#2010-46
1100 Coventry Lane (T-Mobile)
Project Review for Planning and Zoning Commission

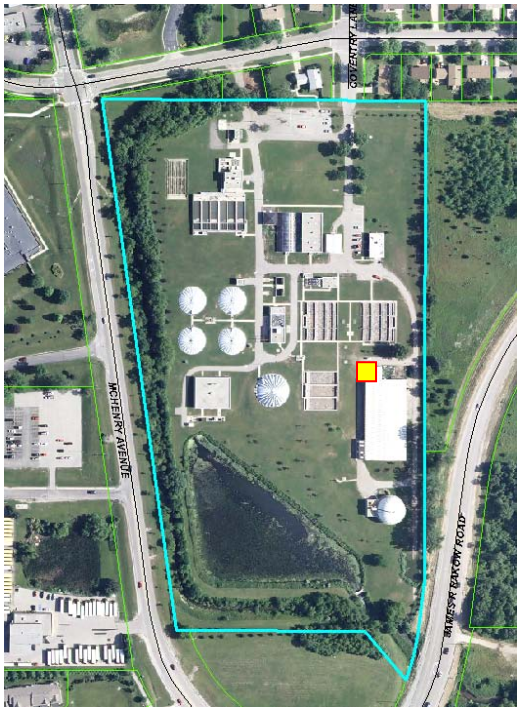
Meeting Date:	August 4, 2010
Zoning Requests:	(i) Land Use Variation to allow a telecommunications tower in the "RE" Residential Estate district; (ii) Special Use Permit for a telecommunications tower; and (iii)Variation from Article 4-800, Exterior Lighting Standards to allow three-1000 watts up lights to illuminate the flag poles.
Location:	1100 Coventry Lane (WWTP 2)
Acreage:	≈ 21.6 acres (site); 484 SF lease site
Existing Zoning:	"RE" Residential Estate
Surrounding Properties:	North: "R-2" Single-family Residential South: "O" Office East: County West: "R-2" Single-family Residential
Staff Contact:	Latika Bhide 815.356.3615

Background:
T-Mobile Central LLC is requesting to install a telecommunications tower at 1100 Coventry Lane. The property is the site of the City's Wastewater Treatment Plant #2 and is zoned "RE" Residential Estate. Prior to the adoption of the Unified Development Ordinance (UDO), telecommunications towers were permitted in any zoning district upon the approval of a Special Use Permit. Following the adoption of the UDO, Wireless Communication Towers are permitted upon the approval of a Special Use Permit in the E, Estate; M-L, Manufacturing Limited and M, Manufacturing districts. The petitioner is requesting a use variation along with a special use permit and variation to allow a telecommunications tower at this location.

Land Use Analysis:
The tower will be generally located on the southeast portion of the site, north of an existing building on-site. T-Mobile is proposing a 139-foot high stealth tower that is in the form of a flag pole and will include a 30' x 60' U.S. flag. The criteria for wireless communication towers that were adopted as part of the UDO permit a maximum height for the tower of up to 200 feet as measured from the tower base to the highest point of the tower and any attached receiving or transmitting device. The

proposed tower will meet this requirement. Monopole towers must be set back from all property lines by a distance of 110 percent of the height of the tower per the criteria in the UDO. The flag pole will meet the setback requirement. The flag pole will have a galvanized finish per the criteria for wireless communication facilities in the UDO. The flag pole is engineered to accommodate 5 levels of antenna, all of which will be concealed. The base equipment will be located inside a fenced area. The petitioner will plant 6-foot high shrubs along the east side of the fenced-in area to screen the equipment from possible public view (from Randall Road). There is a fair amount of vegetation along the entire perimeter of the treatment plant facility. T-Mobile has received Federal Aviation Administration (FAA) approval as well as approval from the Village of Lake in the Hills (LITH) because of its proximity to the airport.





Approximate site location ▲
◄ Example of similar tower

Findings of Fact:

USE VARIATION

The granting of a Variation rests upon the applicant proving practical difficulty or hardship caused by the Zoning Ordinance requirements. It is the responsibility of the petitioner to prove hardship at the Planning and Zoning Commission public hearing.

No specific standards are spelled out in the UDO for granting use variations. However, it is recommended that the Planning and Zoning Commission and City Council first determine and record its findings that the evidence justifies the conclusions that:

1. The property cannot be used for purposes permitted in the zoning district without the requested variance;

   ☐ *True* ☐ *False*

2. The proposed use would not alter the essential character of the area in which the property is located;

   ☐ *True* ☐ *False*

3. The proposed use will not reasonably diminish the value of adjacent property;

   ☐ *True* ☐ *False*

4. The proposed use will not unreasonably increase the congestion in the public streets or otherwise endanger public safety; and

   ☐ *True* ☐ *False*

5. The proposed use is in harmony with the general purpose and intents of the Unified Development Ordinance.

   ☐ *True* ☐ *False*

Where the evidence is not found to justify such conditions, that fact shall be reported to the City Council with a recommendation that the Variation be denied.

SPECIAL USE PERMIT

The petitioner is requesting approval of a Special Use Permit to allow a telecommunications tower. Due to their unique nature, Special Uses require separate review because of their potential to impact surrounding properties and the orderly development of the City.

Section 2-400 of the Unified Development Ordinance establishes the general standard for all Special Uses in Crystal Lake. The criteria are as follows:

1. That the proposed use is necessary or desirable, at the location involved, to provide a service or facility which will further the public convenience and contribute to the general welfare of the neighborhood or community.

   ☐ *Meets* ☐ *Does not meet*

2. That the proposed use will not be detrimental to the value of other properties or improvements in the vicinity.

   ☐ *Meets* ☐ *Does not meet*

3. That the proposed use will comply with the regulations of the zoning district in which it is located and this Ordinance generally, including, but not limited to, all applicable yard and

bulk regulations, parking and loading regulations, sign control regulations, watershed, wetlands, and flood plain regulations, Building and Fire Codes and all other applicable City Ordinances.

☐ *Meets* ☐ *Does not meet*

4. That the proposed use will not negatively impact the existing off-site traffic circulation; will adequately address on-site traffic circulation; will provide adequate on-site parking facilities; and, if required, will contribute financially, in proportion to its impact, to upgrading roadway and parking systems.

   ☐ *Meets* ☐ *Does not meet*

5. That the proposed use will not negatively impact existing public utilities and municipal service delivery systems and, if required, will contribute financially, in proportion to its impact, to the upgrading of public utility systems and municipal service delivery systems.

   ☐ *Meets* ☐ *Does not meet*

6. That the proposed use will not impact negatively on the environment by creating air, noise, or water pollution; ground contamination; or unsightly views.

   ☐ *Meets* ☐ *Does not meet*

7. That the proposed use will maintain, where possible, existing mature vegetation; provide adequate screening to residential properties; provide landscaping in forms of ground covers, trees and shrubs; and provide architecture, which is aesthetically appealing, compatible or complementary to surrounding properties and acceptable by community standards, as further detailed in Article 4, Development and Design Standards.

   ☐ *Meets* ☐ *Does not meet*

8. That the proposed use will meet standards and requirements established by jurisdictions other than the City such as Federal, State or County statutes requiring licensing procedures or health/safety inspections, and submit written evidence thereof.

   ☐ *Meets* ☐ *Does not meet*

9. That the proposed use shall conform to any stipulations or conditions approved as part of a Special Use Permit issued for such use.

   ☐ *Meets* ☐ *Does not meet*

10. That the proposed use shall conform to the standards established for specific special uses as provided in this section.

    ☐ *Meets* ☐ *Does not meet*

Additionally, Section 2-400 C of the UDO, establishes specific criteria for consideration before the issuance of a Special Use Permit for a telecommunications tower.

d. Standards for Freestanding radio transmission and wireless communication towers: Freestanding wireless communication or radio transmission towers, whether as a principal or accessory use, shall comply with the following standards:

(i) Safety:

I. Towers shall be designed to meet the wind loading requirements specified in the American National Standards Institute TIA-222-F Report, as amended.

II. The owner/applicant shall provide documentation to the City demonstrating that the structural integrity of the towers and antenna will continue to comply with state and federal standards, local building codes, and the applicable standards for towers published by the American National Standards Institute (ANSI), as amended. If, upon inspection, it is determined a tower fails to comply with such standards and constitutes a danger to persons or property, the owner shall be notified that he/she has 30 days to bring the tower into compliance. Failure to bring the tower into compliance within 30 days shall constitute grounds for the removal of the tower at the owner's expense.

(ii) Height: Freestanding wireless communication or radio transmission towers shall not exceed 200 feet in height as measured from the tower base to the highest point of the tower and any attached receiving or transmitting device. ***Tower is proposed to be 139 feet.***

(iii) Franchises and Licenses: The operator shall provide documentation to the City to demonstrate that all franchises and licenses required by law for the construction and/or operation of a tower or antenna have been obtained.

(iv) Color:

I. Towers shall either maintain a galvanized steel finish or, subject to any applicable standards of the FAA, be painted a neutral color (i.e., light grey) to reduce visual obtrusiveness or painted in a sky-tone above the top of surrounding trees and in an earth-tone below the treetop level. ***The flag pole shall have a galvanized steel finish.***

II. At a tower site, the design of buildings and related structures shall, to the maximum extent practicable, use materials, colors and architectural styles that blend into the natural setting and surrounding buildings. ***No additional structures are being proposed.***

(v) Storage: No outside storage shall be allowed on any facility site. ***No outside storage is being proposed.***

(vi) Lighting: Towers shall not be artificially lighted, unless required by the FAA or other applicable authority. ***An aviation warning light has been added per the request of LITH due to the landing pattern of the runway.***

(vii) Signage

I. I. A single sign measuring no more than 2 square feet in size shall be located on or near the tower, and shall identify the tower owner, the street address of the tower, the owner’s identification code for the tower, and a 24 hour emergency contact telephone number.

II. No commercial advertising shall be allowed on the tower or its related facilities

(viii) Single Lot: Towers, guy anchors, equipment buildings, and any other appurtenances related to the tower shall be considered as being located on one zoning lot.

(ix) Setbacks: Wireless communications facilities shall comply with the following setback standards:

I. Self supporting and monopole towers shall be setback from all property lines by a distance of 110 percent of the height of the tower. ***The flag pole meets the setback requirements.***

II. Guyed towers shall meet the minimum setback standards for the zone district where located. The setback shall be measured from a line connecting the outermost anchor points for guy wires.

III. Equipment buildings associated with a wireless communication facility shall meet the minimum setback requirements for the zoning district where located.

(x) Separation: If an applicant proposes a new wireless communications tower or radio transmission tower within 1,200 feet of an existing tower, the applicant shall submit a statement indicating the reasons why the existing tower(s) was inadequate or unavailable. The Zoning Administrator shall allow the owner of such existing tower an opportunity to comment prior to making a decision.

(xi) Collocation: New wireless communication or radio transmission towers shall provide evidence that the tower is structurally designed to support at least 3 additional users, and provide a written statement that the owner of the tower is willing to permit other user(s) to attach communication facilities, on a commercially reasonable basis, which do not interfere with the primary purpose of the tower. The site plan shall indicate a location for at least 1 equipment building in addition to that proposed for use by the applicant. A tower which is modified or reconstructed to accommodate the collocation of an additional antenna shall be of the same tower type as the existing tower, unless a monopole is determined more appropriate at the specific location. If an existing tower is increased in height or reconstructed to accommodate the collocation of additional antenna it shall meet the height restrictions outlined within this Section of the Ordinance. ***The flag pole is engineered to accommodate 5 levels of antenna. Location for equipment pad for another carrier is indicated on the plans.***

(xii) Landscaping: Unless existing vegetation provides a buffer strip, all property lines along roadways or visible to existing abutting or nearby buildings (within 1/4 mile radius), for all facilities shall be landscaped as follows:

I. With 6-8 foot evergreen shrubs planted in an alternate pattern, 5 feet on center and within 15 feet of the site boundary or

II. With at least one row of deciduous trees, not less than 2 1/2" to 3" caliper measured 3 feet above grade, and spaced not more than 30 feet apart and within 25 feet of the site boundary or

III. With at least one row of evergreen trees at least 4-5 feet in height when planted, and spaced not more than 15 feet apart within 40 feet of the site boundary.

IV. In lieu of the foregoing, the Planning & Zoning Commission may determine that the existing vegetation must be supplemented to meet an equivalent means of achieving the desired goal of minimizing the visual impact.

There is a fair amount of vegetation along the perimeter of the site. In addition, the petitioner is proposing adding shrubs along the east side of the fence enclosure.

(xiii) Security Fencing: Towers, guy anchor supports, and ground-based equipment buildings shall be enclosed by security fencing not less than 8 feet in height and equipped with an appropriate anti-climbing device. ***As proposed, the security fencing is 6-foot high. It is recommended that a 8-foot high fence be utilized.***

(xiv) Radiation Reporting: It shall be demonstrated that the proposed tower, antenna, and supporting equipment complies with FCC nonionizing radiation requirements for individual and combined facilities.

(xv) Interference: No wireless communications tower, antenna, or supporting equipment shall interfere with equipment operated by the City of Crystal Lake.

UNIFIED DEVELOPMENT ORDINANCE VARIATION

At the City's request, the petitioner is requesting a variation from the exterior lighting standards of the UDO, to allow three up lights that are rated at 1,000 watts each. The UDO limits uplighting for flag poles at 1100 lumens up to 45° maximum inclination or 800 lumens up to 60° maximum inclination for a single luminaire and collectively not exceed 12,000 lumens.

The granting of a Variation rests upon the applicant proving practical difficulty or hardship caused by the Unified Development Ordinance requirements as they relate to the property. It is the responsibility of the petitioner to prove hardship at the Planning and Zoning Commission public hearing. Before recommending any Variation, the Planning and Zoning Commission and City Council shall first determine and record its findings that the evidence justifies the conclusions that:

1. The plight of the property owner is due to unique circumstances, such as, unusual surroundings or conditions of the property involved, or by reason of exceptional narrowness, shallowness or shape of a zoning lot, or because of unique topography, or underground conditions.
   ☐ True ☐ False

2. Also, that the variation, if granted, will not alter the essential character of the locality.
   ☐ True ☐ False

The Commission may take into consideration the extent to which the following facts favorable to the application have been established by the evidence presented at the public hearing:

1. That the conditions upon which the application for variation is based would not be applicable generally to other property within the same zoning classification;
   ☐ True ☐ False

2. That the alleged difficulty or hardship has not been created by any person presently having interest in the property;
   ☐ True ☐ False

3. That the granting of the variation will not be detrimental to the public welfare or injurious to other property or improvements in the neighborhood in which the property is located; or
   ☐ True ☐ False

4. That the proposed variation will not impair an adequate supply of light or air to adjacent property, will not unreasonably diminish or impair the property values of adjacent property, will not unreasonably increase congestion in the public streets, substantially increase the danger of fire or otherwise endanger public safety.
   ☐ True ☐ False

Where the evidence is not found to justify such conditions, that fact shall be reported to the City Council with a recommendation that the Variation be denied.

Recommended Conditions:

If a hardship is found, staff suggests that the following as conditions of the approval of the Use Variation and Unified Development Ordinance variation at 6096 Commercial Road:

1) Approved plans, to reflect staff and advisory board comments, as approved by the City Council:
   A. Application, Statement in support of application (Layne, received 7-15-10)
   B. Lease Site and Easements Survey (ASM, dated 1-21-10, received 7-15-10)
   C. FAA Determination (Issue Date 3-23-10, received 7-15-10)
   D. LITH Approval Letter (Issue Date 6-15-10, received 7-15-10)
   E. RF Emissions Compliance Report (Sitesafe, Inc. dated 12-17-09, received 7-15-10)
   F. Coverage Maps, Flag Pole Tower example (Layne, received 7-15-10)
   G. Plan Set (Kamry, dated 5-11-10, received 7-15-10)

2) The security fencing around the lease site shall be 8-foot tall with the appropriate anti-climbing devices.

3) Evergreen species (hemlocks, junipers, pines) are recommended for proposed plantings.

4) The petitioner shall address all comments of the Planning and Economic Development, Engineering and Building, Public Works, Fire Rescue and Police Departments.

City of Crystal Lake
Development Application

Office Use Only
File # 4 6 2010

Project Title: T-Mobile CH76-318C/Crystal Lake Coventry Treatment Plant

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Action Requested

- ☐ Annexation
- ☐ Comprehensive Plan Amendment
- ☐ Conceptual PUD Review
- ☐ Final PUD
- ☐ Final PUD Amendment
- ☐ Final Plat of Subdivision
- ☐ Preliminary PUD
- ☐ Preliminary Plat of Subdivision
- ☐ Rezoning
- ☒ Special Use Permit
- ☒ Variation
- ☐ Other

Petitioner Information

Name: Mark Layne for T-Mobile Central LLC
Address: 8550 W. Bryn Mawr, Suite 200
Chicago, IL 60631
Phone: 630-400-3037
Fax: 630-532-6401
E-mail: mjlayne@att.net

Owner Information (if different)

Name: City of Crystal Lake
Address: 100 W. Woodstock Street
Crystal Lake, IL 60014
Phone: 815.356.3700
Fax: 815.479.1647
E-mail: gkoczwara@crystallake.org

Property Information

Project Description: Installation of a 139' telecommunications tower disguised as a flag pole inside a fenced 22' x 22' lease area containing a 7.5' x 14.5' concrete slab to support up to three radio equipment cabinets and associated equipment.

Project Address/Location: Crystal Lake Wastewater Treatment Facility, 1100 Coventry, Crystal Lake, IL

PIN Number(s): 19-18-200-015

Development Team

Please include address, phone, fax and e-mail

Developer: T-Mobile Central LLC, 8550 W. Bryn Mawr, Ste. 100, Chicago, 60631 777-444-5400

Architect: _____

Attorney: _____

Engineer: Forge Services, 2210 Midwest Rd., Ste. 213, Oak Brook, IL 60523; 630-264-6485

Landscape Architect: _____

Planner: _____

Surveyor: Advanced Surveying and Mapping, 903 Appaloosa, Plano, IL 60542

Other: Mark Layne, agent for T-Mobile, PO Box 316, Medinah IL 60157; 630-400-3037

Signatures

Mark Layne as agent for T-Mobile _____ 7/13/10

PETITIONER: Print and Sign name (*if different from owner*) **Date**

As owner of the property in question, I hereby authorize the seeking of the above requested action.

_____

OWNER: Print and Sign name **Date**

NOTE: If the property is held in trust, the trust officer must sign this petition as owner. In addition, the trust officer must provide a letter that names all beneficiaries of the trust.

— 4 6 2010

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BY

STATEMENT IN SUPPORT OF APPLICATION

The Application:

T-Mobile Central, LLC, doing business as T-Mobile ("T-Mobile"), respectfully requests the City of Crystal Lake grant a special use permit, use variance, and any and all other necessary waivers and approvals (the "Petition") for the installation of a wireless telecommunication facility (the "Proposed Facility") in Crystal Lake, Illinois, at the City wastewater treatment facility located at 1100 Coventry Dr. (the "Site").

General Background:

T-Mobile has acquired licenses from the Federal Communications Commission ("FCC") to provide Personal Communications Services ("PCS") throughout the United States. These licenses include Lake County and the remainder of the Chicago metropolitan region, and are part of an integrated nationwide network of coverage.

The Telecommunication Facility which T-Mobile proposes to construct on the Site is necessary in order to provide PCS services to your community, including traditional cellular services such as wireless telephone service and new services not available under some traditional analog cellular systems, such as paging, wireless internet connections and wireless data transmission. T-Mobile's PCS technology operates at various radio frequency ("RF") bands between approximately 1850 and 1990 megahertz and utilizes a digital (rather than analog) wireless voice and data transmission system. This technology does not interfere with radio, television or other communications signals. The regulation of all matters pertaining to signal interference are within the sole jurisdiction of the FCC, and T-Mobile's broadcast emissions are in full compliance with all FCC regulations.

Like traditional cellular phone systems, PCS operates on a "grid" system, whereby adjacent overlapping "cells" mesh to form a seamless wireless network. By way of analogy, a wireless network is like an underground lawn sprinkler system wherein the antenna placements or network nodes are equivalent to sprinkler heads. Like a sprinkler system, each node covers a certain radius. In designing a sprinkler system, if the sprinkler heads are too far apart, those areas in between don't get watered. Conversely, if the heads are too close together, there is overlap, resulting in oversaturation of certain areas. Ideally, the heads are placed at a distance where the spray pattern from one head just touches the spray patterns of the adjacent heads, thereby providing even, consistent coverage.

As such, the technical criteria for establishing cell sites are very exacting as to both the height and location of the Proposed Facility. Because of the frequency at which T-Mobile broadcasts, T-Mobile's network requires more numerous and closely spaced Facilities than might be necessary for other wireless carriers who broadcast in different portions of the radio spectrum. Returning to the sprinkler analogy, T-Mobile's network is like the aforedescribed sprinkler system, but with poor water pressure, thereby requiring a greater density of sprinkler heads or nodes to obtain required coverage. Within the Chicago MTA, for example, T-Mobile's Facilities are typically located approximately 1 to 1.5 miles apart, with less spacing in densely populated areas, more in

rural, unpopulated areas.

When searching for a suitable antenna location, T-Mobile's first priority is to locate existing wireless and/or antenna towers proximate to the search ring upon which T-Mobile could collocate their antennas and equipment. In the event no such existing telecommunications towers exist within or near the target coverage area, the next initiative is to locate any existing structure of height such as a building rooftop, light pole, church steeple, utility tower, or other facility sufficient to elevate the antennas to an effective operating height. Failing the foregoing, the last resort is to construct a new communications tower.

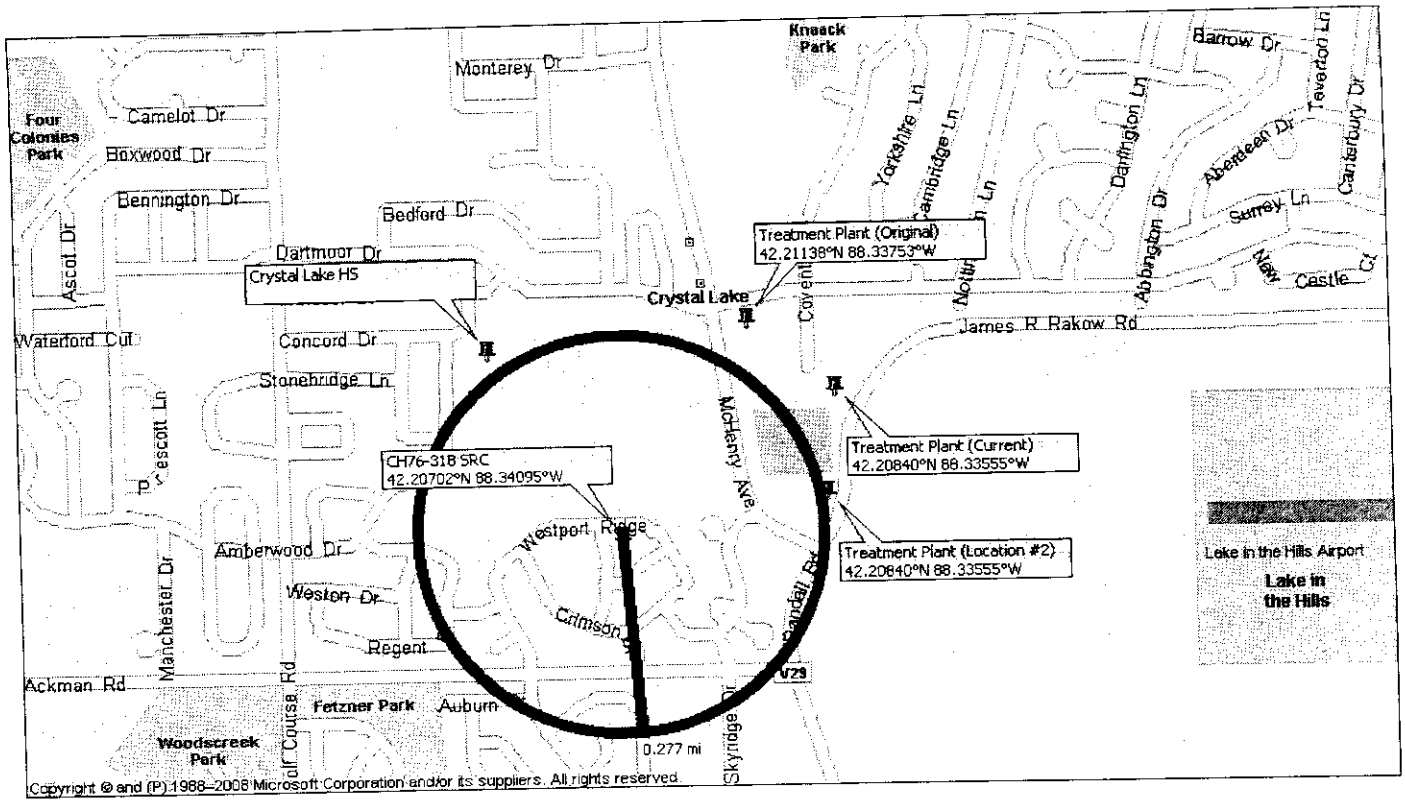
Site Necessity:

Based on a computerized engineering study which takes into account, among other things, subscribership, local population density, traffic patterns, tree cover, and topography, T-Mobile's RF engineers have identified a necessary location for a PCS site near the intersection of Randall Rd. and Ackman Rd. and having a target coverage radius of 1/4 mile (i.e. the "Search Ring"). Attached hereto are radio frequency propagation maps which demonstrate that substantial gaps in coverage will occur if T-Mobile had no Telecommunication Facility in the immediate vicinity of the Property.

The Proposed Facility needs to be of a sufficient height to furnish coverage to the surrounding area. The Proposed Facility must also be positioned such that it interconnects with T-Mobile's existing adjoining cell sites. At the same time the Proposed Facility cannot be located too close to an existing facility which would result in signal overlap, audio clutter, and poor call quality.

The target location was "scrubbed" for existing towers and/or structures which might be suitable for achieving an effective operating height. The Search Ring is comprised of a mixture of low density commercial/office uses along Randall Rd. surrounded primarily by single family residences to the west of Randall Rd. The only existing structures of height within the Search Ring were the field lights at Crystal Lake South High School which were judged as being of insufficient height to meet coverage objectives (without replacement).

In researching viable alternative options, T-Mobile was made aware by City administration of a proposal by Verizon Wireless to construct a disguised flag pole communications structure inside the City wastewater treatment facility at the southeast corner of McHenry Ave. and Dartmoor Dr. In that collocation is the preferred option for providing a coverage solution to an area, T-Mobile proceeded with applications to occupy the proposed Verizon tower. During this process, Verizon decided against building a structure at the treatment plant and instead collocated on a City water tank at a different location. At that point, T-Mobile picked up lead on the disguised tower project. After two relocations of the Proposed Facility, T-Mobile was able to come to terms with the City on a lease agreement and has subsequently designed the facility which is the subject of this Petition. A summary of the candidates considered is provided in the Search Ring Map below:



The Proposal:

Pursuant to the Crystal Lake Zoning Ordinance ("Zoning Ordinance"), T-Mobile respectfully requests approval for its zoning application and any other zoning relief necessary for the Proposed Facility as detailed below and in the accompanying materials. The Petition further endeavors to comply with the intent of the Crystal Lake Zoning Ordinance as it relates to wireless communications infrastructure improvements.

The Proposed Facility is designed to satisfy the public need for seamless wireless coverage in the Crystal Lake community, as well as to remedy wireless communications coverage deficiencies in the target location. Specifically, T-Mobile's wireless network suffers gaps in reliable coverage in the vicinity of the Site, resulting in blocked and dropped calls by mobile phone users and in home customers.

Accompanying the Petition is a map of T-Mobile's adjoining sites depicting current coverage conditions including the substantial gap in coverage in the target area represented by yellow and gray shaded areas, along with a map depicting T-Mobile's prediction of substantially improved coverage to the target area subsequent to the installation of the Proposed Facility represented by green shaded areas.

T-Mobile proposes to resolve this gap in coverage by installing six panel antennas at elevations of 130 feet and 123 feet inside a monopole tower disguised as a flag pole. (An example photo of a similar tower is included with this submission. Note: the tower in the example photo is painted white whereas

the tower proposed for this location will be of a galvanized finish in accordance with City of Crystal Lake zoning requirements.) As the antennas will be installed within the circumference of the tower, they will be completely invisible from view. The radio equipment cabinets that service the facility will be located at the base of the tower adjacent to an existing building on the treatment plant site.

The Proposed Facility will be unstaffed and, upon completion, will require only infrequent maintenance visits (approximately one or two times a month) by a service technician utilizing a car, pick-up or van. Access to the Proposed Facility is intended to be furnished via the existing paved driveway servicing the treatment facility. The site is entirely self-monitored by sophisticated computers which connect directly to a central office and which alert personnel to equipment malfunctions. Hence, the facility will not have any material impact on traffic, parking or storm water control. Moreover, no material noise, glare, smoke, debris, traffic flow or any other nuisance will be generated by the Proposed Facility.

In general, PCS technology does not interfere with any other forms of communication. To the contrary, PCS technology provides vital communications in emergency situations and will be commonly used by local residents and emergency personnel to protect the general public's health, safety and welfare.

The proposed facility will be designed and constructed to meet applicable governmental and industry safety standards. Specifically, T-Mobile will comply with all FCC and FAA rules governing construction requirements, technical standards, interference protection, power and height limitations, and radio frequency standards. In addition, T-Mobile will comply with all applicable FAA rules pertaining to site location. Any and all RF emissions are subject to the exclusive jurisdiction of the FCC.

Zoning Standards for Approval:

It is T-Mobile's assertion that this Petition satisfies the applicable standards of the Crystal Lake Zoning Ordinance under Article 2-Section 400 B regarding Special Uses, Article 2-Section 400 B-48 regarding Wireless Communications Facilities, as well as those standards as may apply regarding Variations in Use. A detailed summary of T-Mobile's assertions follows:

Special Use Criteria:

The following general standards for all special uses are hereby established. The City Council may authorize a special use as provided herein, upon determining and finding as fact, the following:

1. *That the proposed use is necessary or desirable, at the location involved, to provide a service or facility which will further the public convenience and contribute to the general welfare of the neighborhood or community.;*

   Wireless is a rapidly growing industry currently experiencing is unprecedented demand for new wireless services and expanded features from both mobile and in-home wireless subscribers. Early mobile phones were installed permanently in vehicles and used exclusively for voice communication as a convenience while

traveling, prompting wireless carriers to build their first wave of infrastructure along major roadways in order to satisfy demand from subscribers traveling by vehicle. The next evolution in technology provided portability, allowing the PCS device to be utilized anywhere sufficient signal strength existed, and causing wireless providers to expand their networks beyond the interstate highway system and heavily traveled major thoroughfares into commercial locations and densely populated residential areas. Currently, wireless devices are increasingly used by in-home subscribers in lieu of land-line telephones, as well as for a host of other features never anticipated by early network designers such as text messaging, photo sharing, internet access, and streaming audio and video, all of which consume available bandwidth.

Consider the following:

- Wireless communication technology has become a vital component of our overall safety infrastructure and is used to promote efficient and effective personal, business, and governmental communications.
- As of 2007, there were over 243 million wireless subscribers in the US representing 81% of US households.
- Approximately 13% of all US households have abandoned land line phones in favor of wireless phones exclusively, and that number is estimated to be closer to 30% and growing among younger subscribers.
- 50% of all 9-1-1 calls made each day are made by wireless phone.
- "Enhanced 9-1-1" allows emergency dispatchers to locate distressed callers on a GPS grid system.
- Municipal emergency service personnel rely on wireless for all sensitive intra-departmental communications due to privacy concerns related to their two-way radio systems.

Wireless services have become established and accepted as an integral part of the nation's communications infrastructure, and not unlike electric, water, and other public utilities, serve to promote the public health, safety, morals, and general welfare.

The need for the Proposed Facility is based on demand by T-Mobile customers living in and traveling through the designated target area. As subscriber demand continues to grow and the typical user profile evolves away from business and travel voice usage toward a more expansive and technologically consumptive "pedestrian" morphology, wireless providers such as T-Mobile are being forced to find creative methods of increasing signal strength in heretofore off limits locations, such as the neighborhood surrounding the proposed Site. Without the Site, T-Mobile cannot guarantee reliable, robust service to the Crystal Lake community.

2. *That the proposed use will not be detrimental to the value of other properties or improvements in the vicinity.*

   T-Mobile has been sensitive in selecting a location and installation method that will eliminate any impact on surrounding properties due to its placement inside a wastewater treatment facility and by incorporating invisible antennas inside a disguised structure.

   Regardless, as substantiated by an independent value impact study commissioned by T-Mobile and performed by certified real estate appraiser, David A. Kunkel, MAI, there is no data that suggests even visible antenna installations have an adverse impact on neighboring property values. To the contrary, enhanced wireless communications will have a positive influence on personal, business, governmental, and other existing uses in this area.

3. *That the proposed use will comply with the regulations of the zoning district in which it is located and this Ordinance generally, including, but not limited to, all applicable yard and bulk regulations, parking and loading regulations, sign control regulations, watershed, wetlands, and flood plain regulations, Building and Fire Codes and all other applicable City Ordinances.*

   It is T-Mobile's intention to comply with all district zoning regulations which currently exist and as may be amended for this proposal as a result of these proceedings.

4. *That the proposed use will not negatively impact the existing off-site traffic circulation; will adequately address on-site traffic circulation; will provide adequate on-site parking facilities; and, if required, will contribute financially, in proportion to its impact, to upgrading roadway and parking systems.*

   The Proposed Facility will be unstaffed and, upon completion, will require only infrequent maintenance visits (approximately one or two times a month) by a single service technician utilizing a car, pick-up or van. Access to the Proposed Facility is intended to be furnished via the existing paved driveway into the treatment plant.

5. *That the proposed use will not negatively impact existing public utilities and municipal service delivery systems and, if required, will contribute financially, in proportion to its impact, to the upgrading of public utility systems and municipal service delivery systems.*

   The Proposed Facility is an unmanned, automated, radio transmission node. Hence, the facility will not have any material impact on traffic, parking, or storm water control, nor will it place any stress on the delivery of municipal services.

6. *That the proposed use will not impact negatively on the environment by creating air, noise, or water pollution; ground contamination; or unsightly views.*

   As the Proposed Facility is an unmanned, automated, radio transmission node, it will not produce material noise, glare, smoke, debris, traffic flow or any other nuisance. In addition, T-Mobile has cooperated with the City to incorporate a structure disguised as a flag pole to diminish any negative visual impacts.

7. *That the proposed use will maintain, where possible, existing mature vegetation; provide adequate screening to residential properties; provide landscaping in forms of ground covers, trees and shrubs; and provide architecture, which is aesthetically appealing, compatible or complementary to surrounding properties and acceptable by community standards, as further detailed in Article 4, Development and Design Standards.*

The City and T-Mobile have been sensitive in selecting a location for the Proposed Facility which is in the rough median of the wastewater treatment facility between existing on site structures. As such, the equipment compound at the base of the tower will be blocked from public view from all directions except from the east, where T-Mobile intends to plant 15 American Witchazel shrubs, 6' tall at planting.

8. *That the proposed use will meet standards and requirements established by jurisdictions other than the City such as Federal, State or County statutes requiring licensing procedures or health/safety inspections, and submit written evidence thereof.*

As a condition of their FCC license, T-Mobile is required to comply all FCC and FAA rules governing construction requirements, technical standards, interference protection, power and height limitations, and radio frequency standards as established by the federal requirement. In addition, T-Mobile must comply with all applicable FAA rules pertaining to site location.

The Federal Communications Commission ("FCC") controls and regulates the operation of all telecommunications equipment and devices in the US. In accordance with Section 704(a) of the Federal Telecommunications Act of 1996, the FCC likewise maintains sole jurisdiction and authority over any health and environmental effects of radio frequency emissions from personal wireless facilities, especially as such concerns relate to approval criteria for locating said facilities. Specifically stated, "*No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions."*

In compliance with their FCC license, the antennas and equipment T-Mobile proposes to install at this site will conform to all FCC regulations concerning such emissions, as verified by an independent engineering study, a copy of which was included with this application. Routine visits to the site will be made to ensure that the system continues to operate properly. The frequency at which T-Mobile operates will not interfere with any police, fire, or emergency communications.

9. *That the proposed use shall conform to any stipulations or conditions approved as part of a Special Use Permit issued for such use.*

T-Mobile has taken great care in designing the Proposed Facility to substantially comply with the City of Crystal Lake Zoning Ordinance as such standards apply to the Proposed Facility. It is likewise T-Mobile's intention to otherwise comply with all applicable City ordinances as may be required or established as part of this special use process.

10. *That the proposed use shall conform to the standards established for specific special uses as provided in this section.*

It is T-Mobile's intention to conform to all applicable standards for the specific proposed use as part of this special use process.

Variation of Use Criteria:

1. *The property cannot be used for purposes permitted in the zoning district without the requested variance;*

The City of Crystal Lake has determined that the treatment plant site is an appropriate location from which to provide wireless services access to carriers wishing to provide communications services to the surrounding community. Because the zoning district in which the treatment plant is located does not identify communications structures as a delineated use, a variation is required to use the property for this intended use.

2. *The proposed use would not alter the essential character of the area in which the property is located;*

The treatment plant is an industrial use on municipal property. As such, a communications tower disguised as a flag pole would be considered an appropriate symbol of civic pride appropriate to the plant's municipal utility.

3. *The proposed use will not reasonably diminish the value of adjacent property;*

As substantiated by an independent value impact study commissioned by T-Mobile and performed by certified real estate appraiser, David A. Kunkel, MAI, there is no data that suggests antenna installations of the sort proposed in this instance have an adverse impact on neighboring property values. To the contrary, enhanced wireless communications will have a positive influence on personal, business, governmental, and other existing uses in this area.

4. *The proposed use will not unreasonably increase the congestion in the public streets or otherwise endanger public safety; and*

The Proposed Facility will be unstaffed and, upon completion, will require only infrequent maintenance visits (approximately one or two times a month) by a single service technician utilizing a car, pick-up or van. Access to the Proposed Facility is intended to be furnished via the existing paved driveway into the treatment plant.

5. *The proposed use is in harmony with the general purpose and intents of the Unified Development Ordinance.*

The City of Crystal Lake has determined that the treatment plant site is an appropriate location from which to provide wireless service access to carriers wishing to provide communications services to the surrounding community. It is T-

Mobile's intention to comply with all purposes and intents of the City's Unified Development Ordinance as they apply to the proposed use.

Variation of Use Criteria:

With guidance from the City, T-Mobile has endeavored to comply with all provisions of Article 2-Section 400 B-48 of the City zoning ordinance regarding Wireless Communications Facilities, and has designed the Proposed Facility according to the requirements contained therein.

T-Mobile looks forward to working with the City of Crystal Lake to bring the benefits of T-Mobile's PCS services to the community. Wireless telephone service has already proven to be of great value to the public, and we believe that Crystal Lake will reap the benefits of superior digital service and greater competition in the marketplace.

10-46

PUBLIC NOTICE

BEFORE THE PLANNING AND ZONING COMMISSION OF THE CITY OF CRYSTAL LAKE, MCHENRY COUNTY, ILLINOIS

IN THE MATTER OF THE APPLICATION OF MARK LAYNE FOR T-MOBILE CENTRAL LLC

LEGAL NOTICE

Notice is hereby given in compliance with the Unified Development Ordinance of the City of Crystal Lake, Illinois, that a public hearing will be held before the Planning and Zoning Commission of the City of Crystal Lake upon the application of Mark Layne for T-Mobile Central LLC for a Use Variation and a Special Use Permit relating to the property located at 1100 Coventry Lane, Crystal Lake, Illinois 60014 (Wastewater Treatment Plant #2) and identified by PIN: 19-18-200-015 (the "Subject Property").

This application is filed for the purpose of seeking a use variation from Article 2, Land Uses of the Unified Development Ordinance to allow a telecommunications tower at the subject property and a special use permit pursuant to the standards in Article 2-400 to locate a telecommunications tower and for such other variations that may be required for the proposed use to be located as presented at the Subject Property. Plans for this project can be viewed at the Community Development Department at City Hall.

A public hearing before the Planning and Zoning Commission on the request will be held at 7:30 p.m. on Wednesday, August 4, 2010, at the Crystal Lake City Hall, 100 West Woodstock Street, at which time and place any person determining to be heard may be present.

Tom Hayden, Chairperson
Planning and Zoning Commission
City of Crystal Lake
(Published in the Northwest Herald July 20, 2010)

4 6 2010

9010 Haligus Road
Lake in the Hills, IL 60156

(847) 960-7500
Fax: (847) 960-7501
www.lith.org

June 15, 2010

Mark Layne
T-Mobile Central LLC
8550 W. Bryn Mawr Ave.
Chicago, IL 60631

Re: T-Mobile Tower

Dear Mr. Layne;

Please accept this letter as conditional approval of the proposed T-mobile cellular tower at 1100 Coventry Lane. This approval is conditioned on the installation and maintenance of an aviation warning light in accordance with FAA Advisory circular 70/7460-1 K Change 2.

We are aware the FAA did not designate that this tower as requiring an aviation warning light. However, because of the proximity to the airport and its location within the landing pattern of the runway, we believe it is an important safety feature that should be available to pilots as they are moving in the pattern. We do not believe this to be an overly burdensome request and that it is an important safety feature for both pilots and those on the ground.

If you have any questions, please call me at 847-960-7506 or email me at tmoore@lith.org.

Sincerely,

T. J. Moore
Deputy Director of Public Works
Airport Manager

Cc: Gerald Sagona, Village Manager
Fred Mullard, Public Works Director
Ron Hudson, Hansen Engineering

4 6 2010

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2010-AGL-333-OE

JUL 1 5 2010

Issued Date: 03/23/2010

Mary Crowl
T-Mobile (MC-Chicago)
8550 W. Bryn Mawr Ave., First Floor
Chicago, IL 60068

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Antenna Tower CH76-318 Lake in the Hills
Location:	Crystal Lake, IL
Latitude:	42-12-35.34N NAD 83
Longitude:	88-20-08.80W
Heights:	139 feet above ground level (AGL)
	1018 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking and/or lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

Any height exceeding 139 feet above ground level (1018 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 09/23/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Communications Commission (FCC) because the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (847) 294-7458. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2010-AGL-333-OE.

Signature Control No: 677708-124003707 (DNE)
Fred Souchet
Specialist

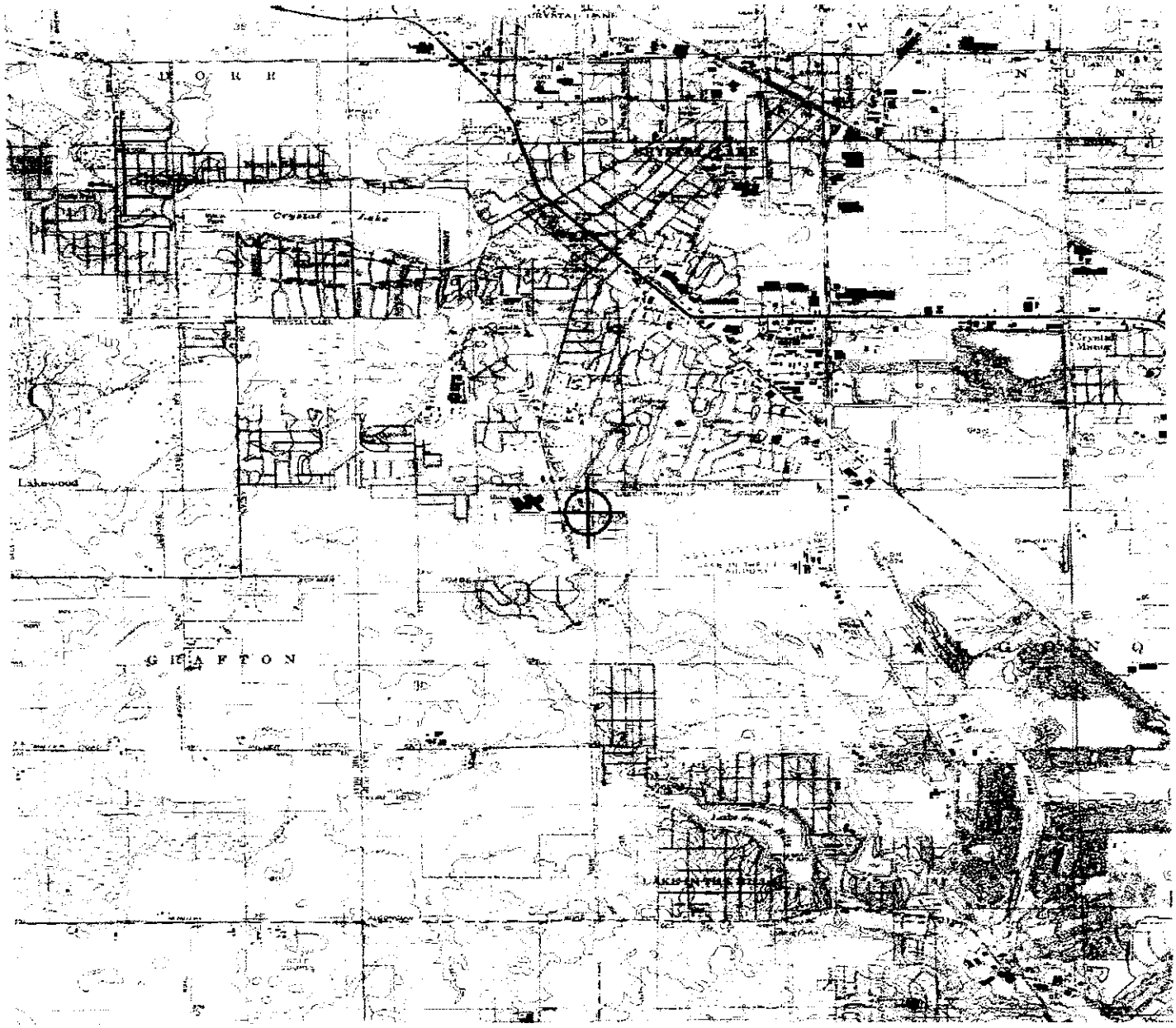
Attachment(s)
Frequency Data
Map(s)

cc: FCC

Frequency Data for ASN 2010-AGL-333-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
806	824	MHz	500	W
824	849	MHz	500	W
851	866	MHz	500	W
869	894	MHz	500	W
896	901	MHz	500	W
901	902	MHz	7	W
930	931	MHz	3500	W
931	932	MHz	3500	W
932	932.5	MHz	17	dBW
935	940	MHz	1000	W
940	941	MHz	3500	W
1850	1910	MHz	1640	W
1930	1990	MHz	1640	W
2305	2310	MHz	2000	W
2345	2360	MHz	2000	W

TOPO Map for ASN 2010-AGL-333-OE



4 6 2010

site

RECEIVED
JUL 1 5 2010

RF EMISSIONS COMPLIANCE REPORT

T-Mobile

Site: CH76-318C - Crystal Lake Treatment
1100 Coventry Lane
Crystal Lake, IL
12/17/2009

Report Status:

T-Mobile is Under 5% Threshold

LICENSED PROFESSIONAL ENGINEER
DAVID CHARLES COTTON, JR.
062-062055
STATE OF ILLINOIS

David Charles Cotton, Jr.
Licensed Professional Engineer
State of Illinois, 062.062055
Date: 2009-Dec-17

Prepared By:

Sitesafe, Inc.

200 North Glebe Road, Suite 1000 Arlington, VA 22203

Voice 703-276-1100
Fax 703-276-1169

Engineering Statement in Re:
Electromagnetic Energy Analysis
T-Mobile
Crystal Lake, IL

Upon penalty of perjury, my signature on the cover of this document indicates:

That I am registered as a Professional Engineer in the jurisdiction indicated; and

That I have extensive professional experience in the wireless communications engineering industry; and

That I am an employee of Sitesafe, Inc. in Arlington, Virginia; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission ("the FCC" and "the FCC Rules") both in general and specifically as they apply to the FCC's Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; and

That the technical information serving as the basis for this report was supplied by T-Mobile (See attached Site Summary and Carrier documents), and that T-Mobile's installations involve communications equipment, antennas and associated technical equipment at a location referred to as the "CH76-318C - Crystal Lake Treatment" ("the site"); and

That T-Mobile proposes to operate at the site with transmit antennas listed in the carrier summary and with a maximum effective radiated power as specified by T-Mobile and shown on the worksheet, and that worst-case 100% duty cycle have been assumed; and

That this analysis has been performed with the assumption that the ground immediately surrounding the tower is primarily flat or falling; and

That at this time, the FCC requires that certain licensees address specific levels of radio-frequency energy to which workers or members of the public might possibly be exposed (at §1.1307(b) of the FCC Rules); and

That such consideration of possible exposure of humans to radio-frequency radiation must utilize the standards set by the FCC, which is the Federal Agency having jurisdiction over communications facilities; and

That the FCC rules define two tiers of permissible exposure guidelines: 1) "uncontrolled environments," defined as situations in which persons may not be aware of (the "general public"), or may not be able to control their exposure to a transmission facility; and (2) "controlled environments," which defines situations in which persons are aware of their potential for exposure (industry personnel); and

That this statement specifically addresses the uncontrolled environment (which is more conservative than the controlled environment) and the limit set forth in the FCC rules for licensees of T-Mobile's operating frequency as shown on the attached antenna worksheet; and

That when applying the uncontrolled environment standards, the predicted Maximum Power Density at two meters above ground level from the proposed T-Mobile operation is no more than 0.237% of the maximum in any accessible area on the ground and

That it is understood per FCC Guidelines and OET65 Appendix A, that regardless of the existent radio-frequency environment, only those licenses whose contributions exceed five percent of the exposure limit pertinent to their operation(s) bear any responsibility for bringing any non-compliant area(s) into compliance; and

That the calculations provided in this report are based on data provided by the client and antenna pattern data supplied by the antenna manufacturer, in accordance with FCC guidelines listed in OET-65. Horizontal and vertical antenna patterns are combined for modeling purposes to accurately reflect the energy two meters above ground level where on-axis energy refers to maximum energy two meters above the ground along the azimuth of the antenna and where area energy refers to the maximum energy anywhere two meters above the ground regardless of the antenna azimuth, accounting for cumulative energy from multiple antennas for the carrier and frequency range indicated; and

That the Occupational Safety and Health Administration has policies in place which address worker safety in and around communications sites, thus individual companies will be responsible for their employees' training regarding Radio Frequency Safety.

In summary, it is stated here that the proposed operation at the site would not result in exposure of the Public to excessive levels of radio-frequency energy as defined in the FCC Rules and Regulations, specifically 47 CFR 1.1307 and that T-Mobile's proposed operation is completely compliant.

Finally, it is stated that access to the tower should be restricted to communication industry professionals, and approved contractor personnel trained in radio-frequency safety; and that the instant analysis addresses exposure levels at two meters above ground level and does not address exposure levels on the tower, or in the immediate proximity of the antennas.

T-Mobile
CH76-318C - Crystal Lake Treatment
Site Summary

Carrier	Area Maximum Percentage MPE
T-Mobile	0.237 %

Composite Site MPE: 0.237 %

T-Mobile
CH76-318C - Crystal Lake Treatment
Carrier Summary

Frequency:	1975	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	2.37226	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.23723	%

					On Axis		Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density (µW/cm^2)	Percent of MPE	Max Power Density (µW/cm^2)	Percent of MPE
ANDREW	TMBXX-6516-R2M	137	60	2005	0.574629	0.057463	1.196254	0.119625
ANDREW	TMBXX-6516-R2M	137	180	2005	0.574629	0.057463	1.196254	0.119625
ANDREW	TMBXX-6516-R2M	137	300	2005	0.574629	0.057463	1.196254	0.119625
ANDREW	TMBXX-6516-R2M	145	60	2005	0.514235	0.051424	1.06198	0.106198
ANDREW	TMBXX-6516-R2M	145	180	2005	0.514235	0.051424	1.06198	0.106198
ANDREW	TMBXX-6516-R2M	145	300	2005	0.514235	0.051424	1.06198	0.106198

T-Mobile
CH76-318C - Crystal Lake Treatment
ANDREW:TMBXX-6516-R2M Antenna Worksheet (60 Sector)

Maximum Permissible Exposure (MPE):				1000			
ERP (Watts):	2005	Height (feet):	137	Frequency (MHz):	1975	Downtilt (Degrees):	0.0

Depression Angle (degrees)	Relative dB	Relative Gain	Slant Distance (meters)	Dist From Structure (meters)	Power Density (μW/cm^2)	Percent of MPE	Times Below MPE
0.1	0.00	1.0000	24176.59	24176.55	0.000114	0.000011	8742787
1.0	0.00	1.0000	2417.74	2417.41	0.011437	0.001144	87433
2.0	-0.50	0.8913	1208.99	1208.34	0.045740	0.004574	21862
3.0	-1.60	0.6918	806.13	805.15	0.102880	0.010288	9720
4.0	-3.20	0.4786	604.74	603.43	0.182811	0.018281	5470
5.0	-5.50	0.2818	483.94	482.30	0.285468	0.028547	3503
6.0	-8.90	0.1288	403.43	401.47	0.410769	0.041077	2434
7.0	-13.90	0.0407	345.95	343.66	0.523506	0.052351	1910
8.0	-25.00	0.0032	302.86	300.24	0.574629	0.057463	1740
9.0	-27.00	0.0020	269.37	266.42	0.550156	0.055016	1817
10.0	-18.40	0.0145	242.59	239.31	0.457183	0.045718	2187
12.0	-16.60	0.0219	202.46	198.52	0.166764	0.016676	5996
14.0	-22.70	0.0054	173.85	169.24	0.063241	0.006324	15812
16.0	-30.40	0.0009	152.43	147.16	0.081916	0.008192	12207
18.0	-21.00	0.0079	135.82	129.87	0.098002	0.009800	10203
20.0	-22.00	0.0063	122.56	115.93	0.051271	0.005127	19504
22.0	-30.90	0.0008	111.75	104.44	0.059828	0.005983	16714
24.0	-30.70	0.0009	102.78	94.77	0.070280	0.007028	14228
26.0	-26.80	0.0021	95.21	86.51	0.067567	0.006757	14800
28.0	-34.90	0.0003	88.76	79.36	0.052401	0.005240	19083
30.0	-27.30	0.0019	83.20	73.09	0.180650	0.018065	5535
32.0	-19.30	0.0117	78.36	67.53	0.324058	0.032406	3085
34.0	-16.30	0.0234	74.12	62.56	0.377071	0.037707	2652
36.0	-15.90	0.0257	70.38	58.08	0.416471	0.041647	2401
38.0	-17.60	0.0174	67.06	54.01	0.457160	0.045716	2187
40.0	-21.50	0.0071	64.11	50.29	0.498246	0.049825	2007
42.0	-28.50	0.0014	61.46	46.86	0.539847	0.053985	1852
44.0	-40.00	0.0001	59.08	43.70	0.474393	0.047439	2107
46.0	-36.50	0.0002	56.93	40.75	0.262035	0.026204	3816
48.0	-35.50	0.0003	54.99	37.99	0.081374	0.008137	12288
50.0	-40.00	0.0001	53.24	35.41	0.012118	0.001212	82522
52.0	-40.00	0.0001	51.65	32.97	0.015021	0.001502	66572
54.0	-34.40	0.0004	50.20	30.66	0.023724	0.002372	42150
56.0	-32.10	0.0006	48.90	28.46	0.025891	0.002589	38623
58.0	-32.10	0.0006	47.71	26.37	0.027016	0.002702	37014
60.0	-33.80	0.0004	46.63	24.36	0.028088	0.002809	35601
62.0	-36.60	0.0002	45.65	22.44	0.029178	0.002918	34271
64.0	-39.90	0.0001	44.77	20.58	0.028900	0.002890	34601
66.0	-39.60	0.0001	43.97	18.79	0.022388	0.002239	44667
68.0	-35.20	0.0003	43.26	17.05	0.035511	0.003551	28160
70.0	-32.00	0.0006	42.62	15.36	0.046531	0.004653	21491
72.0	-30.40	0.0009	42.06	13.71	0.047818	0.004782	20912
74.0	-30.10	0.0010	41.56	12.10	0.048736	0.004874	20518
76.0	-31.10	0.0008	41.13	10.52	0.049341	0.004934	20267
78.0	-33.20	0.0005	40.76	8.97	0.049686	0.004969	20126
80.0	-36.40	0.0002	40.45	7.44	0.048920	0.004892	20441
82.0	-40.00	0.0001	40.20	5.93	0.036937	0.003694	27073
84.0	-40.00	0.0001	40.00	4.43	0.020833	0.002083	48001
86.0	-40.00	0.0001	39.87	2.95	0.009037	0.000904	110661
88.0	-40.00	0.0001	39.78	1.47	0.007500	0.000750	133332
90.0	-39.20	0.0001	39.76	0.00	0.007489	0.000749	133531

T-Mobile
CH76-318C - Crystal Lake Treatment
ANDREW:TMBXX-6516-R2M Antenna Worksheet (180 Sector)

Maximum Permissible Exposure (MPE):				1000			
ERP (Watts):	2005	Height (feet):	137	Frequency (MHz):	1975	Downtilt (Degrees):	0.0

Depression Angle (degrees)	Relative dB	Relative Gain	Slant Distance (meters)	Dist From Structure (meters)	Power Density (μW/cm^2)	Percent of MPE	Times Below MPE
0.1	0.00	1.0000	24176.59	24176.55	0.000114	0.000011	8742787
1.0	0.00	1.0000	2417.74	2417.41	0.011437	0.001144	87433
2.0	-0.50	0.8913	1208.99	1208.34	0.045740	0.004574	21862
3.0	-1.60	0.6918	806.13	805.15	0.102880	0.010288	9720
4.0	-3.20	0.4786	604.74	603.43	0.182811	0.018281	5470
5.0	-5.50	0.2818	483.94	482.30	0.285468	0.028547	3503
6.0	-8.90	0.1288	403.43	401.47	0.410769	0.041077	2434
7.0	-13.90	0.0407	345.95	343.66	0.523506	0.052351	1910
8.0	-25.00	0.0032	302.86	300.24	0.574629	0.057463	1740
9.0	-27.00	0.0020	269.37	266.42	0.549814	0.054981	1818
10.0	-18.40	0.0145	242.59	239.31	0.457183	0.045718	2187
12.0	-16.60	0.0219	202.46	198.52	0.166339	0.016634	6011
14.0	-22.70	0.0054	173.85	169.24	0.063062	0.006306	15857
16.0	-30.40	0.0009	152.43	147.16	0.081916	0.008192	12207
18.0	-21.00	0.0079	135.82	129.87	0.097628	0.009763	10242
20.0	-22.00	0.0063	122.56	115.93	0.051271	0.005127	19504
22.0	-30.90	0.0008	111.75	104.44	0.059612	0.005961	16775
24.0	-30.70	0.0009	102.78	94.77	0.070280	0.007028	14228
26.0	-26.80	0.0021	95.21	86.51	0.067395	0.006739	14837
28.0	-34.90	0.0003	88.76	79.36	0.052268	0.005227	19132
30.0	-27.30	0.0019	83.20	73.09	0.180315	0.018032	5545
32.0	-19.30	0.0117	78.36	67.53	0.323645	0.032364	3089
34.0	-16.30	0.0234	74.12	62.56	0.377071	0.037707	2652
36.0	-15.90	0.0257	70.38	58.08	0.416471	0.041647	2401
38.0	-17.60	0.0174	67.06	54.01	0.457160	0.045716	2187
40.0	-21.50	0.0071	64.11	50.29	0.498246	0.049825	2007
42.0	-28.50	0.0014	61.46	46.86	0.539847	0.053985	1852
44.0	-40.00	0.0001	59.08	43.70	0.475603	0.047560	2102
46.0	-36.50	0.0002	56.93	40.75	0.262704	0.026270	3806
48.0	-35.50	0.0003	54.99	37.99	0.081582	0.008158	12257
50.0	-40.00	0.0001	53.24	35.41	0.012118	0.001212	82522
52.0	-40.00	0.0001	51.65	32.97	0.015060	0.001506	66402
54.0	-34.40	0.0004	50.20	30.66	0.023796	0.002380	42023
56.0	-32.10	0.0006	48.90	28.46	0.025977	0.002598	38495
58.0	-32.10	0.0006	47.71	26.37	0.027101	0.002710	36899
60.0	-33.80	0.0004	46.63	24.36	0.028160	0.002816	35511
62.0	-36.60	0.0002	45.65	22.44	0.029178	0.002918	34271
64.0	-39.90	0.0001	44.77	20.58	0.028900	0.002890	34601
66.0	-39.60	0.0001	43.97	18.79	0.022388	0.002239	44667
68.0	-35.20	0.0003	43.26	17.05	0.035511	0.003551	28160
70.0	-32.00	0.0006	42.62	15.36	0.046650	0.004665	21436
72.0	-30.40	0.0009	42.06	13.71	0.047938	0.004794	20860
74.0	-30.10	0.0010	41.56	12.10	0.048736	0.004874	20518
76.0	-31.10	0.0008	41.13	10.52	0.049341	0.004934	20267
78.0	-33.20	0.0005	40.76	8.97	0.049877	0.004988	20049
80.0	-36.40	0.0002	40.45	7.44	0.048920	0.004892	20441
82.0	-40.00	0.0001	40.20	5.93	0.037079	0.003708	26969
84.0	-40.00	0.0001	40.00	4.43	0.020939	0.002094	47757
86.0	-40.00	0.0001	39.87	2.95	0.009074	0.000907	110205
88.0	-40.00	0.0001	39.78	1.47	0.007529	0.000753	132823
90.0	-39.20	0.0001	39.76	0.00	0.007518	0.000752	133022

T-Mobile
CH76-318C - Crystal Lake Treatment
ANDREW:TMBXX-6516-R2M Antenna Worksheet (300 Sector)

Maximum Permissible Exposure (MPE):				1000			
ERP (Watts):	2005	Height (feet):	137	Frequency (MHz):	1975	Downtilt (Degrees):	0.0

Depression Angle (degrees)	Relative dB	Relative Gain	Slant Distance (meters)	Dist From Structure (meters)	Power Density (μW/cm^2)	Percent of MPE	Times Below MPE
0.1	0.00	1.0000	24176.59	24176.55	0.000114	0.000011	8742787
1.0	0.00	1.0000	2417.74	2417.41	0.011437	0.001144	87433
2.0	-0.50	0.8913	1208.99	1208.34	0.045740	0.004574	21862
3.0	-1.60	0.6918	806.13	805.15	0.102880	0.010288	9720
4.0	-3.20	0.4786	604.74	603.43	0.182811	0.018281	5470
5.0	-5.50	0.2818	483.94	482.30	0.285468	0.028547	3503
6.0	-8.90	0.1288	403.43	401.47	0.410769	0.041077	2434
7.0	-13.90	0.0407	345.95	343.66	0.523506	0.052351	1910
8.0	-25.00	0.0032	302.86	300.24	0.574629	0.057463	1740
9.0	-27.00	0.0020	269.37	266.42	0.549814	0.054981	1818
10.0	-18.40	0.0145	242.59	239.31	0.457766	0.045777	2184
12.0	-16.60	0.0219	202.46	198.52	0.166339	0.016634	6011
14.0	-22.70	0.0054	173.85	169.24	0.063062	0.006306	15857
16.0	-30.40	0.0009	152.43	147.16	0.082137	0.008214	12174
18.0	-21.00	0.0079	135.82	129.87	0.097628	0.009763	10242
20.0	-22.00	0.0063	122.56	115.93	0.051467	0.005147	19429
22.0	-30.90	0.0008	111.75	104.44	0.059612	0.005961	16775
24.0	-30.70	0.0009	102.78	94.77	0.070549	0.007055	14174
26.0	-26.80	0.0021	95.21	86.51	0.067395	0.006739	14837
28.0	-34.90	0.0003	88.76	79.36	0.052268	0.005227	19132
30.0	-27.30	0.0019	83.20	73.09	0.180315	0.018032	5545
32.0	-19.30	0.0117	78.36	67.53	0.323645	0.032364	3089
34.0	-16.30	0.0234	74.12	62.56	0.377071	0.037707	2652
36.0	-15.90	0.0257	70.38	58.08	0.416471	0.041647	2401
38.0	-17.60	0.0174	67.06	54.01	0.456787	0.045679	2189
40.0	-21.50	0.0071	64.11	50.29	0.497612	0.049761	2009
42.0	-28.50	0.0014	61.46	46.86	0.539160	0.053916	1854
44.0	-40.00	0.0001	59.08	43.70	0.475603	0.047560	2102
46.0	-36.50	0.0002	56.93	40.75	0.262704	0.026270	3806
48.0	-35.50	0.0003	54.99	37.99	0.081582	0.008158	12257
50.0	-40.00	0.0001	53.24	35.41	0.012077	0.001208	82805
52.0	-40.00	0.0001	51.65	32.97	0.015060	0.001506	66402
54.0	-34.40	0.0004	50.20	30.66	0.023796	0.002380	42023
56.0	-32.10	0.0006	48.90	28.46	0.025977	0.002598	38495
58.0	-32.10	0.0006	47.71	26.37	0.027101	0.002710	36899
60.0	-33.80	0.0004	46.63	24.36	0.028160	0.002816	35511
62.0	-36.60	0.0002	45.65	22.44	0.029088	0.002909	34378
64.0	-39.90	0.0001	44.77	20.58	0.028813	0.002881	34706
66.0	-39.60	0.0001	43.97	18.79	0.022331	0.002233	44781
68.0	-35.20	0.0003	43.26	17.05	0.035421	0.003542	28232
70.0	-32.00	0.0006	42.62	15.36	0.046650	0.004665	21436
72.0	-30.40	0.0009	42.06	13.71	0.047938	0.004794	20860
74.0	-30.10	0.0010	41.56	12.10	0.048612	0.004861	20571
76.0	-31.10	0.0008	41.13	10.52	0.049215	0.004922	20318
78.0	-33.20	0.0005	40.76	8.97	0.049877	0.004988	20049
80.0	-36.40	0.0002	40.45	7.44	0.048734	0.004873	20519
82.0	-40.00	0.0001	40.20	5.93	0.037079	0.003708	26969
84.0	-40.00	0.0001	40.00	4.43	0.020939	0.002094	47757
86.0	-40.00	0.0001	39.87	2.95	0.009074	0.000907	110205
88.0	-40.00	0.0001	39.78	1.47	0.007529	0.000753	132823
90.0	-39.20	0.0001	39.76	0.00	0.007518	0.000752	133022

T-Mobile
CH76-318C - Crystal Lake Treatment
ANDREW:TMBXX-6516-R2M Antenna Worksheet (60 Sector)

Maximum Permissible Exposure (MPE):				1000			
ERP (Watts):	2005	**Height (feet):**	145	**Frequency (MHz):**	1975	**Downtilt (Degrees):**	0.0

Depression Angle (degrees)	Relative dB	Relative Gain	Slant Distance (meters)	Dist From Structure (meters)	Power Density (μW/cm^2)	Percent of MPE	Times Below MPE
0.1	0.00	1.0000	24176.59	24176.55	0.000114	0.000011	8742789
1.0	0.00	1.0000	2417.78	2417.41	0.011437	0.001144	87436
2.0	-0.50	0.8913	1209.07	1208.34	0.045733	0.004573	21865
3.0	-1.60	0.6918	806.25	805.15	0.102848	0.010285	9723
4.0	-3.20	0.4786	604.91	603.43	0.182711	0.018271	5473
5.0	-5.50	0.2818	484.15	482.30	0.285225	0.028523	3506
6.0	-8.90	0.1288	403.68	401.47	0.410265	0.041027	2437
7.0	-13.90	0.0407	346.24	343.66	0.500426	0.050043	1998
8.0	-25.00	0.0032	303.19	300.24	0.514235	0.051424	1944
9.0	-27.00	0.0020	269.74	266.42	0.459374	0.045937	2176
10.0	-18.40	0.0145	243.00	239.31	0.343453	0.034345	2911
12.0	-16.60	0.0219	202.95	198.52	0.079871	0.007987	12520
14.0	-22.70	0.0054	174.42	169.24	0.062820	0.006282	15918
16.0	-30.40	0.0009	153.09	147.16	0.081118	0.008112	12327
18.0	-21.00	0.0079	136.55	129.87	0.063357	0.006336	15783
20.0	-22.00	0.0063	123.37	115.93	0.048970	0.004897	20420
22.0	-30.90	0.0008	112.64	104.44	0.058798	0.005880	17007
24.0	-30.70	0.0009	103.74	94.77	0.068848	0.006885	14524
26.0	-26.80	0.0021	96.26	86.51	0.030796	0.003080	32471
28.0	-34.90	0.0003	89.88	79.36	0.123823	0.012382	8076
30.0	-27.30	0.0019	84.39	73.09	0.268022	0.026802	3731
32.0	-19.30	0.0117	79.63	67.53	0.326952	0.032695	3058
34.0	-16.30	0.0234	75.46	62.56	0.362534	0.036253	2758
36.0	-15.90	0.0257	71.79	58.08	0.399367	0.039937	2503
38.0	-17.60	0.0174	68.54	54.01	0.436283	0.043628	2292
40.0	-21.50	0.0071	65.65	50.29	0.473551	0.047355	2111
42.0	-28.50	0.0014	63.06	46.86	0.448594	0.044859	2229
44.0	-40.00	0.0001	60.74	43.70	0.266912	0.026691	3746
46.0	-36.50	0.0002	58.66	40.75	0.094079	0.009408	10629
48.0	-35.50	0.0003	56.78	37.99	0.011144	0.001114	89731
50.0	-40.00	0.0001	55.08	35.41	0.011800	0.001180	84745
52.0	-40.00	0.0001	53.55	32.97	0.020398	0.002040	49024
54.0	-34.40	0.0004	52.16	30.66	0.022781	0.002278	43896
56.0	-32.10	0.0006	50.90	28.46	0.023780	0.002378	42052
58.0	-32.10	0.0006	49.76	26.37	0.024704	0.002470	40479
60.0	-33.80	0.0004	48.72	24.36	0.025578	0.002558	39096
62.0	-36.60	0.0002	47.79	22.44	0.026498	0.002650	37738
64.0	-39.90	0.0001	46.95	20.58	0.021938	0.002194	45583
66.0	-39.60	0.0001	46.19	18.79	0.026776	0.002678	37346
68.0	-35.20	0.0003	45.51	17.05	0.038777	0.003878	25788
70.0	-32.00	0.0006	44.90	15.36	0.042111	0.004211	23746
72.0	-30.40	0.0009	44.37	13.71	0.042783	0.004278	23373
74.0	-30.10	0.0010	43.90	12.10	0.043517	0.004352	22979
76.0	-31.10	0.0008	43.49	10.52	0.043981	0.004398	22737
78.0	-33.20	0.0005	43.14	8.97	0.044224	0.004422	22612
80.0	-36.40	0.0002	42.85	7.44	0.041822	0.004182	23910
82.0	-40.00	0.0001	42.61	5.93	0.030161	0.003016	33155
84.0	-40.00	0.0001	42.43	4.43	0.016417	0.001642	60910
86.0	-40.00	0.0001	42.30	2.95	0.007172	0.000717	139421
88.0	-40.00	0.0001	42.22	1.47	0.006692	0.000669	149438
90.0	-39.20	0.0001	42.20	0.00	0.006648	0.000665	150413

T-Mobile
CH76-318C - Crystal Lake Treatment
ANDREW:TMBXX-6516-R2M Antenna Worksheet (180 Sector)

Maximum Permissible Exposure (MPE):				1000			
ERP (Watts):	2005	**Height (feet):**	145	**Frequency (MHz):**	1975	**Downtilt (Degrees):**	0.0

Depression Angle (degrees)	Relative dB	Relative Gain	Slant Distance (meters)	Dist From Structure (meters)	Power Density (μW/cm^2)	Percent of MPE	Times Below MPE
0.1	0.00	1.0000	24176.59	24176.55	0.000114	0.000011	8742789
1.0	0.00	1.0000	2417.78	2417.41	0.011437	0.001144	87436
2.0	-0.50	0.8913	1209.07	1208.34	0.045733	0.004573	21865
3.0	-1.60	0.6918	806.25	805.15	0.102848	0.010285	9723
4.0	-3.20	0.4786	604.91	603.43	0.182711	0.018271	5473
5.0	-5.50	0.2818	484.15	482.30	0.285225	0.028523	3506
6.0	-8.90	0.1288	403.68	401.47	0.410265	0.041027	2437
7.0	-13.90	0.0407	346.24	343.66	0.500426	0.050043	1998
8.0	-25.00	0.0032	303.19	300.24	0.514235	0.051424	1944
9.0	-27.00	0.0020	269.74	266.42	0.458789	0.045879	2179
10.0	-18.40	0.0145	243.00	239.31	0.343453	0.034345	2911
12.0	-16.60	0.0219	202.95	198.52	0.079668	0.007967	12552
14.0	-22.70	0.0054	174.42	169.24	0.062581	0.006258	15979
16.0	-30.40	0.0009	153.09	147.16	0.081118	0.008112	12327
18.0	-21.00	0.0079	136.55	129.87	0.063115	0.006312	15843
20.0	-22.00	0.0063	123.37	115.93	0.048970	0.004897	20420
22.0	-30.90	0.0008	112.64	104.44	0.058573	0.005857	17072
24.0	-30.70	0.0009	103.74	94.77	0.068848	0.006885	14524
26.0	-26.80	0.0021	96.26	86.51	0.030718	0.003072	32554
28.0	-34.90	0.0003	89.88	79.36	0.123508	0.012351	8096
30.0	-27.30	0.0019	84.39	73.09	0.267680	0.026768	3735
32.0	-19.30	0.0117	79.63	67.53	0.326952	0.032695	3058
34.0	-16.30	0.0234	75.46	62.56	0.362534	0.036253	2758
36.0	-15.90	0.0257	71.79	58.08	0.399367	0.039937	2503
38.0	-17.60	0.0174	68.54	54.01	0.436283	0.043628	2292
40.0	-21.50	0.0071	65.65	50.29	0.473550	0.047355	2111
42.0	-28.50	0.0014	63.06	46.86	0.448594	0.044859	2229
44.0	-40.00	0.0001	60.74	43.70	0.267593	0.026759	3737
46.0	-36.50	0.0002	58.66	40.75	0.094319	0.009432	10602
48.0	-35.50	0.0003	56.78	37.99	0.011187	0.001119	89388
50.0	-40.00	0.0001	55.08	35.41	0.011800	0.001180	84745
52.0	-40.00	0.0001	53.55	32.97	0.020450	0.002045	48899
54.0	-34.40	0.0004	52.16	30.66	0.022868	0.002287	43728
56.0	-32.10	0.0006	50.90	28.46	0.023841	0.002384	41945
58.0	-32.10	0.0006	49.76	26.37	0.024767	0.002477	40376
60.0	-33.80	0.0004	48.72	24.36	0.025676	0.002568	38947
62.0	-36.60	0.0002	47.79	22.44	0.026498	0.002650	37738
64.0	-39.90	0.0001	46.95	20.58	0.021938	0.002194	45583
66.0	-39.60	0.0001	46.19	18.79	0.026776	0.002678	37346
68.0	-35.20	0.0003	45.51	17.05	0.038777	0.003878	25788
70.0	-32.00	0.0006	44.90	15.36	0.042165	0.004216	23716
72.0	-30.40	0.0009	44.37	13.71	0.042892	0.004289	23314
74.0	-30.10	0.0010	43.90	12.10	0.043517	0.004352	22979
76.0	-31.10	0.0008	43.49	10.52	0.043981	0.004398	22737
78.0	-33.20	0.0005	43.14	8.97	0.044393	0.004439	22525
80.0	-36.40	0.0002	42.85	7.44	0.041822	0.004182	23910
82.0	-40.00	0.0001	42.61	5.93	0.030276	0.003028	33028
84.0	-40.00	0.0001	42.43	4.43	0.016501	0.001650	60600
86.0	-40.00	0.0001	42.30	2.95	0.007200	0.000720	138889
88.0	-40.00	0.0001	42.22	1.47	0.006717	0.000672	148868
90.0	-39.20	0.0001	42.20	0.00	0.006674	0.000667	149840

T-Mobile
CH76-318C - Crystal Lake Treatment
ANDREW:TMBXX-6516-R2M Antenna Worksheet (300 Sector)

Maximum Permissible Exposure (MPE):				1000			
ERP (Watts):	2005	Height (feet):	145	Frequency (MHz):	1975	Downtilt (Degrees):	0.0

Depression Angle (degrees)	Relative dB	Relative Gain	Slant Distance (meters)	Dist From Structure (meters)	Power Density (µW/cm^2)	Percent of MPE	Times Below MPE
0.1	0.00	1.0000	24176.59	24176.55	0.000114	0.000011	8742789
1.0	0.00	1.0000	2417.78	2417.41	0.011437	0.001144	87436
2.0	-0.50	0.8913	1209.07	1208.34	0.045733	0.004573	21865
3.0	-1.60	0.6918	806.25	805.15	0.102848	0.010285	9723
4.0	-3.20	0.4786	604.91	603.43	0.182711	0.018271	5473
5.0	-5.50	0.2818	484.15	482.30	0.285225	0.028523	3506
6.0	-8.90	0.1288	403.68	401.47	0.410265	0.041027	2437
7.0	-13.90	0.0407	346.24	343.66	0.500426	0.050043	1998
8.0	-25.00	0.0032	303.19	300.24	0.514235	0.051424	1944
9.0	-27.00	0.0020	269.74	266.42	0.458789	0.045879	2179
10.0	-18.40	0.0145	243.00	239.31	0.343891	0.034389	2907
12.0	-16.60	0.0219	202.95	198.52	0.079668	0.007967	12552
14.0	-22.70	0.0054	174.42	169.24	0.062581	0.006258	15979
16.0	-30.40	0.0009	153.09	147.16	0.081429	0.008143	12280
18.0	-21.00	0.0079	136.55	129.87	0.063115	0.006312	15843
20.0	-22.00	0.0063	123.37	115.93	0.049095	0.004909	20368
22.0	-30.90	0.0008	112.64	104.44	0.058573	0.005857	17072
24.0	-30.70	0.0009	103.74	94.77	0.069023	0.006902	14487
26.0	-26.80	0.0021	96.26	86.51	0.030718	0.003072	32554
28.0	-34.90	0.0003	89.88	79.36	0.123508	0.012351	8096
30.0	-27.30	0.0019	84.39	73.09	0.267680	0.026768	3735
32.0	-19.30	0.0117	79.63	67.53	0.326952	0.032695	3058
34.0	-16.30	0.0234	75.46	62.56	0.362534	0.036253	2758
36.0	-15.90	0.0257	71.79	58.08	0.398858	0.039886	2507
38.0	-17.60	0.0174	68.54	54.01	0.435728	0.043573	2295
40.0	-21.50	0.0071	65.65	50.29	0.472947	0.047295	2114
42.0	-28.50	0.0014	63.06	46.86	0.447452	0.044745	2234
44.0	-40.00	0.0001	60.74	43.70	0.267593	0.026759	3737
46.0	-36.50	0.0002	58.66	40.75	0.094319	0.009432	10602
48.0	-35.50	0.0003	56.78	37.99	0.011187	0.001119	89388
50.0	-40.00	0.0001	55.08	35.41	0.011770	0.001177	84962
52.0	-40.00	0.0001	53.55	32.97	0.020450	0.002045	48899
54.0	-34.40	0.0004	52.16	30.66	0.022868	0.002287	43728
56.0	-32.10	0.0006	50.90	28.46	0.023841	0.002384	41945
58.0	-32.10	0.0006	49.76	26.37	0.024767	0.002477	40376
60.0	-33.80	0.0004	48.72	24.36	0.025676	0.002568	38947
62.0	-36.60	0.0002	47.79	22.44	0.026397	0.002640	37883
64.0	-39.90	0.0001	46.95	20.58	0.021882	0.002188	45699
66.0	-39.60	0.0001	46.19	18.79	0.026708	0.002671	37441
68.0	-35.20	0.0003	45.51	17.05	0.038678	0.003868	25854
70.0	-32.00	0.0006	44.90	15.36	0.042165	0.004216	23716
72.0	-30.40	0.0009	44.37	13.71	0.042892	0.004289	23314
74.0	-30.10	0.0010	43.90	12.10	0.043406	0.004341	23038
76.0	-31.10	0.0008	43.49	10.52	0.043869	0.004387	22795
78.0	-33.20	0.0005	43.14	8.97	0.044393	0.004439	22525
80.0	-36.40	0.0002	42.85	7.44	0.041663	0.004166	24002
82.0	-40.00	0.0001	42.61	5.93	0.030276	0.003028	33028
84.0	-40.00	0.0001	42.43	4.43	0.016501	0.001650	60600
86.0	-40.00	0.0001	42.30	2.95	0.007200	0.000720	138889
88.0	-40.00	0.0001	42.22	1.47	0.006717	0.000672	148868
90.0	-39.20	0.0001	42.20	0.00	0.006674	0.000667	149839

4 6 2010

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JUL 1 5 2010
BY:

EXAMPLE FLAG POLE TOWER - NILES, IL



LEASE SITE LEGAL DESCRIPTION:

A PARCEL OF LAND FOR LEASE SITE PURPOSES, BEING THAT PART OF THE NORTHEAST QUARTER OF SECTION 18 TOWNSHIP 43 NORTH RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID NORTHEAST QUARTER; THENCE SOUTH 00 DEGREES 10 MINUTES 19 SECONDS WEST ALONG THE EAST LINE OF SAID NORTHEAST QUARTER 690.51 FEET; THENCE NORTH 89 DEGREES 49 MINUTES 41 SECONDS WEST, 150.64 FEET; THENCE NORTH 00 DEGREES 10 MINUTES 19 SECONDS EAST, 8.00 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING NORTH 00 DEGREES 10 MINUTES 19 SECONDS EAST, 22.00 FEET; THENCE SOUTH 89 DEGREES 49 MINUTES 41 SECONDS EAST, 22.00 FEET; THENCE SOUTH 00 DEGREES 10 MINUTES 19 SECONDS WEST, 22.00 FEET; THENCE NORTH 89 DEGREES 49 MINUTES 41 SECONDS WEST, 22.00 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS 484.00 SQUARES FEET.

ACCESS & UTILITY EASEMENT LEGAL DESCRIPTION:

A PARCEL OF LAND FOR ACCESS & UTILITY EASEMENT PURPOSES, BEING THAT PART OF THE NORTHEAST QUARTER OF SECTION 18 TOWNSHIP 43 NORTH RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID NORTHEAST QUARTER; THENCE SOUTH 00 DEGREES 10 MINUTES 19 SECONDS WEST ALONG THE EAST LINE OF SAID NORTHEAST QUARTER, 690.51 FEET; THENCE NORTH 89 DEGREES 49 MINUTES 41 SECONDS WEST, 150.64 FEET; THENCE NORTH 00 DEGREES 10 MINUTES 19 SECONDS EAST, 30.00 FEET; THENCE SOUTH 89 DEGREES 49 MINUTES 41 SECONDS EAST, 5.92 FEET TO THE POINT OF BEGINNING; THENCE NORTH 00 DEGREES 10 MINUTES 19 SECONDS EAST, 17.00 FEET; THENCE SOUTH 89 DEGREES 49 MINUTES 41 SECONDS EAST, 106.62 FEET; THENCE NORTH 45 DEGREES 10 MINUTES 19 SECONDS EAST, 16.97 FEET; THENCE NORTH 00 DEGREES 10 MINUTES 19 SECONDS EAST, 64.36 FEET; THENCE NORTH 14 DEGREES 04 MINUTES 09 SECONDS WEST, 82.54 FEET; THENCE NORTH 35 DEGREES 57 MINUTES 41 SECONDS WEST, 51.03 FEET; THENCE NORTH 63 DEGREES 49 MINUTES 23 SECONDS WEST, 48.64 FEET; THENCE NORTH 89 DEGREES 49 MINUTES 41 SECONDS WEST, 60.17 FEET; THENCE NORTH 44 DEGREES 49 MINUTES 41 SECONDS WEST, 21.21 FEET; THENCE NORTH 00 DEGREES 10 MINUTES 19 SECONDS EAST, 409.90 FEET TO THE NORTH LINE OF THE AFORMENTIONED NORTHEAST QUARTER; THENCE SOUTH 89 DEGREES 44 MINUTES 37 SECONDS EAST ALONG SAID NORTH LINE, 12.00 FEET; THENCE SOUTH 00 DEGREES 10 MINUTES 19 SECONDS WEST, 404.91 FEET; THENCE SOUTH 44 DEGREES 49 MINUTES 41 SECONDS EAST, 11.27 FEET; THENCE SOUTH 89 DEGREES 49 MINUTES 41 SECONDS EAST, 57.97 FEET; THENCE SOUTH 63 DEGREES 49 MINUTES 23 SECONDS EAST, 54.39 FEET; THENCE SOUTH 35 DEGREES 57 MINUTES 41 SECONDS EAST, 56.33 FEET; THENCE SOUTH 14 DEGREES 04 MINUTES 09 SECONDS EAST, 86.36 FEET; THENCE SOUTH 00 DEGREES 10 MINUTES 19 SECONDS WEST, 70.83 FEET; THENCE SOUTH 45 DEGREES 10 MINUTES 19 SECONDS WEST, 26.91 FEET; THENCE NORTH 89 DEGREES 49 MINUTES 41 SECONDS WEST, 95.51 FEET; THENCE SOUTH 00 DEGREES 10 MINUTES 19 SECONDS WEST, 5.00 FEET; THENCE NORTH 89 DEGREES 49 MINUTES 41 SECONDS WEST, 16.08 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS 7,758 SQUARE FEET.

UTILITY EASEMENT LEGAL DESCRIPTION:

A PARCEL OF LAND FOR UTILITY EASEMENT PURPOSES, BEING THAT PART OF THE NORTHEAST QUARTER OF SECTION 18 TOWNSHIP 43 NORTH RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID NORTHEAST QUARTER; THENCE SOUTH 00 DEGREES 10 MINUTES 19 SECONDS WEST ALONG THE EAST LINE OF SAID NORTHEAST QUARTER, 16.68 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING SOUTH 00 DEGREES 10 MINUTES 19 SECONDS WEST ALONG SAID EAST LINE, 673.83 FEET; THENCE NORTH 89 DEGREES 49 MINUTES 41 SECONDS WEST, 150.64 FEET; THENCE NORTH 00 DEGREES 10 MINUTES 19 SECONDS EAST, 8.00 FEET; THENCE SOUTH 89 DEGREES 49 MINUTES 41 SECONDS EAST, 142.64 FEET; THENCE NORTH 00 DEGREES 10 MINUTES 19 SECONDS EAST PARALLEL WITH THE EAST LINE OF THE AFOREMENTIONED NORTHEAST QUARTER, 662.52 FEET; THENCE NORTH 44 DEGREES 47 MINUTES 09 SECONDS WEST, 16.98 FEET; THENCE NORTH 89 DEGREES 44 MINUTES 37 SECONDS WEST, 133.00 FEET; THENCE NORTH 00 DEGREES 15 MINUTES 23 SECONDS EAST, 8.00 FEET TO THE NORTH LINE OF THE AFROEMENTIONED NORTHEAST QUARTER; THENCE SOUTH 89 DEGREES 44 MINUTES 37 SECONDS EAST ALONG SAID NORTH LINE, 136.31 FEET; THENCE SOUTH 44 DEGREES 47 MINUTES 09 SECONDS EAST, 23.60 FEET TO THE POINT OF BEGINNING.

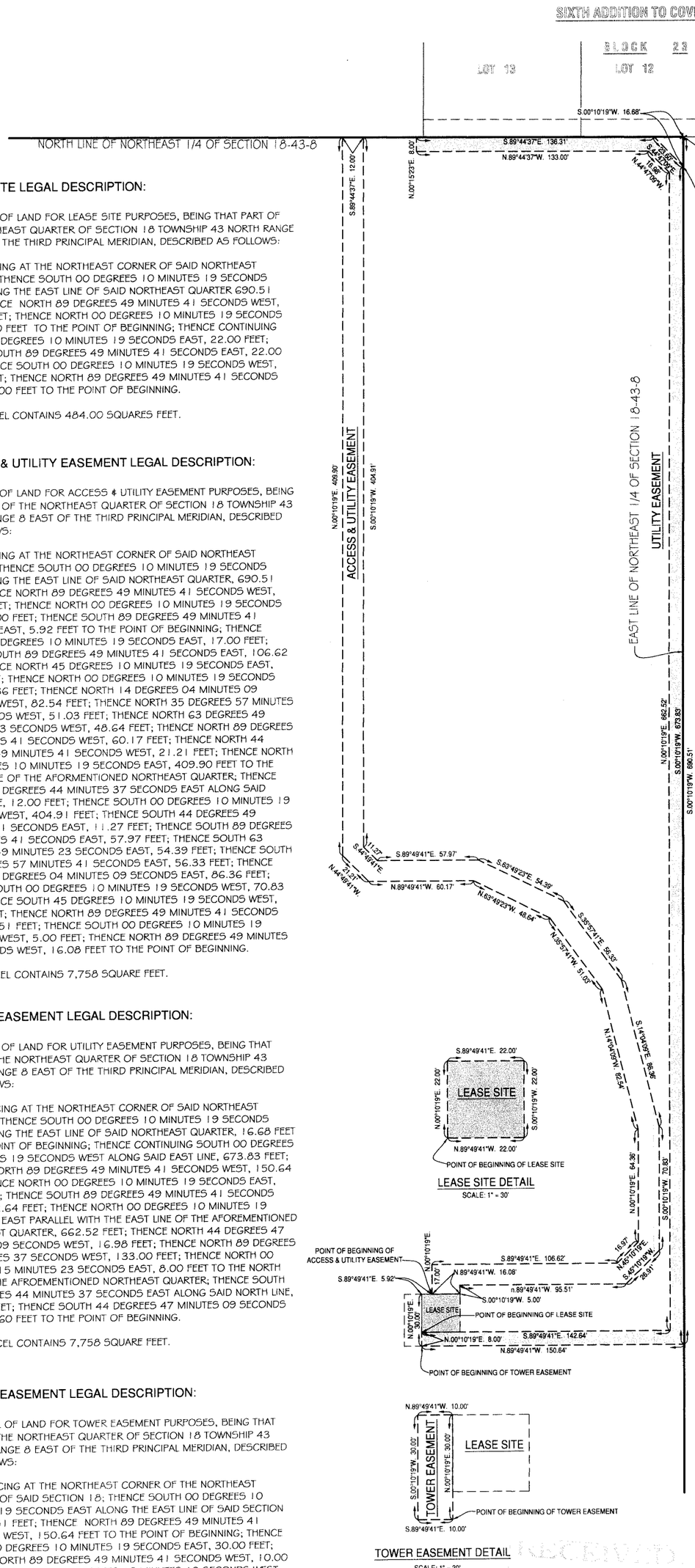
SAID PARCEL CONTAINS 7,758 SQUARE FEET.

TOWER EASEMENT LEGAL DESCRIPTION:

A PARCEL OF LAND FOR TOWER EASEMENT PURPOSES, BEING THAT PART OF THE NORTHEAST QUARTER OF SECTION 18 TOWNSHIP 43 NORTH RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF THE NORTHEAST QUARTER OF SAID SECTION 18; THENCE SOUTH 00 DEGREES 10 MINUTES 19 SECONDS EAST ALONG THE EAST LINE OF SAID SECTION 18, 690.51 FEET; THENCE NORTH 89 DEGREES 49 MINUTES 41 SECONDS WEST, 150.64 FEET TO THE POINT OF BEGINNING; THENCE NORTH 00 DEGREES 10 MINUTES 19 SECONDS EAST, 30.00 FEET; THENCE NORTH 89 DEGREES 49 MINUTES 41 SECONDS WEST, 10.00 FEET; THENCE SOUTH 00 DEGREES 10 MINUTES 19 SECONDS WEST, 30.00 FEET; THENCE SOUTH 89 DEGREES 49 MINUTES 41 SECONDS EAST, 10.00 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS 300.00 SQUARES FEET.



BASIS OF BEARING

BEARINGS SHOWN HEREON ARE ASSUMED

N
W — E
S

0 15 30 60 120

GRAPHIC SCALE
Scale: 1 Inch = 60 Feet

PREPARED BY:

ASVM
Advanced Surveying & Mapping
PO Box 7
Plano, IL 60545
Telephone (630) 273-2500
Fax (630) 273-2600
E-MAIL advanced@advct.com

MAP NOT TO SCALE

DATE	REVISIONS / UPDATES
5/19/2009	FIELD SURVEY COMPLETED
1/21/2010	FINAL SURVEY COMPLETED

PREPARED FOR:

forge
Forge Services, Inc.
2210 MIDWEST RD. STE 213
OAK BROOK, IL 60523

T-Mobile
T-Mobile USA, Inc.
8550 W Bryn Mawr Ave
Suite 100
Chicago, IL 60631
(773) 444-5400

SITE DESIGNATION INFORMATION:

CH76-318A
CRYSTAL LAKE TREATMENT PLANT
1100 COVENTRY LANE
CRYSTAL LAKE, IL 60014

DRAWN BY: DL	DATE OF DRAWING: 1/21/2010
CHECKED BY: KWS	PROJECT NO.: 711119

PLAT OF SURVEY
LEASE SITE & EASEMENTS

LS-2

SHEET 2 OF 2

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JUL 15 2010

4 6 2010

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CH76318C
CRYSTAL LAKE TREATMENT PLANT

1100 COVENTRY LN.
CRYSTAL LAKE, IL 60014

SITE TYPE

RAWLAND

STRUCTURE HEIGHT: **139'-0"H**
STRUCTURE TYPE: **STEALTH POLE**
ANTENNA QTY: **6**
ANTENNA HEIGHT (CL): **130 FT., 123 FT.**
LEASE AREA: **22'-0" X 22'-0"**
EQUIPMENT: **S18000 BTS**

APPLICABLE CODES

2006 INTERNATIONAL BUILDING CODE
2006 INTERNATIONAL MECHANICAL CODE
2006 INTERNATIONAL FUEL GAS CODE
2006 INTERNATIONAL FIRE CODE
2006 INTERNATIONAL ENERGY CONSERVATION CODE
2005 NATIONAL ELECTRIC CODE

4 6 2010

JUL 1 5 2010

SITE INFORMATION

PROPERTY OWNER:	CITY OF CRYSTAL LAKE 100 W. WOODSTOCK ST. CRYSTAL LAKE, IL 60014
SITE ADDRESS:	1100 COVENTRY LN. CRYSTAL LAKE, IL 60014
APPLICANT:	T-MOBILE USA, INC. 8550 W. BRYN MAWR AVE. CHICAGO, IL 60631
T-MOBILE CONTACT:	LUIS MORALES (312) 804-9108
COUNTY:	MCHENRY
PIN:	19-18-200-015
ZONING CLASS:	RE-1
ZONING JURISDICTION:	CITY OF CRYSTAL LAKE
SURVEYOR:	ADVANCED SURVEYING & MAPPING 903 APPALOOSA TRL PLANO, IL 60545-2102
GEOTECHNICAL:	G2 CONSULTING GROUP, LLC 830 SETON COURT, SUITE 5 WHEELING, IL 60090
POWER COMPANY:	COMED ELECTRIC 125 S. CLARK ST. CHICAGO, IL 60603 TEL. (800) 334-7661 ENG. (773) 509-3294
TELEPHONE COMPANY:	AT&T CORPORATION 2000 W AMERITECH CENTER DR. SUITE 4 - C - 10 HOFFMAN ESTATES, IL 60191 T. 1-800-257-0902

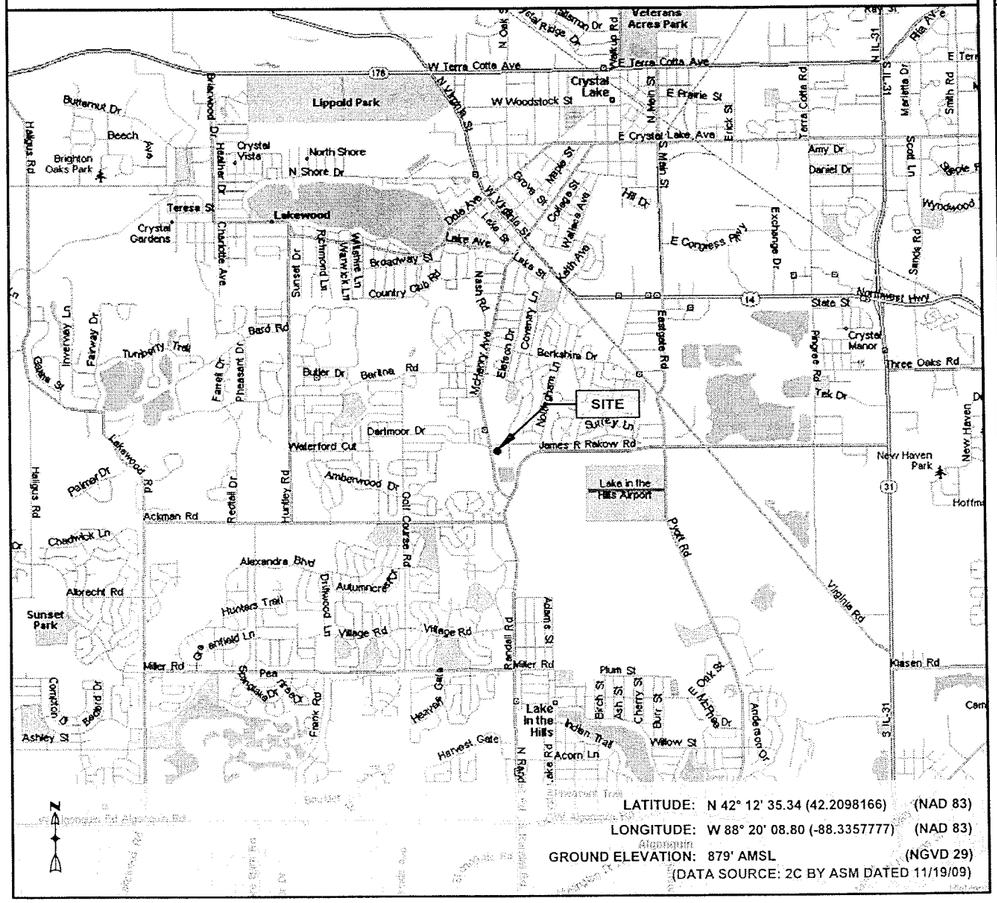
DRIVING DIRECTIONS

0.0 DEPART 8550 W BRYN MAWR AVE ON W BRYN MAWR AVE
0.3 TURN LEFT (NORTH) ONTO SR-171 [N CUMBERLAND AVE]
0.6 TAKE RAMP (RIGHT) ONTO I-90 [KENNEDY EXPY W]
1.5 *TOLL ROAD* KEEP LEFT TO STAY ON I-90 [NW TOLLWAY]
28.0 TURN RIGHT ONTO RAMP
28.3 KEEP RIGHT TO STAY ON RAMP
28.4 KEEP STRAIGHT ONTO CR-34 [N RANDALL RD]
33.3 ROAD NAME CHANGES TO (S) RANDALL RD
37.0 TURN LEFT (WEST) ONTO MCHENRY AVE
37.4 TURN RIGHT (EAST) ONTO DARTMOOR DR
37.5 TURN RIGHT (SOUTH) ONTO LOCAL ROAD(S)
37.5 ARRIVE AT SITE

SUMMARY
DRIVING DISTANCE: 37.5 MILES
TRIP DURATION: 43 MINUTES

LOCATION MAP

NO SCALE



LATITUDE: N 42° 12' 35.34 (42.2098166) (NAD 83)
LONGITUDE: W 88° 20' 08.80 (-88.3357777) (NAD 83)
GROUND ELEVATION: 879' AMSL (NGVD 29)
(DATA SOURCE: 2C BY ASM DATED 11/19/09)

DRAWING INDEX

TOTAL PGS: 31

NO.	SHEET NO.	SHEET TITLE	REVISIONS
1	T1.1	TITLE SHEET	
2	BOM1.1	BILL OF MATERIALS	
3	LS1.1	LANDSCAPE PLAN	
4	C1.1	SITE PLAN	
5	C1.2	ENLARGED SITE PLAN	
6	C2.1	ENLARGED SITE PLAN	
7	C3.1	ELEVATIONS	
8	C4.1	DETAILS	
9	C5.1	H-FRAME DETAILS	
10	C6.1	FENCE DETAILS	
11	C7.1	EQUIPMENT DETAILS	
12	C8.1	BATTERY BACKUP DET	
13	C9.1	FLEXI MOUNTING DET	
14	S1.1	STRUCTURAL NOTES	
15	S2.1	FOUNDATION PLAN	
16	RF1.1	ANTENNA SPECIFICATIONS	
17	RF2.1	TMA DETAILS	
18	E1.1	UTILITY PLAN	
19	E1.2	UTILITY PLAN	
20	E2.1	ELECTRICAL LAYOUT	
21	E3.1	PPC DETAILS	
22	E4.1	UTILITY DETAILS	
23	G1.1	GROUNDING PLAN	
24	G2.1	GROUNDING RISER	
25	G3.1	GROUNDING DETAILS	
26	G4.1	GROUNDING DETAILS	
27	SFTY1.1	REQUIRED SIGNAGE	
28	GN1.1	GENERAL NOTES	
29	GN2.1	GENERAL NOTES	
30	GN3.1	GENERAL NOTES	
31	GN4.1	GENERAL NOTES	

FREDERICK Y. BENJAMIN
081-004042
REGISTERED
STRUCTURAL
ENGINEER
OF
ILLINOIS

EXPIRES 11/30/10

CONTACT INFORMATION

CONTACT:	FORGE SERVICES, INC. 2210 MIDWEST RD. STE. 213 OAK BROOK, IL 60523	PHONE: FAX:	(630) 264-6485 (630) 206-0119 www.forge-inc.com

CONSTRUCT ONLY FROM DRAWINGS MARKED "ISSUED FOR CONSTRUCTION"

ILLINOIS ONE CALL SYSTEM
CALL BEFORE YOU DIG AT 1-800-892-0123
INSIDE CHICAGO CITY LIMITS CALL DIGGER AT 1-312-744-7000

THIS NOTICE MUST BE AT LEAST 72 HOURS/THREE WORKING DAYS PRIOR TO THE START OF EXCAVATION

T··Mobile··
T-MOBILE USA, INC.
8550 W. BRYN MAWR AVE.
CHICAGO, IL 60631

forge
FORGE SERVICES, INC.
T: (630) 264-6485
F: (630) 206-0119
2210 MIDWEST RD. STE 213
OAK BROOK, IL 60523

kamry CONSULTING ENGINEERS
406 MEADOW RIDGE
PROSPECT HEIGHTS, IL 60070
TEL (847) 670-7413
FAX (847) 670-7434
WWW.KAMRYENG.COM

FORGE PROJECT NO:	**1231-58**
DRAWN BY:	**DP**
CHECKED BY:	**FB**

REV.	DATE	DESCRIPTION
A	4/10/09	ISSUED FOR LEASE EXHIBIT
B	10/06/09	ISSUED FOR REVIEW
C	02/03/10	ISSUED FOR PERMIT
D	05/11/10	ISSUED FOR PERMIT

FREDERICK Y. BENJAMIN
062-033842
REGISTERED
PROFESSIONAL
ENGINEER
OF
ILLINOIS

DATE SIGNED 5/11/10

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CH76318C
CRYSTAL LAKE
TREATMENT PLANT

1100 COVENTRY LN.
CRYSTAL LAKE, IL 60014

RAWLAND

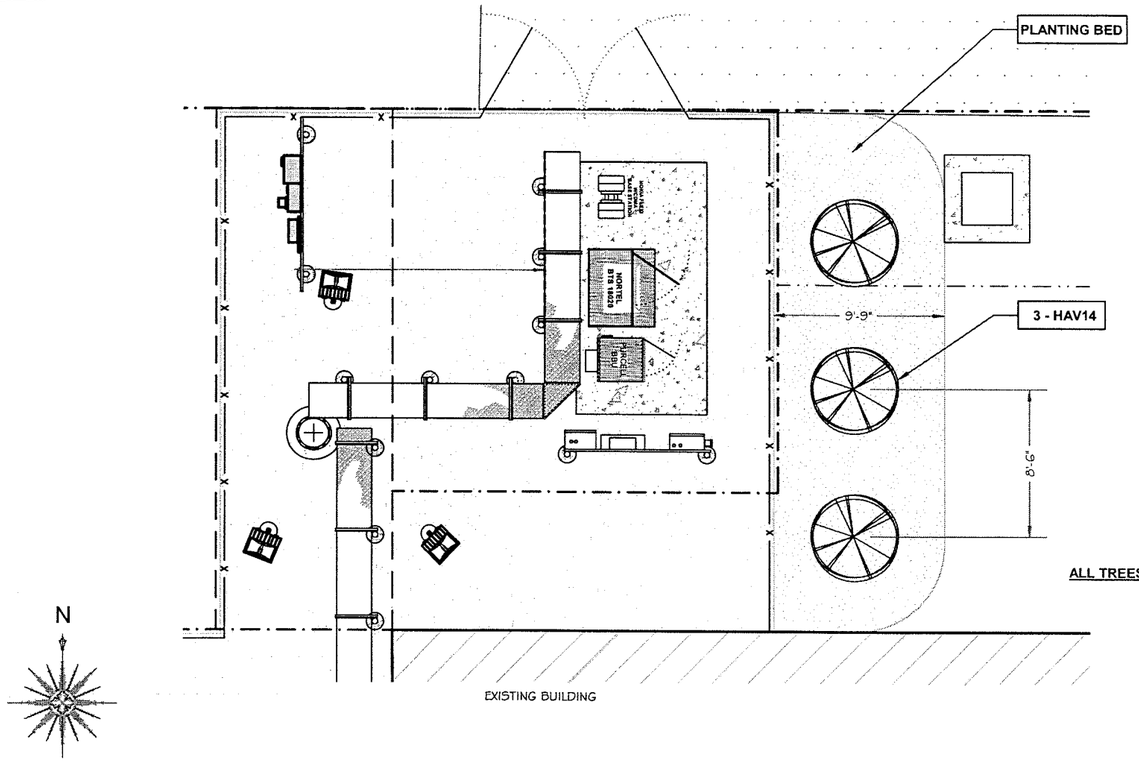
TITLE SHEET

T1.1

THIS DRAWING IS SCALED FOR 11"x17" PAPER (U.S. GOVT. "TABLOID")

1 LANDSCAPE PLAN

SCALE: 1" = 8'-0"

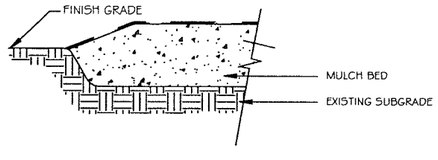


QUAN.	KEY	BOTANICAL NAME / COMMON NAME	SIZE	MATURE HEIGHT	SPREAD
15	HAVI4	HAMAMELIS VIRGINIANA L. AMERICAN WITCHHAZEL	6'H	10' - 15'	3' - 6'

ALL TREES SHALL MEET AMERICAN STANDARD FOR NURSERY STOCK (AMSI, 1990, PART 1, "SHADE AND FLOWERING TREES")

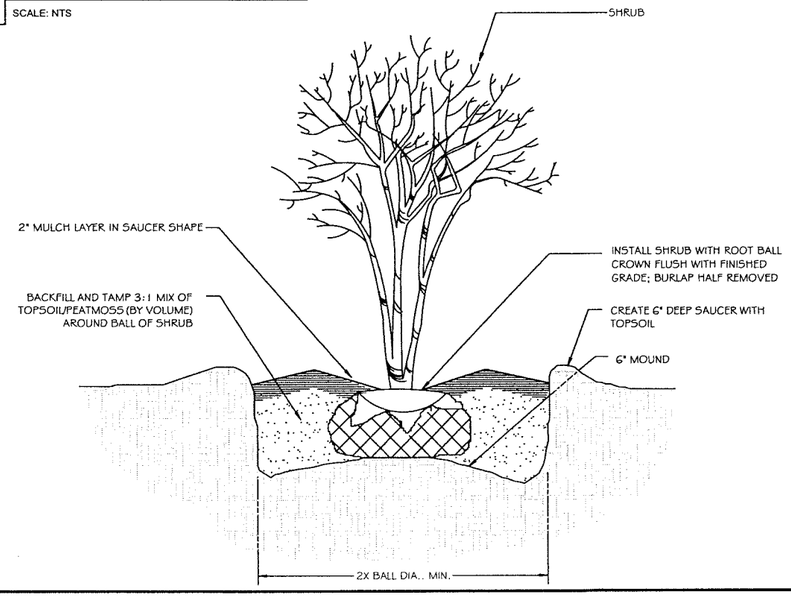
3 MULCH BED

SCALE: NTS



3 SHRUB PLANTING DETAIL

SCALE: NTS



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406 MEADOW RIDGE
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FAX: (847) 670-7434
WWW.KAMRYENG.COM

FORGE PROJECT NO: 1231-58
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D	05/11/10	ISSUED FOR PERMIT

FREDERICK Y. BENJAMIN
062-033842
REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS
DATE SIGNED: _____
EXPIRES: _____

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CRYSTAL LAKE TREATMENT PLANT

1100 COVENTRY LN.
CRYSTAL LAKE, IL 60014

RAWLAND

LANDSCAPE PLAN

LS1.1

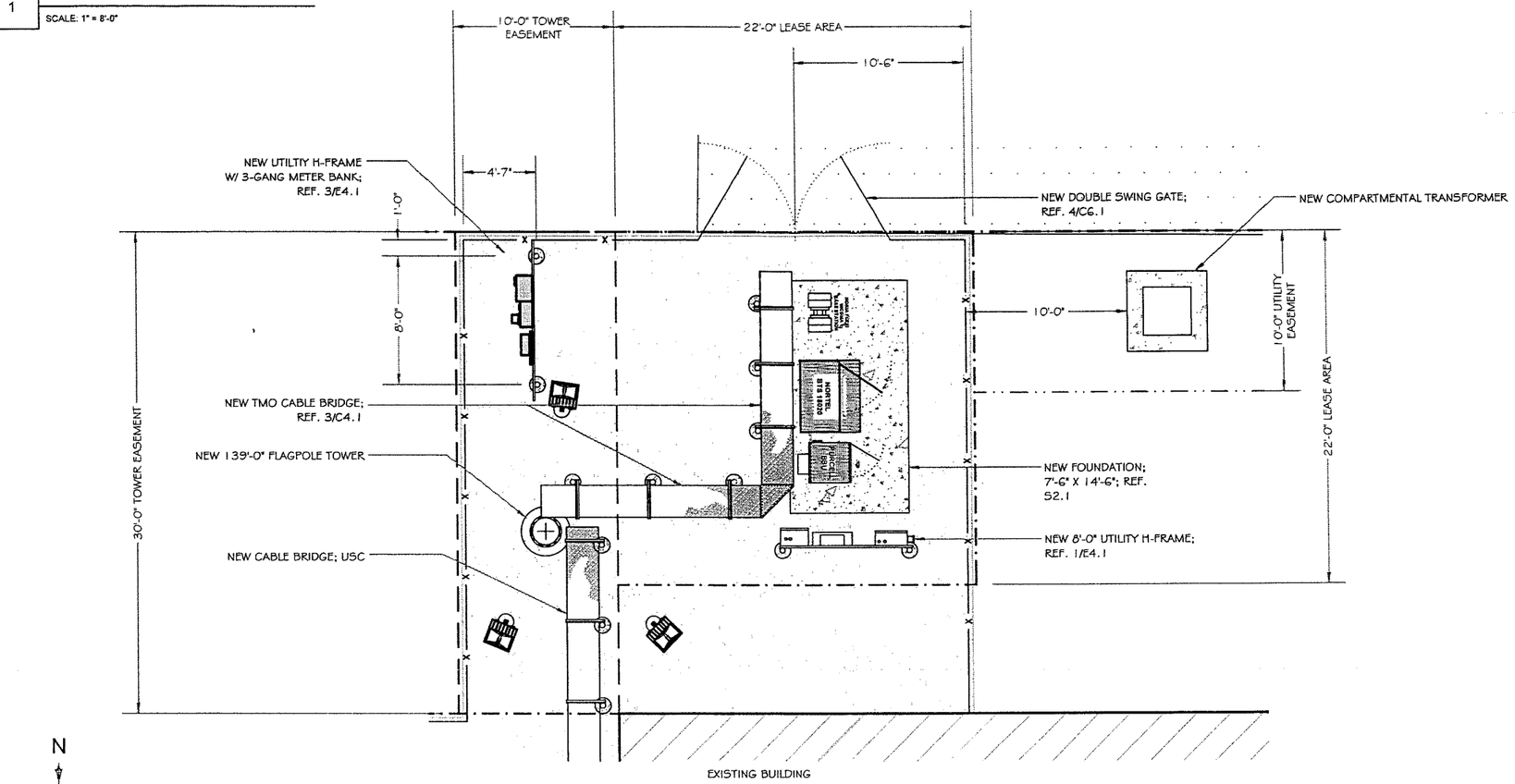
THIS DRAWING IS SCALED FOR 11x17 PAPER (U.S. GOVT. "TABLOID")

LEGEND

- MANHOLE/VALVE VAULT
- CATCH BASIN
- CURB INLET
- VALVE (INDIVIDUAL SERVICE)
- FIRE HYDRANT
- STREET LIGHT/LIGHT POST
- UTILITY/POWER POLE
- GUY WIRE/ANCHOR
- TELEPHONE PEDESTAL
- ELECTRIC METER
- GAS METER
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL BOX
- SIGN
- MAIL BOX
- HANDHOLE
- DRAINPIPE
- FES (AT END OF PIPE)
- CHAIN LINK FENCE
- WOOD FENCE
- DEPRESSED CURB
- CONCRETE CURB & GUTTER
- SS — SANITARY SEWER
- STS — STORM SEWER
- W — WATER MAIN
- OE — OVERHEAD ELECTRIC
- UE — UNDERGROUND ELECTRIC
- OT — OVERHEAD TELEPHONE
- UT — UNDERGROUND TELEPHONE
- G — GAS LINE
- C — CABLE LINE
- BUSH/SHRUB
- TREE DECIDUOUS
- TREE NON-DECIDUOUS
- DRAINAGE ARROW
- 379 — CONTOUR LINE
- 378.45 — SPOT ELEVATION
- T/F — TOP OF FOUNDATION
- T/C — TOP OF CONCRETE/CAISSON
- FF — FINISHED FLOOR
- A.G.L. — ABOVE GROUND LEVEL
- BOUNDARY LINE
- CONCRETE
- ASPHALT
- GRAVEL
- BRICK
- EXISTING BUILDING
- LEASE SITE
- ACCESS EASEMENT

1 ENLARGED SITE PLAN

SCALE: 1" = 8'-0"



CONSTRUCTION NOTES

1. ELEVATIONS ARE ABOVE MEAN SEA LEVEL UNLESS INDICATED OTHERWISE.
2. ALL EXISTING EASEMENTS, PROPERTY LINES,SECTION LINES AND ROADWAYS ARE INDICATED ON THIS DRAWING TO THE BEST OF THE ARCHITECTS KNOWLEDGE AS GATHER BY VISUAL INSPECTION, SURVEY DRAWINGS, AND INFORMATION RECEIVED FROM THE CARRIER.
4. ALL CONSTRUCTION SHALL CONFORM TO CURRENT LOCAL., STATE, AND FEDERAL CODES.
5. THE CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO PROTECT EXISTING STRUCTURES, HALLWAYS, WALLS, DOORS AND OTHER FACILITIES FROM UNNESSESARY EXPOSURE TO DAMAGE, AND DUST; ALL CARPET, TILE, OR OTHER FINISHED FLOOR TYPE SHALL BE PROTECTED WITH MASONITE SHEETS SECURED TO FLOOR WITH TAPE DURING WORKING HOURS
6. ALL CONSTRUCTION RELATED ACTIVITES SHALL BE COORDINATED ACCORDING TO OWNER APPROVED TIME SCHEDULE
7. IF BUILDING IS TENANT OCCUPIED, ALL ACTIVITIES CAUSING NOISE DISTURBANCES SUCH AS DRILLING, CORING, HAMMERING, AND CUTTING SHALL BE APPROVED BY OWNER IN ADVANCE
8. THE CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING COLUMNS, BEAMS, AND BEARING WALLS BELOW ROOF WHICH ARE RELATED TO DESIGN
9. CONTRACTOR TO OBTAIN ORIGINAL BUILDING DRAWINGS AND VERIFY LOCATION AND EXISTANCE OF ALL STRUCTURAL COMPONENTS WITHIN BUILDING; ALL DISCREPENCIES BETWEEN ORIGINAL BUILDING DESIGN AND THIS DESIGN SHALL BE BROUGHT TO THE ATTENTION OF ENGINEER IN WRITING BEFORE COMMENCEMENT OF WORK
10. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE SAFETY AND IF NESSESARY THE REPAIR OF ALL EXISTING BUILDING SYSTEMS
11. DO NOT INTERUPT SERVICES TO ANY ADJACENT STRUCTURES OR FACILITIES WITHOUT WRITTEN PERMISSION FROM THE PROPERTY OWNER.
12. CONTRACTOR SHALL NOT LEAVE ANY DEBRIS, TOOLS, OR LOOSE CONSTRUCTION MATERIAL ON ROOF DURING NON-WORKING HOURS
13. COMMENCMENT OF CONSTRUCTION SHALL BEGIN ONLY WITH THE WRITEN APPROVAL OF THE OWNER OR OWNER'S REPRESENTATIVE; ALL CONSTRUCTION AND MATERIAL ORDERING SHALL BE DONE WITH DRAWINGS LABELED "ISSUED FOR CONSTRUCTION"
14. NO DUMPING OF CONSTRUCTION RELATED MATERIALS IN OWNER WASTE RECEPTICLES; ALL MATERIAL MUST BE BE HAULED OFF SITE.
15. ACCESS BY OTHERS TO ANY FACILITY ON SITE CAN NOT BE BLOCKED AT ANYTIME.
16. ALL SAFETY HAZARDS MUST BE MARKED WITH WARNING TAPE OR SAFETY FENCE.
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FREDERICK Y. BENJAMIN
062-033842
REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS
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CRYSTAL LAKE TREATMENT PLANT
1100 COVENTRY LN.
CRYSTAL LAKE, IL 60014
RAWLAND

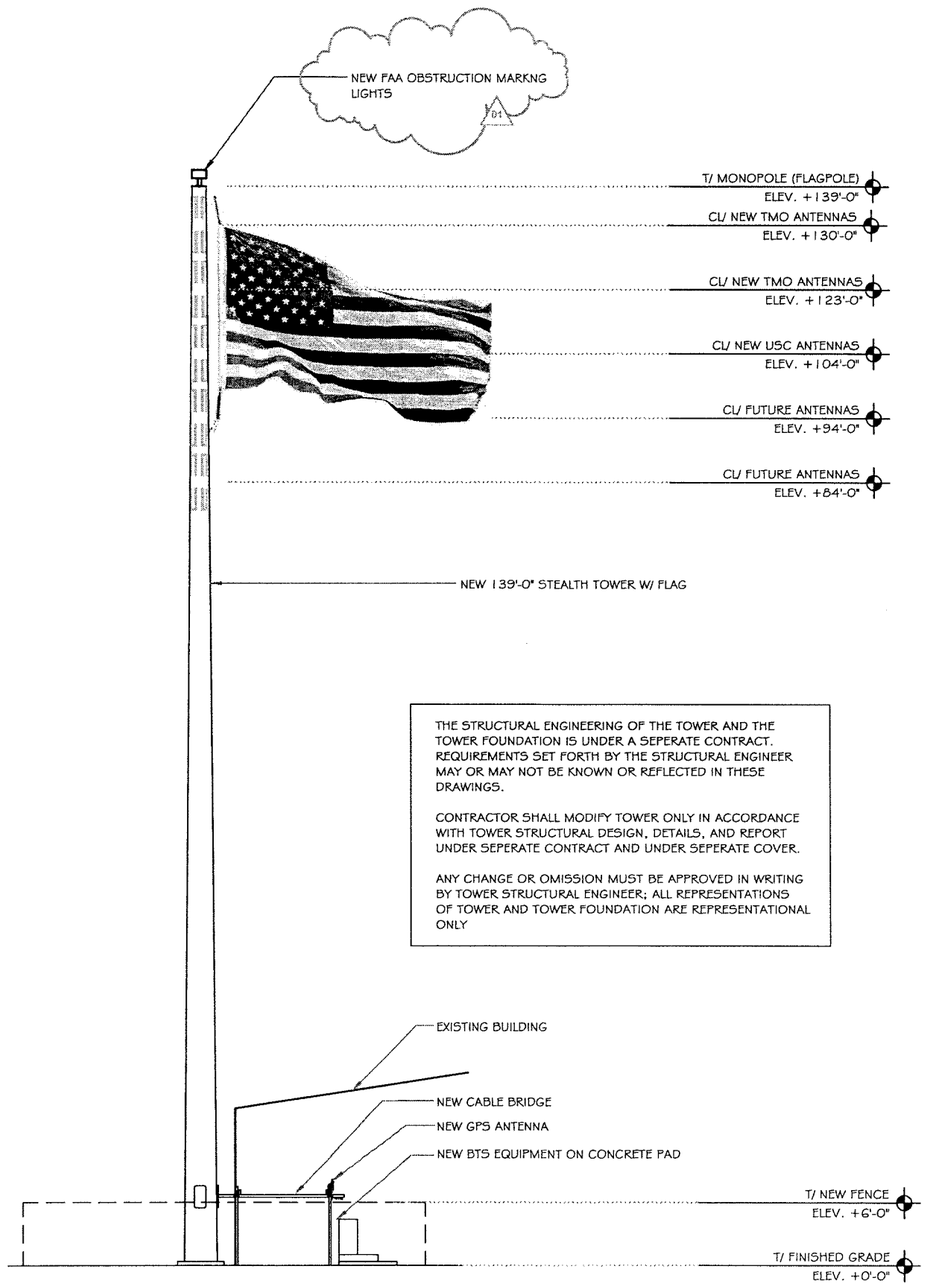
ENLARGED SITE PLAN

C2.1

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1 ELEVATION

SCALE: NTS



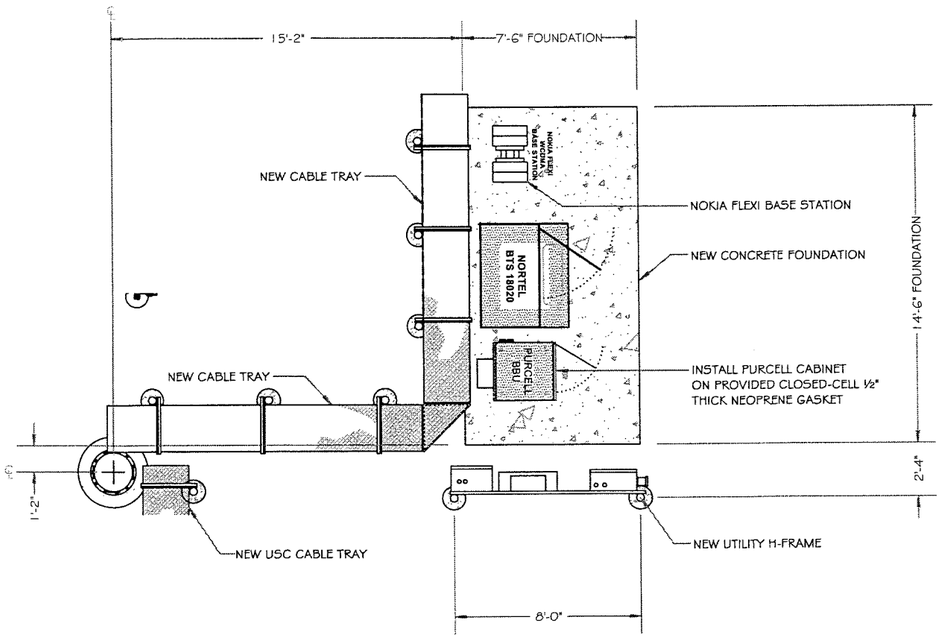
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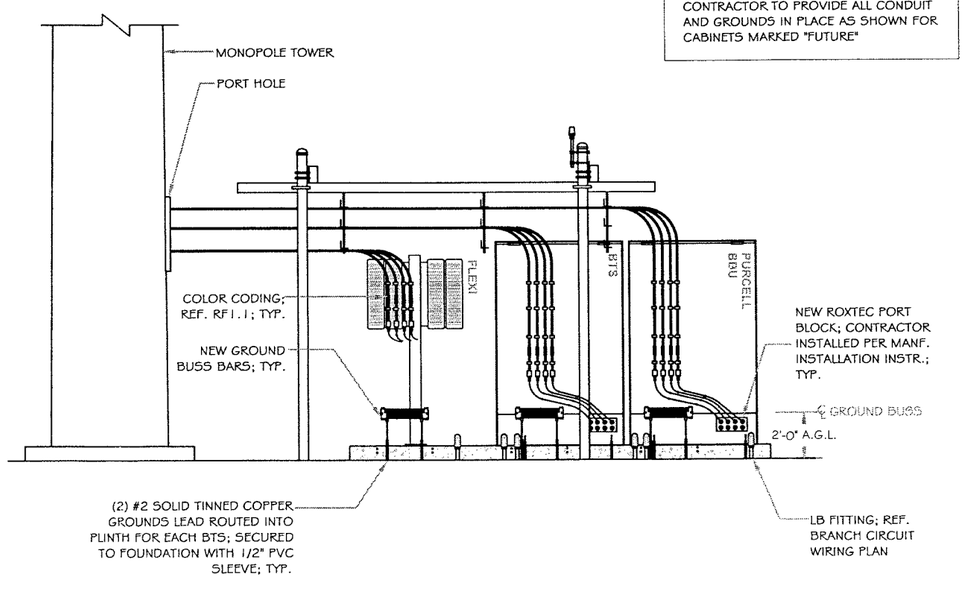
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3 ENLARGED ELEVATION

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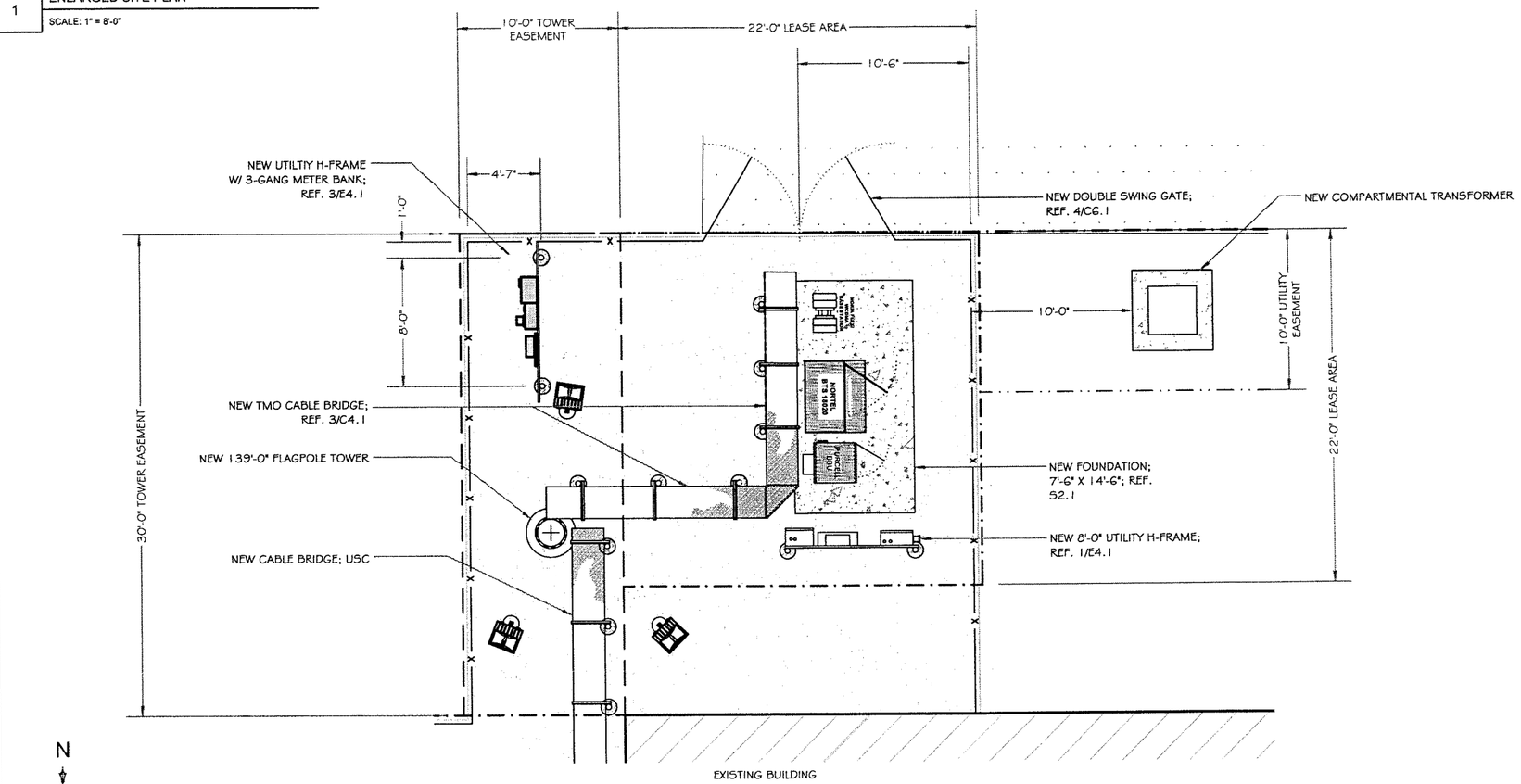
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LEGEND

- MANHOLE/VALVE VAULT
- CATCH BASIN
- CURB INLET
- VALVE (INDIVIDUAL SERVICE)
- FIRE HYDRANT
- STREET LIGHT/LIGHT POST
- UTILITY/POWER POLE
- GUY WIRE/ANCHOR
- TELEPHONE PEDESTAL
- ELECTRIC METER
- GAS METER
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL BOX
- SIGN
- MAIL BOX
- HANDHOLE
- DRAINPIPE
- FES (AT END OF PIPE)
- CHAIN LINK FENCE
- WOOD FENCE
- DEPRESSED CURB
- CONCRETE CURB & GUTTER
- SS — SANITARY SEWER
- STS — STORM SEWER
- W — WATER MAIN
- OE — OVERHEAD ELECTRIC
- UE — UNDERGROUND ELECTRIC
- OT — OVERHEAD TELEPHONE
- UT — UNDERGROUND TELEPHONE
- G — GAS LINE
- C — CABLE LINE
- BUSH/SHRUB
- TREE DECIDUOUS
- TREE NON-DECIDUOUS
- DRAINAGE ARROW
- 370 — CONTOUR LINE
- 378.45 + — SPOT ELEVATION
- T/F — TOP OF FOUNDATION
- T/C — TOP OF CONCRETE/CAISSON
- FF — FINISHED FLOOR
- A.G.L. — ABOVE GROUND LEVEL
- BOUNDARY LINE
- CONCRETE
- ASPHALT
- GRAVEL
- BRICK
- EXISTING BUILDING
- LEASE SITE
- ACCESS EASEMENT

1 ENLARGED SITE PLAN

SCALE: 1" = 8'-0"



CONSTRUCTION NOTES

1. ELEVATIONS ARE ABOVE MEAN SEA LEVEL UNLESS INDICATED OTHERWISE.
2. ALL EXISTING EASEMENTS, PROPERTY LINES,SECTION LINES AND ROADWAYS ARE INDICATED ON THIS DRAWING TO THE BEST OF THE ARCHITECTS KNOWLEDGE AS GATHER BY VISUAL INSPECTION, SURVEY DRAWINGS, AND INFORMATION RECEIVED FROM THE CARRIER.
4. ALL CONSTRUCTION SHALL CONFORM TO CURRENT LOCAL., STATE, AND FEDERAL CODES.
5. THE CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO PROTECT EXISTING STRUCTURES, HALLWAYS, WALLS, DOORS AND OTHER FACILITIES FROM UNNESSESARY EXPOSURE TO DAMAGE, AND DUST; ALL CARPET, TILE, OR OTHER FINISHED FLOOR TYPE SHALL BE PROTECTED WITH MASONITE SHEETS SECURED TO FLOOR WITH TAPE DURING WORKING HOURS
6. ALL CONSTRUCTION RELATED ACTIVITES SHALL BE COORDINATED ACCORDING TO OWNER APPROVED TIME SCHEDULE
7. IF BUILDING IS TENANT OCCUPIED, ALL ACTIVITIES CAUSING NOISE DISTURBANCES SUCH AS DRILLING, CORING, HAMMERING, AND CUTTING SHALL BE APPROVED BY OWNER IN ADVANCE
8. THE CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING COLUMNS, BEAMS, AND BEARING WALLS BELOW ROOF WHICH ARE RELATED TO DESIGN
9. CONTRACTOR TO OBTAIN ORIGINAL BUILDING DRAWINGS AND VERIFY LOCATION AND EXISTANCE OF ALL STRUCTURAL COMPONENTS WITHIN BUILDING; ALL DISCREPENCIES BETWEEN ORIGINAL BUILDING DESIGN AND THIS DESIGN SHALL BE BROUGHT TO THE ATTENTION OF ENGINEER IN WRITING BEFORE COMMENCEMENT OF WORK
10. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE SAFETY AND IF NESSESARY THE REPAIR OF ALL EXISTING BUILDING SYSTEMS
11. DO NOT INTERUPT SERVICES TO ANY ADJACENT STRUCTURES OR FACILITIES WITHOUT WRITTEN PERMISSION FROM THE PROPERTY OWNER.
12. CONTRACTOR SHALL NOT LEAVE ANY DEBRIS, TOOLS, OR LOOSE CONSTRUCTION MATERIAL ON ROOF DURING NON-WORKING HOURS
13. COMMENCMENT OF CONSTRUCTION SHALL BEGIN ONLY WITH THE WRITEN APPROVAL OF THE OWNER OR OWNER'S REPRESENTATIVE; ALL CONSTRUCTION AND MATERIAL ORDERING SHALL BE DONE WITH DRAWINGS LABELED "ISSUED FOR CONSTRUCTION"
14. NO DUMPING OF CONSTRUCTION RELATED MATERIALS IN OWNER WASTE RECEPTICLES; ALL MATERIAL MUST BE BE HAULED OFF SITE.
15. ACCESS BY OTHERS TO ANY FACILITY ON SITE CAN NOT BE BLOCKED AT ANYTIME.
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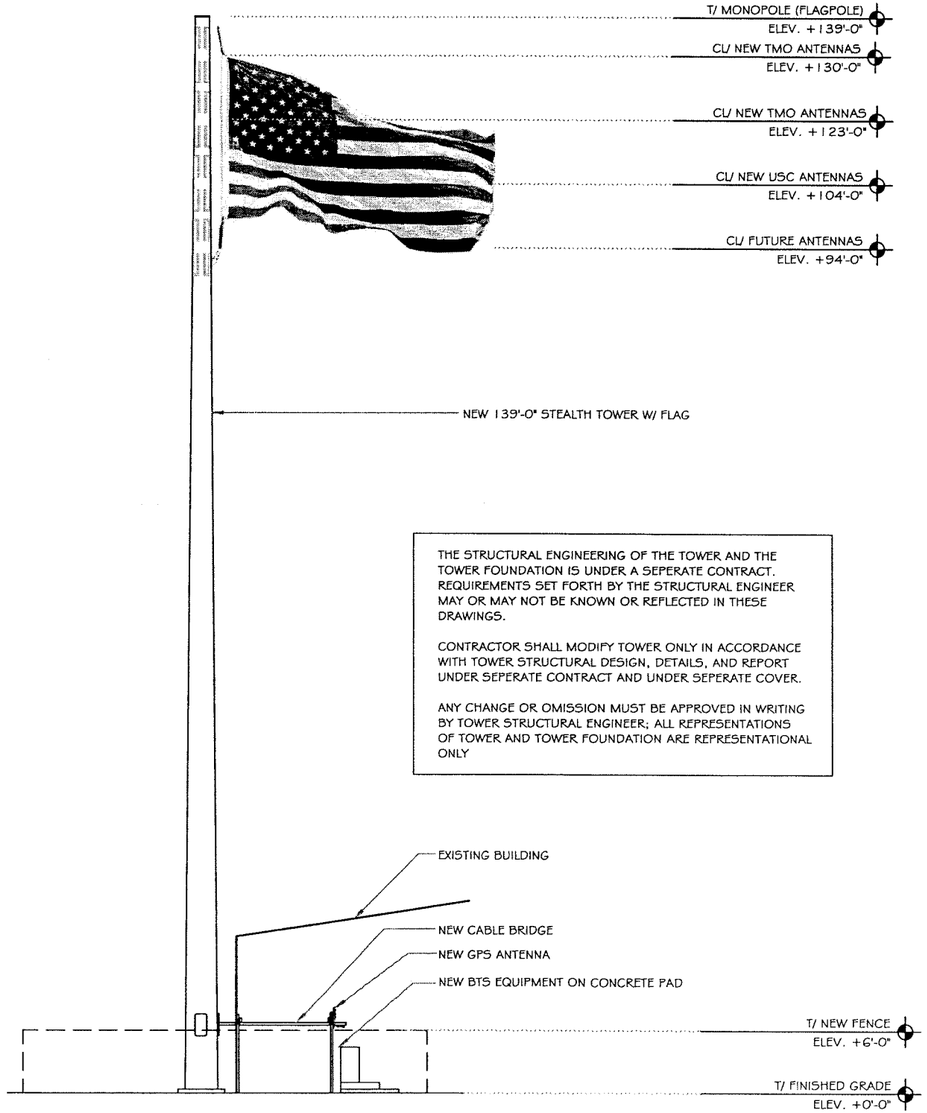
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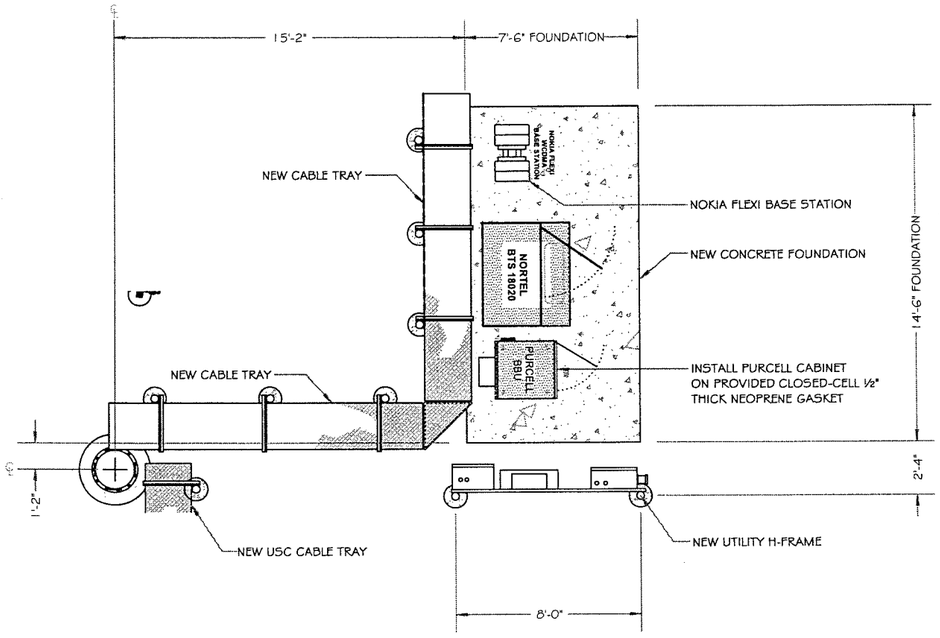
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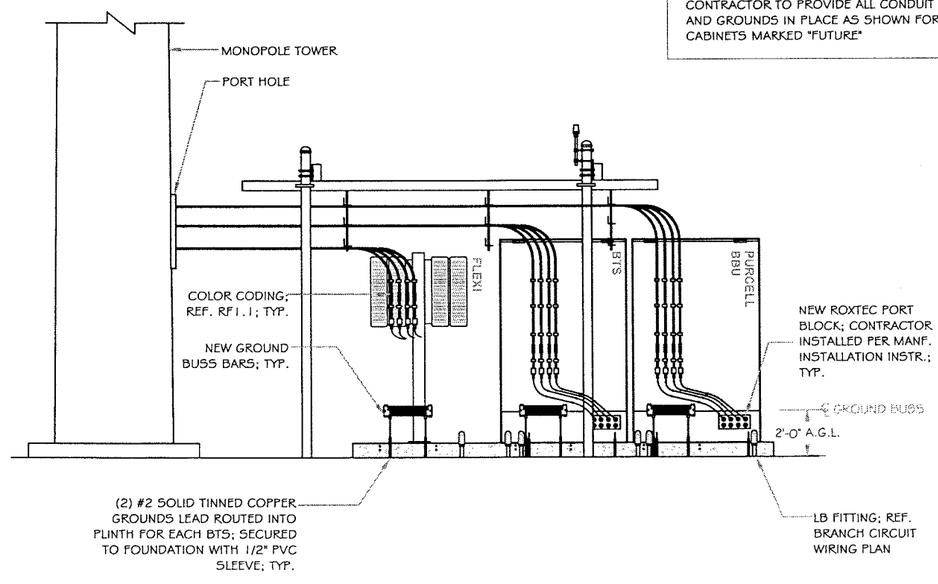
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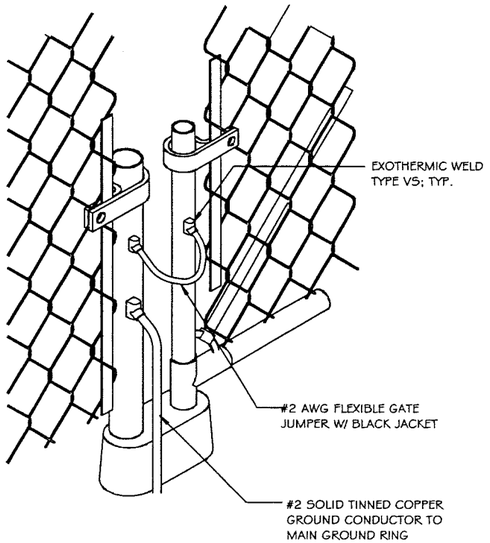
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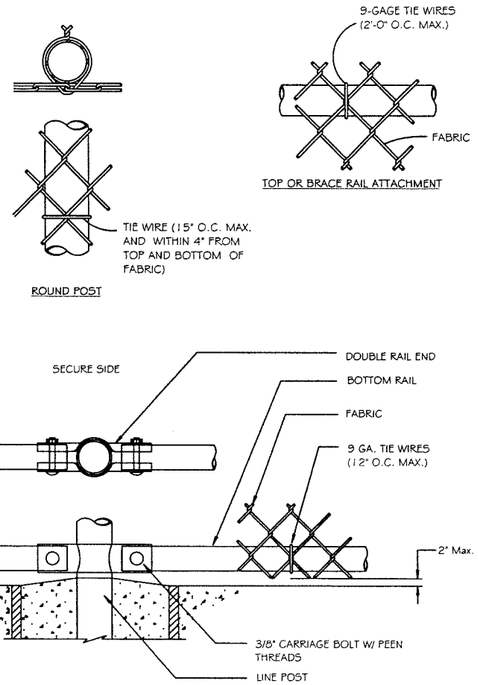
1 GROUND JUMPER AT GATE

SCALE: NTS



2 FABRIC DETAIL

SCALE: NTS



ALL COMPONENTS SHALL CONFORM TO THE SS40 FENCE STANDARD WHICH SHALL TAKE PRECEDENCE OVER THE FOLLOWING ADDITIONAL SPECIFICATIONS:

POST BRACES: SHALL BE PROVIDED FOR EACH GATE CORNER, PULL AND END POSTS SHALL CONSIST OF A ROUND TUBULAR BRACE EXTENDING TO EACH ADJACENT LINE POST AT APPROXIMATELY MID-HEIGHT (OR AS INDICATED) OF THE FABRIC, AND A TRUSS CONSISTING OF A ROD NOT LESS THAN 5/16 INCH NOMINAL DIAMETER FROM THE LINE POST BACK TO THE GATE, CORNER, PULL OR END POST, WITH A TURNBUCKLE OR OTHER EQUIVALENT PROVISION FOR ADJUSTMENT. TRUSS RODS MAY BE ELIMINATED IN ANY LINE OF FENCE WHERE THERE IS A CONTINUOUS CENTER RAIL.

POST TOPS: SHALL CONSIST OF ROUND TOPS OR COMBINATION TOPS WITH BARBED WIRE SUPPORTING ARMS, AS SPECIFIED. THE TOP SHALL BE PROVIDED WITH A HOLE SUITABLE FOR THE THROUGH PASSAGE OF THE TOP RAIL. THE POST TOPS SHALL FIT OVER THE OUTSIDE OF THE POSTS AND SHALL EXCLUDE MOISTURE FROM THE POST.

BARBED WIRE SUPPORTING ARMS (IF INDICATED): SHALL BE AT AN ANGLE OF APPROXIMATELY 45 DEGREES OR VERTICAL AS SPECIFIED, AND SHALL BE FITTED WITH CLIPS OR OTHER MEANS FOR ATTACHING THREE STANDS OF BARBED WIRE. WITH 45 DEGREE ARMS THE TOP WIRE SHALL BE APPROXIMATELY TWELVE INCHES HORIZONTALLY FROM THE FENCE LINE AND THE OTHER WIRES SPACED UNIFORMLY BETWEEN THE TOP OF THE FENCE FABRIC AND THE OUTSIDE STRAND. BARBED WIRE ARM SHALL BE OF SUFFICIENT STRENGTH TO WITHSTAND A WEIGHT OF 250 POUNDS APPLIED AT THE OUTER STRAND OF BARBED WIRE.

TENSION BARS: SHALL NOT BE GREATER THAN 3/4" OR LESS THAN 3/16" IN DIAMETER AND NOT LESS THAN TWO (2) INCHES SHORTER THAN THE NOMINAL HEIGHT OF THE FABRIC WITHIN WHICH THEY ARE TO BE USED. ONE TENSION BAR SHALL BE PROVIDED FOR AT EACH END AND GATE POST, AND TWO FOR EACH CORNER AND PULL POST.

TENSION WIRE: SHALL BE MARCELLED (SPIRALLED OR CRIMPED) #7 GAUGE (0.188 IN.) PLUS OR MINUS 0.005 INCHES IN DIAMETER. WIRE SHALL BE METALLIC COATED. ZINC COATED TENSION WIRE SHALL BE CLASS III (0.08 OZ. OF ZINC PER SQUARE FOOT OF UNCOATED WIRE SURFACE). ALUMINUM COATED TENSION WIRE SHALL HAVE 0.40 OZ. OF ALUMINUM PER SQUARE FOOT OF UNCOATED WIRE SURFACE.

GATES: SHALL BE SWING AS SPECIFIED, COMPLETE WITH LATCHES, STOPS, KEEPERS, HINGES AND WITH PROVISION FOR THREE STRANDS OF BARBED WIRE ABOVE THE FABRIC.

GATE FRAMES: SHALL BE CONSTRUCTED OF TUBULAR MEMBERS WELDED AT ALL CORNERS OR ASSEMBLED WITH FITTINGS. ON STEEL, WELDS SHALL BE PAINTED WITH ZINC BASED PAINT. WHERE CORNER FITTINGS ARE USED, GATES SHALL HAVE TRUSS RODS OF 4/16 INCH MINIMUM NOMINAL DIAMETER TO PREVENT SAG OR TWIST. GATE LEAVES SHALL HAVE VERTICAL INTERMEDIATE BRACING AS REQUIRED, SPACED SO THAT NO MEMBERS ARE MORE THAN 8 FEET APART. GATE LEAVES 10 FEET OR OVER SHALL HAVE A HORIZONTAL BRACE OR ONE 5/16 INCH MINIMUM DIAGONAL TRUSS ROD. WHEN BARBED WIRE TOP IS SPECIFIED, THE END MEMBERS OF THE GATE FRAMES SHALL BE EXTENDED ONE FOOT ABOVE THE TOP HORIZONTAL MEMBER TO WHICH 3 STRANDS OF BARBED WIRE, UNIFORMLY SPACED, SHALL BE ATTACHED BY USE OF BANDS, CLIPS OR HOOK BOLTS. GATE FRAMES SHALL BE FABRICATED FROM GALVANIZED STEEL PIPE CONFORMING TO ASTM A120 AND A123.

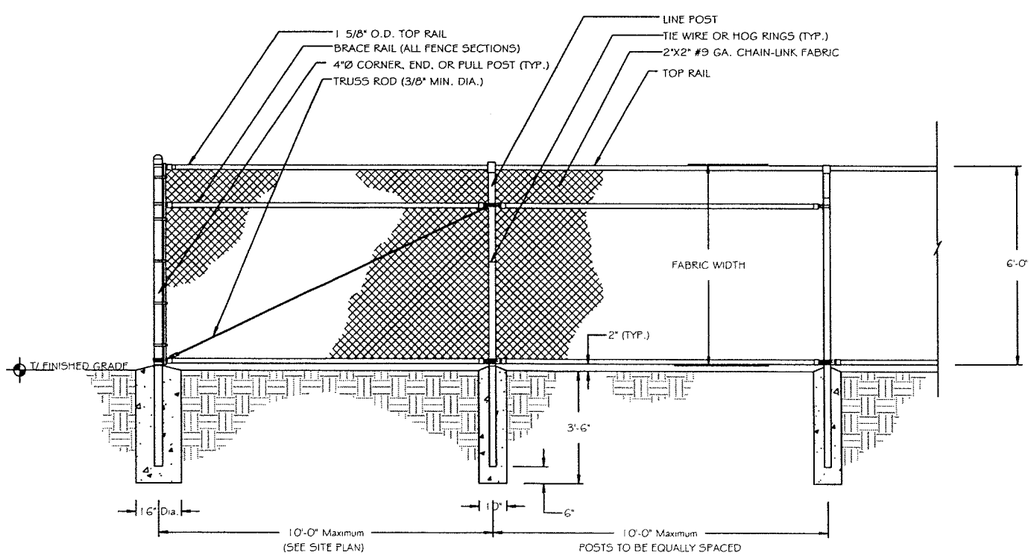
GATE FABRIC: SHALL BE SAME TYPE AS USED IN FENCE CONSTRUCTION. THE FABRIC SHALL BE ATTACHED SECURELY TO THE GATE FRAME AT INTERVALS NOT EXCEEDING 15 INCHES.

GATE LATCHES, STOPS AND KEEPERS: SHALL BE PROVIDED FOR AT ALL GATES. LATCHES SHALL HAVE A PLUNGER-BAR ARRANGED TO ENGAGE A TUBULAR RECEPTACLE PER NEXTEL STANDARDS. PLUNGER BAR SHALL HAVE A HANDLE AT ONE END AND A RING AT THE LOCKING END.

GATE HINGES: SHALL BE OF ADEQUATE STRENGTH FOR GATE, AND WITH LARGE BEARING SURFACES FOR CLAMPING IN POSITION. THE HINGES SHALL NOT TWIST OR TURN UNDER THE ACTION OF THE GATE. THE GATES SHALL BE CAPABLE OF BEING OPENED AND CLOSED BY ONE PERSON.

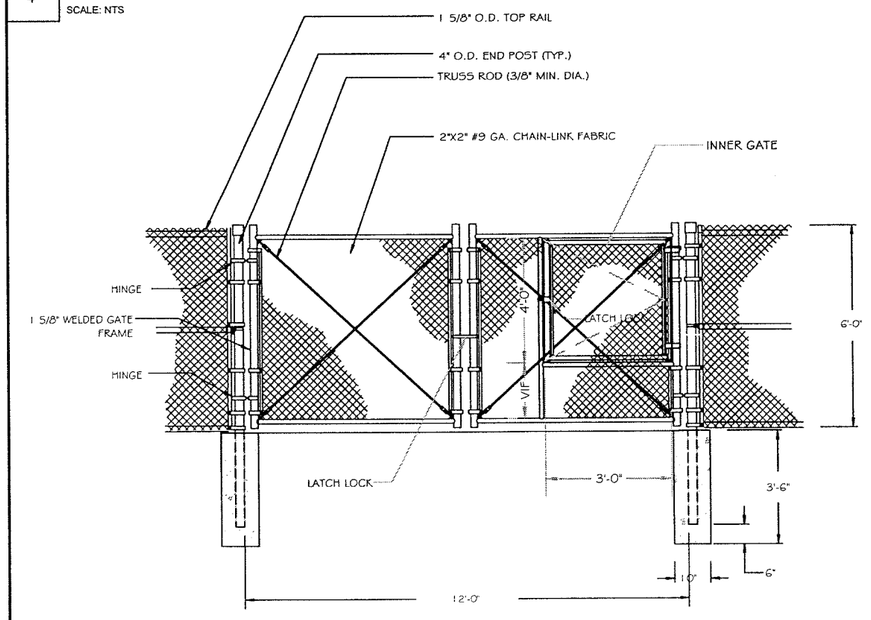
3 FENCE DETAIL

SCALE: NTS



4 GATE DETAIL

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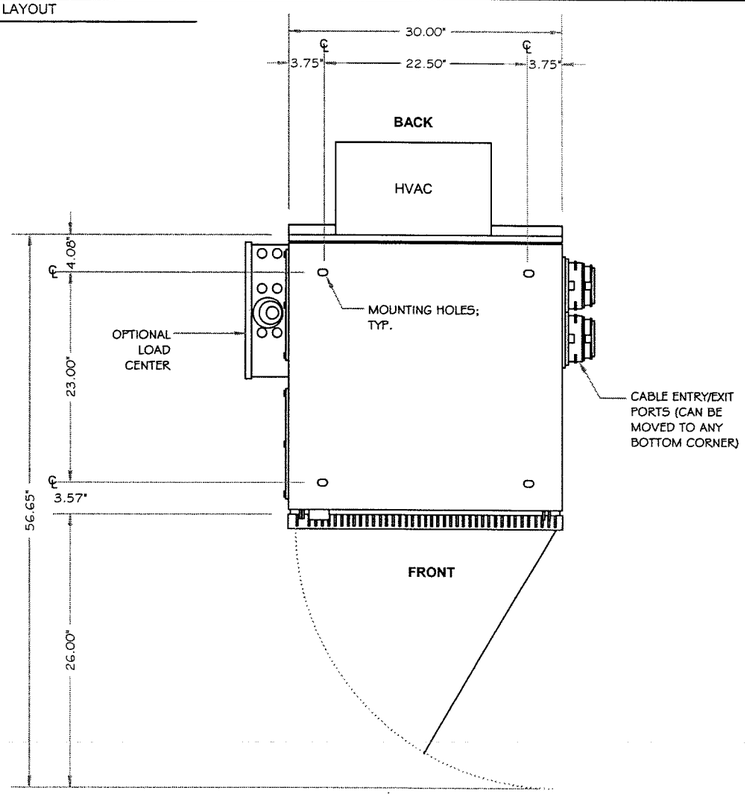
FENCE DETAILS

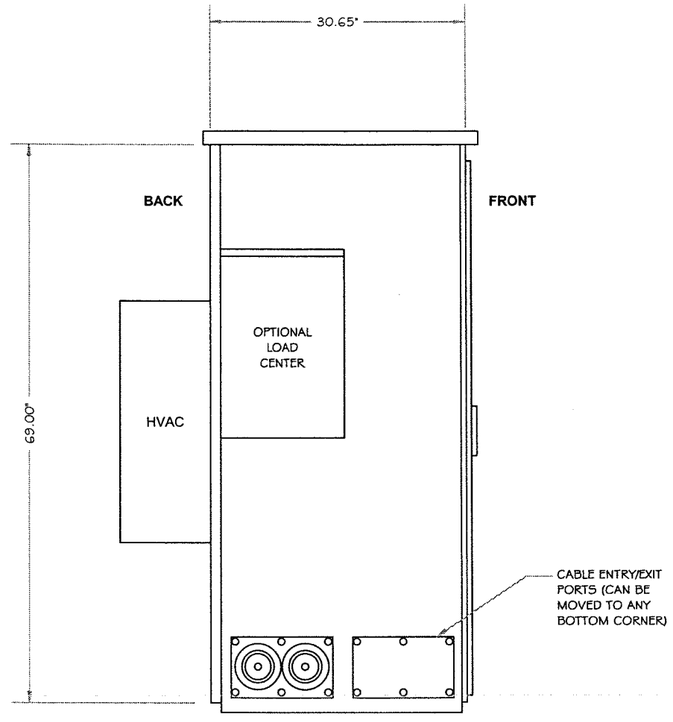
C6.1

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1 PURCELL BBU LAYOUT

SCALE: NTS





FOR REFERENCE ONLY
SEE MANF. SPECIFICATIONS FOR ALL INSTRUCTIONS AND SPECIFICATIONS

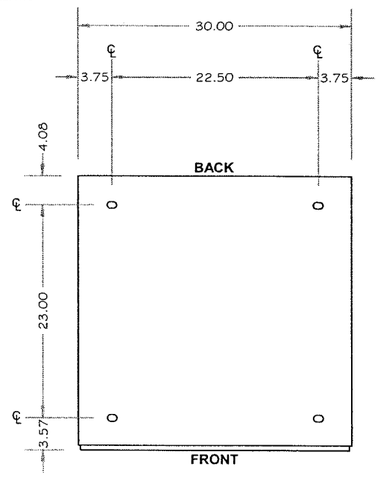
1 PURCELL BBU SPECIFICATION TABLE

SCALE: NTS

TECHNICAL SPECIFICATIONS: PURCELL BATTERY BACK-UP UNIT	
DIMENSIONS	69"H X 30"W X 31"D
WEIGHT	~800 LBS. CABINET W/ (4) ZONE 4 BATTERY BOXES ~2,100 LBS. BATTERIES ~100 LBS. A/C UNIT ~3000 LBS. TOTAL
POWER SUPPLY	120/240V, 1PH (40A)
CAPACITY	8 STRINGS OF 170 AHR BATTERIES

1 PURCELL BBU MOUNTING TEMPLATE

SCALE: NTS



GENERAL NOTES:

1. CONTRACTOR RESPONSIBLE FOR OFF-LOADING, UNPACKING, AND SETTING UP BBU UNIT.
2. CONTRACTOR RESPONSIBLE FOR INSTALLING ½" MOUNTING BOLTS (EXTENDED 2" FROM THE PAD SURFACE) IN THE PAD ACCORDING TO THE MOUNTING TEMPLATE.
3. CONTRACTOR RESPONSIBLE FOR INSTALLING THE PROVIDED CLOSED-CELL ½" THICK NEOPRENE GASKET ON CONCRETE PAD WHERE CABINET WILL BE PLACED.
4. CONTRACTOR RESPONSIBLE FOR CONNECTING CABLES TO BTS AND FLEXI.
5. CONTRACTOR TO PROVIDE A PROFESSIONAL AND LOGICAL CONNECTION FOR POWER AND TELCO CONDUITS
6. CONTRACTOR TO COORDINATE WITH T-MOBILE TO OBTAIN LATEST MANUFACTURER SPECIFICATIONS AND INSTALLATION UPDATES
7. CONTRACTOR RESPONSIBLE FOR THE FOLLOWING CONNECTIONS:
   - 120/240V 40A CIRCUIT
   - GROUND CONDUCTORS TO CABINET TERMINAL
   - INTER-CABINET CONDUITS AND WIRING
   - CABLING AND CIRCUITS TO BTS AND NOKIA FLEXI (IF APPL.)

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REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS

DATE SIGNED:

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1100 COVENTRY LN.
CRYSTAL LAKE, IL 60014

RAWLAND

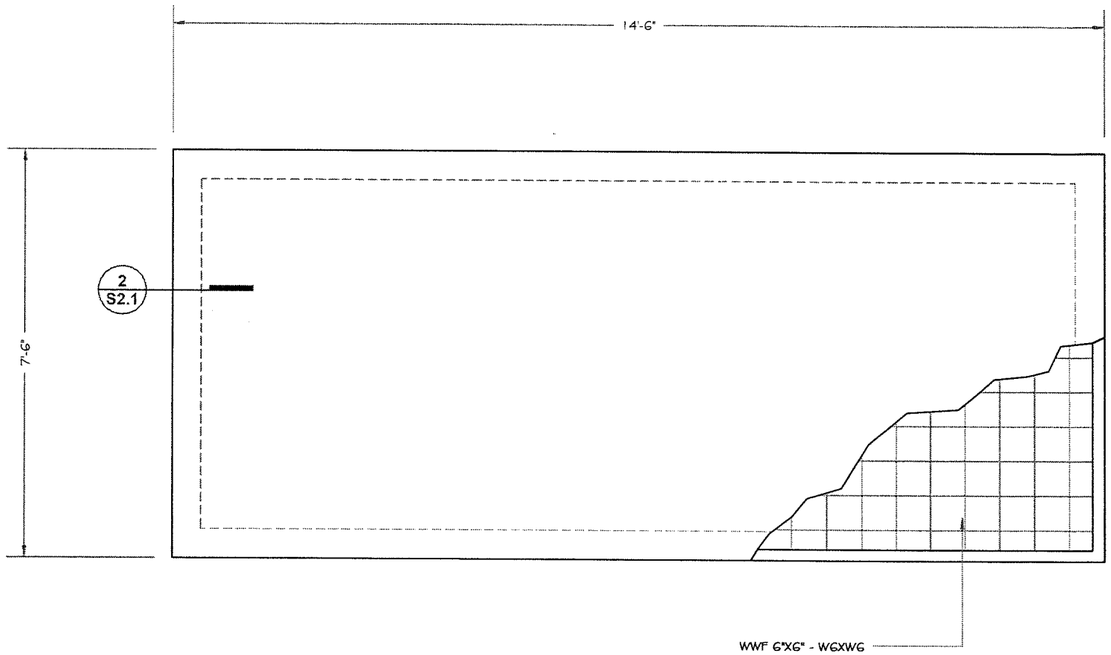
BATTERY BACKUP DETAIL

C8.1

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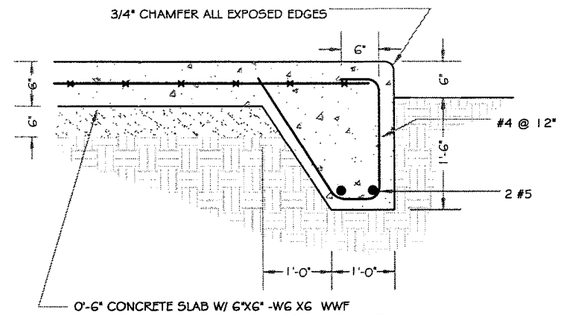
1 EQUIPMENT FOUNDATION PLAN

SCALE: NTS



2 FOUNDATION SECTION

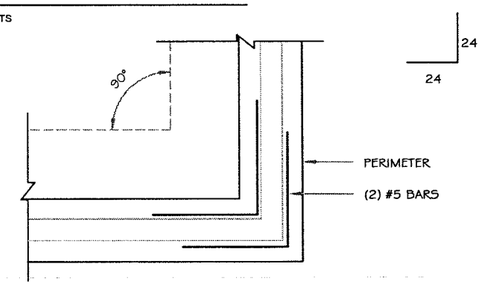
SCALE: NTS



0'-6" CONCRETE SLAB W/ 6"X6" -W6 X6 WWF
ON 6" COMPACTED CA-6 GRAVEL TO MIN. OF 95%
OF MAX. DRY DENSITY AS DETERMINED IN ACCORDANCE
WITH ASTM D1557 (MODIFIED PROCTOR)

3 FOUNDATION CORNER SECTION

SCALE: NTS



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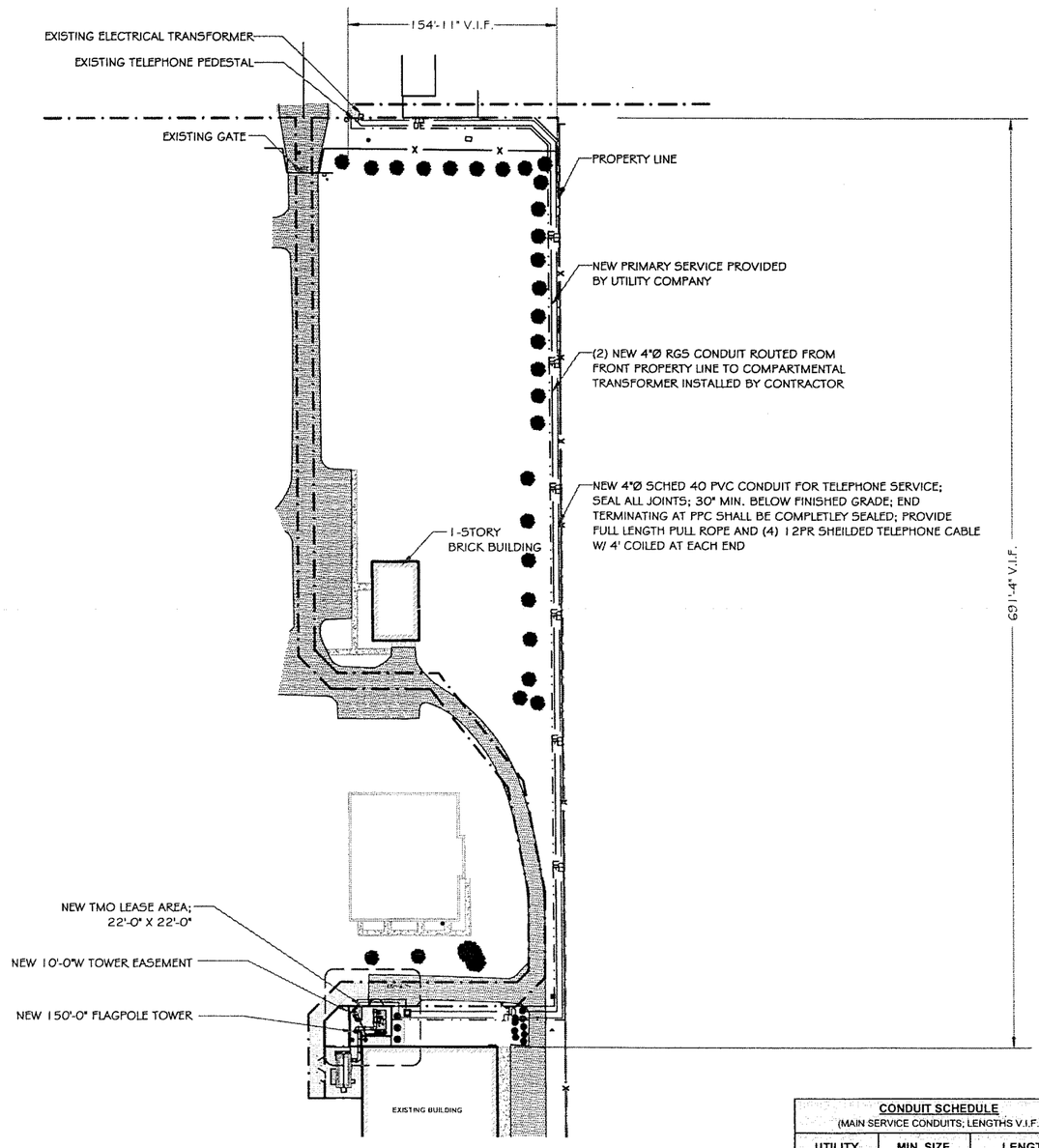
FOUNDATION PLAN

S2.1

THIS DRAWING IS SCALED FOR 11"x17 PAPER (U.S. GOVT. "TABLOID")

1 UTILITY PLAN

SCALE: 1" = 100'-0"



CONDUIT SCHEDULE
(MAIN SERVICE CONDUITS; LENGTHS V.I.F.)

UTILITY	MIN. SIZE	LENGTH
ELECTRIC	4"	980 FT.
TELCO	4"	980 FT.
--	--	--
--	--	--

GENERAL NOTES:

1. PROVIDE 2 PULL STRINGS SECURELY FASTENED AT EACH END OF ALL CONDUITS. THE PULL STRINGS ARE TO BE 200 LB. TEST POLYETHYLENE CORD. PROVIDE CAP ON THE END OF EACH CONDUIT AND MARK AS SHOWN ON THIS SITE PLAN.

2. THE CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING UNDERGROUND POWER, TELCO, GROUNDING CONDUITS, AND ALL OTHER UTILITIES EASEMENTS AND/OR WIRES PRIOR TO TRENCHING. ANY DAMAGE CAUSED TO THE EXISTING UNDERGROUND SERVICES OR SYSTEMS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. VERIFY WITH UTILITY NEW SERVICE HAS BEEN APPLIED FOR. THERE SHALL BE NO SPLICING OF GROUND CONDUCTORS BELOW GRADE.

3. UTILITY RACK AND CONDUIT SIZES TO BE FIELD DETERMINED BY CONTRACTOR IN ACCORDANCE WITH THE LOCAL JURISDICTION.

4. CONTRACTOR TO VERIFY IN FIELD AND PRIOR TO BID THAT EXISTING PULL BOXES, METER SOCKETS, CONDUITS, ROUTING, AND FACILITIES ARE ARE OF SUFFICIENT CONDITION.

5. THE OWNER OF THE COMMUNICATIONS FACILITY BEING INSTALLED AGREES TO OBTAIN AGREEMENT FROM THE PROPERTY OWNER ON THE SIZE AND LOCATION OF THE NEW UTILITY EASEMENTS

SERVICE NOTES:

A. ELECTRICAL PLANS, DETAILS, AND DIAGRAMS ARE DIAGRAMMATIC ONLY; VERIFY EXACT LOCATIONS AND MOUNTING HEIGHTS WITH OWNER; PLACEMENT AND ROUTING OF ALL COMPONENTS SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CODES

B. SERVICE EQUIPMENT SHALL HAVE A FAULT WITHSTAND RATING EQUAL TO OR EXCEEDING THE MAXIMUM AVAILABLE FAULT CURRENT AT THE SUPPLY TERMINAL. INSTALLATION SHALL BE FREE FROM ALL FAULTS AND GROUNDS

C. ALL ELECTRICAL EQUIPMENT, CONDUITS, AND SUPPORT SHALL BE ABLE TO WITHSTAND 80 M.P.H. WIND SPEED; EXPOSURE C

D. ALL ELECTRICAL EQUIPMENT SHALL HAVE A AFFIXED NEOPRENE PLASTIC LABEL – BLACK ON WHITE; LETTER HEIGHT SHALL BE ¼"; ALL NAMEPLATES TO BE FASTENED WITH (2) STAINLESS STEEL SCREWS, NOT ADHESIVE

E. ALL WIRING SHALL BE COPPER WITH THHN/THWN DUAL RATED 600V, COLOR CODED, #12 AWG MINIMUM UNLESS NOTED OTHERWISE

CONDUIT NOTES:

F. RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH GALVANIZED ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS, OR EXPOSED ON BUILDING EXTERIOR.

G. ELECTRICAL METALLIC TUBING SHALL BE U.L. LABEL; FITTING SHALL BE GLAND RING COMPRESSION TYPE

H. CORING THROUGH FLOORS AND WALLS SHALL NOT BE DONE WITHOUT FINAL APPROVAL OF BUILDING OWNER OR OWNER REPRESENTATIVE

I. CORING SHALL NOT BE PERFORMED DURING WORKING HOURS UNLESS OTHERWISE APPROVED BY THE OWNER

GENERAL NOTES:

J. SUBMITTAL OF BID INDICATES CONTRACTOR IS FAMILIAR WITH ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED AS DETAILED AND OUTLINED IN THESE DRAWINGS

K. THE ELECTRICAL PORTION OF THESE DRAWINGS IS ONLY A PART OF THE OVERALL DESIGN. IT IS NECESSARY FOR THE ELECTRICIAN TO CONSIDER ALL ASPECTS OF THIS PROJECT WHEN BIDDING AND PLANNING THE WORK

L. IN THE EVENT OF A CONFLICTING DESIGN OR NOTATION, THE CONTRACTOR SHALL ASSUME THE MOST EXPENSIVE OR RESTRICTIVE METHOD UNTIL A CLARIFICATION IS MADE

M. ALL THINGS, WHICH IN THE OPINION OF THE CONTRACTOR ARE DEFICIENCIES, OMISSIONS, CONTRADICTIONS, OR AMBIGUITIES, IN THESE DESIGN DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE WORK PROCEEDS; ALL CLARIFICATIONS MUST BE RECEIVED IN WRITING IN ORDER FOE THE MATTER TO BE CONSIDERED RESOLVED

N. ELECTRICAL WORK SHALL INCLUDE BUT NOT LIMITED TO ALL MATERIALS AND LABOR TO COMPLETE ALL ELECTRICAL SYSTEMS INCLUDING LIGHTING, LOW VOLTAGE SYSTEMS, PANELS, POWER AND TELEPHONE DATA SERVICE, CONTROL WIRING, AND GROUNDING

O. ALL WORK TO BE EXECUTED IN A WORKMAN LIKE MANNER AND SHALL PRESENT A NEAT, UNIFORM, AND WELL INSTALLED APPEARANCE; THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PROTECTION, CLEAN-UP AND RESTORATION OF OWNER FACILITIES ASSOCIATED WITH THE WORK

P. SUBMITTAL OF BID IMPLIES CONTRACTOR IS AWARE AND WILL CONFORM TO ALL LOADING AND UNLOADING RESTRICTIONS, ELEVATOR RESTRICTIONS, AND UNDERSTANDS OWNER EXPECTATION REGARDING TO THE SCHEDULE OF CORING AND OTHER TENANT IMPACTING ACTIVITIES

Q. CONTRACTOR TO VERIFY ACCEPTANCE OF THESE PLANS AND DESIGNS WITH THE LOCAL UTILITY COMPANY ENGINEER BEFORE THE START OF ANY WORK AND ORDERING OF ANY MATERIAL

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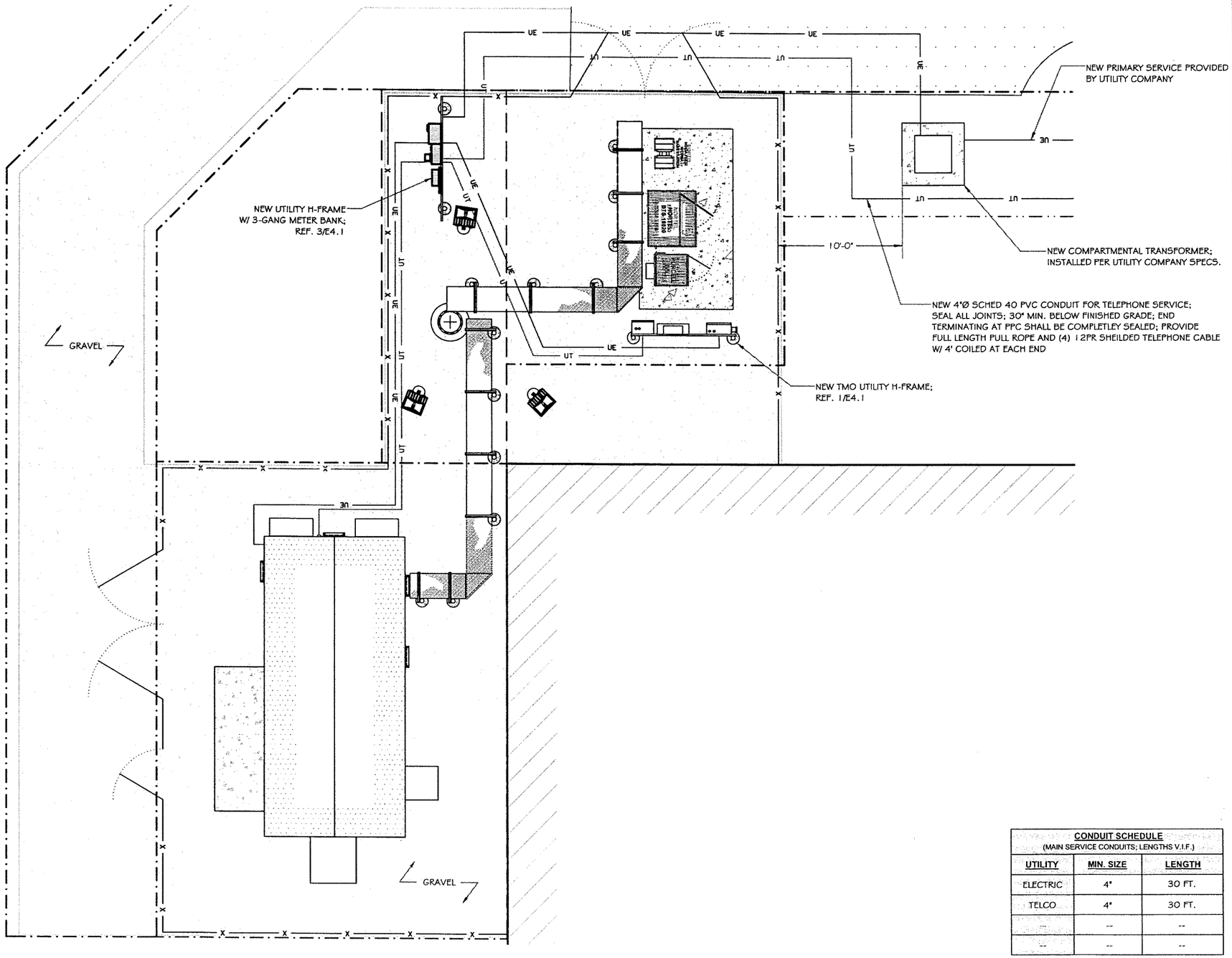
UTILITY PLAN

E1.1

THIS DRAWING IS SCALED FOR 11x17 PAPER (U.S. GOVT. "TABLOID")

1 UTILITY PLAN

SCALE: 1" = 8'-0"



N

CONDUIT SCHEDULE (MAIN SERVICE CONDUITS; LENGTHS V.I.F.)		
UTILITY	MIN. SIZE	LENGTH
ELECTRIC	4"	30 FT.
TELCO	4"	30 FT.
--	--	--
--	--	--

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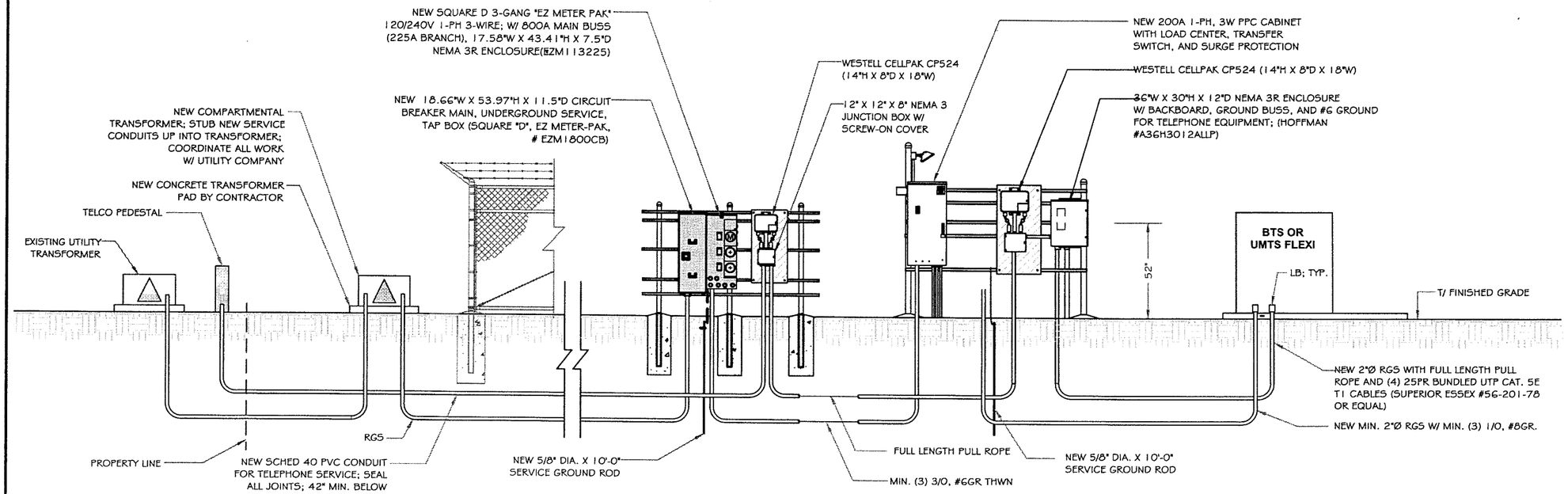
UTILITY PLAN

E1.2

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1 RISER DIAGRAM

SCALE: NTS



ELECTRIC LOAD SUMMARY

VOLTAGE: 120/240V 1-PH **NAME:** LP-1
TYPE: 200MCB 22,000 AIC **MAIN BREAKER SIZE:** 200/2P
BUS: 200A

REMARKS	BREAKER CIRCUIT #	BREAKER AMPS	BREAKER POLES	KVA LOADS PER PHASE A	KVA LOADS PER PHASE B	BREAKER POLES	BREAKER AMPS	BREAKER CIRCUIT #	REMARKS
BTS 2	01	60	2	4.13	0	1	20	02	LIGHTING
---	03	0	0	4.13	4.13	0	0	04	---
FLEXI	05	60	2	4.13	4.13	2	60	06	BTS 1
---	07	0	0	4.13	1.4	1	20	08	RECEPTICLES
EMPTY	09	0	1	0					
KVA TOTALS				16.52	9.66				
AMPS TOTALS				68.72	40.18				

LOAD CALCULATIONS

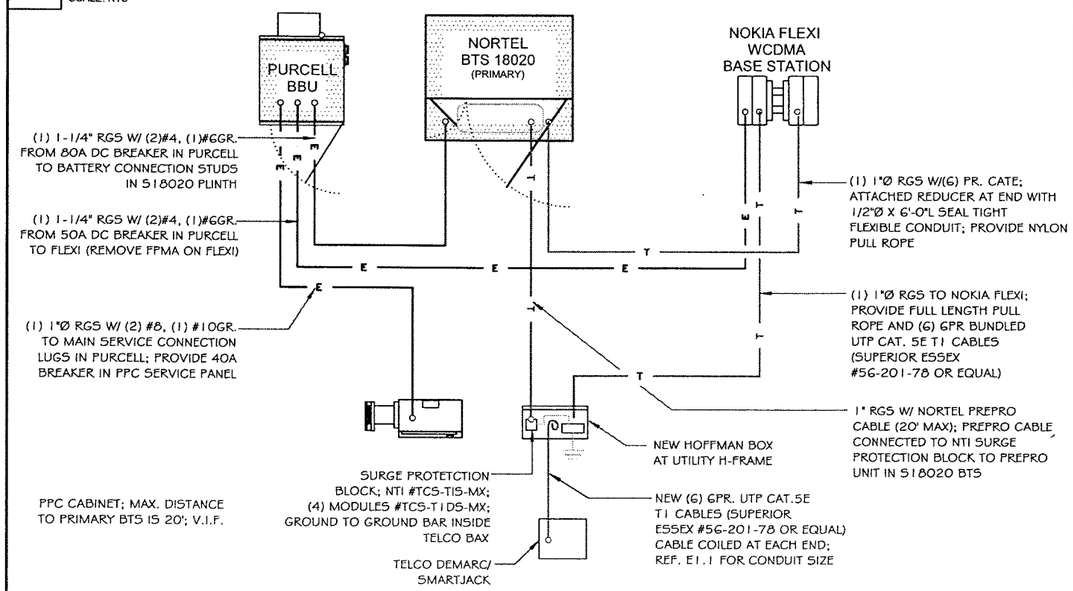
LOAD TYPE	CONNECTED KVA	DEMAND FACTOR	KVA DEMAND
CONTINUOUS MOTOR	24.78	1.25	30.98
LIGHTING			
TOTAL KVA	26		31
TOTAL AMPS	108		129
CAPACITY			

GENERAL NOTES:

1. THE DISTANCE AND CONDUCTOR SIZES LISTED HERE ARE ESTIMATES ONLY
2. CONTRACTOR TO VERIFY ALL CODES, SIZES, AND DISTANCES AND IS TO ADJUST THE INSTALLATION ACCORDINGLY;
3. A SMALLER CONDUCTOR THAN WHAT IS LISTED HERE MAY NOT BE USED UNLESS APPROVED IN WRITING BY ENGINEER OF RECORD
4. CONDUCTORS MAY BE INCREASED IN SIZE WITHOUT NOTICE ACCORDING TO CONTRACTORS PROFESSIONAL JUDGEMENT AND CALCULATIONS
5. THERE IS TO BE NO GREATER THAN A 3% VOLTAGE DROP FOR SERVICE FEEDERS

2 BRANCH CIRCUIT WIRING

SCALE: NTS



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ELECTRICAL LAYOUT

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