

**AMENDMENT NO. 1 TO SITE LEASE AGREEMENT  
BETWEEN  
BOARD OF WATER COMMISSIONERS OF THE CITY OF SAINT PAUL  
AND  
T-MOBILE CENTRAL, LLC**

This **AMENDMENT NO. 1 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, T-Mobile Central LLC, a Delaware limited liability company, successor in interest to APT Minneapolis, Inc. ("Lessee").

RECITALS

A. Lessor and Lessee are parties to a Site Lease Agreement dated September 25, 1996 ("Agreement") whereby Lessor has leased ground space and water tower space to Lessee at Lessor's McKnight Road Water Tower site, addressed as 393 N McKnight Road, Saint Paul, Minnesota 55119.

B. Lessor and Lessee desire to amend the Agreement to (i) allow for the installation of three (3) additional Antennas; three (3) Remote Radio Units and one (1) Hybrid cable, and to (ii) provide for 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 (Construction Drawings Rev 2 dated March 5, 2015), attached hereto and incorporated herein.

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

3. REVISED ANNUAL RENT. As consideration for the rights granted herein, commencing on the Effective Date of the Agreement, the annual Base Rent, as described in Section 3 of the Agreement, shall be Thirty-One Thousand Seven Hundred Sixty-Three and

Site # A1N0030A  
Market: Minneapolis

45/100 Dollars (\$31,763.45). The resulting increase in rent for 2015 shall be prorated from the Effective Date of this Amendment.

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 Section 13 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: T-Mobile Central LLC  
12920 SE 38<sup>th</sup> Street  
Bellevue, WA 98006  
Attn: Lease Compliance A1N0030A

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.

[Remainder of page left intentionally blank.]

Site # A1N0030A  
Market: Minneapolis

**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.

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

**Date of Execution by Lessor:** \_\_\_\_\_

**T-MOBILE CENTRAL LLC**

  
\_\_\_\_\_  
Hossein Sepehr  
Area Director, Network Engineering & Ops

**Date of Execution by Lessee:** 4/21/15

**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 \_\_\_\_\_, 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

Site # A1N0030A  
Market: Minneapolis

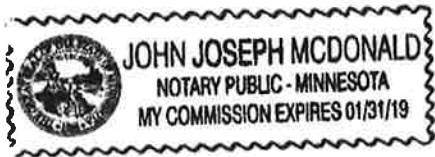
**T-MOBILE CENTRAL LLC**

STATE OF MINNESOTA        )  
  ) ss.  
COUNTY OF HENNEPIN        )

I certify that I know or have satisfactory evidence that Hossein Sepehr 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 Area Director, Network Engineering & Ops of T-Mobile Central LLC, 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: 4/22/2015

Witness my hand and official seal.



A handwritten signature in cursive script, appearing to read "Hossein Sepehr".

Site # A1N0030A  
Market: Minneapolis

**Exhibit A**  
**(Attached CDs Rev 2 dated 3/5/15)**



stick together®

SITE NUMBER: A1N0030A

SITE NAME: STPL WT-MCKNIGHT

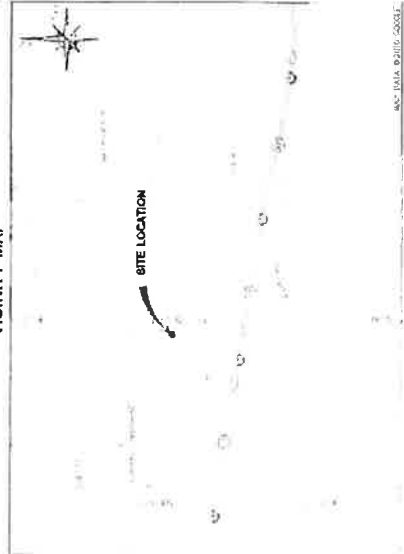
SITE TYPE: WATER TANK

JURISDICTION: CITY OF SAINT PAUL

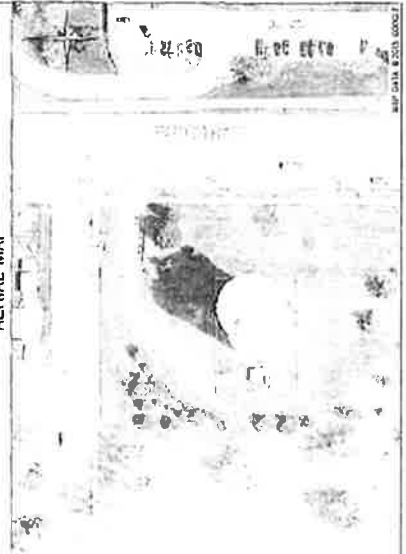
CITY: SAINT PAUL

COUNTY: RAMSEY COUNTY

VICINITY MAP



AERIAL MAP



PROJECT DESCRIPTION

STRUCTURE HEIGHT: 10'-0"
STRUCTURE TYPE: WATER TANK
ANTENNA QUANTITY: 8 EXISTING ANTENNAS TO REMAIN, 3 NEW ANTENNAS TO BE INSTALLED
ANTENNA HEIGHT: 49' 0"

PROJECT LOCATION

COORDEINATE INFORMATION
TANK 4310624

SITE ADDRESS:
303 N. MCKNIGHT RD
SAINT PAUL, MN 55118

PROPERTY SUMMARY

PROPERTY ADDRESS:
303 N. MCKNIGHT RD
SAINT PAUL, MN 55118

ASSESSOR'S PARCEL NUMBER (APN)
18.0
ZONING
1.0.0

APPLICABLE CODES

BUILDING CODE:
MINNESOTA BUILDING CODE 509
(2007 MINNESOTA STATE BUILDING CODE CHAPTER 130)
ELECTRICAL CODE:
NATIONAL ELECTRICAL CODE 304
(2007 MINNESOTA STATE ELECTRICAL CODE CHAPTER 131)

NOTES

CONSTRUCTION PERMITS MUST BE COMPLETED BASED ON THE INFORMATION PROVIDED BY
T-MOBILE. STPL SAINT PAUL 07/24/2024

CONTACTS

APPLICANT:
T-MOBILE USA
3000 WEST 25TH STREET, SUITE 400
MINNEAPOLIS, MN 55418
CONTACT: 763-431-2669
TEL: (612) 301-2669
PROPERTY OWNER CONTACT:
18.0

PROJECT TEAM

ARCHITECT:
W-T COMMUNICATION DESIGN GROUP, LLC
1000 WEST 25TH STREET, SUITE 400
MINNEAPOLIS, MN 55418
TEL: (612) 293-0433
FAX: (612) 293-0444
STRUCTURAL ENGINEER:
QUADRI ENGINEERING CONSULTANTS, LLC
2425 PRUDEN AVENUE
MINNEAPOLIS, MN 55412
TEL: (612) 293-0333
FAX: (612) 293-0444
SITE ACQUISITION:
LOSA, QUANTINIANI, & ASSOCIATES, INC.
10200 N. HENRI AVENUE, SUITE 240
MINNEAPOLIS, MN 55412
TEL: (612) 293-0333
FAX: (612) 293-0444

W-T Communication Design Group's Commitment to Quality



Please take a few moments to fill out our online survey



SHEET INDEX

Table with columns: SHEET NUMBER, SHEET DESCRIPTION, SHEET TITLE. Includes sheets for SITE INDEX, FOUNDATION & STRUCTURES, etc.

APPROVALS

Table for approvals with columns: APPROVAL, TITLE, SIGNATURE, DATE. Includes sections for LANDSCAPE, PROGRAM MAP, etc.

T-Mobile stick together logo

WT logo

W-T COMMUNICATION DESIGN GROUP, LLC

SEAL and signature area

DATE: 07/24/24

Table with columns: DATE, DESCRIPTION, BY, FOR

SITE INFORMATION

STPL WT-MCKNIGHT A1N0030A

303 N. MCKNIGHT ROAD SAINT PAUL, MN 55118

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

ASB SCALE: 1" = 10'-0"







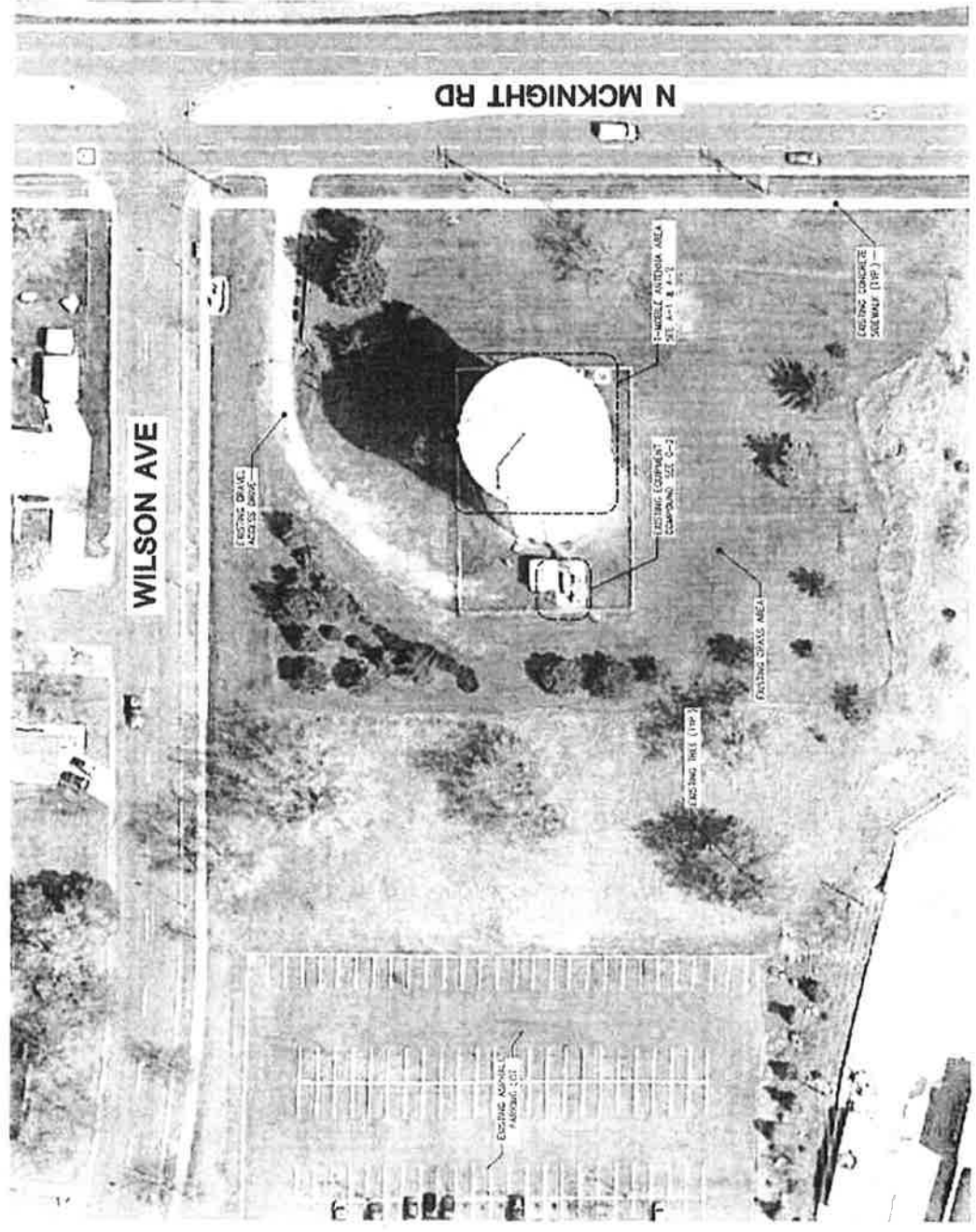
*[Signature]*  
DATE: 08/11/11  
PROJECT: STPL  
SHEET: C-1

DATE	DESCRIPTION	BY	REV
08/11/11	ISSUE FOR CONSTRUCTION	A. B.	1
08/11/11	ISSUE FOR CONSTRUCTION	A. B.	2
08/11/11	ISSUE FOR CONSTRUCTION	A. B.	3
08/11/11	ISSUE FOR CONSTRUCTION	A. B.	4
08/11/11	ISSUE FOR CONSTRUCTION	A. B.	5
08/11/11	ISSUE FOR CONSTRUCTION	A. B.	6
08/11/11	ISSUE FOR CONSTRUCTION	A. B.	7
08/11/11	ISSUE FOR CONSTRUCTION	A. B.	8
08/11/11	ISSUE FOR CONSTRUCTION	A. B.	9
08/11/11	ISSUE FOR CONSTRUCTION	A. B.	10

SITE INFORMATION:  
**STPL**  
**WT-MCKNIGHT**  
**A1N0030A**  
343 N. MCKNIGHT ROAD  
SAINT PAUL, MN 55118  
COUNTY: RAMSEY, MN  
SHEET TITLE:

**OVERALL SITE PLAN**  
SHEET NUMBER:  
**C-1**  
PAGE SCALE: 1" = 30'

- IMPORTANT SITE NOTES:**
- GENERAL CONTRACTOR WILL NOT START CONSTRUCTION UNTIL AFTER THEY HAVE RECEIVED THE PRE-CONSTRUCTION MEETING. A PRE-CON WALK WITH THE PROJECT MANAGER.
  - GENERAL CONTRACTOR TO HIRE PUBLIC (811) AND PRIVATE UTILITY LOCATING SERVICES TO LOCATE AND MARK ALL SUBSURFACE UTILITIES. DO NOT SCALE OFF THESE PLANS FOR ANY BELOW GRADE UTILITIES.
  - CONTRACTOR SHALL VERIFY ALL EXISTING BURIED AND OVERHEAD UTILITIES PRIOR TO EXCAVATION. CONTRACTOR SHALL REPAIR ALL DAMAGED UTILITIES AT HIS OWN COST AND COORDINATE ANY REPAIRS WITH RESPECTIVE UTILITY COMPANY.
  - CONTRACTOR TO VERIFY ALL HEIGHTS AND ADJUSTMENTS IN FIELD PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER AND ENGINEERING FIRM OF ANY DISCREPANCIES BEFORE PROCEEDING.
  - CONTRACTOR SHALL RESTORE AND REPAIR ANY DAMAGED AREAS CAUSED BY CONSTRUCTION.



**OVERALL SITE PLAN**  
SCALE: 1"=30'-0"  
1

**T-Mobile**  
 stick together®  
 10000 W. 10th Ave.  
 Suite 1000  
 Denver, CO 80202  
 PHONE: 303.556.3000

**W-T**

W-T COMMUNICATION  
 DESIGN GROUP, LLC  
 WIRELESS INFRASTRUCTURE  
 10000 W. 10th Ave.  
 Suite 1000  
 Denver, CO 80202  
 PHONE: 303.556.3000

DATE: 07/15/15  
 TIME: 10:00 AM

SCALE: 1/8" = 1'-0"

PROJECT: STPL WT-MCKNIGHT  
 SHEET: C-2

DATE: 07/15/15

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

NO. 1000

STPL  
 WT-MCKNIGHT  
 A1N0030A  
 300 N. MCKNIGHT ROAD  
 SMITH HALL, ARIZONA  
 W-T LAND, INC.

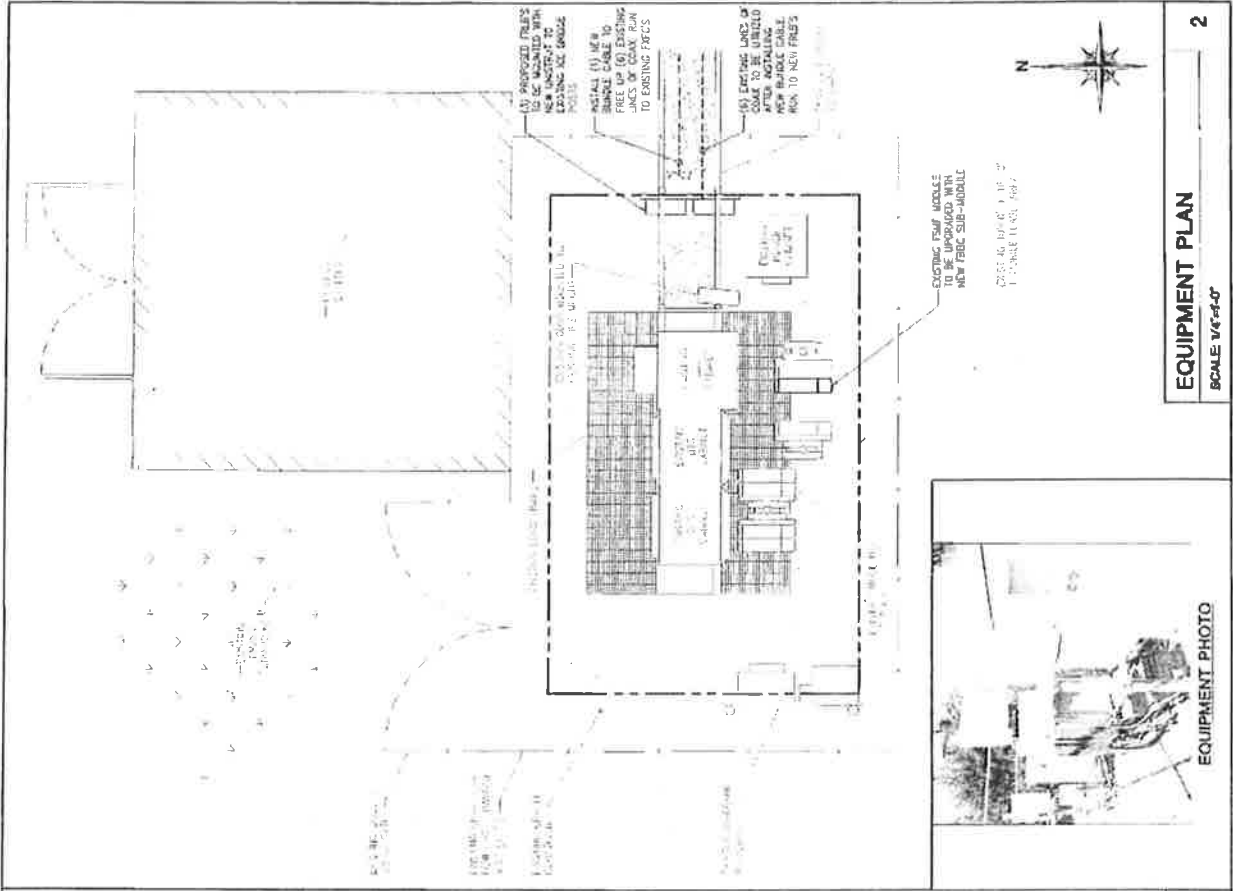
STPL  
 WT-MCKNIGHT  
 A1N0030A  
 300 N. MCKNIGHT ROAD  
 SMITH HALL, ARIZONA  
 W-T LAND, INC.

300 N. MCKNIGHT ROAD  
 SMITH HALL, ARIZONA  
 W-T LAND, INC.

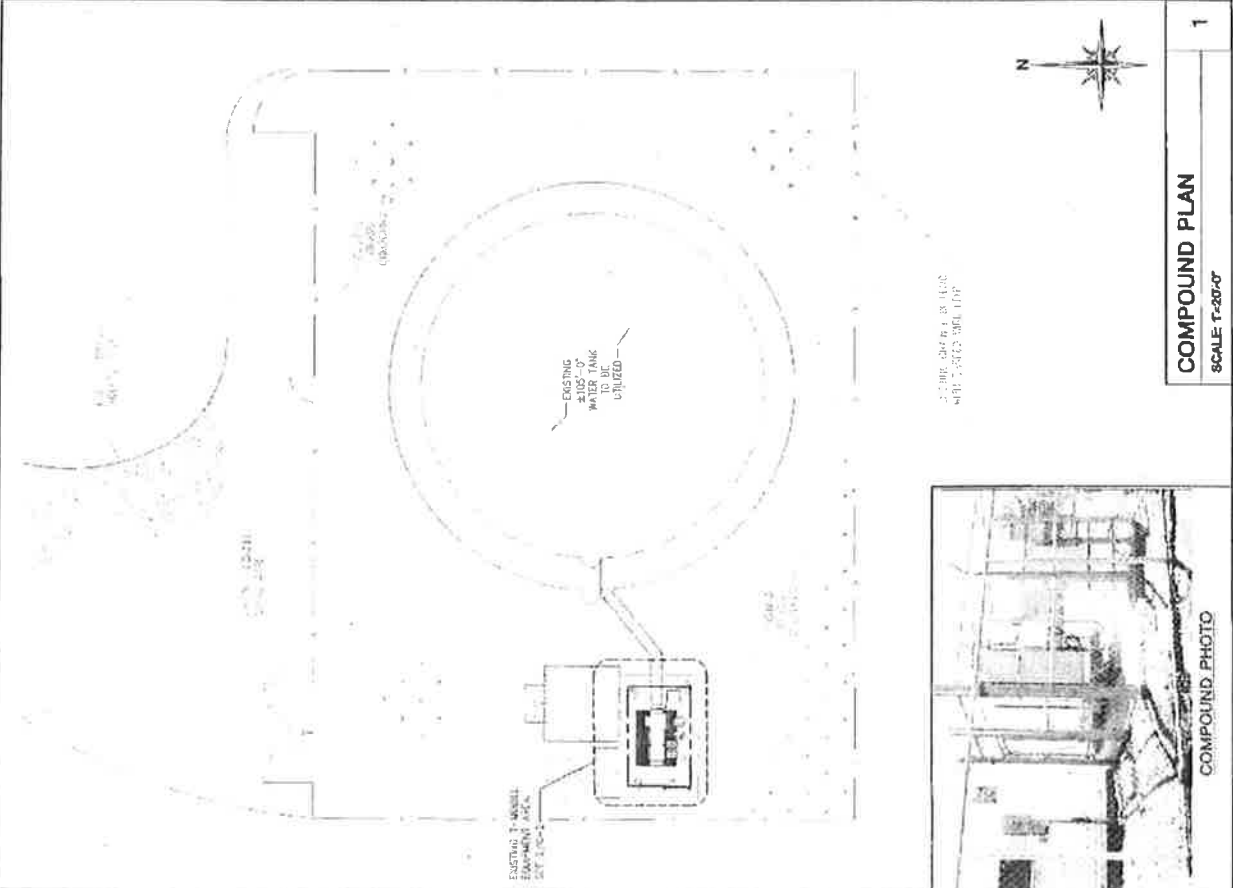
COMPONENT  
 & EQUIPMENT  
 PLANS

SHEET NUMBER  
 C-2

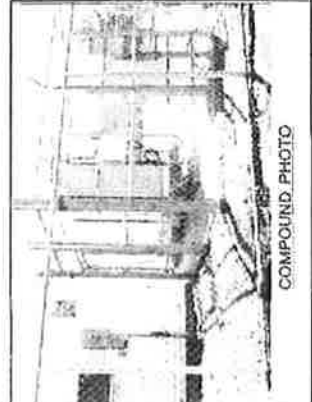
PROJECT: WT-MCKNIGHT



EQUIPMENT PLAN  
 SCALE: 1/8" = 1'-0"



COMPOUND PLAN  
 SCALE: 1/8" = 1'-0"



DATE	DESCRIPTION	BY	CHKD
10/15/15	PER CONSTRUCTION	J. BROWN	
10/15/15	REVISIONS	J. BROWN	
10/15/15	BY/ISSUED	J. BROWN	

SITE INFORMATION:

STPL  
WT-MCKNIGHT  
A1N0030A

3030 W. MCKNIGHT ROAD  
DENVER, CO 80202  
E-MAIL: J. BROWN@W-T.COM

SHEET TITLE:  
**TOWER ELEVATION**

SHEET NUMBER:  
**A-1**

AS PER SHEET WT-MCKNIGHT

**NOTE:** AN ANTENNA MOUNT ANALYSIS HAS BEEN COMPLETED BY W-T COMMUNICATION DESIGN GROUP, LLC ON FEBRUARY 11, 2014 SEE SHEET 1001.

**NOTE:** AS TOWER STRUCTURAL EVALUATION HAS BEEN COMPLETED BY W-T COMMUNICATION DESIGN GROUP, LLC ON FEBRUARY 12, 2014, THE LOCATION SHOWN BY THE STRUCTURAL ANALYSIS SHOULD SUPERSEDE THESE DRAWINGS.

**NOTE:** CONTRACTOR TO VERIFY ALL HEIGHTS AND AZIMUTHS IN FIELD AND REPORT TO W-T COMMUNICATION DESIGN GROUP, LLC. CONTRACTOR SHALL NOTIFY T-MOBILE AND ENGINEERING FIRM OF ANY DISCREPANCIES BEFORE PROCEEDING.

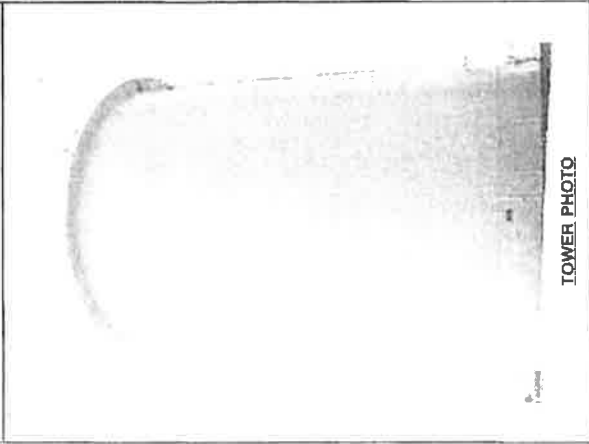
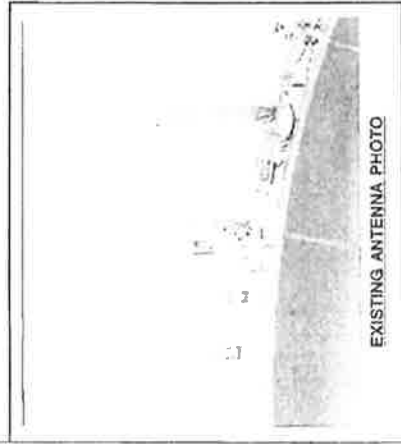
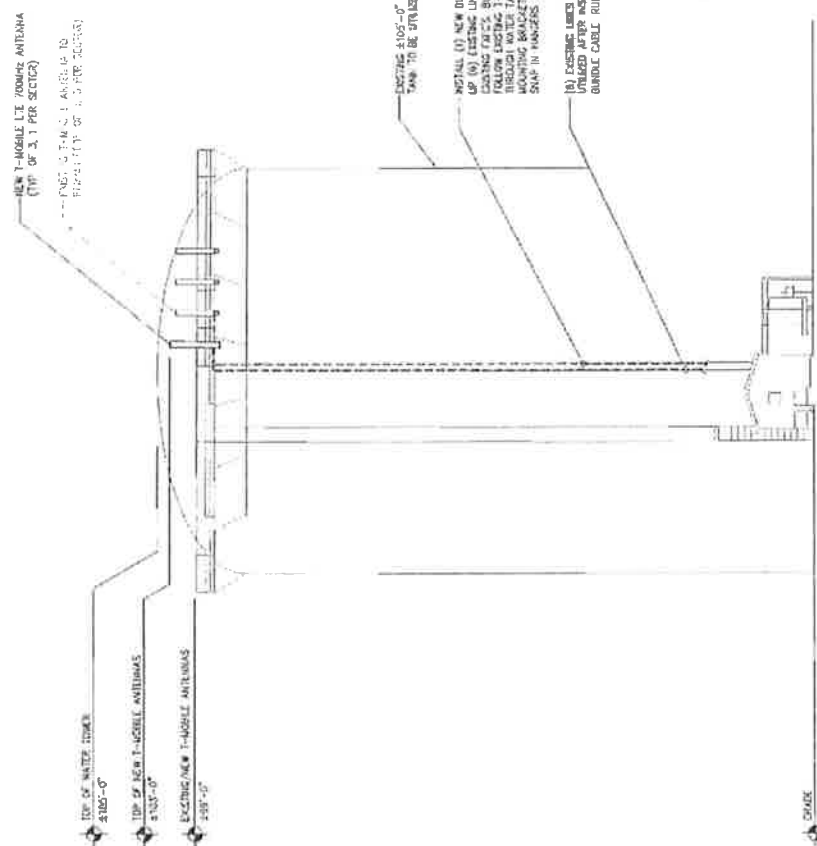
**NOTE:** CONTRACTOR TO USE PROPER TORQUE WRENCH WHEN INSTALLING AND TIGHTENING CONNECTORS TO INSURE PROPER TORQUE.

**NOTE:** CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING FINAL OF ALL CONNECTIONS AND REPORTING TO W-T COMMUNICATION DESIGN GROUP, LLC WITH ANY DISCREPANCIES.

**NOTE:** CONTRACTOR SHALL VERIFY ALL FINAL CONNECTION LOCATIONS WITH T-MOBILE ENGINEER, RF ENGINEER, AND NET-OFS PRIOR TO INSTALLATION.

**NOTE:** CONTRACTOR SHALL PAINT ALL NEW COAX AND MOUNTING HARDWARE WITH AN ANTI-RUST PAINT. ALL ANTENNAS SHALL BE SHOP PAINTED TO MATCH EXISTING TOWER.

**NOTE:** (1) NEW PIPE MOUNT TO BE INSTALLED (TYP PER SECTION) SEE SEE SHEETS.



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

1

DATE: 02/15/2014  
DRAWN BY: J. GARDNER  
CHECKED BY: J. GARDNER  
PROJECT: STPL WT-MCKNIGHT A1N0030A

NO.	DATE	DESCRIPTION	BY
1	02/15/2014	ISSUED FOR PERMIT	JG
2	02/15/2014	ISSUED FOR PERMIT	JG
3	02/15/2014	ISSUED FOR PERMIT	JG
4	02/15/2014	ISSUED FOR PERMIT	JG
5	02/15/2014	ISSUED FOR PERMIT	JG

**NOTE:** AN ANTENNA MOUNT ANALYSIS HAS BEEN COMPLETED BY W.T. COMMUNICATION DESIGN GROUP, LLC ON FEBRUARY 11, 2014. SEE SET OF SHEETS.

**NOTE:** UNDER STRUCTURAL EVALUATION HAS BEEN COMPLETED BY T.M. ENGINEERING, INC. IN THE STRUCTURAL ANALYSIS SHEETS SUPERSEDE THESE DRAWINGS.

**NOTE:** ANTENNA SEPARATION OBTAINED FROM T-MOBILE RE DATA COMPLETION SHEET DATED 07/25/14.

**NOTE:** (1) NEW RPL MOUNT TO BE INSTALLED (TYP. PER SECTION) SEE SET SHEETS.

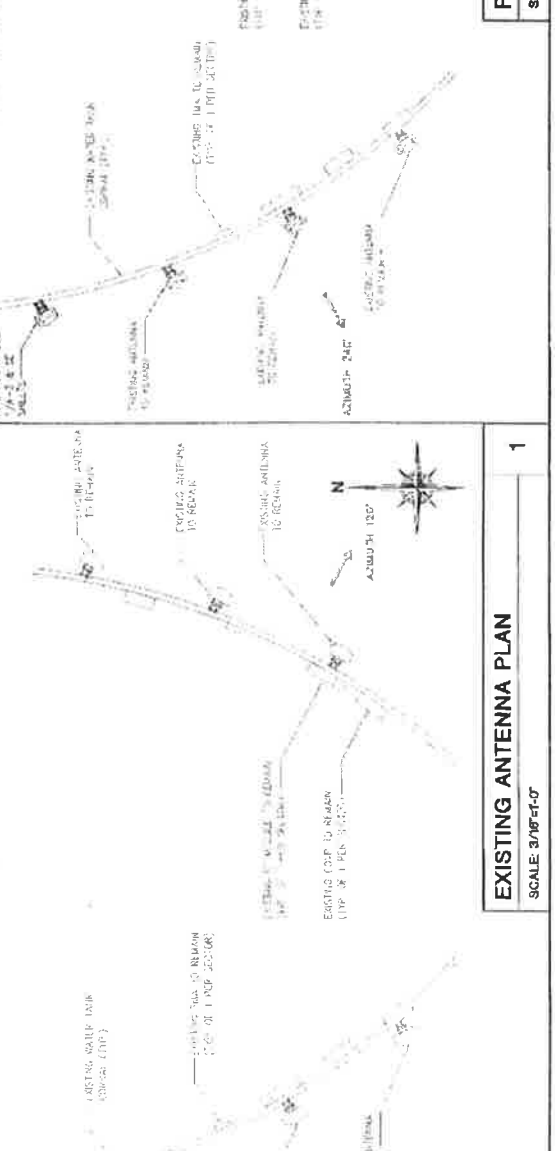
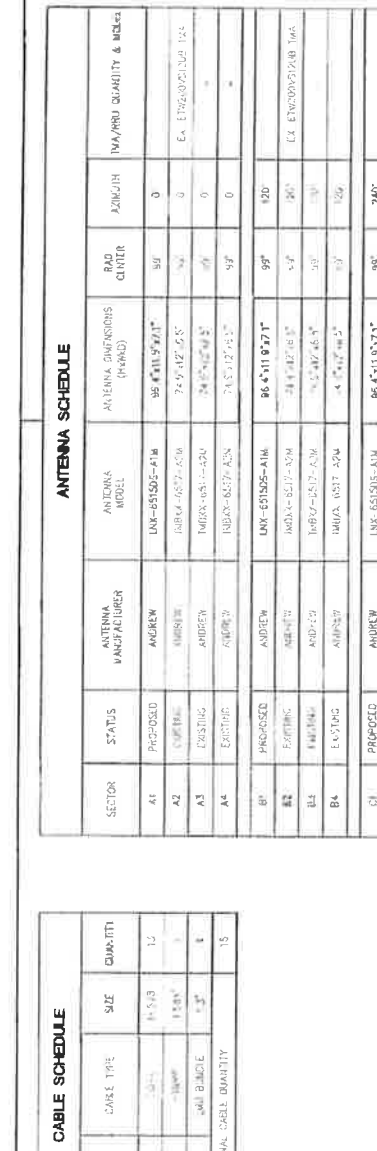
**NOTE:** CONTRACTOR SHALL PART ALL NEW COAS AND MOUNTING IMAGINE TO MATCH EXISTING TANK. ALL NEW ANTENNAS SHALL BE SHIP-FRANCED TO MATCH EXISTING TANK.

**ANTENNA SCHEDULE**

SECTOR	STATUS	ANTENNA MAKE/MODEL	ANTENNA DIMENSIONS (HxWxD)	RAD CENTER	AZIMUTH	TYPER/QUANTITY & WEIGHT
A1	PROPOSED	ANDREW LNK-651205-A1A	95" x 11" x 17" 1"	99°	120	EX. STROUD/2500 10A
A2	EXISTING	ANDREW LNK-651205-A1A	95" x 11" x 17" 1"	99°	120	EX. STROUD/2500 10A
A3	EXISTING	ANDREW LNK-651205-A1A	95" x 11" x 17" 1"	99°	120	EX. STROUD/2500 10A
A4	EXISTING	ANDREW LNK-651205-A1A	95" x 11" x 17" 1"	99°	120	EX. STROUD/2500 10A
B1	PROPOSED	ANDREW LNK-651205-A1A	95" x 11" x 17" 1"	99°	120	EX. STROUD/2500 10A
B2	EXISTING	ANDREW LNK-651205-A1A	95" x 11" x 17" 1"	99°	120	EX. STROUD/2500 10A
B3	EXISTING	ANDREW LNK-651205-A1A	95" x 11" x 17" 1"	99°	120	EX. STROUD/2500 10A
B4	EXISTING	ANDREW LNK-651205-A1A	95" x 11" x 17" 1"	99°	120	EX. STROUD/2500 10A
C1	PROPOSED	ANDREW LNK-651205-A1A	95" x 11" x 17" 1"	99°	240	EX. STROUD/2500 10A
C2	EXISTING	ANDREW LNK-651205-A1A	95" x 11" x 17" 1"	99°	240	EX. STROUD/2500 10A
C3	EXISTING	ANDREW LNK-651205-A1A	95" x 11" x 17" 1"	99°	240	EX. STROUD/2500 10A
C4	EXISTING	ANDREW LNK-651205-A1A	95" x 11" x 17" 1"	99°	240	EX. STROUD/2500 10A

**CABLE SCHEDULE**

STATUS	CABLE TYPE	SIZE	QUANTITY
PROPOSED	1/2" BUNDE	1/2"	1
PROPOSED	1/4" BUNDE	1/4"	1
PROPOSED	1/8" BUNDE	1/8"	1



**PROPOSED ANTENNA PLAN**  
SCALE: 3/16"=1'-0"

**EXISTING ANTENNA PLAN**  
SCALE: 3/16"=1'-0"

DATE: 4/15/15  
PROJECT: 15041-1-0000  
DRAWN BY: [Signature]  
CHECKED BY: [Signature]

DATE	DESCRIPTION	BY
04/15/15	ISSUE FOR PERMIT	[Signature]
04/15/15	ISSUE FOR PERMIT	[Signature]
04/15/15	ISSUE FOR PERMIT	[Signature]
04/15/15	ISSUE FOR PERMIT	[Signature]

DATE	DESCRIPTION	BY
04/15/15	ISSUE FOR PERMIT	[Signature]
04/15/15	ISSUE FOR PERMIT	[Signature]
04/15/15	ISSUE FOR PERMIT	[Signature]
04/15/15	ISSUE FOR PERMIT	[Signature]

**WT-MCKNIGHT**  
A1 N0030A  
395 N. MCKENNEY ROAD  
SAINT PAUL, MISSOURI 63104  
ST. LOUIS, MISSOURI 63104

**ANTENNA MOUNTING DETAILS**

SHEET NUMBER: **A-3**  
POST SCALE: 1" = 8'-0"

**Capacity**

Capacity: 15.75 sectors

Capacity: 15.75 sectors

Capacity: 15.75 sectors

Capacity: 15.75 sectors


**Dimensions**

15.75 sectors

15.75 sectors

15.75 sectors

15.75 sectors




**FRLB DETAIL**  
SCALE: NONE


**ANDREW ANTENNA**  
**LNx-6515DS-A1M**

DIMENSIONS (INCHES): 96.4" x 11.9" x 7.1"

ANTENNA WEIGHT: 50.3 lbs




**SIDE VIEW**



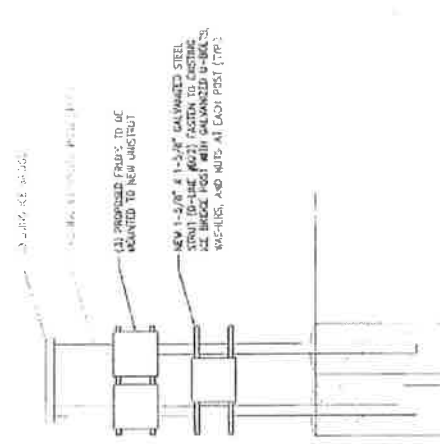
**FRONT VIEW**

**ANTENNA DETAIL**  
SCALE: NONE

**New baseband sub-module FBBC**



**FBBC SUB-MODULE DETAIL**  
SCALE: NONE



NEW 1-1/2" x 1-1/2" GALVANIZED STEEL ATTACHMENT POST (TP)  
NEW 1-1/2" x 1-1/2" GALVANIZED STEEL ATTACHMENT POST (TP)  
NEW 1-1/2" x 1-1/2" GALVANIZED STEEL ATTACHMENT POST (TP)  
NEW 1-1/2" x 1-1/2" GALVANIZED STEEL ATTACHMENT POST (TP)

**FRLB ATTACHMENT DETAIL**  
SCALE: NONE

DATE: 3/15/15  
PROJECT: 1500 N. McCaught Road - 150030A  
SHEET: 2 OF 4

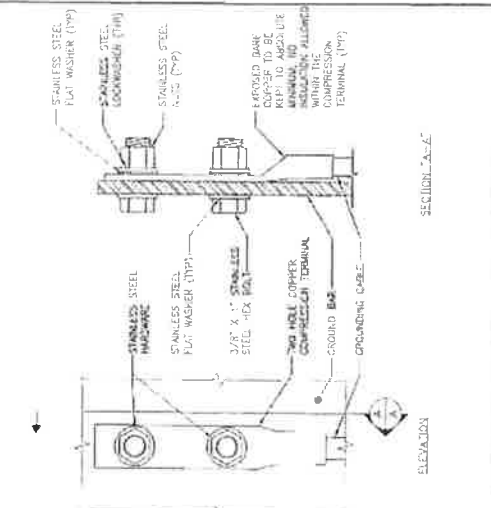
*Signature*

DATE: 3/15/15

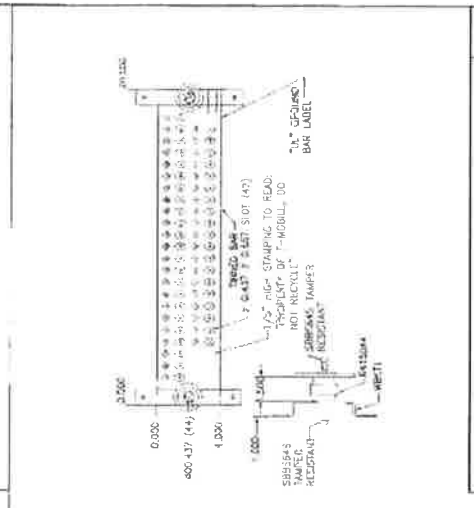
NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMIT	3/15/15
2	ISSUED FOR CONSTRUCTION	4/15/15
3	ISSUED FOR AS-BUILT	5/15/15

WT-MCKNIGHT  
A1N0030A  
1500 N. McCAUGHT ROAD  
SAINT PAUL, MN 55119

GROUNDING DETAILS  
SHEET NUMBER: GR-1  
SHEET TITLE: PLAT SCALE: 1:1 @ 11/27



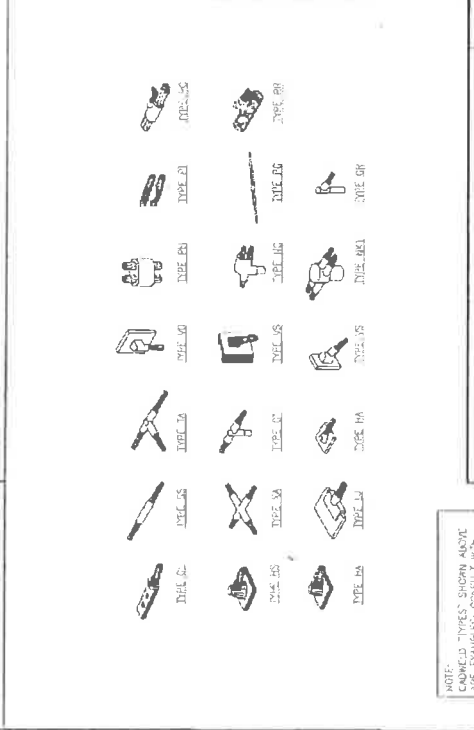
**ANTENNA GROUNDING DIAGRAM**  
SCALE: NONE



**GROUND BAR**  
SCALE: NONE



**ANTENNA GROUNDING DIAGRAM**  
SCALE: NONE



**CADWELD CONNECTIONS**  
SCALE: NONE

- NOTES:**
- ALL ELECTRICAL WORK SHALL conform TO THE NATIONAL ELECTRICAL CODE (NEC) (EDITION APPROVED BY LOCAL JURISDICTION) AND APPLICABLE LOCAL CODES.
  - GROUNDING SHALL comply WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
  - ALL ELECTRICAL WIRING SHALL BE UL APPROVED OR LISTED.
  - WIRE AND CABLES FOR POWER SHALL BE LISTED AND SHALL BE COMPATIBLE WITH THE TYPE AND RATING OF THE EQUIPMENT AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
  - WIRE AND CABLES FOR SIGNAL SHALL BE LISTED AND SHALL BE COMPATIBLE WITH THE TYPE AND RATING OF THE EQUIPMENT AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
  - CONDUCTOR TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
  - CONTRACTOR TO OBTAIN ALL PERMITS THAT APPLY TO THIS PROJECT AND BE RESPONSIBLE FOR OBTAINING THEM.
  - CONTRACTOR TO OBTAIN ALL PERMITS THAT APPLY TO THIS PROJECT AND BE RESPONSIBLE FOR OBTAINING THEM.
  - CONTRACTOR TO OBTAIN ALL PERMITS THAT APPLY TO THIS PROJECT AND BE RESPONSIBLE FOR OBTAINING THEM.
  - CONTRACTOR TO OBTAIN ALL PERMITS THAT APPLY TO THIS PROJECT AND BE RESPONSIBLE FOR OBTAINING THEM.
  - CONTRACTOR TO OBTAIN ALL PERMITS THAT APPLY TO THIS PROJECT AND BE RESPONSIBLE FOR OBTAINING THEM.
  - CONTRACTOR TO OBTAIN ALL PERMITS THAT APPLY TO THIS PROJECT AND BE RESPONSIBLE FOR OBTAINING THEM.
  - CONTRACTOR TO OBTAIN ALL PERMITS THAT APPLY TO THIS PROJECT AND BE RESPONSIBLE FOR OBTAINING THEM.
  - CONTRACTOR TO OBTAIN ALL PERMITS THAT APPLY TO THIS PROJECT AND BE RESPONSIBLE FOR OBTAINING THEM.
  - CONTRACTOR TO OBTAIN ALL PERMITS THAT APPLY TO THIS PROJECT AND BE RESPONSIBLE FOR OBTAINING THEM.

- GROUNDING SHALL conform TO THE NATIONAL ELECTRICAL CODE (NEC) (EDITION APPROVED BY LOCAL JURISDICTION) AND APPLICABLE LOCAL CODES.
- GROUNDING SHALL comply WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
- ALL ELECTRICAL WIRING SHALL BE UL APPROVED OR LISTED.
- WIRE AND CABLES FOR POWER SHALL BE LISTED AND SHALL BE COMPATIBLE WITH THE TYPE AND RATING OF THE EQUIPMENT AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- WIRE AND CABLES FOR SIGNAL SHALL BE LISTED AND SHALL BE COMPATIBLE WITH THE TYPE AND RATING OF THE EQUIPMENT AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- CONDUCTOR TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- CONTRACTOR TO OBTAIN ALL PERMITS THAT APPLY TO THIS PROJECT AND BE RESPONSIBLE FOR OBTAINING THEM.
- CONTRACTOR TO OBTAIN ALL PERMITS THAT APPLY TO THIS PROJECT AND BE RESPONSIBLE FOR OBTAINING THEM.
- CONTRACTOR TO OBTAIN ALL PERMITS THAT APPLY TO THIS PROJECT AND BE RESPONSIBLE FOR OBTAINING THEM.
- CONTRACTOR TO OBTAIN ALL PERMITS THAT APPLY TO THIS PROJECT AND BE RESPONSIBLE FOR OBTAINING THEM.
- CONTRACTOR TO OBTAIN ALL PERMITS THAT APPLY TO THIS PROJECT AND BE RESPONSIBLE FOR OBTAINING THEM.
- CONTRACTOR TO OBTAIN ALL PERMITS THAT APPLY TO THIS PROJECT AND BE RESPONSIBLE FOR OBTAINING THEM.
- CONTRACTOR TO OBTAIN ALL PERMITS THAT APPLY TO THIS PROJECT AND BE RESPONSIBLE FOR OBTAINING THEM.
- CONTRACTOR TO OBTAIN ALL PERMITS THAT APPLY TO THIS PROJECT AND BE RESPONSIBLE FOR OBTAINING THEM.
- CONTRACTOR TO OBTAIN ALL PERMITS THAT APPLY TO THIS PROJECT AND BE RESPONSIBLE FOR OBTAINING THEM.

NOTE: CADWELD TYPES SHOWN ABOVE ARE EXAMPLES ONLY. OTHER TYPES OF CADWELDS TO BE USED FOR THIS PROJECT.



**T-Mobile**  
stick together™

800.981.1811  
1-800-981-1811  
3101 W. 15th St., Suite 200  
Minneapolis, MN 55425

**WT**  
W-T COMMUNICATIONS  
DESIGN GROUP LLC  
COMMERCIAL

DESIGNED BY: *[Signature]*

**DATE:** 11/27/2014  
**BY:** 3/15/15

DATE:	11/27/2014	
BY:	3/15/15	
PROJECT:	WT-MCKNIGHT	
DESCRIPTION:	SEE DRAWING	
REVISION:		
NO.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

**WT-MCKNIGHT**  
**A1N0030A**

393 N. MCKNIGHT ROAD  
SAINT PAUL, MN 55119

**SHEET TITLE:** SEH  
**REQUIREMENTS & GENERAL GUIDELINES**

**SHEET NUMBER:** SP-1

PLATE SCALE: 1" = 8' 11/16"

**SEH WATER TANK CLEANING AND PAINTING REQUIREMENTS**

- COMPONENT NAMES**
- INTERIOR EXPOSED FIBROUS METAL AND GALVANIZED STEEL
    - PRIMER: SHERWIN WILLIAMS MICROPORT 640 OR THERMOC SEERIES 181
    - DRY FILM THICKNESS: 3.0-6.0 MILS (PER COAT)
    - COLOR: BY OWNER
  - EXTERIOR EXPOSED FIBROUS METAL AND GALVANIZED STEEL:
    - PRIMER: SHERWIN WILLIAMS MICROPORT 640 OR THERMOC SEERIES 181 OR 648
    - DRY FILM THICKNESS: 4.0-8.0 MILS
    - FINISH: BY OWNER
    - DRY FILM THICKNESS: 4.0-8.0 MILS
    - FINISH: BY OWNER
  - FIBERS: SHERWIN WILLIAMS ACTIOLON 214 OR FIBRACE SERIES 10146/10170
    - NUMBER OF COATS: 2
    - DRY FILM THICKNESS: 2.0-3.2 MILS
    - COLOR: BY OWNER
  - ANTIRUST COATERS
    - PRIMER: SHERWIN WILLIAMS MICRO-PORT PHASE 1
    - DRY FILM THICKNESS: 3.0-4.0 MILS
    - FINISH: SHERWIN WILLIAMS SHEL-OPT 104
    - NUMBER OF COATS: 2
    - DRY FILM THICKNESS: 2.0-3.2 MILS
    - COLOR: BY OWNER
  - COATING LABEL
    - PRIMER: 4-1-B 1:1:0
    - NUMBER OF COATS: ONE
    - DRY FILM THICKNESS: 2.0 MILS
    - FINISH: SHERWIN WILLIAMS SHEL-OPT 104
    - NUMBER OF COATS: ONE
    - DRY FILM THICKNESS: 2.0-4.0 MILS
    - COAT ON BY OWNER
- REPAIR THE DAMAGE BY ONE OF THE FOLLOWING METHODS AS SELECTED BY THE FINISHER**
- ABRASIVE-BLAST TO SSPC-SP1
  - MECHANICALLY CLEAN TO SSPC-SP4
  - FEATHER EDGES TO PROVIDE SMOOTH EDGING TRANSITION
  - APPLY PRIME COAT TO WIRE METAL SURFACE
  - WIPER OFF IRREGULAR AREA AROUND PRIME COAT
  - APPLY FINISH COAT
- QUALITY CONTROL**
- WALKOUT DRY FILM THICKNESS WITH A MAGNETIC FILM THICKNESS GAGE IN ACCORDANCE WITH SSPC-PA2
  - VISUALLY INSPECT DRY FILM FOR PITS, SAND, DIRT SPRAYS, OVERSPRAY, ENCLOSED PARTICLES AND MISSED AREAS
  - REPAIR DEFECTIVE OR DAMAGED AREAS IN ACCORDANCE WITH SPECIFICATIONS 3.03, 3.04, AND 3.04

**SEH GENERAL GUIDELINES**

- ATTACHMENTS**
- ANYTHING ATTACHED TO THE STRUCTURE REQUIRES A SEPARATE DETAIL IDENTIFYING THE METHOD OF ATTACHMENT, COMPONENTS TO BE USED, AND LOCATION OF ATTACHMENT
- COORDINATION**
- IDENTIFICATION, NUMBER OF EACH COMPONENT, QUALITY FOR EACH COMPONENT, LOCATION OF COMPONENTS
  - COORDINATION MUST BE OBTAINED PRIOR TO THEIR IMPACT ON THE COILING SYSTEM AND THE OVERALL STRUCTURE. EXISTING INFORMATION SHOULD BE USED WHENEVER POSSIBLE.
  - SEPARATE DETAIL AND INSTALLATION DRAWINGS FOR EACH COMPONENT SHALL BE PROVIDED TO THE CONTRACTOR'S GENERAL CONTRACTOR.
- ACCESS**
- TELEPHONIC AND VISUAL SURVEYS MUST TAKE PLACE PRIOR TO ARRIVAL ON SITE. THIS NOTICE APPLIES TO ALL SITE VISITS PRIOR TO THE START OF CONSTRUCTION, AS DETERMINED BY THE CONTRACTOR'S SUPPLIER. SCHEDULE.
  - AFTER APPROPRIATE WRITTEN NOTICE OF CONSTRUCTION, CONTRACTOR/TELEPHONIC SHALL NOTIFY THE OWNER WITH CURRENT STATUS OF ACTIVITY THROUGHOUT THE COURSE OF THE PROJECT.
- FINAL DRAWINGS**
- FINAL DRAWINGS SHALL BE PROVIDED TO THE OWNER WITHIN 14 DAYS OF THE DATE OF THE PROJECT'S COMPLETION. ALL AS-BUILT INFORMATION SHALL BE PROVIDED TO THE OWNER WITHIN 14 DAYS OF THE PROJECT'S COMPLETION.
  - REPAIR FACILITIES SHALL BE IDENTIFIED AND MARKED PRIOR TO THE START OF CONSTRUCTION.
  - REPAIR FACILITIES SHALL BE IDENTIFIED AND MARKED PRIOR TO THE START OF CONSTRUCTION.
  - REPAIR FACILITIES SHALL BE IDENTIFIED AND MARKED PRIOR TO THE START OF CONSTRUCTION.
  - REPAIR FACILITIES SHALL BE IDENTIFIED AND MARKED PRIOR TO THE START OF CONSTRUCTION.
- INSTALLATION OF COMPONENTS**
- INSTALLATION OF COMPONENTS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
  - INSTALLATION OF COMPONENTS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
  - INSTALLATION OF COMPONENTS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
  - INSTALLATION OF COMPONENTS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

**GENERAL SUMMARY**

A. SECTION INCLUDES PAINTING AND PAINTING RELATED WORK ASSOCIATED WITH THE INSTALLATION OF ANTIRUST COATERS, COILING CABLES, AND OTHER COMMON COMPONENTS WITH DIRECT ATTACHMENT TO WATER TANK FACILITIES.

**INCLUDES:**

- SECTION 1:00 PAINTING (SPCC-PRIME/SEER/ACTIOLON)
- SECTION 2:00 SYSTEMS AND SPECIFICATIONS
- SECTION 3:00 MATERIALS

**EXCLUSIONS:**

- SECTION 1:00 PAINTING (SPCC-PRIME/SEER/ACTIOLON)
- SECTION 2:00 SYSTEMS AND SPECIFICATIONS
- SECTION 3:00 MATERIALS

**NOTES:**

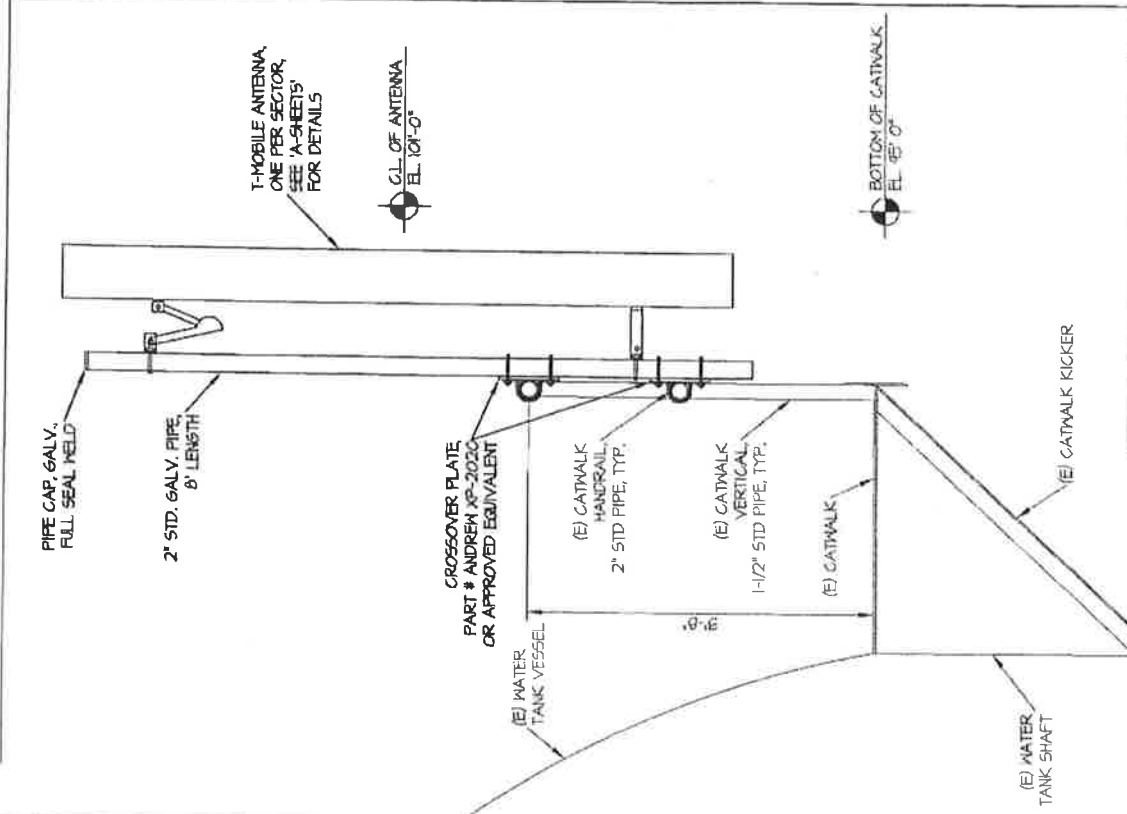
- SECTION 1:00 PAINTING (SPCC-PRIME/SEER/ACTIOLON)
- SECTION 2:00 SYSTEMS AND SPECIFICATIONS
- SECTION 3:00 MATERIALS

NO.	DATE	DESCRIPTION
1	11/11/14	ISSUED FOR PERMIT
2	11/11/14	ISSUED FOR PERMIT
3	11/11/14	ISSUED FOR PERMIT
4	11/11/14	ISSUED FOR PERMIT
5	11/11/14	ISSUED FOR PERMIT
6	11/11/14	ISSUED FOR PERMIT
7	11/11/14	ISSUED FOR PERMIT
8	11/11/14	ISSUED FOR PERMIT
9	11/11/14	ISSUED FOR PERMIT
10	11/11/14	ISSUED FOR PERMIT
11	11/11/14	ISSUED FOR PERMIT
12	11/11/14	ISSUED FOR PERMIT
13	11/11/14	ISSUED FOR PERMIT
14	11/11/14	ISSUED FOR PERMIT
15	11/11/14	ISSUED FOR PERMIT
16	11/11/14	ISSUED FOR PERMIT
17	11/11/14	ISSUED FOR PERMIT
18	11/11/14	ISSUED FOR PERMIT
19	11/11/14	ISSUED FOR PERMIT
20	11/11/14	ISSUED FOR PERMIT

STPL  
WT-MCKNIGHT  
A1N0030A

WATER TANK  
PLAN & ANTENNA  
MOUNT DETAIL

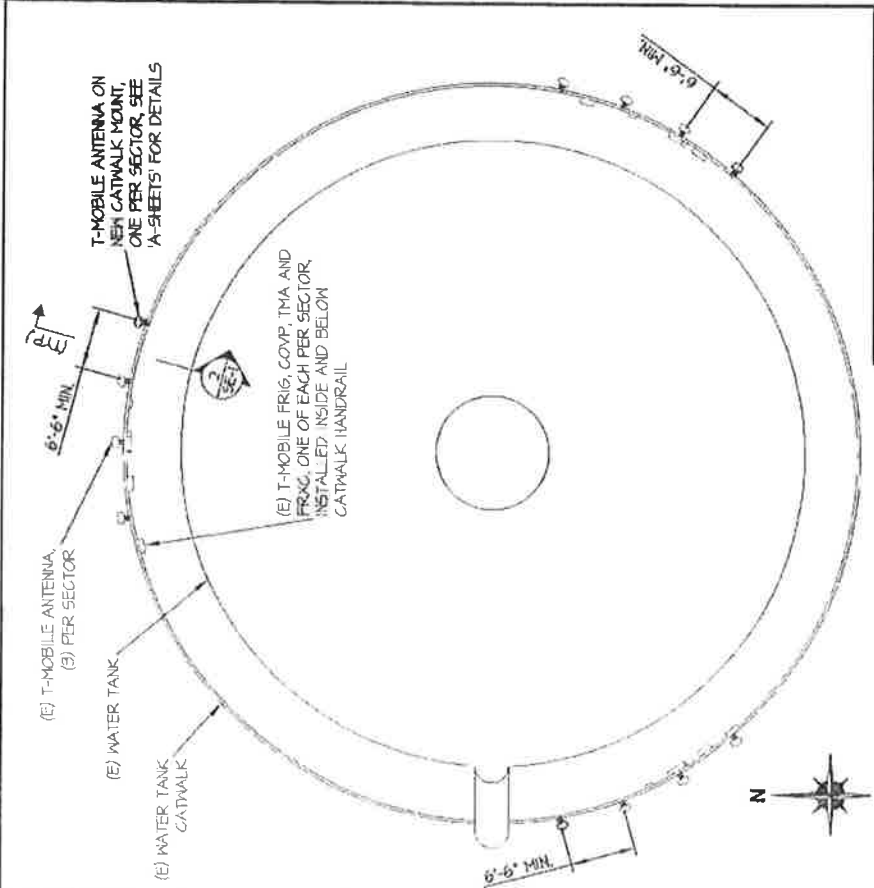
SHEET NUMBER:  
SE-1



ANTENNA MOUNT DETAIL (TYP.)  
SCALE: 3/4" = 1'-0"  
2

**NOTES:**

1. ALL EXISTING DIMENSIONS AND CONDITIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION AND INSTALLATION. IF SIGNIFICANT DEVIATIONS OR DETERIORATION ARE ENCOUNTERED AT THE TIME OF CONSTRUCTION, A REPAIR PERMIT WILL BE OBTAINED AND CONTRACTOR SHALL NOTIFY STRUCTURAL ENGINEER IMMEDIATELY.
2. W-T COMMUNICATION DESIGN GROUP, LLC PERFORMED A WATER TANK MAPPING ON 4-23-2014. IT WAS PROPOSED TO ADD THE ANTENNAS ON THE EXISTING WATER TANK SHAFT. THE WATER TANK APPEARED TO BE IN GOOD CONDITION.
3. DO NOT SCALE DRAWINGS



WATER TANK PLAN  
SCALE: 1/8" = 1'-0"  
1

**GENERAL STRUCTURAL NOTES**

**1.0 GENERAL CONDITIONS**

- 1.1 DESIGN AND CONSTRUCTION OF WORK SHALL CONFORM TO MINNESOTA STATE BUILDING CODE 2007 (INTERNATIONAL BUILDING CODE 2006), ACT 518-06, AISC/AISC 15TH EDITION, ASCE 7-05, TIA/EIA-222-F, ANNA DICO-05 STANDARDS. IN CASE OF CONFLICT BETWEEN THE CODES, STANDARDS, REGULATIONS, SPECIFICATIONS, GENERAL NOTES AND/OR MANUFACTURER'S REQUIREMENTS USE THE MOST STRINGENT PROVISION.
- 1.2 IT IS THE EXPRESS INTENT OF THE PARTIES INVOLVED IN THIS PROJECT THAT THE CONTRACTOR OR SUBCONTRACTOR OR INDEPENDENT CONTRACTOR OR THEIR RESPECTIVE EMPLOYEES SHALL EXCULPATE THE ARCHITECT, THE ENGINEER, THE CONSTRUCTION MANAGER, THE OWNER, AND THEIR AGENTS, FROM ANY LIABILITY WHATSOEVER AND HOLD THEM HARMLESS AGAINST LOSS, DAMAGES, LIABILITY OR ANY EXPENSE ARISING IN ANY MANNER FROM THE NEGLIGENCE OR NEGLIGENT ACT, OR FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, OR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OR FAILURE TO CONFORM TO THE STATE SCAFFOLDING ACT IN CONNECTION WITH THE WORK.
- 1.3 CONTRACTOR SHALL AT ALL TIMES PROTECT EXISTING BUILDING STRUCTURE, EQUIPMENT, FINISHINGS AND ETC., WHILE PERFORMING THE WORK.
- 1.4 CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL AT ALL TIMES BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTIONAL MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES AND SAFETY (INCLUDING OSHA REGULATIONS).
- 1.5 ALL NEW STEEL MEMBERS & COMPONENTS SHALL BE HOT DIPPED GALVANIZED PER ASTM 123, UNLESS SPECIFIED OTHERWISE.
- 1.6 DO NOT SCALE DRAWINGS.
- 1.7 VERIFY ALL EQUIPMENT MOUNTING DIMENSIONS PER MANUFACTURER DRAWINGS.
- 1.8 SUBMIT ONE COPY OF ALL STRUCTURAL SHOP DRAWINGS FOR REVIEW.
- 1.9 DESIGN LOADS ARE:
  - A. ANTENNA LOAD
    - (3) PROPOSED ANDREX LIX-695D5-A1H (46.4'x11.0'x11.0') ..... 50.3 LBS
    - (4) EXISTING ANDREX TMBXX-651T-A2M (14.9'x12.0'x16.5') ..... 49.4 LBS
    - (3) EXISTING FRIG (20.0'x15.23'x16.5'x5.0') ..... 57.2 LBS
    - (3) EXISTING EXFC (22.0'x14.13'x16.5'x5.0') ..... 55.0 LBS
    - (3) EXISTING COVP (20.22'x18.26'x11.0') ..... 20.0 LBS
    - (3) EXISTING ANDREX ETNCOV512B TMA (6.3'x17.1'x16.3') ..... 11.0 LBS
  - B. WIND LOAD
    - WIND LOAD ON ANTENNA MOUNTS PER TIA/EIA-222-F, 80 MPH (FASTEST-MILE)
    - WIND LOAD ON ANTENNA MOUNTS PER TIA/EIA-222-F W 0.75' ICE, 37.82 MPH (FASTEST-MILE)

**3.0 STEEL NOTES**

- 3.1 MEET OR EXCEED THE FOLLOWING CODES & STANDARDS EXCEPT AS NOTED:
  - A. STRUCTURAL STEEL.....AISC SPECIFICATION ALLOWABLE STRESS DESIGN, 15TH EDITION
  - SHAPES.....ASTM A992 - 50KSI
  - PLATES AND PLATES.....ASTM A36
  - PLATES BENT OR COLD FORMED.....ASTM A 283, GRADE C
  - PIPES.....ASTM A 53, Fy = 35 KSI
  - TUBES.....ASTM A 500, Fy = 46 KSI
  - STRUCTURAL SHEETS, HOT ROLLED.....ASTM A 570
  - COLD-FORMED STEEL TUBING.....ASTM A 500, GRADE B
  - BOLTS, NUTS & WASHERS FOR FRAMING MEMBERS AND BRACINGS.....ASTM A 325-X
  - BOLTS, NUTS & WASHERS FOR ANCHOR BOLTS AND SECONDARY CONNECTIONS.....ASTM A 307
  - WELDS.....AWS E 70XX
- 3.2 REGARDING OWNERS AND FABRICATOR'S RESPONSIBILITY FOR CONNECTION DESIGN AND ADEQUACY OF SHOP DRAWINGS, COMPLIANCE WITH THE REQUIREMENTS SHOWN ON DRAWINGS AND/OR SPECIFICATIONS, CONNECTION DESIGN AND DETAILING IS THE CONTRACTOR'S RESPONSIBILITY. ENGINEER'S REVIEW OF SHOP DRAWINGS IS FOR GENERAL CONSIDERATIONS ONLY AND DOES NOT CONSTITUTE AN ACCEPTANCE OF THESE RESPONSIBILITY BY THE OWNER AND/OR ENGINEER.
- 3.3 PAINT NEW STEEL MEMBERS TO MATCH COLOR OF EXISTING WATER TANK.
- 3.4 EXISTING STEEL SHAPES, Fy = 36KSI

**4.0 SEAL NOTES**

- 4.1 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.
- 4.2 PROPOSED ANTENNAS AND NEW ANTENNA MOUNTING PIPES INSTALLED ON THE EXTERIOR OF THE WATER TOWER SHALL BE SHOP PAINTED TO MATCH THE COLOR OF THE WATER TOWER (VERIFY COLOR).
- 4.3 NEW PIPE MASTS ARE TO HAVE WELDED END CAPS, EXISTING PIPE MASTS (IF NOT CAPPED) ARE TO BE CAPPED AT BOTH ENDS WITH WHITE RUBBER CAPS.
- 4.4 CONTRACTOR TO TOUCH UP PAINTING ON EXISTING ANTENNAS, SPOT REPAIRS MADE WITH BRUSH AND W/0 FEATHERING, SHOULD BE COMPLETELY ROLLED FOR UNIFORMITY.
- 4.5 CONTRACTOR TO TOUCH UP EXISTING ANTENNA PIPE MASTS, DEPENDING UPON THEIR CONDITION (DAMAGED/FAILED) THE SPRAYS MAY REQUEST REPLACEMENT.

WT Communication Design Group's Commitment to Quality

Please take a few moments to fill out our online survey.

- 4.6 ALL EXPOSED JIMBERS AND CABLES ARE TO BE PROVIDED WITH MANUFACTURED WHITE JACKETING OR TAPED WHITE.
- 4.7 ANY JIMBERS THAT ARE DISCONNECTED DURING THE INSTALLATION WILL NEED TO TAPED WHITE.
- 4.8 ALL MOUNTING HARDWARE IS TO BE GALVANIZED AND/OR PROVIDED IN A NON-CORRODING MATERIAL.
- 4.9 ALL T-MOBILE RF EQUIPMENT IS TO BE TAGGED AND/OR LABELED.

**T-Mobile**  
which began.

800.952.5828  
1-800-952-5828  
© 2012 T-Mobile USA, Inc.

FILES PREPARED BY:

**WT**

W-T COMMUNICATION DESIGN GROUP, LLC  
TELEPHONE INFRASTRUCTURE

280 N. McDONOUGH DR  
SUITE 100  
BART PAUL, MN 55119

PROFESSIONAL ENGINEER

W-T COMMUNICATION DESIGN GROUP, LLC

280 N. McDONOUGH DR  
SUITE 100  
BART PAUL, MN 55119

DATE: 03/11/13  
SCALE: AS SHOWN

DATE	DESCRIPTION	BY	CHK
03/11/13	REV. FOR BID	AM	A
03/11/13	REV. FOR BID	AM	A
03/11/13	REV. FOR BID	AM	A
03/11/13	REV. FOR BID	AM	A
03/11/13	REV. FOR BID	AM	A
03/11/13	REV. FOR BID	AM	A

WT - MCKNIGHT  
A1N0030A

280 N. McDONOUGH DR  
SUITE 100  
BART PAUL, MN 55119

WT COMMUNICATION DESIGN GROUP, LLC

**GENERAL NOTES**

SE-2

**EXHIBIT "E-1"**

**T-Mobile  
A1N0030A  
393 McKnight Road N  
STPL WT-McKnight**

**Antenna Facilities and Frequencies**

**1. Shelter and Shelter Components**

Shelter: Fenced Gravel Compound, 20' x 12'  
Power plant (DC current): 1 cabinet, 240V / 100A / 12 kW  
Battery supply back up: (2) batteries, 880 lbs./513 lbs.  
T-1 switch equipment:  
Commercial switch gear equipment:  
Radio transmitters: (3) Nokia FXFB, (3) Nokia FRIA, (3) FRLB  
Air conditioner: none

**2. Generators: none**

**3. Antennas**

Quantity: (12) Total; (4) per Sector  
Type: Manufacturer: Andrew/Commscope  
Azimuths: 0° / 120° / 240°  
Model: (9) TMBXX-6517-A2M / (3) LNX-6515DS-A1M  
Dimensions: 84" x 12" x 6.5"      96.4" x 11.9" x 7.1"  
Weight: 44.4 lbs. ea.      50.3 lbs. ea.  
Mount Type: Pipe  
Centerline of the antenna: 99' AGL

**4. Coax Cable**

Number of lines: (13) Total (2) Hybrid – See Below  
Type: (13) Andrew LDF7-50A  
Size: 1-5/8"

**5. Tower Mounted Amplifiers (TMAs)**

Quantity: (3) Total; (1) per Sector  
Manufacturer: Andrew  
Model: ETW200VS12UB  
Dimensions: 7.7" x 6.3" x 3.1"  
Weight: 11 lbs. ea.  
Mounting: Pipe

Site # A1N0030A  
Market: Minneapolis

**6. Diplexers**

Quantity: none  
Manufacturer:  
Model:  
Dimensions:  
Weight:  
Mounting:

**7. Remote Radio Heads (RRHs)**

Quantity: (6)  
Manufacturer: Nokia  
Model: (3) FRIG; (3) FXFC  
Dimensions: 16.4" x 6" x 20.1" 22" x 19.3" x 5.2"  
Weight: 57.3 lbs. 55 lbs.  
Mounting: Pipe  
Hybrid Jumper:

**8. Distribution Box (COVP)**

Quantity: (4) Total; (1) Shelter plus (1) per Sector  
Manufacturer: RayCap  
Model: DC4-48-60-8-20F  
Dimensions: 16.1" x 5.8" x 20.4"  
Weight: 17 lbs. ea.

**9. Sector Box**

Quantity: none  
Manufacturer:  
Model:  
Dimensions:  
Weight:

**10. Hybrid Cable**

Type: (1) Nokia Hybrid (1.584" dia.), (1) Commscope; Bundled LMUH (1.3" dia.)  
Number of Lines: (2)  
- From main cabinet to tower-mounted equipment

Site # A1N0030A  
Market: Minneapolis

### 11. Frequencies

Svc	Technology	EIRP (Watts)	Std Frequency	Freq Tx/Start	Freq Tx/Stop	Freq Rx/Start	Freq Rx/Stop
1	GSM	1600		1865	1885	1945	1965
2	UMTS/AWS	1600		1735	1755	2135	2155
3	LTE	1600		1735	1755	2135	2155
4	LTE 700	1600		698	704	728	734

### 12. Proposed Scope of Work

Remove: NA

Replace: NA

Add: (3) Antennas  
(3) RRUs  
(1) Hybrid cables