

▶ **FILE #:** 9-J-07-UR

AGENDA ITEM #: 89

AGENDA DATE: 9/13/2007

▶ **APPLICANT:** T-MOBILE C/O LANNIE GREEN

OWNER(S): GEORGE C. & DARLENE R. HICKS

TAX ID NUMBER: 50 M A 00102

JURISDICTION: County Commission District 8

▶ **LOCATION:** Northwest side of Rising Rd., northeast of Rosewood Rd.

▶ **APPX. SIZE OF TRACT:** 0.85 acres

SECTOR PLAN: Northeast County

GROWTH POLICY PLAN: Urban Growth Area

ACCESSIBILITY: Access is via Rising Rd., a local street with a 19' pavement width within a 50' right-of-way.

UTILITIES: Water Source: Northeast Knox Utility District

Sewer Source: Knoxville Utilities Board

WATERSHED: Woods Creek

▶ **ZONING:** CA (General Business)

▶ **EXISTING LAND USE:** Commercial building

▶ **PROPOSED USE:** 185' monopole telecommunications tower

HISTORY OF ZONING: None noted

SURROUNDING LAND USE AND ZONING: North: Warehouse / CA (General Business)

South: Residences / RB (General Residential)

East: Commercial warehouse / CA (General Business)

West: Commercial warehouse & residences / CA (General Business) & RB (General Residential)

NEIGHBORHOOD CONTEXT: This neighborhood has developed with commercial uses to the north along Rutledge Pike, and residential uses to the south.

STAFF RECOMMENDATION:

▶ **APPROVE the request for a 185' monopole telecommunications tower in the CA zoning district, subject to the following 8 conditions:**

1. Meeting all applicable requirements of the Knox County Zoning Ordinance.
2. Meeting all applicable requirements of the Knox County Department of Engineering & Public Works.
3. Since the FAA does not require any lighting for this facility, there shall be no lighting on the tower.
4. In addition to a 8' wooden privacy fence around the tower and equipment area, the perimeter of the fenced area will be landscaped with Leyland Cypress on 8' centers.
5. Installing the proposed landscaping as shown on the landscape plan within six months of the tower becoming operational.
6. At the time of the request for a building permit, posting a bond or other approved financial surety that would

ensure the removal of the tower if it is abandoned.

7. The tower will be required to be setback a minimum distance of 205' from any existing or future residential dwelling unit.

8. In order to obtain adequate site distance to the site, the applicant may be required to clear vegetation along the right-of-way of Rising Rd. or shift the location of the proposed driveway.

With the conditions noted above, this request meets all criteria for a use-on-review in the CA zoning district.

COMMENTS:

This is a request for a new 185' monopole telecommunications tower to be located within a 4,786 square foot lease area located on the north side of Rising Rd. The proposed tower will be located behind an existing commercial site. The subject property is zoned CA (General Business) and telecommunication towers are considered as a use on review in this district.

The proposed site is immediately adjacent to a residential area to the south. According to the Knoxville-Knox County Wireless Communications Facility Plan, commercial zones are considered "Neutral Areas" for telecommunication towers. Since the proposed site is located within 500' of a residence it is also considered a "Sensitive Area". Due to the height of the proposed tower, (185') and the fact that the property is zoned CA, the Facility Plan identifies this as an acceptable site for a telecommunication tower. The current proposal provides for a 170' setback between the tower and the neighboring residential property line to the south and a 205' setback from any existing or future residential structure assuming a 35' front yard setback as required by the RB (General Residential) zoning district.

In order to reduce the visual impact on nearby residences, the proposed tower and equipment area will be surrounded by an 8' high wooden security fence, and the perimeter of the fenced area will be landscaped with Leyland Cypress on 8' centers. This new vegetation must be installed within 30 days of tower installation. The tower is designed so it will collapse upon itself in case of a natural disaster or other failure. FAA does not require any lighting for the tower. The tower will support up to 6 telecommunication carrier antenna arrays. T-Mobile will be the principal client for the tower.

In order to improve sight distance from the proposed driveway location, the applicant may be required to clear the existing vegetation along the right-of-way of Rising Rd. The applicant may also be required by the Knox County Department of Engineering and Public Works to shift the location of the proposed driveway in order to improve sight distance onto Rising Rd.

According to the applicant there are no existing or acceptable structures within this area. The proposed site is to relieve capacity of existing or nearby sites. Co-location is not an option. All towers, including TVA transmission towers were tested for possible collocation possibilities (see attached letter from Pyramid Network Services, LLC.)

Attached to the staff report are several support documents, including a report from MPC's tower consultant, Mr. Larry E. Perry. Mr. Perry's report describes the proposal and highlights his findings. Mr. Perry concludes that the 185' tower is technically justified by the materials submitted by the applicant, however, he did propose an alternate location approximately 1,000' to the southeast (see attached aerial photo).

An agreement has been submitted stating that T-Mobile agrees to make all of its facilities available to other wireless providers (see attached letter from Lannie Greene).

EFFECT OF THE PROPOSAL ON THE SUBJECT PROPERTY, SURROUNDING PROPERTY AND THE COMMUNITY AS A WHOLE

1. The proposed development will have minimal impact on local services since all utilities are in place to serve this development.

2. The tower, being located adjacent to residential uses, is required to be heavily screened. The applicant will be required to install an 8' tall wooden fence and provide landscaping around the perimeter of the fence. The base of the tower and the tower enclosure will be well screened. This will reduce the impact of the proposed tower on existing residential property.

CONFORMITY OF THE PROPOSAL TO CRITERIA ESTABLISHED BY THE KNOXVILLE ZONING ORDINANCE

1. The proposed commercial telecommunications tower at this location meets the standards required in the CA zoning district.

2. The proposed tower is consistent with the general standards for uses permitted on review: The proposed development is consistent with the adopted plans and policies of the General Plan and Northeast County Sector Plan. The use is in harmony with the general purpose and intent of the Zoning Ordinance. By requiring extensive screening, the use will not significantly injure the value of adjacent property. The use will not draw additional traffic through residential areas.

CONFORMITY OF THE PROPOSAL TO ADOPTED PLANS

1. The Northeast County Sector Plan proposes commercial uses of this property. The proposed development is consistent with this land designation.

2. The Wireless Communications Facility Plan identifies the proposed 185' monopole as a "tall" monopole. Under the guidelines for Tower Placement section of the Facility Plan, the proposed tower falls within the "Sensitive Area" category since it is proposed within 500' of a residence. However, the Plan takes a neutral position on tall monopoles located in commercial areas (see attached matrix). As previously stated, the tower will be setback 170' from any residential property line and 205' from any residential structure.

ESTIMATED TRAFFIC IMPACT: Not calculated.

ESTIMATED STUDENT YIELD: Not applicable.

MPC's approval or denial of this request is final, unless the action is appealed to the Knox County Board of Zoning Appeals. The date of the Knox County Board of Zoning Appeals hearing will depend on when the appeal application is filed. Appellants have 30 days to appeal an MPC decision in the County.

9-5-07-UR

**EXHIBIT 7.
LAND USE/WIRELESS FACILITIES MATRIX**

	Co-Location	Stealth Structure	Low Monopole Below 90'	Moderate Monopole 90'-150'	Tall Monopole 150'-199'	Lattice Tower	Guyed Tower
Opportunity Areas	Industrial/Business Park						
	Industrial Use						
	Pre-approved Government-owned Property						
	Urban Expressway Corridor						
	Rural/Heavily Wooded						
	Pasture						
	Central Business District						
	Office/Commercial Corridor						
Shopping Center							
Sensitive Areas	Within 500' of a residence						
	Rural Residential						
	Non-residential Properties in a Residential Area (church, cemetery, library, etc.)						
	Multi-family Residential						
	On Hill Below Ridgeline						
Avoidance Areas	Conservation Open Space						
	Scenic Highway						
	Public Park						
	Ridge Top/Ridge Line						
	Scenic Vista						
	Historic District/Site						
	Single-family Residential						
	Vacant Residential Lot						

Encouraged Neutral Discouraged



PYRAMID NETWORK SERVICES, LLC.

TELECOMMUNICATIONS CONSTRUCTION SERVICES AND CONSULTING

2393 Pendley Road
Suite 200
Cumming, GA
30041

678-679-0920
678-679-0934 Fax

August 5, 2007

Knoxville-Knox County
Metropolitan Planning Commission
400 Main Street, Suite 403
City County Building
Knoxville, TN 37902

RE: Proposed I-Mobile 180' Monopole @ 7115 Rising Road

Dear Honorable Commission Members:

Please allow this letter to confirm that T-Mobile agrees to make all of its wireless telecommunications facilities in Knox County and the City of Knoxville available to other wireless providers for co-location, provided such facilities are structurally and technically able to accommodate additional providers and provided that the wireless provider and T-Mobile can agree to all reasonable terms and conditions.

Sincerely:

Lammie Greene

Pyramid Network Services for T-Mobile



PYRAMID NETWORK SERVICES, LLC.

TELECOMMUNICATIONS CONSTRUCTION SERVICES AND CONSULTING

2393 Pendley Road
Suite 200
Cumming, GA
30041

678-679-0920
678-679-0934 Fax

August 5, 2007

9-5-07-UR

Knoxville-Knox County
Metropolitan Planning Commission
400 Main Street, Suite 403
City County Building
Knoxville, TN 37902

RE: T-Mobile Proposed 180' Monopole Tower @ 7115 Rising Road
(Parcel ID - 050MA00102): 9KX0092/Armstrong

Dear Honorable Commission Members,

On behalf of T-Mobile and the land owner, Mr. & Mrs. George C. Hicks, I respectfully submit this application for a Use on Review of a wireless telecommunications facility. This facility is to be built for T-Mobile and its wireless network. The proposed project includes a 180' monopole tower to be located at 7115 Rising Road, just east of Rosewood Road.

T-Mobile is building a new wireless network for the metropolitan Knoxville area. This new network will provide a new choice for wireless users in the Knoxville area and in northeast Tennessee. T-Mobile has already received building permits or has plans under review for over forty co-locations in Knox County and the City of Knoxville. In some cases T-Mobile has gone through the added expense of making significant modifications to make existing structures work.

Unfortunately, there were no existing or acceptable structures within this area available for co-location. There were no suitable co-location candidates within a mile of the search area. The search radius is very specific due to T-Mobile's proposed network which includes the above mentioned sites that are currently slated for co-location.

T-Mobile's original search ring was targeted towards a ridge located south of the subject property, along Terry Drive, between Bowman Road and John Sevier School Road. However, due to the residentially zoned and developed properties within the search area, the subject site was selected. Additionally, the Land Use/Wireless Facilities Matrix slates the area along Terry Drive as an Avoidance Area because it is single family residential and along a ridge.

The proposed location can not move any further north, west or east due to the fact that it is located along the northeasterly fringe of the targeted area to provide wireless coverage. The proposed site is located on a 5.75 acre tract that is zoned CA, General Business Zone. The property is bordered by CA, General Business Zoned parcels, which are developed as such.

The proposed tower will be within 500' of a residence. Due to this fact the monopole is discouraged by the Land Use/Wireless Facilities Matrix. The proposed monopole, however, will meet the setback of 110% of the height of tower (198') from any residence. The best suitable property that meets the law and intent of the Knox County Ordinance and the Facilities Plan within this specific search area has been selected.

As stated previously the original search area includes residentially zoned and developed properties along a ridge line to the south which is an Avoidance Area per the Land Use/Wireless Facilities Matrix. In addition to single family residential areas, the Land Use/Wireless Facilities Matrix encourages the avoidance of ridge lines also. T-Mobile has worked within the requirements of the Knox County Ordinance throughout Knox County in this large endeavor to enter the Knoxville Metropolitan market. Unfortunately this particular area of Knox County does not provide any acceptable parcels that can completely meet the Land Use/Wireless Facilities Matrix.

With the exception of the 500' of any residence requirement, the proposed site meets the intent of the Knox County Ordinance and will meet all local, state, and federal requirements in its design, construction, and operation.

I submit the following Pursuant to the Facilities Plan adopted by the Metropolitan Planning Commission in 2002:

- (1) View Protection -- The tower is proposed to be at a maximum height of 180' and will be a monopole design and will therefore have a minimal impact on surrounding properties. Due to the proposed height of 180' there will be no lighting on the structure.
- (2) Land Use Compatibility - The subject property is zoned CA, General Business Zone, which allows for more intense uses than this proposed facility. This facility will be unmanned and will have no substantial increase of noise, air pollution, or traffic. Furthermore the proposed facility will not burden any county services.

Adjacent and surrounding properties are zoned CA, General Business, A Agricultural Zone, and RB, General Residential Zone. The proposed location is within a Sensitive Area and the proposed facility is discouraged within this area according to the Land Use/Wireless Facilities Matrix.

T-Mobile Use On Review
7115 Rising Road/ 050MA00102

The site is located within 500' of a residence and is considered to be within a Sensitive Area. However this can not be avoided due to the nature of the area and the large areas zoned A, Agricultural and RB, General Residential Zone.

- (3) Design Compatibility --The facility design, which will include a monopole tower and a 5' landscape strip around the fenced compound, will not impact the existing uses of surrounding properties due to the commercial zoning districts that adjoin the site. These properties could be developed with more intense uses than this proposal. The proposed structure will be considered a Tall Monopole according to the Land Use/Wireless Facilities. Monopoles are often considered the least obtrusive type of structure.

Included with this application package are the following items:

- A letter that commits T-Mobile to co-location of other carriers
- 10 sets of site plans
- Coverage maps depicting before and after the proposed site

I appreciate your time in reviewing this application. If you require additional documentation or information please feel free to give me a call at (678) 920 - 1262.

Sincerely:



Lannie Greene

Pyramid Network Services for T-Mobile & Mr. & Mrs. George C. Hicks



Larry D. Perry

11464 Saga Lane • Knoxville, TN 37931-2819
Telephone (865) 927-8474 Fax (865) 927-4912 Email: larryperry@worldnet.att.net

August 24, 2007

MPC
Suite 403
City County Bldg
400 Main Street
Knoxville, TN 37902

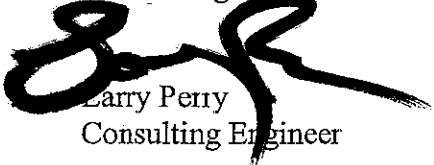
RE: T-MOBILE TOWER APPLICATION REVIEW FOR RISING ROAD

Dear Kelly:

Attached is the report for the application by T Mobile for a new tower site off Rutledge Pike near Rising Road. The site meets most of the requirements except for the 500 feet from the nearest residential zone. . . in this case it is about 130 feet or so. However, most of the residential homes in the area are still under construction by Habitat. There is a possible alternate site about 1,000 feet away near the water tank on the hill, but it is in a residentially zoned area. The present location should work without major complaints from the neighborhood.

I hope to be at the planning meeting should any controversy arise.

Kindest regards



Larry Perry
Consulting Engineer

LP/eb

enclosure

T MOBILE

Telecommunications Tower Site Review

USE ON REVIEW APPLICATION # 9-J-07-UR

CONSULTANT'S SUMMARY

**Armstrong Site
Rising Road**

Knox County

Location: Rising Road near Rutledge Pike

Proposed Tower Height: 185 foot Monopole

Address: 7115 Rising Road
Knoxville, Tennessee

District: # 8th County **Map Number:** 050A **Parcel** 1.02

Use: Telecommunications antenna support structure

Zoning: CA (General business)

Variances and waivers: Waiver of section 5-5.31.02 T of the Ordinance since the proposed location is within 500 feet of a residential zoned area.

Need: The applicant is T Mobile, a licensed PCS carrier by the Federal Communications Commission and possibly other users.

Instant Proposal: Construct a 185 foot monopole type support structure.

Consultant's Recommendation: The site and application meets the requirements of the Ordinance and the spirit of the Facilities Plan.



Handwritten signature of Jaylen, dated 8-22-07.

REPORT TO
METROPOLITAN PLANNING COMMISSION

for

Proposed Telecommunications Tower Site
Located at 7115 Rising Road
Knoxville, TN known as

ARMSTRONG SITE

T-MOBILE

UOR 9-J-07-UR

COMPLIANCE WITH

THE MPC TELECOMMUNICATIONS FACILITY ORDINANCE

08/25/2007

The proposed site for the applicant is a 185 foot monopole antenna support structure (including antennas and lightning rod) to be located just off Rutledge Pike at 7115 Rising Road. The supporting material from applicant has been reviewed for technical and Federal/State legal compliance As well as with the Knox County Wireless Communication Facilities Plan from 2002. This is a new telecommunications site. This site is known as a fill site (explained in the report).

REQUESTED

1. **Location.** The location is within the **County** of Knox limits in **District 8** and is located on **Tax Map Number 050A Parcel 1.02**

2. **Zoning.** CA (General Business)

3. **Tower height.** The requested height is 185 feet above ground level will support up to 3 additional telecommunications carrier antennas for a total of 4 users. Lighting will not be required on this structure.

4. **Variiances.** The set back requirements in Article 5 of the Ordinance for Knox County for "CA" sites are met with the instant proposal. Section 5-5.31.02T of the Knox County Zoning Ordinance requires a proposed tower to be more than 500 feet from a residential zone. In this case the residential zone is approximately 130 feet from the tower base. **Thus, a variance is required.** The site is immediately across the road from the new Habitat for Humanity residential area zoned RB and still under construction. The use of the land at this proposed site is permitted under section 5-5.31.02T.

5. **Site.** This application is for the construction of a new monopole type antenna support structure to be located on a cleared area adjacent to the United Transportation Union block building and on the same property. It is about 200 feet on Rutledge Pike.

6. **Use.** This antenna support structure will be used for telecommunications with the present state of the art communications technology using PCS and cellular communication sources. The applicant is T- Mobile Communications and there are 3 possible additional telecommunications users for the facility.

7. **Setbacks.** The setback requirements in for Commercial construction is that the equipment building shall be greater than 20 feet from the road line. The applicant meets that requirement. *(Art. 5 Section 5. 31.07)*

8. **Height.** The proposed structure is for 185 feet. *(Note: The request is for a 180 foot tower plus lightning rod or approximately 185 feet.)*

EVALUATION

The following is a list of items reviewed:

Zoning Ordinance for Knoxville Tennessee by Metropolitan Planning Commission---Telecommunication Facilities Section (as amended thru October 1, 2004)

Knox County Wireless Communications Facilities Plan dated 2002.

Check for other existing towers capable of supporting the load and elevation clearance requested by the applicant herein and within 1 mile radius of site.

Check for Antenna Support Structure stress analysis for co-location users' equipment support

Review support structure drawings and specifications with applicant

Review FAA lighting and marking requirements and proposals

Review FCC requirements regarding signal coverage, towers and lighting

Review applicant's justification for site in compliance with the FCC's requirements for telecommunication company providers compliance with required coverage for the use of the general public.

Review Site plan by applicant

Check Zoning

Check setbacks for building and antenna support structure

Check for compliance with Wireless Communication Facility Plan

Check proximity to other structures and district boundaries

Check nature of surrounding land uses

Check surrounding foliage and tree coverage

Check design of tower for esthetic changes

Check height requirements necessary for coverage

Check separation from other towers

Check frequencies proposed for possible interference to TV and radio reception in the immediate vicinity of the structure.

DISCUSSION

I visited the proposed tower site that is a part of this review and discussed the area with the applicant.

The site elevation at this location is 1039 feet. There is a water tank on a ridge with a ground elevation of 1140 feet about 1,000 ± from the proposed site. If the applicant could use that site it would be a shorter structure to cover the same area. (*See attached aerial photo.*) However, no research was done to check the available use area at the water tank to see if there was space for the facility. Also the tank is located in a residentially zoned area. This site would be less visible than the proposed site.

The request is for a 185 foot monopole of which T Mobile will use the top 15 feet and the additional usable lower 30 feet is for other carriers' expansion.

This a "fill" site. By that is meant that the coverage is inadequate in the area at the present from present facilities in the area and that the site is to be used as primary signal coverage to "fill in" a hole in the present coverage.

The site just across the street from the new Habitat for humanity community that is still under construction and is a residentially zoned area. The proposed tower base is approximately 80 feet off Rising Road. There are no residential homes on the north side of Rising Road within several hundred feet. The nearest residential home is directly across the street from the proposed site and is under construction. The distance is estimated to be about 170 feet or so from the tower base.

A variance of section 5-5.31.02T of the Ordinance is required as the proposed location is within 500 feet of a residentially zoned area. The proposed structure should not affect adjacent property or constitute a safety hazard.

DISCUSSION RE FACILITIES PLAN

The Facilities plan is a guideline adopted by the MPC in 2002 for the placement and appearance of wireless communications facilities. The following discussion is based on this application and how it relates to the Plan. The plan is an advisory plan and not a legal requirement.

(1) **View Protection**--The structure (185 feet) coupled with no lighting requirements and located in a commercial area should present no problems as to view. The residents in the Habitat community will obviously be able to see the structure, but it should have no impact since the surrounding structures are all commercial all the way to Rutledge Pike.

(2) **Land Use Compatibility**---The proposed site is on a cleared parcel of land immediately adjacent to a commercial block building (United Transportation Union Hall). It appears that a modular building once sat on the foundation at the location. The structure and associated building/facilities would be compatible with the local land use.

(3) **Design Compatibility**---The proposed landscaping and facility design would blend in with surrounding commercial land usage and design. Keeping in mind that the land area across the street is residential.

(A) **Opportunity Areas**---This proposed site is in an area zoned Commercial and is a parking lot that is unused. It is unlikely to become a blighting influence on the surrounding area.

(B) **Sensitive Areas**---This site is in a potentially sensitive area in that it is located within a couple hundred feet of low density residential homes that are presently under construction.

(C) **Avoidance Areas**---This location is not in an avoidance area.

SUMMARY

(1) The proposed antenna support structure is a 185 foot monopole including antennas. There are no lighting requests for this structure nor are any required by the FAA.

(2) A review of the structure stress analysis on the proposed structure and specifications support the use of the monopole by two other potential users in the future.

(3) The structure design meets or exceeds FCC and EIA requirements.

(4) The area immediately to the north is used as commercial and industrial facilities. The area to the west is also commercial between the site and Rutledge Pike. There are no residences in the immediate area on the same side of the road but there are on the other side of Rising Road.

(5) There is no general use technology (such as satellite communications) that is available at the present time nor in the immediate future that would negate the need for the structure. However, should such a technology become available and the structure of no further use, the Ordinance at Article 4.92.03 requires it to be removed.

(6) The proposed equipment housing facility is an outdoor cabinet and will have no impact on the aesthetics of the adjacent land uses. The landscape plan indicates that the fenced area will be surrounded by vegetation as coverage for the location.

(7) The applicant has received authorization from the various governmental agencies, including the Federal Communications Commission, to provide communication service to the citizens of Knoxville, Tennessee.

(8) The requested site will have little impact on the community involved when compared with the benefits to be derived from the advanced service offered by the applicant.

(9) There are no other antenna support structures within 1 mile of the proposed site that are usable for the coverage required. It is perhaps possible to use the area around a water tank located about 1000 feet southeast of the present location and about a 100 feet higher in elevation with a shorter structure, but that location is in a residential area although wooded.

(10) There are no additional setback requirements for the proposed site.

(11) The proposed site and structure will have no environmental impact within the federal guidelines.

(12) A variance to the Knox County Ordinance is required for this site due to the close proximity to a residential area.

(13) The nature of the development in the surrounding area is not such as to pose a potential hazard to the proposed tower or to create an undesirable environment for the proposed structure.

(14) Assuming that there are 4 carriers operating cellular or PCS transmitters/receivers at this site and all are operating at the same

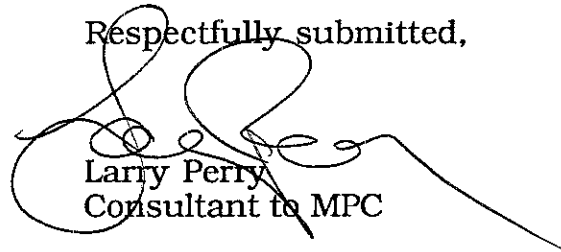
time, the radiation produced by the combination of all the users at the same time using the standards and protocols proposed and used by the carriers today, will be considerably below that established by the Federal Communications Commission and the EPA as creating any danger to humans or animals.

(15) There is a need for the structure in this area to provide for the wide spectrum wireless internet service and for other wireless voice and data services to be provided under government regulation by the various proposed carriers who plan to use the sit

RECOMMENDATION

In light of the analysis and review of documents, it is my professional opinion that the applicant meets all requirements of the Ordinance and the spirit of the Facilities Plan as discussed above and is required for the applicant to meet their coverage requirements for the City of Knoxville.

Respectfully submitted,



Larry Perry
Consultant to MPC

T MOBILE
ARMSTRONG SITE

RUTLEDGE PIKE

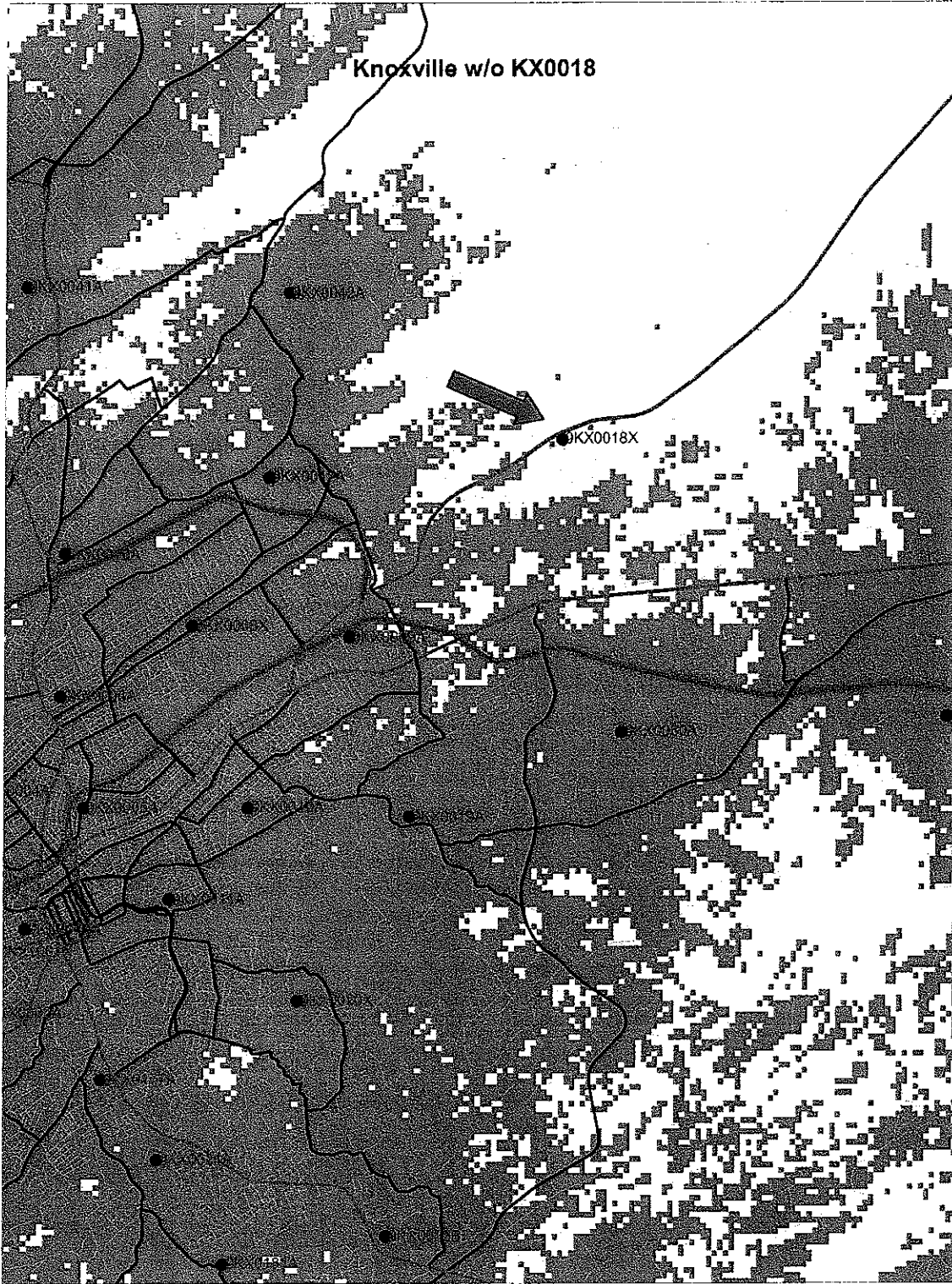
NEW
HABITAT
COMMUNITY
(UNDER CONSTRUCTION)

Proposed site

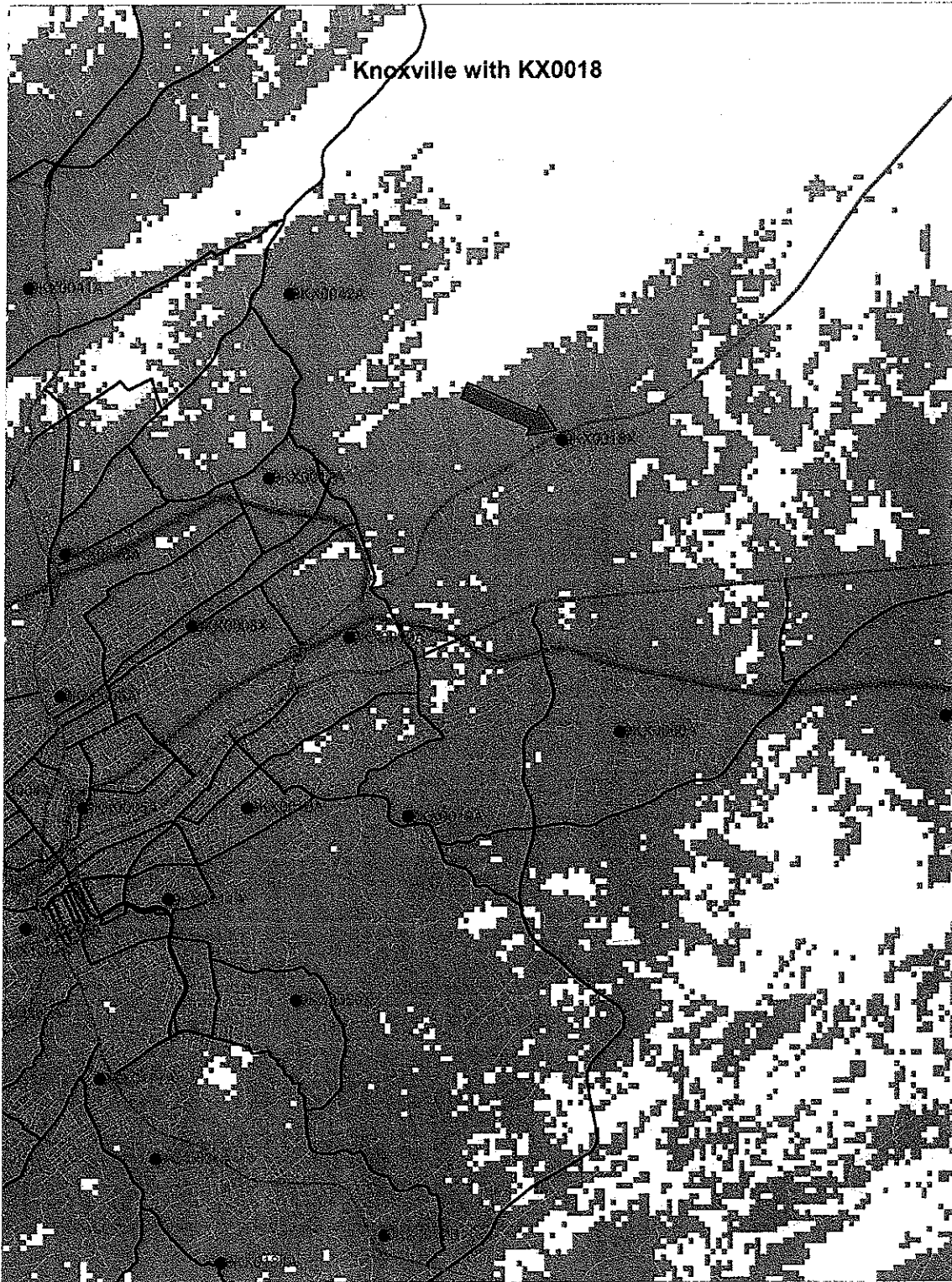


Water Tank
(possible alternate site)

Coverage Without Proposed 180' Monopole @ 7115 Rising Road



Coverage With Proposed 180' Monopole @ 7115 Rising Road



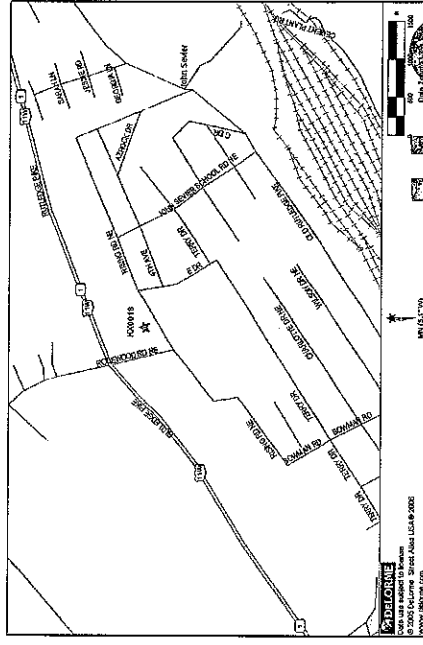
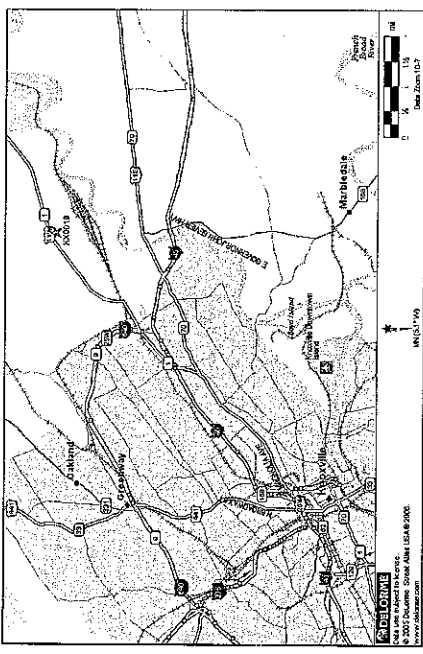
SITE DEVELOPMENT PLANS FOR T-MOBILE SOUTH, LLC

SITE #: KX0018
SITE NAME: ARMSTRONG
SITE ADDRESS: 7115 RISING ROAD
KNOXVILLE, TENNESSEE 37902

SIGNATURE AUTHORIZATIONS:

RF ENGINEER APPROVAL	SIGNATURE _____	DATE _____
CONSTRUCTION MANAGER APPROVAL	SIGNATURE _____	DATE _____
SITE ACQUISITION AGENT APPROVAL	SIGNATURE _____	DATE _____
LAND OWNER APPROVAL	SIGNATURE _____	DATE _____
OPS APPROVAL	SIGNATURE _____	DATE _____
ZONING/PERMITTING APPROVAL	SIGNATURE _____	DATE _____

- GENERAL NOTES:**
1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE CITY OF KNOXVILLE REGULATIONS.
 2. CONTRACTOR SHALL NOTIFY ALL UTILITIES AT LEAST 24 HOURS PRIOR TO START OF CONSTRUCTION TO VERIFY LOCATION OF ALL UTILITIES SURVEY OR NOT SHOWN.
 3. ALL UTILITIES WITHIN ROADWAY SHALL BE BACKFILLED WITH STONE.
 4. CONTRACTOR SHALL REPAIR AT HIS EXPENSE DAMAGE TO ANY EXISTING IMPROVEMENTS DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO CURBS, UTILITIES, PAVEMENT, CURBS, ETC. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS.
 5. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL UNUSABLE MATERIALS FROM THE SITE.
 6. CONTRACTOR SHALL COORDINATE WITH POWER COMPANY PROVIDING SERVICE FOR CONSTRUCTION FACILITIES DURING CONSTRUCTION.
 7. THE CONTRACTOR IS SPECIFICALLY CAUTIONED ABOUT THE LOCATION AND/OR ELEVATIONS OF EXISTING UTILITIES SHOWN ON THIS DRAWING. THEY ARE BASED UPON RECORDS FROM VARIOUS UTILITY COMPANIES, DEEDS, AND PLATS OF RECORD, AND WHERE POSSIBLE ACTUAL FIELD SURVEY MEASUREMENTS. THIS INFORMATION IS NOT TO BE TAKEN EXACT OR COMPLETE.
 8. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE EXACT LOCATION OF EXISTING UTILITIES WHICH MAY CONFLICT WITH PROPOSED IMPROVEMENTS.
 9. THIS PROJECT WILL NOT REQUIRE WATER OR SEWER SERVICE.
 10. CONTRACTOR SHALL REMOVE ANY DIRT OR MUD FROM TIRES OF ANY CONSTRUCTION VEHICLES PRIOR TO LEAVING SITE.
 11. REFER TO BUILDING/TOWER PLANS FOR PROPOSED DIMENSIONS AND OTHER SPECIFICS WHICH ARE NOT SHOWN.
 12. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A PROPER TRAFFIC CONTROL PLAN FOR PUBLIC SAFETY AND CONTROL OF THE SITE. THE TRAFFIC CONTROL PLAN MUST BE IN ACCORDANCE WITH LATEST MUTCD EDITION.



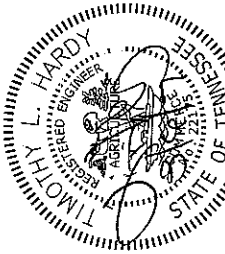
9-5-07-UR

REVISED
U.O.R.

INDEX:

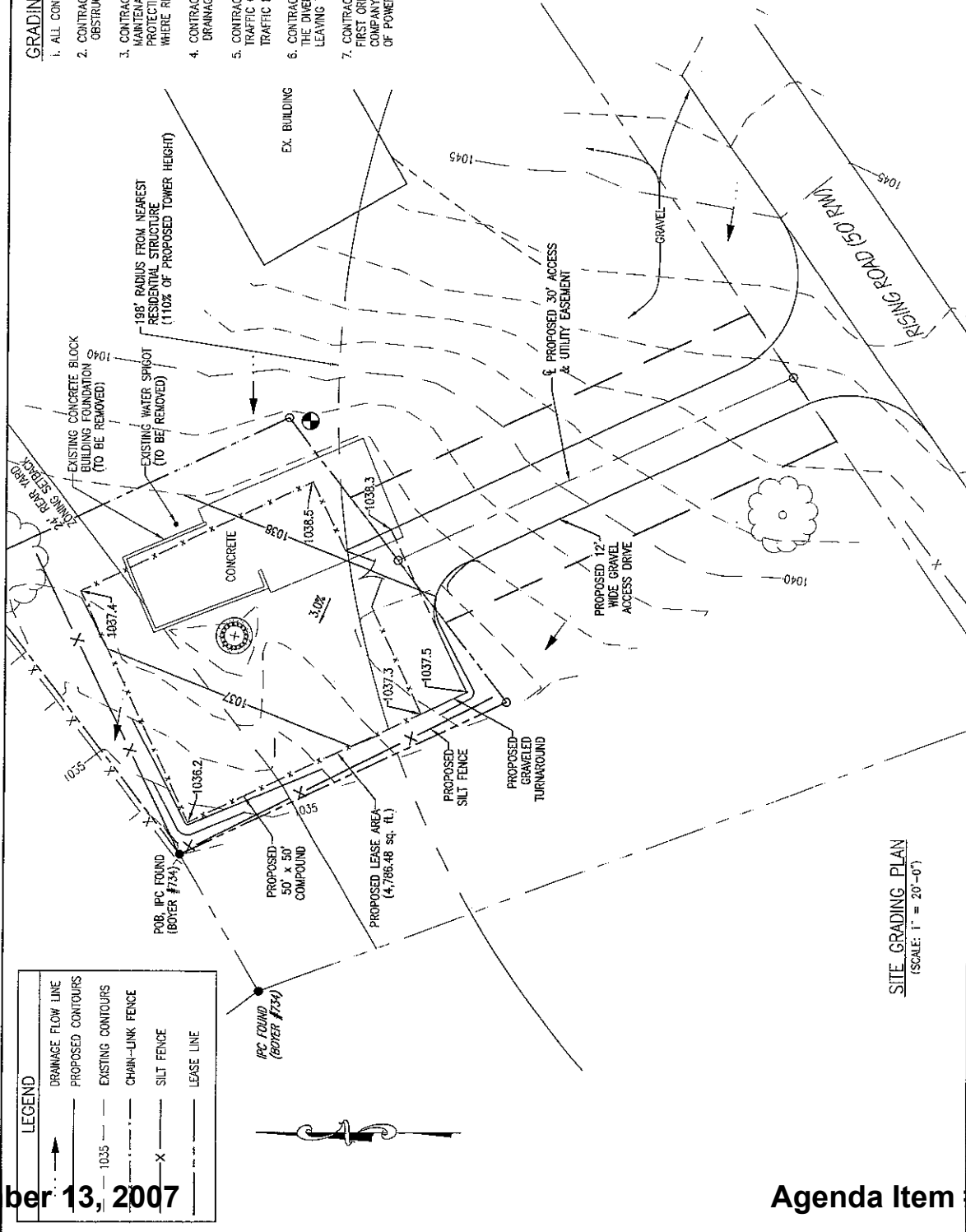
TITLE SHEET	REV.	DATE	DATE
T1 SURVEY			
C0 SITE GRADING PLAN			
C1 SITE LAYOUT			
C1.1 COMPOUND LAYOUT			
C2 MONOPOLE ELEVATION			
C3 ANTENNA & COAX GROUNDING DETAILS			
C3.1 COAX GROUNDING DETAIL			
C3.2 GROUND RISER DIAGRAM			
C4 CONDUIT AND EQUIPMENT LAYOUT			
C5 ELECTRICAL DETAILS			
C6 GROUNDING LAYOUT			
C7 ELECTRICAL LAYOUT			
C7.1 PANEL BOARD CALCULATIONS			
C8 EQUIPMENT & GENERATOR PAD DETAILS			
C9 WIRING DIAGRAM			
C10 UTILITY TRENCH DETAILS			
C11 FENCE DETAILS			
C12 S&T FENCE DETAILS			

PROPERTY ZONING: CA, GENERAL BUSINESS ZONE	COORDINATES: LATITUDE: 36° 02' 29.47" N LONGITUDE: 83° 49' 33.69" W GROUND ELEV: 1039 FT.	ELECTRIC CO.: KNOXVILLE UTILITY	TELEPHONE CO.: BELL SOUTH
ENGINEER: HARDY ENGINEERING, INC. 209 LINDEN STREET TRUSSVILLE, ALABAMA 35173 CONTACT: TIM HARDY PHONE: (205) 655-1427 MOBILE: (205) 222-7563	LESSEE: T-Mobile T-MOBILE - NASHVILLE MARKET 3600 EZZELL ROAD, SUITE 815 NASHVILLE, TENNESSEE 37211 CONTACT: REAL ESTATE DEPARTMENT	LANDLORD INFO: GEORGE C. HICKS AND DARLENE R. HICKS 7129 RISING ROAD KNOXVILLE, TENNESSEE 37924 CONTACT: GEORGE C. HICKS PHONE: (865) 525-7649	BUILDING PERMIT: CITY OF KNOXVILLE

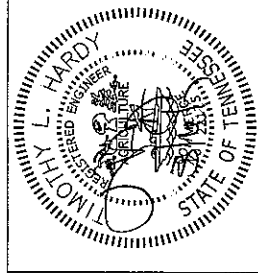


GRADING NOTES:

1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH KNOX COUNTY REGULATIONS.
2. CONTRACTOR IS RESPONSIBLE FOR REMOVING AND DISPOSING OF ALL TREES AND OBSTRUCTIONS INSIDE THE LEASE AREA AND ACCESS EASEMENT.
3. CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS DURING CONSTRUCTION FOR PROTECTION OF ADJACENT PROPERTIES, ROADWAYS, AND WATERWAYS, USE SILT FENCE WHERE REQUIRED.
4. CONTRACTOR AND/OR DEVELOPER ARE RESPONSIBLE FOR PROVIDING SITE FREE OF DRAINAGE PROBLEMS.
5. CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR MAINTAINING A PROPER TRAFFIC CONTROL PLAN FOR PUBLIC SAFETY ADJACENT TO CONSTRUCTION SITE. THE TRAFFIC PLAN MUST BE IN ACCORDANCE WITH THE LATEST (MUTCD) EDITION.
6. CONTRACTOR SHALL USE BEST MANAGEMENT PRACTICES FOR CONSTRUCTION TO PREVENT THE DIVERSION OF SEDIMENT LADEN STORM WATER RUNOFF OR ERODED MATERIALS FROM LEAVING THE CONSTRUCTION SITE.
7. CONTRACTOR SHALL CLEAR ENTIRE ACCESS AND UTILITY EASEMENT OF OBSTRUCTIONS AS FIRST ORDER OF CONSTRUCTION TO ALLOW FOR INSTALLATION OF POWER BY POWER COMPANY. CONTRACTOR TO CONTACT POWER COMPANY SO THEY CAN BEGIN INSTALLATION OF POWER LINE ONCE EASEMENT IS CLEARED.

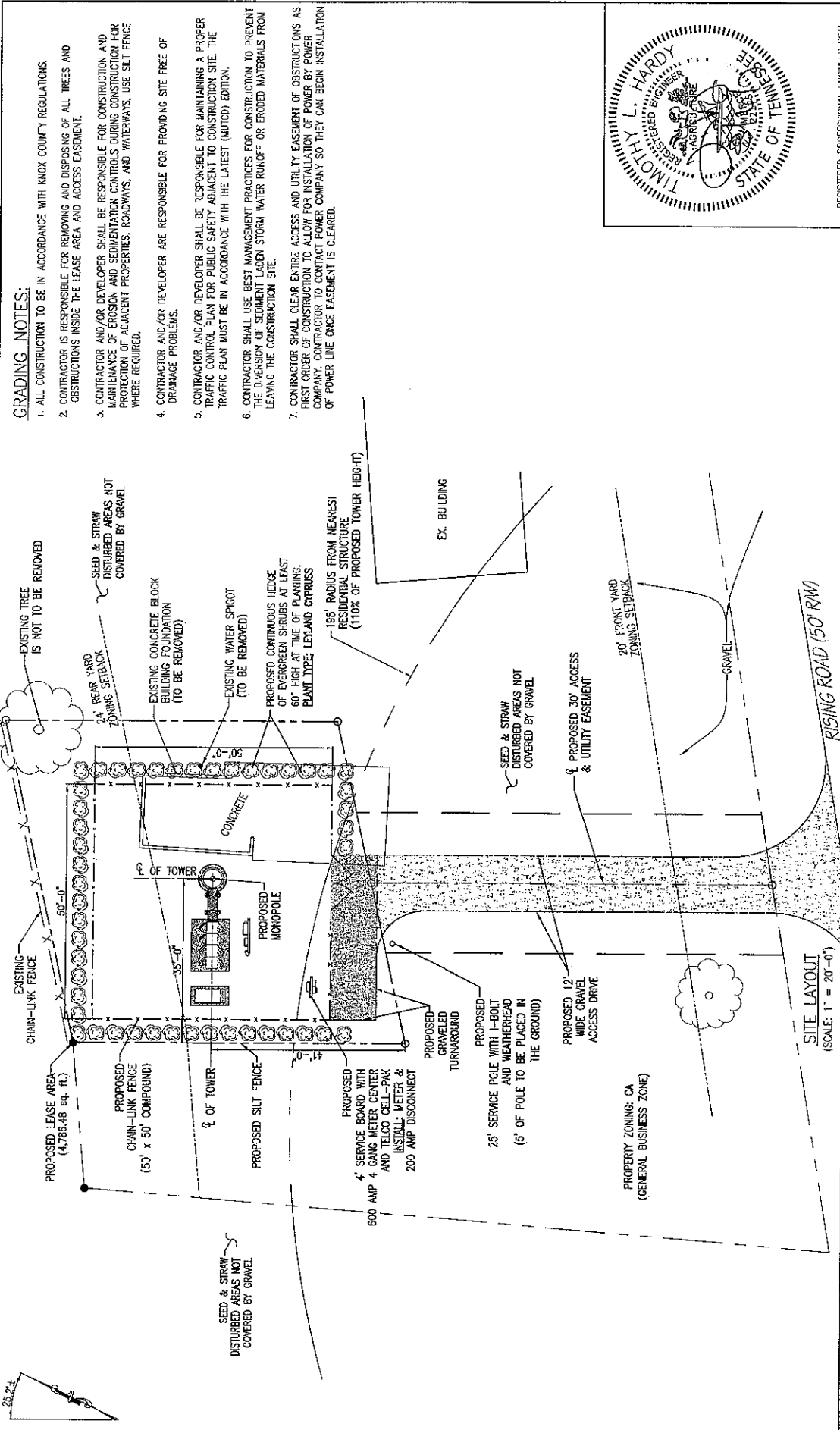


SITE GRADING PLAN
(SCALE: 1" = 20'-0")



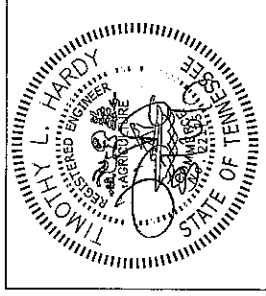
REGISTERED PROFESSIONAL ENGINEER SEAL	TIMOTHY L. HARDY REGISTERED ENGINEER STATE OF TENNESSEE
SITE GRADING PLAN	KX0018 SITE: ARMSTRONG KNOXVILLE, TENNESSEE
HARDY ENGINEERING, INC.	FOR T-MOBILE SOUTH, LLC NASHVILLE, TENNESSEE
DATE: 7-25-07	PROJECT NO: KX0018 CO SCALE: AS SHOWN
DRAWN BY: A. KIRK	DATE: 7-25-07
CHECKED BY: T.L. HARDY	DATE: 7-25-07
APPROVED BY:	
ENGINEERING AND CONSULTING	
208 LINDEN STREET, P.O. BOX 700	
TRUSSVILLE, AL 35173	
PHONE: (205) 855-1427 FAX: (205) 861-8027	

ITEM #	BY	CHK. BY	DATE



GRADING NOTES:

1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH Knox County Regulations.
2. CONTRACTOR IS RESPONSIBLE FOR REMOVING AND DISPOSING OF ALL TREES AND OBSTRUCTIONS INSIDE THE LEASE AREA AND ACCESS EASEMENT.
3. CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS DURING CONSTRUCTION FOR PROTECTION OF ADJACENT PROPERTIES, ROADWAYS, AND WATERWAYS. USE SILT FENCE WHERE REQUIRED.
4. CONTRACTOR AND/OR DEVELOPER ARE RESPONSIBLE FOR PROVIDING SITE FREE OF DRAINAGE PROBLEMS.
5. CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR MAINTAINING A PROPER TRAFFIC CONTROL PLAN FOR PUBLIC SAFETY ADJACENT TO CONSTRUCTION SITE. THE TRAFFIC PLAN MUST BE IN ACCORDANCE WITH THE LATEST (MUTCD) EDITION.
6. CONTRACTOR SHALL USE BEST MANAGEMENT PRACTICES FOR CONSTRUCTION TO PREVENT THE DIVERSION OF SEDIMENT UPON STORM WATER RUNOFF OR ERODED MATERIALS FROM LEAVING THE CONSTRUCTION SITE.
7. CONTRACTOR SHALL CLEAR ENTIRE ACCESS AND UTILITY EASEMENT OF OBSTRUCTIONS AS FIRST ORDER OF CONSTRUCTION TO ALLOWER COMPANY FOR INSTALLATION OF POWER BY POWER COMPANY. CONTRACTOR TO CONTACT POWER COMPANY SO THEY CAN BEGIN INSTALLATION OF POWER LINE ONCE EASEMENT IS CLEARED.



ITEM	REVISIONS	BY	CHK. BY	DATE

DRAWN BY: R.M. NACCARI DATE: 7-31-07 CHECKED BY: T.L. HARDY DATE: 7-31-07	REGISTERED PROFESSIONAL ENGINEER SEAL SITE LAYOUT KXC0018 SITE: ARISTONROG KNOWLE, TENNESSEE T-MOBILE SOUTH, LLC NASHVILLE, TENNESSEE JOB NO. AS SHOWN DRAWN BY: C.I.
HARDY ENGINEERING, INC. ENGINEERING AND CONSULTING 209 LINDEN STREET, P.O. BOX 706 TRUSSVILLE, AL 35173 PHONE: (205) 656-1427 FAX: (205) 661-9027	REGISTERED PROFESSIONAL ENGINEER SEAL SITE LAYOUT KXC0018 SITE: ARISTONROG KNOWLE, TENNESSEE T-MOBILE SOUTH, LLC NASHVILLE, TENNESSEE JOB NO. AS SHOWN DRAWN BY: C.I.

ANTENNA AND COAX SCHEDULE

ANTENNA MARK	SECTOR	ANTENNA ①	COAX FEED LOCATION	AZIMUTH (0° = NORTH)	COAX COLOR CODE	COAX CABLE SIZE	MECHANICAL DOWN TILT ②	RADIATION CENTER
A1	A	TMBX-6517-R2M	BOTTOM	40°	TX/RX - 1 RED TX/RX - 3 RED	(6) 1 5/8" x 200'	0°	180'
A2	A	TMBX-6517-R2M	BOTTOM	40°	RED-ORANGE	(6) 1 5/8" x 200'	0°	180'
A3	A	TMBX-6517-R2M	BOTTOM	40°	TX/RX - 4 RED TX/RX - 2 RED	(6) 1 5/8" x 200'	0°	180'
B1	B	TMBX-6517-R2M	BOTTOM	160°	TX/RX - 1 BLUE TX/RX - 3 BLUE	(6) 1 5/8" x 200'	0°	180'
B2	B	TMBX-6517-R2M	BOTTOM	160°	BLUE-ORANGE	(6) 1 5/8" x 200'	0°	180'
B3	B	TMBX-6517-R2M	BOTTOM	160°	TX/RX - 4 BLUE TX/RX - 2 BLUE	(6) 1 5/8" x 200'	0°	180'
C1	C	TMBX-6517-R2M	BOTTOM	280°	TX/RX - 1 GREEN TX/RX - 3 GREEN	(6) 1 5/8" x 200'	0°	180'
C2	C	TMBX-6517-R2M	BOTTOM	280°	GREEN-ORANGE	(6) 1 5/8" x 200'	0°	180'
C3	C	TMBX-6517-R2M	BOTTOM	280°	TX/RX - 4 GREEN TX/RX - 2 GREEN	(6) 1 5/8" x 200'	0°	180'

① FINAL ANTENNA TYPE TO BE DETERMINED BY T-MOBILE, ANTENNAS TO BE PROVIDED BY T-MOBILE AND INSTALLED BY CONTRACTOR.
② ALL ANTENNAS TO BE INSTALLED WITH DOWNTILT BRACKETS.

ELEVATION 180° (T-MOBILE)
PROPOSED LOW PROFILE PLATFORM
(3) ANTENNAS
(18) 1-5/8" x COAX TOTAL

ELEVATION 170°
(FUTURE)

ELEVATION 150°
(FUTURE)

ELEVATION 180°
(FUTURE)

T-MOBILE WILL PROVIDE TOWER WITH (1) LOW PROFILE PLATFORM, (1) SET OF MOUNTS AND SAFETY CLIMB.

TOWER FOUNDATION TO BE PROVIDED AND INSTALLED BY CONTRACTOR PER DESIGN PROVIDED BY OTHERS.

PROPOSED STEEL MONOPOLE ELEVATION
(SCALE: 1" = 20'-0")

ANTENNA AZIMUTHS
(NOT TO SCALE)

GPS POSITIONING NOTICE

THE CONTRACTOR SHALL FIELD VERIFY THE GPS LINE OF SIGHT TO THE SKY AND RELOCATE THE GPS ANTENNA ACCORDINGLY AS REQUIRED IF OBSTRUCTED BY EQUIPMENT ABOVE. COORDINATE DETAILS WITH THE CONSTRUCTION MANAGER.

**GPS/GSM MOUNTING DETAIL
AT ANTENNA RAD. CENTER**
(SCALE: N.T.S.)

REGISTERED PROFESSIONAL ENGINEER SEAL
TIMOTHY L. HARDY
REGISTERED PROFESSIONAL ENGINEER
STATE OF TENNESSEE

DATE: 7-31-07
DRAWN BY: R.M. NACCARI
CHECKED BY: T.L. HARDY
APPROVED BY:

HARDY ENGINEERING, INC.
ENGINEERING AND CONSULTING
209 LINDEN STREET, P.O. BOX 708
TRUSSVILLE, AL 35173
PHONE: (205) 655-1427 FAX: (205) 661-9027

MONOPOLE ELEVATION
KX0018 SITE - ARMSTRONG
KNOWLEDGE, TENNESSEE
T-MOBILE SOUTH, LLC
NASHVILLE, TENNESSEE
SCALE: AS SHOWN
PROJECT: KX0018C2
SHEET NO: C2