SITE NAME: MINC KILT

AMENDMENT NO. 2 TO SITE LEASE AGREEMENT

This AMENDMENT NO. 2 TO SITE LEASE AGREEMENT ("Amendment") is made this _____ day of _____, 2015, by and between the Board of Water Commissioners of the City of Saint Paul, a Minnesota municipal corporation ("Lessor"), and Verizon Wireless (VAW) LLC d/b/a Verizon Wireless, a Delaware limited liability company ("Lessee"), with its principal office located at One Verizon Way, Mail Stop 4AW100, Basking Ridge, New Jersey 07920 (telephone number 866-862-4404), with reference to the facts set forth in the Recitals below:

RECITALS

A. Lessor and Lessee are parties to a Site Lease Agreement dated October 28, 2011 ("Agreement") whereby Lessor has leased ground space and water tower space to Lessee at Lessor's Highland Water Tower No. 3, located at 750 Snelling Avenue South, St. Paul, Minnesota 55104.

B. The parties entered into Amendment No. 1 to Site Lease Agreement dated August 22, 2012 to provide for a revised Lease Exhibit A to depict revisions to the utility easements.

C. The parties desire to further amend the Agreement at this time to provide for (i.) the replacement of twelve (12) antennas, (ii.) the installation of three (3) Remote Radio Units and three (3) Tower Mounted Amplifiers, (iii.) the installation of related appurtenances, and (iv.) an increase in the annual rent payable to Lessor under the Agreement.

AGREEMENT

NOW, THEREFORE, in consideration of the facts contained in the Recitals above, the mutual covenants and conditions below, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. EFFECTIVE DATE.
The effective date of this Amendment shall be the date last signed below ("Effective Date").

2. REVISED INSTALLATION.
a. Lessee shall have the right to modify its Communications Facilities as described and depicted on Exhibit A-1 (Construction Drawings Rev C dated December 11, 2014, attached hereto and incorporated herein.)

b. Exhibit B of the Agreement is deleted in its entirety and is replaced with Exhibit B-1, attached hereto and incorporated herein.

3. REVISED ANNUAL RENT. As consideration for the rights granted herein, commencing on July 1, 2015, the annual rent shall be revised to a total of Forth-Nine Thousand Five Hundred Forty-One and 51//100 Dollars ($49,541.51); however, the increase for 2015 shall be prorated. Lessee shall make all payments of rent to Lessor at the following address:

Board of Water Commissioners
Attn: Accounting
1900 Rice Street, Office Building
Saint Paul, Minnesota 55113

4. NOTICE. Each party's notice address in Paragraph 16 of the Agreement is hereby replaced with the following:

Lessor: Board of Water Commissioners
Attn: Engineering
1900 Rice Street, Office Building
Saint Paul, Minnesota 55113

Lessee: Verizon Wireless (VAW) LLC
d/b/a Verizon Wireless
180 Washington Valley Road
Bedminster, New Jersey 07921
Attention: Network Real Estate

5. RATIFICATION OF THE AGREEMENT.

a. Except as specifically modified by this Amendment, the parties agree that all of the terms and conditions of the Agreement are in full force and effect and remain unmodified, and the parties hereby ratify and reaffirm the terms and conditions of the Agreement and agree to perform and comply with the same.

b. In the event of a conflict between any term or provision of the Agreement and this Amendment, the terms and provisions of this Amendment shall control.

c. Except as otherwise stated in this Amendment, all initially capitalized terms will have the same respective defined meaning stated in the Agreement. All captions are for reference purposes only and shall not be used in the construction or interpretation of this Amendment.

Signatures on following page

IN WITNESS WHEREOF, Lessor and Lessee have caused this Amendment to be executed by each party's duly authorized representative as of the Effective Date.

For Lessor:
Approved:

BOARD OF WATER COMMISSIONERS OF THE CITY OF SAINT PAUL

Stephen P. Schneider, General Manager
Saint Paul Regional Water Services

Matt Anfang, President

Approved as to Form:

Mollie Gagnelius, Secretary

Assistant City Attorney

Todd Hurley, Director
Office of Financial Services

CITY OF SAINT PAUL

Kristin Beckmann, Deputy Mayor

Shari Moore, City Clerk

For Lessee:

VERIZON WIRELESS (VAW) LLC
d/b/a Verizon Wireless

ACKNOWLEDGEMENTS

BOARD OF WATER COMMISSIONERS OF THE CITY OF SAINT PAUL

STATE OF MINNESOTA)
) ss.
COUNTY OF RAMSEY)

On _____, 2015, before me, _____, Notary Public, personally appeared Matt Anfang, President, Board of Water Commissioners of the City of Saint Paul, a Minnesota municipal corporation, on behalf of the corporation.

Witness my hand and official seal.

_____
Notary Public

STATE OF MINNESOTA)
) ss.
COUNTY OF RAMSEY)

On _____, 2015, before me, _____, Notary Public, personally appeared Mollie Gagnelius, Secretary, Board of Water Commissioners of the City of Saint Paul, a Minnesota municipal corporation, on behalf of the corporation.

Witness my hand and official seal.

_____
Notary Public

CITY OF SAINT PAUL

STATE OF MINNESOTA)
) ss.
COUNTY OF RAMSEY)

On _____, 2015, before me, _____, Notary Public, personally appeared Kristin Beckmann, Deputy Mayor of the City of Saint Paul, a Minnesota municipal corporation, on behalf of the corporation.

Witness my hand and official seal.

_____
Notary Public

STATE OF MINNESOTA)
) ss.
COUNTY OF RAMSEY)

On _____, 2015, before me, _____, Notary Public, personally appeared Shari Moore, City Clerk, City of Saint Paul, a Minnesota municipal corporation, on behalf of the corporation.

Witness my hand and official seal.

_____
Notary Public

STATE OF MINNESOTA)
) ss.
COUNTY OF RAMSEY)

On _____, 2015, before me, _____, Notary Public, personally appeared Todd Hurley, Director, Office of Financial Services of the City of Saint Paul, a Minnesota municipal corporation, on behalf of the corporation.

Witness my hand and official seal.

_____
Notary Public

VERIZON WIRELESS (VAW) LLC

d/b/a Verizon Wireless

STATE OF _____)

) ss.

COUNTY OF_____)

I certify that I know or have satisfactory evidence that _____ is the person who appeared before me, and said person acknowledged that he signed this instrument, on oath stated that he was authorized to execute the instrument and acknowledged it as the _____ of Verizon Wireless (VAW) LLC d/b/a Verizon Wireless, a Delaware limited liability company, to be the free and voluntary act of such party for the uses and purposes mentioned in the instrument.

Dated: _____

Witness my hand and official seal.

_____

Notary Public

Exhibit A-1
(Attached CDs Rev C dated 12/11/14)

VERIZON WIRELESS

MINC KILT AWS

SITE PHOTO

VICINITY MAP

SHEET INDEX

SHEET	SHEET DESCRIPTION
T-1	PROJECT INFORMATION, MAPS, DIRECTIONS, AND SHEET INDEX
A-1	TOWER ELEVATIONS
A-2	EQUIPMENT ROOM PLAN, COAX ENTRY DETAILS
A-3	COAX, ANTENNA & TTA KEY
A-4	MOUNTING DETAILS, ONE-LINE DIAGRAM, AND COAX LAYOUT PLAN
A-5	MISC. PHOTOS
S1-S5	STRUCTURAL DRAWINGS, NOTES AND DETAILS
	S.E.H. PAINTING SPECIFICATIONS

ISSUE SUMMARY

REV.	DESCRIPTION	SHEET OR DETAIL
A	ISSUED FOR REVIEW 08-04-14	ALL
B	ISSUED FOR OWNER SIGNOFF 09-15-14	ALL
C	ISSUED FOR OWNER SIGNOFF 12-11-14	ALL

SITE DIRECTIONS

DIRECTIONS TO SITE FROM THE BLOOMINGTON RNC:
TAKE US-169 NORTH FOR 3.5 MILES TO I-494, TAKE I-494 EAST FOR 8.5 MILES TO SR-5 (EXIT 1A). TAKE SR-5 NORTHEAST FOR 3.5 MILES TO S SNELLING AVE. TAKE S SNELLING AVE NORTH FOR 1.3 MILES TO THE SITE ON THE EAST SIDE OF THE ROAD.

CONTACTS

LESSOR:	CITY OF ST. PAUL
LESSEE:	VERIZON WIRELESS 10801 BUSH LAKE ROAD BLOOMINGTON, MN 55438 MIKE COGAR (612) 720-0030
ARCHITECT:	DESIGN 1 OF EDEN PRAIRIE, LLC. 9973 VALLEY VIEW ROAD EDEN PRAIRIE, MN 55344 (952) 903-9299
STRUCTURAL ENGINEER:	ULTEIG ENGINEERS 4285 LEXINGTON AVE. N. ST. PAUL, MN 55126 (651) 415-3800

PROJECT INFORMATION

SITE NAME:	MINC KILT
PROJECT NUMBER:	20141085153
SITE ADDRESS:	750 SNELLING AVE. S. ST. PAUL, MN 55116
COUNTY:	RAMSEY
LATITUDE:	N44° 55' 08.20"
LONGITUDE:	W93° 09' 55.00"
GROUND ELEVATION:	984.9' AMSL
ANTENNA TIP HEIGHT:	VARIES (SEE ANTENNA KEY)
ANTENNA CENTERLINE HEIGHT:	60' AGL
STRUCTURE HEIGHT:	108' AGL
OVERALL STRUCTURE HEIGHT:	108.4' (FIELD VERIFY)
GENERATOR ON SITE:	YES (VZW OWNED)
TOWER BUILT:	1989
BASED ON SMCO DATED:	05-07-14
COAX RUNS: (15) TOTAL (12) EXISTING (3) PROPOSED	"X" COAX RUN = (4) 1-5/8" LINES (EXISTING) "Y" COAX RUN = (4) 1-5/8" LINES (EXISTING) "Z" COAX RUN = (4) 1-5/8" LINES (EXISTING) (3) 2RRU "HYBRID CABLES" (PROPOSED)

PROJECT DESCRIPTION: REMOVE (12) EXISTING PANEL ANTENNAS, ADD (12) PROPOSED PANEL ANTENNAS, (3) RRUS-12 "REMOTE RADIOS", (3) SECTOR BOXES, (3) 2RRU HYBRID CABLES, AND (1) MAIN DISTRIBUTION BOX.

GENERAL NOTES

1. In the event that Special Inspections are not performed in compliance with the contract terms, bid specifications and/or specified form, the General Contractor will be liable for all damages, construction performance, failures, and corrective actions related to the same.
2. The following general notes shall apply to drawings and govern unless otherwise noted or specified.
3. The work delineated in these drawings and described in the specifications shall conform to codes, standards and regulations that have jurisdiction in the state of MINNESOTA , and the city of ST. PAUL.
4. Requirements and regulations pertaining to R.F. safety codes and practices must be incorporated in the work even though they may not be listed individually and separately in either the drawings or the specifications.
5. Compare field conditions with architectural and engineering drawings. Any discrepancies shall be directed to the Architect for clarification prior to fabrication and/or construction. Submit necessary shop drawings prior to fabrication for approval by the Architect. No information or details on these sheets may be used without the permission of the owner, or the architect.
6. Do not scale drawings! 11" x 17" drawings to scale 24" x 36" drawings scale multiply by 2
7. Unless otherwise shown or noted, typical details shall be used where applicable.
8. Details shall be considered typical at similar conditions.
9. Safety measures: The contractor shall be solely and completely responsible for the conditions of the job site, including safety of the persons and property and for independent engineering reviews of these conditions. The Architect's or Engineers' job site review is not intended to include review of the adequacy of the contractor's safety measures.
10. Within these plans and specifications, "Owner" implies VERIZON WIRELESS.
11. The work is the responsibility of the general contractor unless noted otherwise.
12. The terms "contractor" and "g.c." refer to the owner's general contractor and the general contractor's sub-contractors. It is the general contractor's responsibility to determine the division of work among sub-contractors.
13. The general contractor is responsible in obtaining necessary public and private underground utility locate services prior to start of excavating / construction.

VERIZON WIRELESS DEPARTMENTAL APPROVALS

JOB TITLE	NAME	DATE
RF ENGINEER		
CONSTRUCTION ENGINEER	CHRIS ILANGARATNE	09-08-14

LESSOR / LICENSOR APPROVAL

SIGNATURE	PRINTED NAME	DATE

LESSOR / LICENSOR: PLEASE CHECK THE APPROPRIATE BOX BELOW

☐ NO CHANGES. ☐ CHANGES NEEDED. SEE COMMENTS ON PLANS.

ROBERT J. DAVIS
LICENSED ARCHITECT
12427
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 Architect under the laws of the State of Minnesota.

Print Name: ROBERT J. DAVIS

Date: 12-11-14

DESIGN 1

ROBERT J DAVIS, AIA
ARCHITECT
9973 VALLEY VIEW RD.
EDEN PRAIRIE, MN 55344
(952) 903-9299

VERIZON WIRELESS
10801 BUSH LAKE ROAD
BLOOMINGTON, MN 55438
(612) 720-0030

PROJECT
20141085153

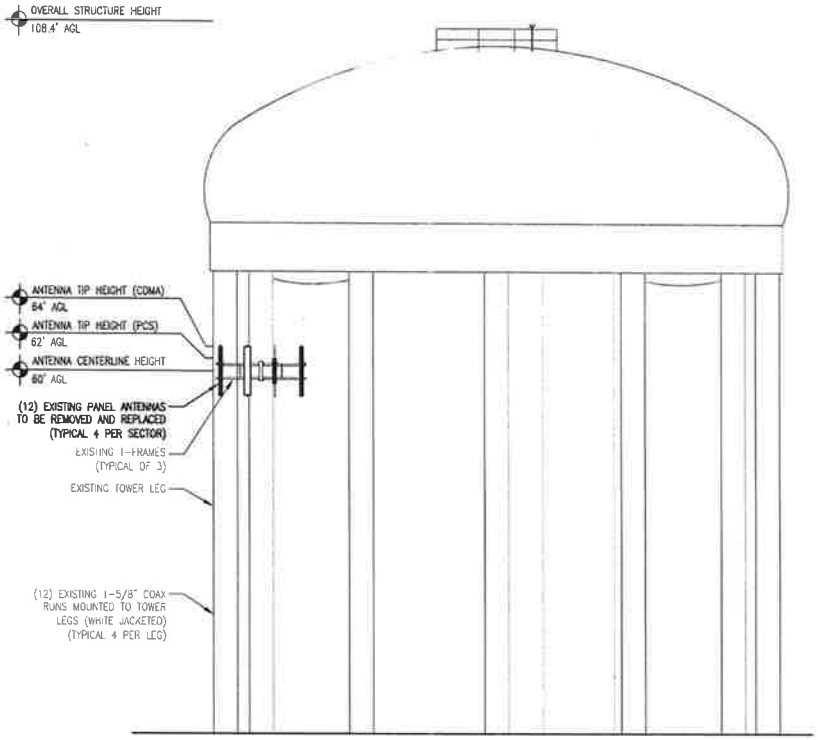
MINC
KILT
AWS

750 SNELLING AVE. S.
ST. PAUL, MN 55116

SHEET CONTENTS:

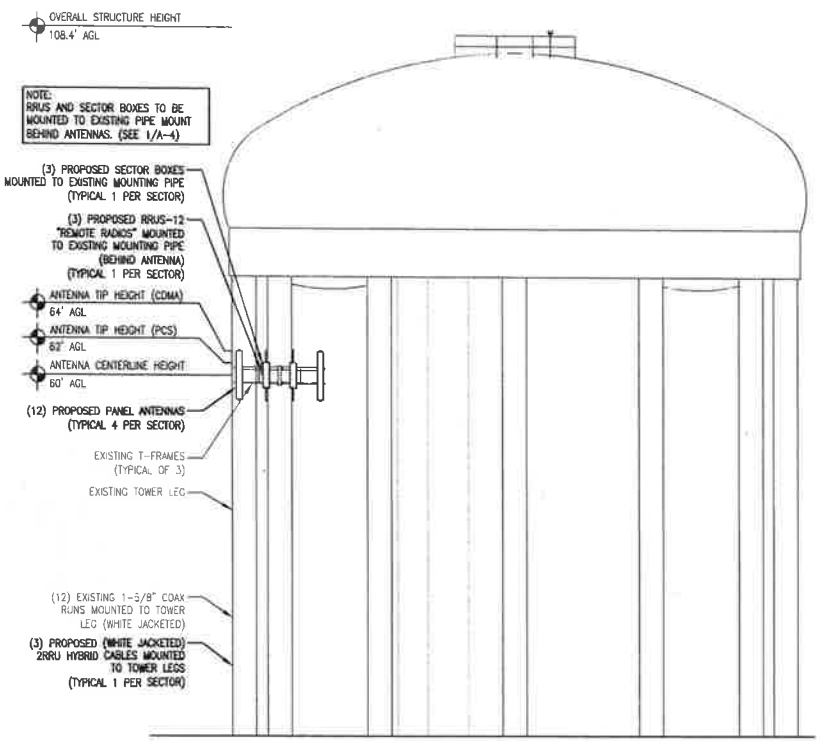
DRAWN BY:	JJB
DATE:	07-14-14
CHECKED BY:	TJR
REV. A	08-04-14
REV. B	09-15-14
REV. C	12-11-14

T-1



2 EXISTING TOWER ELEVATION
SCALE: 1" = 20'-0"

GRAPHIC SCALE
0 10' 20'



1 PROPOSED TOWER ELEVATION
SCALE: 1" = 20'-0"

GRAPHIC SCALE
0 10' 20'

ROBERT J. DAVIS
LICENSED ARCHITECT
12427
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 Architect under the laws of the State of Minnesota.

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Date: 12-11-14

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9973 VALLEY VIEW RD.
EDEN PRAIRIE, MN 55344
(952) 903-8298

VERIZON WIRELESS
10801 BUSH LAKE ROAD
BLOOMINGTON, MN 55438
(612) 720-0030

PROJECT
20141085153

MINC
KILT
AWS

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ST. PAUL, MN 55116

SHEET CONTENTS:
TOWER ELEVATIONS

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DATE:	07-14-14
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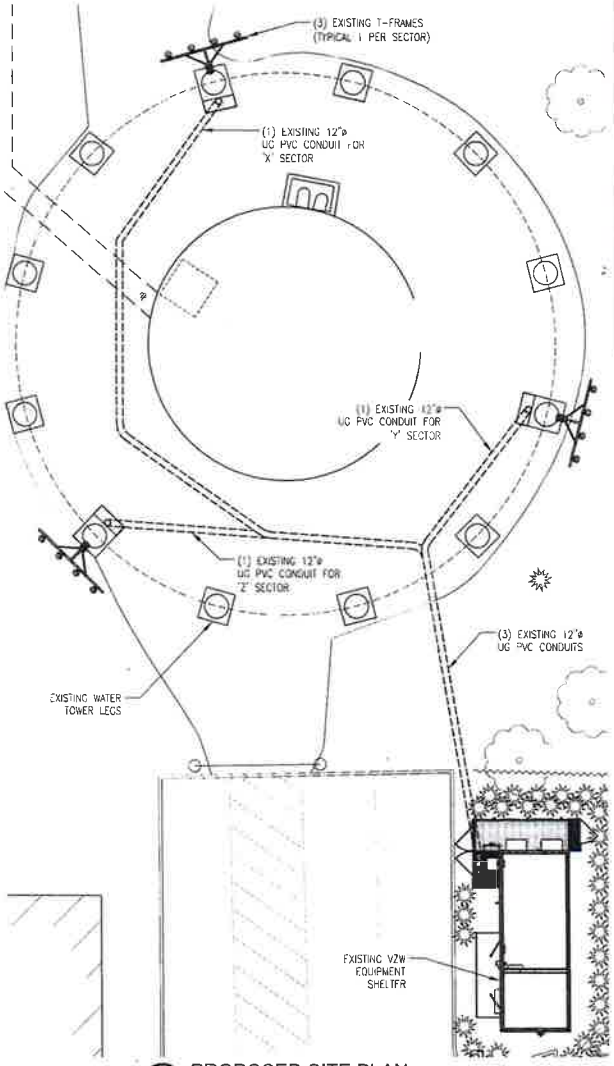
REV. A	08-04-14
REV. B	09-15-14
REV. C	12-11-14

A-1

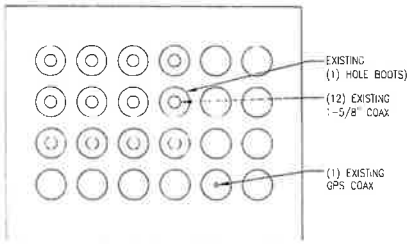
09 9000 PAINTING
Touchup paint construction related scopes & scratches.

The antennas, mounting pipes, RRUs, Sector Boxes, & Distribution box to be "primed and shop painted", and all other exposed items shall be primed and painted to match existing finish of lower per S.E.H. coating specifications.

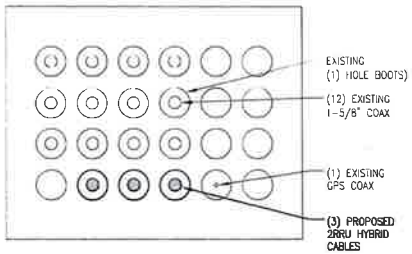


6 PROPOSED SITE PLAN
SCALE: 1"=20'-0"

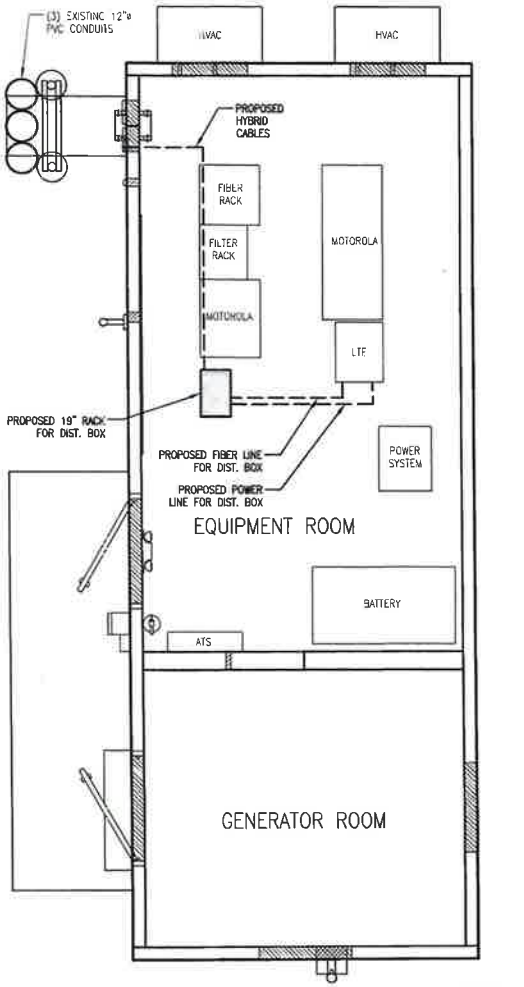
4 PHOTO- DISTRIBUTION BOX LOCATION
SCALE: NONE



3 EXISTING COAX ENTRY DETAIL
VIEW FROM OUTSIDE



2 PROPOSED COAX ENTRY DETAIL
VIEW FROM OUTSIDE



1 EQUIPMENT ROOM PLAN
SCALE: 1/4" = 1'-0"

GRAPHIC SCALE 0 2 4

NORTH

ROBERT J. DAVIS
LICENSED ARCHITECT
12427
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 Architect under the laws of the State of Minnesota.

Print Name: ROBERT J. DAVIS

Date: 12-11-14

DESIGN 1
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750 SNELLING AVE. S.
ST. PAUL, MN 55116

SHEET CONTENTS:
EQUIPMENT ROOM PLAN
COAX ENTRY DETAILS
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DRAWN BY:	JJB
DATE:	07-14-14
CHECKED BY:	TJR
REV. A	08-04-14
REV. B	09-15-14
REV. C	12-11-14

A-2

EXISTING ANTENNA KEY

	AZIMUTH	POSITION	FUNCTION	QTY	MANUFACTURER	MODEL	MOD TYPE	ANTENNA LENGTH	ANTENNA TIP	ANTENNA CENTER	ELEC DOWNTILT	MECH DOWNTILT	STATUS
"X" SECTOR	344°	1	TX/RXD	1	ANTEL	LPD-7905-8	CDMA	94.5"	64"	60"	0°	2°	REMOVE
	344°	2.1	TX/RXD	1	CSS	X7C-865-6	LTE +45	98"	64"	60"	0°	1°	REMOVE
	344°	2.2	TX/RX1	–	–	2ND PORT	LTE -45	–	–	–	–	–	–
	344°	3.1	TX/RXD	1	CSS	AXP16-80-2D	PCS +45	47.1"	62"	60"	0°	0°	REMOVE
	344°	3.2	TX/RX1	–	–	2ND PORT	PCS -45	–	–	–	–	–	–
	344°	4	TX/RX1	1	ANTEL	LPD-7905-8	CDMA	94.5"	64"	60"	0°	2°	REMOVE
"Y" SECTOR	104°	1	TX/RXD	1	ANTEL	LPD-7905-8	CDMA	94.5"	64"	60"	0°	0°	REMOVE
	104°	2.1	TX/RXD	1	CSS	X7C-865-4	LTE +45	98"	64"	60"	0°	0°	REMOVE
	104°	2.2	TX/RX1	–	–	2ND PORT	LTE -45	–	–	–	–	–	–
	104°	3.1	TX/RXD	1	CSS	AXP16-80-2D	PCS +45	47.1"	62"	60"	0°	0°	REMOVE
	104°	3.2	TX/RX1	–	–	2ND PORT	PCS -45	–	–	–	–	–	–
	104°	4	TX/RX1	1	ANTEL	LPD-7905-8	CDMA	94.5"	64"	60"	0°	0°	REMOVE
"Z" SECTOR	224°	1	TX/RXD	1	ANTEL	LPD-7905-8	CDMA	94.5"	64"	60"	0°	0°	REMOVE
	224°	2.1	TX/RXD	1	CSS	X7C-865-4	LTE +45	98"	64"	60"	0°	1°	REMOVE
	224°	2.2	TX/RX1	–	–	2ND PORT	LTE -45	–	–	–	–	–	–
	224°	3.1	TX/RXD	1	CSS	AXP16-80-2D	PCS +45	47.1"	62"	60"	0°	0°	REMOVE
	224°	3.2	TX/RX1	–	–	2ND PORT	PCS -45	–	–	–	–	–	–
	224°	4	TX/RX1	1	ANTEL	LPD-7905-8	CDMA	94.5"	64"	60"	0°	0°	REMOVE

EXISTING COAX KEY

QTY.	COAX TYPE	MANUFACTURER	MODEL	DIELECTRIC	DIAMETER (INCH)	RUN (FEET)	STATUS
1	MAIN	ANDREW	AVA7-50	FOAM	1-5/8"	250'	REMAIN
1	MAIN	ANDREW	AVA7-50	FOAM	1-5/8"	250'	REMAIN
1	MAIN	ANDREW	AVA7-50	FOAM	1-5/8"	250'	REMAIN
1	DIPLEXER	CSS	DBC-750	DIPLEXED WITH CDMA			REMAIN
1	DIPLEXER	CSS	DBC-750	DIPLEXED WITH CDMA			REMAIN
1	MAIN	ANDREW	AVA7-50	FOAM	1-5/8"	250'	REMAIN
1	MAIN	ANDREW	AVA7-50	FOAM	1-5/8"	160'	REMAIN
1	MAIN	ANDREW	AVA7-50	FOAM	1-5/8"	160'	REMAIN
1	DIPLEXER	CSS	DBC-750	DIPLEXED WITH CDMA			REMAIN
1	DIPLEXER	CSS	DBC-750	DIPLEXED WITH CDMA			REMAIN
1	MAIN	ANDREW	AVA7-50	FOAM	1-5/8"	160'	REMAIN
1	MAIN	ANDREW	AVA7-50	FOAM	1-5/8"	180'	REMAIN
1	MAIN	ANDREW	AVA7-50	FOAM	1-5/8"	180'	REMAIN
1	MAIN	ANDREW	AVA7-50	FOAM	1-5/8"	180'	REMAIN
1	DIPLEXER	CSS	DBC-750	DIPLEXED WITH CDMA			REMAIN
1	DIPLEXER	CSS	DBC-750	DIPLEXED WITH CDMA			REMAIN
1	MAIN	ANDREW	AVA7-50	FOAM	1-5/8"	180'	REMAIN

EXISTING TTA KEY

QTY.	MODEL	STATUS
–	–	–
–	–	–
–	–	–
1	ADC DD1900 (1900 MHZ)	REMAIN
1	ADC DD1900 (1900 MHZ)	REMAIN
–	–	–
–	–	–
–	–	–
1	ADC DD1900 (1900 MHZ)	REMAIN
1	ADC DD1900 (1900 MHZ)	REMAIN
–	–	–
–	–	–
–	–	–
1	ADC DD1900 (1900 MHZ)	REMAIN
1	ADC DD1900 (1900 MHZ)	REMAIN
–	–	–

PROPOSED ANTENNA KEY

	AZIMUTH	POSITION	FUNCTION	QTY	MANUFACTURER	MODEL	MOD TYPE	ANTENNA LENGTH	ANTENNA TIP	ANTENNA CENTER	ELEC DOWNTILT	MECH DOWNTILT	STATUS
"X" SECTOR	344°	1.1	TX/RXD	1	COMMSCOPE	LNX-6515DS-A1M	CDMA +45	96.4"	64"	60"	3°	7°	PROPOSED
	344°	1.2	TX/RX1	–	–	2ND PORT	LTE -45	–	–	–	–	–	–
	344°	2.1	TX/RXD	1	CSS	QAP-460-VR0	PCS +45	50.5"	62"	60"	5°	2°	PROPOSED
	344°	2.2	TX/RX1	–	–	2ND PORT	AWS -45	–	–	–	–	–	–
	344°	3.1	TX/RXD	1	CSS	QAP-460-VR0	AWS +45	50.5"	62"	60"	5°	2°	PROPOSED
	344°	3.2	TX/RX1	–	–	2ND PORT	PCS -45	–	–	–	–	–	–
	344°	4.1	TX/RXD	1	COMMSCOPE	LNX-6515DS-A1M	LTE +45	96.4"	64"	60"	3°	7°	PROPOSED
	344°	4.2	TX/RX1	–	–	2ND PORT	CDMA -45	–	–	–	–	–	–
"Y" SECTOR	104°	1.1	TX/RXD	1	COMMSCOPE	LNX-6515DS-A1M	CDMA +45	96.4"	64"	60"	3°	5°	PROPOSED
	104°	1.2	TX/RX1	–	–	2ND PORT	LTE -45	–	–	–	–	–	–
	104°	2.1	TX/RXD	1	CSS	QAP-460-VR0	PCS +45	50.5"	62"	60"	1°	2°	PROPOSED
	104°	2.2	TX/RX1	–	–	2ND PORT	AWS -45	–	–	–	–	–	–
	104°	3.1	TX/RXD	1	CSS	QAP-460-VR0	AWS +45	50.5"	62"	60"	1°	2°	PROPOSED
	104°	3.2	TX/RX1	–	–	2ND PORT	PCS -45	–	–	–	–	–	–
	104°	4.1	TX/RXD	1	COMMSCOPE	LNX-6515DS-A1M	LTE +45	96.4"	64"	60"	3°	5°	PROPOSED
	104°	4.2	TX/RX1	–	–	2ND PORT	CDMA -45	–	–	–	–	–	–
"Z" SECTOR	224°	1.1	TX/RXD	1	COMMSCOPE	LNX-6515DS-A1M	CDMA +45	96.4"	64"	60"	0°	8°	PROPOSED
	224°	1.2	TX/RX1	–	–	2ND PORT	LTE -45	–	–	–	–	–	–
	224°	2.1	TX/RXD	1	CSS	QAP-460-VR0	PCS +45	50.5"	62"	60"	0°	2°	PROPOSED
	224°	2.2	TX/RX1	–	–	2ND PORT	AWS -45	–	–	–	–	–	–
	224°	3.1	TX/RXD	1	CSS	QAP-460-VR0	AWS +45	50.5"	62"	60"	0°	2°	PROPOSED
	224°	3.2	TX/RX1	–	–	2ND PORT	PCS -45	–	–	–	–	–	–
	224°	4.1	TX/RXD	1	COMMSCOPE	LNX-6515DS-A1M	LTE +45	96.4"	64"	60"	0°	8°	PROPOSED
	224°	4.2	TX/RX1	–	–	2ND PORT	CDMA -45	–	–	–	–	–	–

PROPOSED COAX KEY

QTY.	COAX TYPE	MANUFACTURER	MODEL	DIELECTRIC	DIAMETER (INCH)	RUN (FEET)	STATUS
1	DIPLEXER	CSS	DBC-750	DIPLEXED WITH 1900			EXISTING
1	MAIN	ANDREW	LDF7-50	FOAM	1-5/8"	250'	EXISTING
1	MAIN	ANDREW	LDF7-50	FOAM	1-5/8"	250'	EXISTING
1	RRU	ERICSSON	RRUS-12	ROSENBERGER HJ-7120015			PROPOSED
–	RRU	ERICSSON	RRUS-12	ROSENBERGER HJ-7120015			PROPOSED
1	MAIN	ANDREW	LDF7-50	FOAM	1-5/8"	250'	EXISTING
1	MAIN	ANDREW	LDF7-50	FOAM	1-5/8"	250'	EXISTING
1	DIPLEXER	CSS	DBC-750	DIPLEXED WITH 1900			EXISTING
1	DIPLEXER	CSS	DBC-750	DIPLEXED WITH 1900			EXISTING
1	MAIN	ANDREW	LDF7-50	FOAM	1-5/8"	160'	EXISTING
1	MAIN	ANDREW	LDF7-50	FOAM	1-5/8"	160'	EXISTING
1	RRU	ERICSSON	RRUS-12	ROSENBERGER HJ-7120015			PROPOSED
–	RRU	ERICSSON	RRUS-12	ROSENBERGER HJ-7120015			PROPOSED
1	MAIN	ANDREW	LDF7-50	FOAM	1-5/8"	160'	EXISTING
1	MAIN	ANDREW	LDF7-50	FOAM	1-5/8"	160'	EXISTING
1	DIPLEXER	CSS	DBC-750	DIPLEXED WITH 1900			EXISTING
1	MAIN	ANDREW	LDF7-50	FOAM	1-5/8"	180'	EXISTING
1	MAIN	ANDREW	LDF7-50	FOAM	1-5/8"	180'	EXISTING
1	RRU	ERICSSON	RRUS-12	ROSENBERGER HJ-7120015			PROPOSED
–	RRU	ERICSSON	RRUS-12	ROSENBERGER HJ-7120015			PROPOSED
1	MAIN	ANDREW	LDF7-50	FOAM	1-5/8"	180'	EXISTING
1	MAIN	ANDREW	LDF7-50	FOAM	1-5/8"	180'	EXISTING
1	DIPLEXER	CSS	DBC-750	DIPLEXED WITH 1900			EXISTING
42	JUMPER	ANDREW	LDF4-50	FOAM	1/2"	10'	TOTAL

PROPOSED TTA KEY

QTY.	MODEL	STATUS
–	–	–
1	COMMSCOPE E15R05P19	PROPOSED
1	ADC DD1900 (1900 MHZ)	EXISTING
–	–	–
–	–	–
–	2ND PORT OF E15R05P19	PROPOSED
–	–	–
1	COMMSCOPE E15R05P19	PROPOSED
1	ADC DD1900 (1900 MHZ)	EXISTING
–	–	–
1	ADC DD1900 (1900 MHZ)	EXISTING
–	2ND PORT OF E15R05P19	PROPOSED
–	–	–
1	COMMSCOPE E15R05P19	PROPOSED
1	ADC DD1900 (1900 MHZ)	EXISTING
–	–	–
1	ADC DD1900 (1900 MHZ)	EXISTING
–	2ND PORT OF E15R05P19	PROPOSED
–	–	–
9	TTAs	TOTAL

ADDITIONAL: (1) COMMSCOPE RACK MOUNTED DISTRIBUTION BOX MODEL #RooDC-2260-RM-48 (INSIDE SHELTER)
(3) COMMSCOPE SECTOR BOX MODEL# RooDC-1064-PF-48 (1 PER SECTOR)
(1) ROSENBERGER 2RRU TRUNK CABLE MODEL# HFW-4791290 (X SECTOR)
(1) ROSENBERGER 2RRU TRUNK CABLE MODEL# HFW-4791200 (Y SECTOR)
(1) ROSENBERGER 2RRU TRUNK CABLE MODEL# HFW-4791220 (Z SECTOR)
(12) COMMSCOPE RET CONTROL JUMPER MODEL# ATCB-B01-5 (5 METERS)

3 ANTENNA KEY
SCALE: NONE

2 COAX KEY
SCALE: NONE

1 TTA KEY
SCALE: NONE

ROBERT J. DAVIS
LICENSED ARCHITECT
12427
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 Architect under the laws of the State of Minnesota.

Print Name: ROBERT J. DAVIS

Date: 12-11-14

DESIGN 1
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(952) 903-9299

VERIZON WIRELESS
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BLOOMINGTON, MN 55438
(612) 720-0030

PROJECT
20141085153

MINC
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AWS

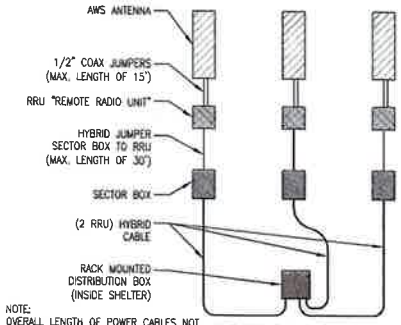
750 SNELLING AVE. S.
ST. PAUL, MN 55116

SHEET CONTENTS:
COAX, ANTENNA, & TTA KEY

DRAWN BY:	JJB
DATE:	07-14-14
CHECKED BY:	TJR
REV. A	08-04-14
REV. B	09-15-14
REV. C	12-11-14

A-3

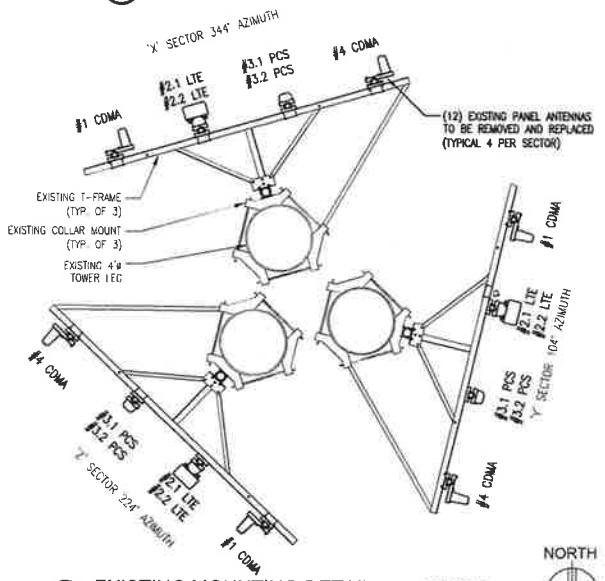
3 RRU/SECTOR BOX MOUNTING PHOTO
SCALE: NONE



NOTE:
OVERALL LENGTH OF POWER CABLES NOT TO EXCEED 367' FROM POWER SUPPLY TO REMOTE RADIO UNIT

HOIST GRIPS FOR 2-4 (2 RRU) HYBRID CABLE: ROSENBERGER CXD65-LUHGRSP
CABLE HANGER: 1-5/8" UNIVERSAL SNAP-IN: ROSENBERGER TH415-U158
CABLE HANGER: 1-5/8" STACKABLE SNAP-IN: ROSENBERGER TH428-S158
GROMMET FOR 2-4 (2 RRU) CABLE IN 1-5/8" SNAP-IN: ROSENBERGER CX648-2526
GROMMET FOR HYBRID JUMPER IN 1-5/8" SNAP-IN: ROSENBERGER CX651-2829 (MAIN CABLE/SINGLE HOLE)
CX652-1714 (BROKEN OUT/TWO HOLE)

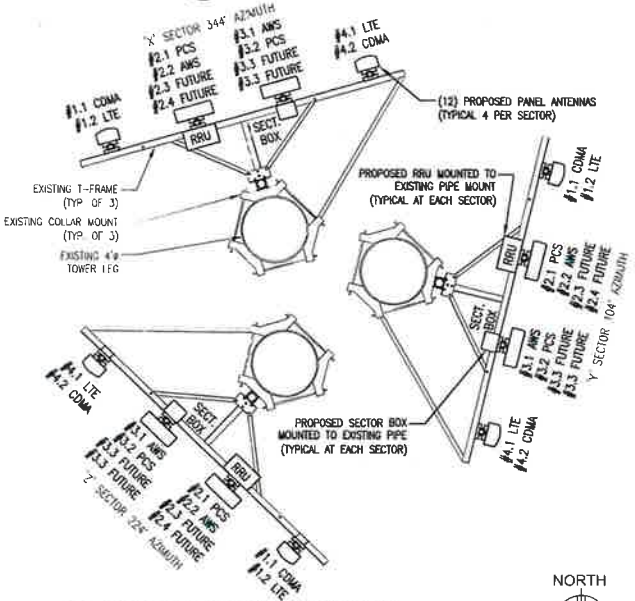
2 ONE-LINE DIAGRAM
SCALE: NONE



4 EXISTING MOUNTING DETAIL
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE 0 2'-8" 5'-4"

NORTH



1 PROPOSED MOUNTING DETAIL
SCALE: 3/16" = 1'-0"

GRAPHIC SCALE 0 2'-8" 5'-4"

NORTH

ROBERT J. DAVIS
LICENSED ARCHITECT
12427
STATE OF MINNESOTA

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Signature

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PROJECT
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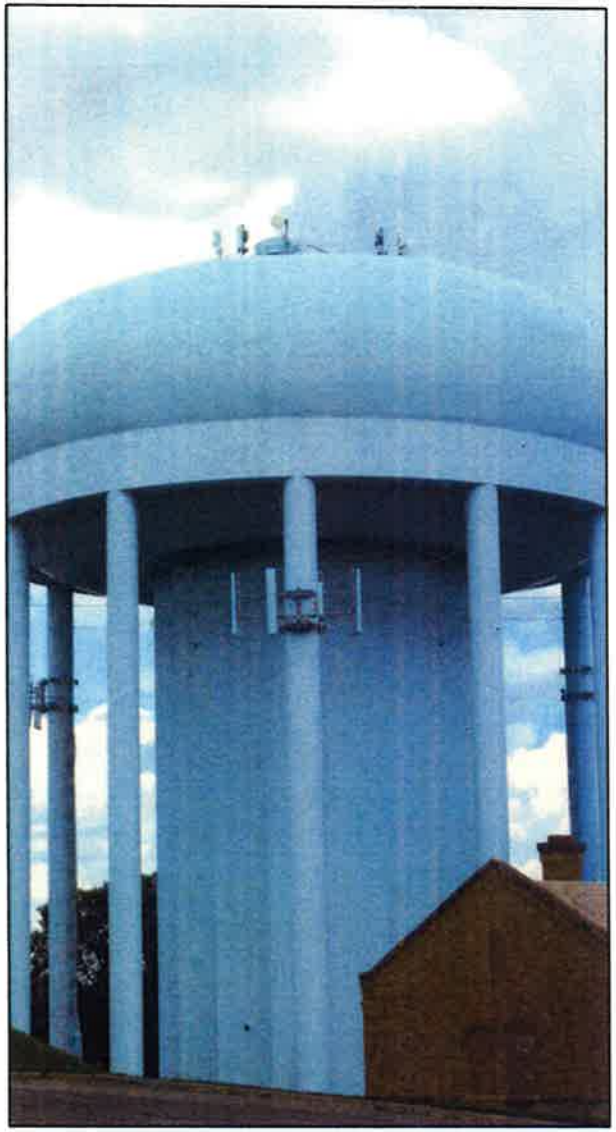
SHEET CONTENTS:

ANTENNA MOUNTING DETAIL
ONE-LINE DIAGRAM
COAX LAYOUT PLAN
MISC. PHOTOS

DRAWN BY:	JJB
DATE:	07-14-14
CHECKED BY:	TJR
REV. A	08-04-14
REV. B	09-15-14
REV. C	12-11-14

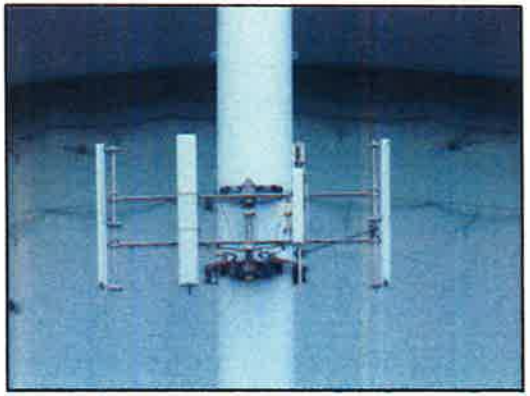
A-4



4 OVERALL TOWER PHOTO
SCALE: NONE

3 SHELTER COAX ENTRY
SCALE: NONE

2 TOWER COAX PHOTO
SCALE: NONE



5 ANTENNA MOUNT PHOTO
SCALE: NONE

1 CONDUIT AT SHELTER PHOTO
SCALE: NONE

ROBERT J. DAVIS
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12427
STATE OF MINNESOTA

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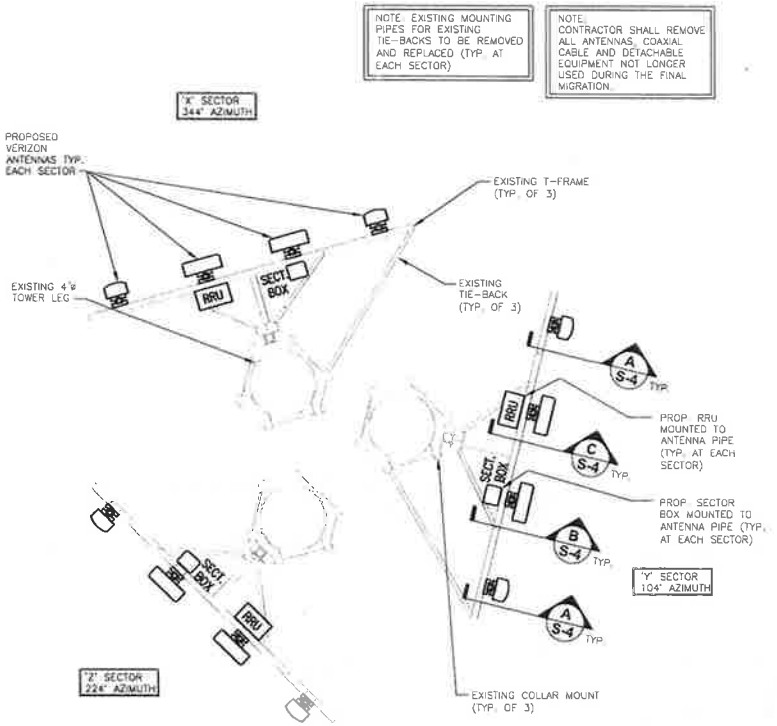
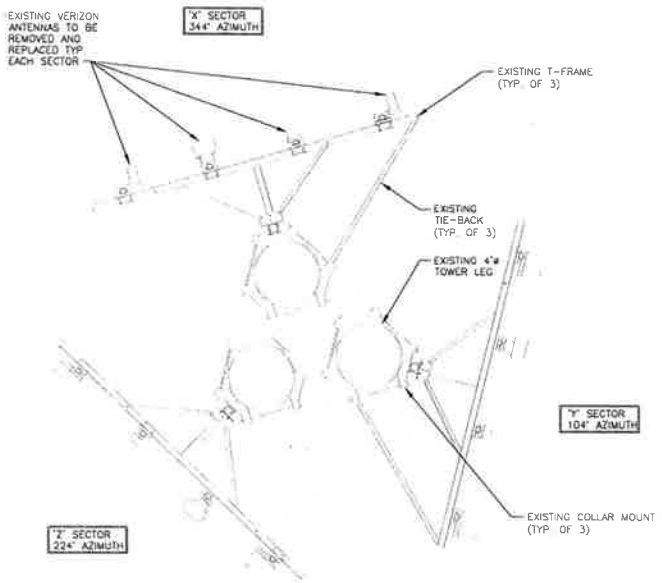
SHEET CONTENTS:
MISC. PHOTOS

DRAWN BY:	JJB
DATE:	07-14-14
CHECKED BY:	TJR
REV. A	08-04-14
REV. B	09-15-14
REV. C	12-11-14

A-5



PLAN @ PROPOSED ANTENNA & COAX LAYOUT | 3/16" = 1'-0" | B



PLAN @ EXIST. WATER TOWER LAYOUT | 3/16" = 1'-0" | A

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Typed or Printed Name: ISAAC ODLAND

Signature:

Lic. No.: 47985

Date: 5-12-14

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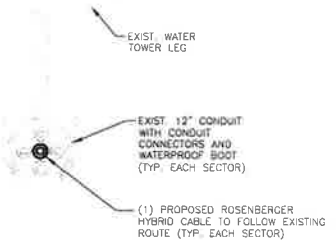
ST. PAUL, MN 55116

SHEET CONTENTS:
EXIST. & PROP. PLAN VIEWS

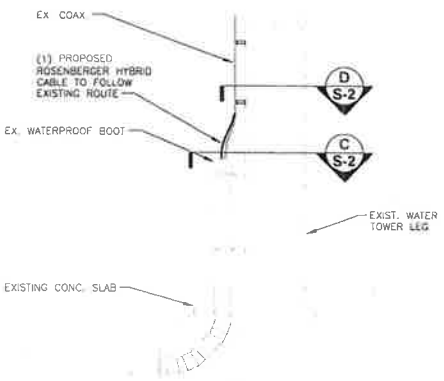
DRAWN BY:	KBA
DATE:	12-10-14
CHECKED BY:	IJO
REV. C	

ULI PROJ. # 14.00017

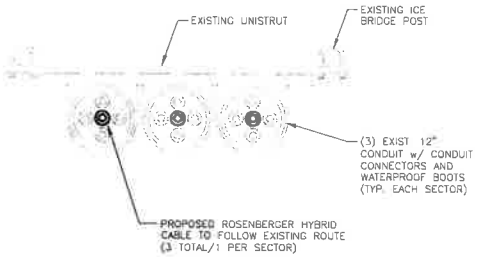
S-1



EXISTING CONDUIT AND HYBRID CABLE ROUTING AT WATER TOWER LEG (TYP. EA. SECTOR) | NO SCALE | C



EXISTING CONDUIT AND HYBRID CABLE ROUTING AT WATER TOWER LEG (TYP. EA. SECTOR) | NO SCALE | B



EXISTING CONDUIT AND HYBRID CABLE ROUTING AT EQUIPMENT SHELTER | NO SCALE | A

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Type or Printed Name: ISAAC ODLAND

Signature:

Lic. No.: 47985

Date: 5-12-14

DESIGN 1

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PROP. HYBRID CABLE AND COAX. SUPPORT AND ROUTING NOTES:

1. CONTRACTOR SHALL SWEEP/ROUTE PROPOSED HYBRID CABLE AS NEEDED TO NOT INTERFERE WITH EXISTING ANTENNA MOUNTING FRAMES AND BRACES.
2. CONTRACTOR SHALL ROUTE AND INSTALL THE PROPOSED HYBRID CABLE TO THE EXIST. COAX BRACKETS WITH SNAP-IN HANGERS AND OR CUSHION INSERT.

NOTES:

1. CONTRACTOR TO REPAIR AND PAINT TO MATCH EXISTING WATER TOWER AS REQUIRED AFTER PLACEMENT OF PROPOSED ANTENNA MOUNTING HARDWARE.
2. CONTRACTOR TO CAP BOTH ENDS OF THE EXISTING ANTENNA MOUNTING PIPES WITH PLASTIC END CAPS PRIOR TO INSTALLATION, IF NEEDED.
3. ALL ATTACHMENTS TO PAINTED SURFACES ARE TO INCLUDE THE PLACEMENT OF NEOPRENE STRIPS BETWEEN HARDWARE AND POINTS OF CONTACT TO REDUCE/ELIMINATE DAMAGE TO THE PAINTED SURFACE. METAL SHIMS ARE REQUIRED IN SITUATIONS WHERE TIGHTENING A CLAMP MAY CAUSE THE NEOPRENE TO TEAR CAUSING METAL TO METAL CONTACT. WHERE POSSIBLE EXPOSED NEOPRENE SHOULD BE WRAPPED WITH WHITE TAPE. FASTENING SEQUENCE SHOULD INCLUDE NYLON WASHERS BETWEEN THE PAINTED SURFACE AND THE GALVANIZED WASHER.
4. ALL EQUIPMENT IS TO BE IDENTIFIED BY THE TENANT (VERIZON).
5. ALL MOUNTING HARDWARE IS TO BE GALVANIZED AND OR CONSTRUCTED OF NON-CORRODING MATERIAL.
6. CONTRACTOR TO TOUCH UP PAINTING ON EXISTING ANTENNAS, SPOT REPAIRS MADE WITH BRUSH AND W/O FEATHERING, SHOULD BE COMPLETELY ROLLED FOR UNIFORMITY.
7. CONTRACTOR SHALL TOUCH UP EXISTING (DAMAGED/FAILED) ANTENNA SUPPORT PIPES. DEPENDING UPON THEIR CONDITION THE CITY MAY REQUEST REPLACEMENT.

PAINTING & GALVANIZING NOTES:

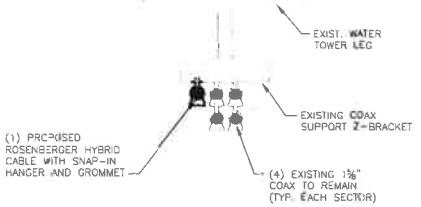
1. PROPOSED ANTENNAS INSTALLED ON THE EXTERIOR OF THE WATER TOWER SHALL BE SHOP PAINTED TO MATCH THE EXISTING WATER TOWER. (VERIFY COLOR).
2. HYBRID CABLE SHALL BE PROVIDED WITH MANUFACTURED WHITE JACKETING AND ALL EXPOSED JUMPERS SHALL BE TAPED WHITE.

NOTES:

1. J-BOLTS SHALL BE INSTALLED ON THE PROPOSED WATER TOWER LEG COAX SUPPORT BRACKET IF NEEDED. FIELD VERIFY EXACT INSTALLATION LOCATIONS.
2. CONTRACTOR TO INSTALL HOIST GRIPS TO SECURE PROPOSED COAX AND HYBRID CABLE ON J-BOLTS. OR APPROVED EQUIVALENT)

NOTES | NO SCALE | E

NOTE:
CONTRACTOR SHALL INSPECT ALL EXISTING COAX SUPPORT BRACKETS ATTACHED TO THE EXISTING WATER TOWER TO ENSURE ALL ARE IN GOOD CONDITION, REPAIR AND REPLACE AS NEEDED



EX COAX/PROP. HYBRID CABLE VERTICAL ROUTING AT EXISTING WATER TOWER LEG (TYP. EA. SECTOR) | NO SCALE | D

VERIZON WIRELESS
10801 BUSH LAKE ROAD
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PROJECT
20141023110

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KILT
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750 SNELLING AVE. S.
ST. PAUL, MN 55116

SHEET CONTENTS:
SECTIONS AND DETAILS

DRAWN BY:	KBA
DATE:	12-10-14
CHECKED BY:	IJO
REV. C	

UEI PROJ. # 14.00017

S-2

RxxDC-1064-PF-48

DIMENSIONS, WxDxH: 258x208x400mm (10.15"x8.15"x15.85")

WEIGHT, WITH BRACKETS: 13 lbs

Shown with optional 90° elbow for side entry (can be installed on left or right side of unit

Mounting Bracket Included

SECTOR BOX | NO SCALE | C

PROP. PIPE MOUNT, USING SUPPLIED EQUIPMENT HARDWARE, MOUNT BRACKET TO EXISTING ANTENNA PIPE

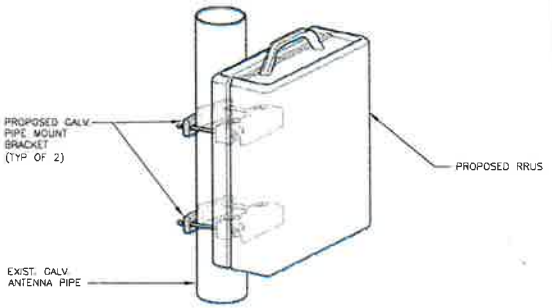
PROP. EQUIPMENT AND MOUNTING BRACKET

PROPOSED SECTOR/DISTRIBUTION BOX MOUNTING HARDWARE | NO SCALE | A

ERICSSON RRUS-12 W/ SOLAR SHIELD

DIMENSIONS, WxDxH: 470x187x518mm (18.50"x7.36"x20.39")

WEIGHT, WITHOUT BRACKETS: 58 lbs



RRUS-12 W/ SOLAR SHIELD | NO SCALE | D

	NO SCALE	F

	NO SCALE	E

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Typed or Printed Name: ISAAC ODLAND

Signature:

Lic. No.: 47985

Date: 5-12-14

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REV. C	

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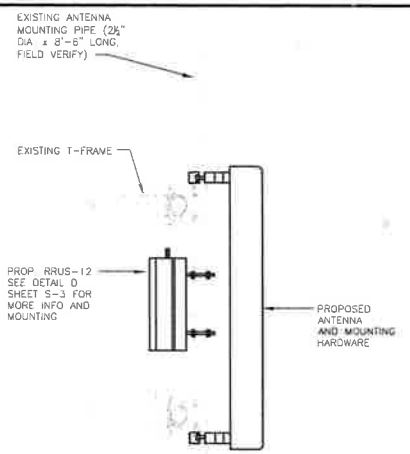
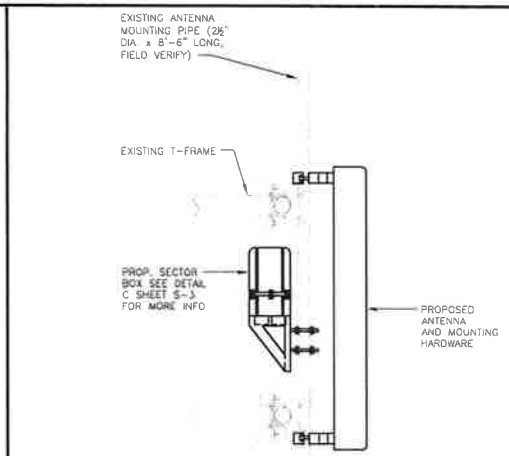
S-3



NOTE:
CONTRACTOR TO FIELD VERIFY EXISTING ANTENNA MOUNTING BRACKET HARDWARE AND CONNECTION TO ENSURE ALL CONNECTIONS AND HARDWARE ARE IN GOOD CONDITION AND TO REPAIR OR REPLACE AS NEEDED.

EXISTING MOUNT AND EXIST. MOUNTING PIPE WITH PROPOSED ANTENNA AND EQUIPMENT | NO SCALE | C



NOTE:
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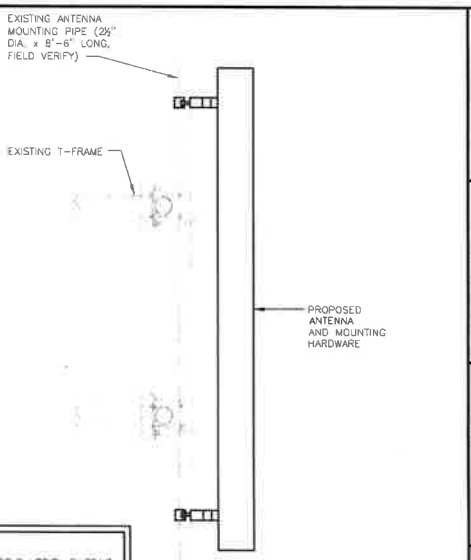
EXISTING MOUNT AND EXIST. MOUNTING PIPE WITH PROPOSED ANTENNA AND EQUIPMENT | NO SCALE | B



NOTE:
CONTRACTOR TO FIELD VERIFY EXISTING ANTENNA MOUNTING BRACKET HARDWARE AND CONNECTION TO ENSURE ALL CONNECTIONS AND HARDWARE ARE IN GOOD CONDITION AND TO REPAIR OR REPLACE AS NEEDED.

EXISTING MOUNT AND EXIST. MOUNTING PIPE WITH PROPOSED ANTENNA | NO SCALE | A

NOT USED | NO SCALE | F

NOT USED | NO SCALE | E

NOT USED | NO SCALE | D

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Typed or Printed Name: ISAAC ODLAND

Signature:

Lic. No.: 47885

Date: 12-10-14

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SHEET CONTENTS:
SECTIONS AND DETAILS

DRAWN BY:	KBA
DATE:	12-10-14
CHECKED BY:	IJO
REV. C	

UEI PROJ. # 14.00017

S-4

DESIGN LOADS

A. WIND LOAD (PER AWWA)
   1. WIND SPEED: 90 MPH
   2. GUST EFFECT FACTOR = 1.0
   3. FORCE COEFFICIENT = 1.0

CODES

A. INTERNATIONAL BUILDING CODE – 2006
B. STATE OF MINNESOTA BUILDING CODE – 2007
C. ASCE 7 – 2005
D. AWWA D100-05

MISCELLANEOUS

A. THE CONTRACTOR IS TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO THE START OF ANY WORK. THE CONTRACTOR IS TO REPORT TO THE STRUCTURAL ENGINEER OF RECORD ANY AND ALL CONFLICTS IN THE CONSTRUCTION DOCUMENTS AND/OR THE ACTUAL CONSTRUCTED CONDITIONS IMMEDIATELY.
B. UNLESS SPECIFICALLY NOTED, NO PROVISIONS HAVE BEEN MADE IN THE STRUCTURAL DOCUMENTS FOR FUTURE EXPANSION OR ADDITION. THE STRUCTURAL MEMBERS HAVE BEEN DESIGNED FOR THEIR FINAL IN PLACE LOADS ONLY (SEE "DESIGN LOADS").
C. THE CONTRACTOR IS RESPONSIBLE FOR BRACING ALL STRUCTURAL ELEMENTS, WITHOUT OVERSTRESSING, AS REQUIRED UNTIL THE ENTIRE PROJECT IS COMPLETE. STOCKPILING OF ANY MATERIALS ON THE STRUCTURAL ELEMENTS IS AT THE CONTRACTOR'S OWN RISK.

DISPOSAL OF DEBRIS

A. ALL MATERIAL TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR. MATERIALS SHALL BE DISPOSED OF OFF SITE AT A LOCATION SECURED AND ARRANGED FOR BY THE CONTRACTOR. BURNING OR BURIAL OF DEBRIS ON SITE SHALL NOT BE ALLOWED. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR THE ACCEPTANCE OF THE MATERIAL AND FOR ANY DAMAGES RESULTING FROM ITS OPERATIONS. ALL COSTS ASSOCIATED WITH DISPOSAL OF DEMOLITION MATERIAL OR DEBRIS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

SITE MAINTENANCE AND FINISHING OPERATIONS

A. THE CONTRACTOR SHALL TAKE REASONABLE MEASURES TO MINIMIZE DUST AND NOISE DURING THEIR OPERATIONS. THE CONTRACTOR SHALL ADHERE TO ALL REQUIREMENTS OF THE CITY TO MINIMIZE THE DUST TRACKING OF MUD AND DEBRIS OFF-SITE DURING AND AFTER DEMOLITION. WATER OR OTHER METHODS OF DUST CONTROL SHALL BE USED IF NECESSARY.
B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SECURITY OF THE SITE AND PROTECTION FROM THE SAFETY HAZARDS DURING THEIR OPERATIONS

STRUCTURAL STEEL

A. DESIGN CODE
   1. "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" (AISC), LATEST EDITION.
   2. STEEL CONSTRUCTION MANUAL (AISC), LATEST EDITION.

B. MATERIALS:
   1. WIDE FLANGE SHAPES – ASTM A992 (Fy = 50 KSI)
   2. HOLLOW STRUCTURAL SECTIONS (HSS) – ASTM A500, GR. B (Fy=46 KSI)
   3. PIPE STEEL – ASTM A53, GRADE B (Fy = 35 KSI)
   4. WELDING ELECTRODES – ASTM A233 E70 SERIES.
   5. CONNECTION BOLTS – ASTM A325
   6. MISCELLANEOUS STEEL – ASTM A36

C. INSTALLATION NOTES
   1. SHOP AND FIELD WELDING IS TO BE PER AWS D1.1, LATEST EDITION. ALL WELDING IS TO BE PERFORMED BY CERTIFIED WELDERS ONLY.
   2. THE STEEL SUPPLIER IS RESPONSIBLE FOR THE DESIGN OF ALL CAP PLATES, BEARING PLATES, BASE PLATES, STIFFENERS, SPLICES, AND CONNECTIONS UNLESS DETAILED ON THE DRAWINGS. THE STEEL SUPPLIER IS TO INCLUDE ALL BOLTS AND HOLES FOR REQUIRED "OSHA" CONNECTIONS.

D. STRUCTURAL STEEL TESTING– THE OWNER, AT HIS OWN EXPENSE, SHALL EMPLOY THE SERVICES OF AN INDEPENDENT TESTING AGENCY TO TEST THE FOLLOWING:
   1. SHOP FABRICATED WORK: PERFORM TESTS NOTED ABOVE, EXCEPT BOLT TESTING MAY BE REDUCED OR DELETED IF THE FABRICATION SHOP SATISFIES THE QUALITY CERTIFICATION PROGRAM OF AISC FOR A CATEGORY I FABRICATOR OR A MORE STRINGENT CRITERIA. TESTING MAY ALSO BE WAIVED IF THE FABRICATOR IS APPROVED BY BOTH THE BUILDING OFFICIAL AND THE STRUCTURAL ENGINEER OF RECORD.
   2. WELDING, AS FOLLOWS:

      FILLET WELDS: VISUALLY INSPECT 100% OF ALL FILLET WELDS FOR SIZE, LENGTH, AND QUALITY PER AWS D1.1.

      PARTIAL PENETRATION WELDS: TEST 100% OF ALL PARTIAL PENETRATION WELDS EXCEEDING 5/16 INCH USING A MAGNETIC PARTICLE TESTER PER ASTM E109. PERFORM TESTING ON BOTH THE ROOT PASS AND THE FINISHED WELD.

      FULL PENETRATION WELDS: TEST 100% OF ALL FULL PENETRATION WELDS EXCEEDING 5/16 INCH USING AN ULTRASONIC TESTER PER AWS D1.1 SECTION 6. TEST 25% OF ALL FULL PENETRATION WELDS LESS THAN 5/16 INCH USING A MAGNETIC PARTICLE TESTER PER ASTM E109. PERFORM TESTING ON BOTH THE ROOT PASS AND THE FINISHED WELD.

      PROCEDURES AND PREPARATION: VERIFY THE FOLLOWING:

      I. QUALIFICATIONS OF ALL WELDERS AS AWS CERTIFIED
      II. PROPOSED WELDING PROCEDURES AND MATERIALS
      III. ADEQUATE PREPARATION OF FAYING SURFACES
      IV. PREHEAT AND INTERPASS TEMPERATURES OF STEEL
      V. PROPER TECHNIQUE AND SEQUENCE OF WELDING, CLEANING, AND NUMBER OF PASSES
      VI. BACKER BARS ARE REMOVED AND EXPOSED SURFACE FILED CLEAN

   3. ALL TESTING REPORTS SHALL BE SUBMITTED TO THE OWNER.

STRUCTURAL STEEL CONT.

E. STRUCTURAL STEEL GALVANIZING:
   1. ALL STRUCTURAL STEEL SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123.
   2. ALL SURFACES TO BE WELDED SHALL BE STRIPPED OF ALL PAINT AND HOT DIPPED GALVANIZING PROTECTIVE COATING PRIOR TO WELDING TO ENSURE A QUALITY STRUCTURAL WELD.
   3. ALL WELDED SURFACES SHALL BE PAINTED WITH MINIMUM TWO COATS OF COLD GALVANIZING PAINT.
   4. ALL FIELD CUT SURFACES AND FIELD DRILLED HOLES SHALL BE PAINTED WITH MINIMUM TWO COATS OF COLD GALVANIZING PAINT.

GENERAL NOTES

A. WITHIN THESE PLANS AND SPECIFICATIONS, "OWNER" IMPLIES VERIZON WIRELESS.

Ulteig

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.

Typed or Printed Name: ISAAC ODLAND
Signature:
Lic. No.: 47985
Date: 5-12-14

DESIGN 1
ROBERT J DAVIS, AIA
ARCHITECT
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EDEN PRAIRIE MN 55344
(952) 903-9299

VERIZON WIRELESS
10801 BUSH LAKE ROAD
BLOOMINGTON, MN 55438
(612) 720 - 0030

PROJECT
20141023110

MINC
KILT
AWS

750 SNELLING AVE. S.
ST. PAUL, MN 55116

SHEET CONTENTS
GENERAL NOTES

DRAWN BY:	KBA
DATE:	12-10-14
CHECKED BY:	IJO
REV. C	

UEI PROJ. # 14.00017

S-5

EXHIBIT "B-1"

VERIZON WIRELESS
750 Snelling Avenue South
Saint Paul. MN 55116

Antenna Facilities and Frequencies

1. **Shelter and Shelter Components**
   Shelter: 18'x38' leased area.
   Power plant (DC current): (4) breaker spaces for -48 DC
   Battery supply back up: (8) Nortell dual pole batteries
   T-1 switch equipment: Quest Fiber D-Mark in Hoffman
   Commercial switch gear: (1) Square D Metter Disconnect
   Radio transmitters: (3) Nokia RF Cabinets
   Air conditioner: (2) Wall Mounted Bard HVAC units

2. **Generators**
   Quantity: 1
   Manufacturer: MTU Onsite Energy
   Model: VER50DJC6DT3
   Dimensions: 82 x 34 x 50 in

3. **Antennas**
   Quantity: Twelve (12) Total; (4) per Sector
   Type: Manufacturer: Commscope & CSS
   Azimuths: 344 degrees@ X Sector 104 degrees@ Y Sector 224 degrees@ Z Sector
   Model: (6) Commscope LNX-6515DS-A1M, (6) CSS Antenna QAP-460-VR0 antennas
   Dimensions: 96.3" x 11.9" x 7.1" , 50.5" x 12.5" x 7.1".
   Weight: 63 lbs. ea. 24.5 lbs. ea.
   Mount Type: Pipe
   Centerline of the antennas: 60 feet AGL

4. **Coax Cable**
   Number of Lines: (12) Total; (4) per Sector
   Type: ANDREW AVA7W-50
   Size: (6) 7/8" and (6) 1-5/8"

5. **Tower Mounted Amplifiers (TMAs)**
   Quantity: Six (6) Total; (2) per Sector
   Manufacturer: Cleargain
   Model: ADC DD 1900
   Dimensions: 13.11" x 9.84" x 3.30"
   Weight: 13.9 lbs. ea.
   Mounting: Pipe

6. **Diplexers/Duplexers**
   Quantity: Six (6) Total; (2) per Sector
   Manufacturer: CSS
   Model: DBC750
   Dimensions: 7.85 x 6.63 x 1.25
   Weight: 4.88 lbs. ea.
   Mounting: Pipe

7. **Remote Radio Heads (RRHs)**
   Quantity: (3) Total; (1) per Sector
   Manufacturer: Ericsson
   Model: RRU12
   Dimensions: 20.89" x 18.50 "x 7.36"
   Weight: 58 lbs. ea.
   Mounting: Pipe
   Hybrid Jumper: Rosenberger HJ-712-009 From Sector Distribution Box to RRH.

8. **Distribution Box**
   Quantity: Two (2) Total; (1) Shelter and (1) X Sector
   Manufacturer: Raycap
   Model: RXDC 3315 PF 48
   Dimensions: 23.7" x 13.56" x 8.15"
   Weight: 26.9 lbs. ea.

9. **Sector Box**
   Quantity: Two (2) Total; (1) Y Sector and (1) Z
   Manufacturer: Raycap
   Model: RXXDC 1064 PF 48
   Dimensions: 15.9" x 8.15" x 10.15"
   Weight: 12.1 lbs.. ea.

10. **Hybrid Cable**
    Type Hybrid: Rosenberger White Hybrid
    Number of Lines: Three (3) Total
    -From Shelter Box to Main Distribution Box at X Sector Cable HBW-6307-250
    -From Main Distribution Box toY Sector Cable Model HFW-4791-050
    -From Main Distribution Box to Z Sector Model HFW-4791-040

11. Frequencies

Svc	Technology	EIRP (WATTS)	Frequencies				
			Standard Frequency	Transmit		Receive	
				Start	Stop	Start	Stop
1	CDMA	500		800	894	835	849
2	LTE	1000		746	757	776	787
3	PCS-EVDO (D and F band)	1000		1945, 1970	1950, 1975	1865, 1890	1870, 1895
4	AWS	1000		2110	2130	1710	1730

12. Proposed Scope of Work

Replace: (12) Existing antennas

Add: (3) TMAs
(3) RRHs
(1) Distribution Box
(3) Sector boxes
(3) Hybrid cables