the answer to question 20 less than or equal to the value from question 17 (yes or no)? (see below)

If the answer to question 21 is YES, this facility is categorically excluded. It is unlikely to cause exposure in excess of the FCC's guidelines.

If the answer to question 21 is NO, this facility is not categorically excluded. Further investigation may be appropriate to verify whether the facility may cause exposure in excess of the FCC's guidelines.

- 17. 1000 ERP (700 MHz), 2000W ERP (1900 MHz/PCS, 2100 MHz/AWS)
- 18. 2 bands per block (LTE & AWS)
- 19. 365.72 ERP + 437.67 ERP (700 MHz + 850 MHz LTE) and 377.59 ERP + 377.59 ERP (2100 MHz AWS1 + AWS3)
- 20. 803.39 ERP (700 MHz + 850 MHz LTE) + 755.18 ERP (2100 MHz AWS1 + AWS3) = 1558.57 W ERP
- 21. Yes

\*"ERP" means "effective radiated power" and "EIRP" means "effective isotropic radiated power"