



**KNOXVILLE/KNOX COUNTY METROPOLITAN PLANNING COMMISSION
USE ON REVIEW REPORT**

▶ **FILE #:** 11-M-07-UR

AGENDA ITEM #: 81

AGENDA DATE: 11/8/2007

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

OWNER(S): MICHAEL MCGIMSEY

TAX ID NUMBER: 84 011

JURISDICTION: County Commission District 8

▶ **LOCATION:** Terminus of Hayeswood Rd., southwest of Pine Grove Rd.

▶ **APPX. SIZE OF TRACT:** 33.09 acres

SECTOR PLAN: East County

GROWTH POLICY PLAN: Urban Growth Area

ACCESSIBILITY: Access is via Hayeswood Rd., a local street with a 10' pavement width within a 50' right-of-way.

UTILITIES: Water Source: Knoxville Utilities Board

Sewer Source: Knoxville Utilities Board

WATERSHED: Swan Pond Creek

▶ **ZONING:** A (Agricultural)

▶ **EXISTING LAND USE:** Vacant

▶ **PROPOSED USE:** 190' monopole telecommunication tower

HISTORY OF ZONING: None noted

SURROUNDING LAND USE AND ZONING: North: Low density residential / A (Agricultural)

South: Low density residential / A (Agricultural)

East: Low density residential, telecommunication tower & water tank / A (Agricultural)

West: Low density residential / A (Agricultural)

NEIGHBORHOOD CONTEXT: This site is located in a rural residential area developed under A (Agricultural) zoning. There is an existing telecommunication tower and water tank located adjacent to the proposed lease area.

STAFF RECOMMENDATION:

▶ **APPROVE the request for a 190' monopole telecommunications tower in the A zoning district, subject to the following 6 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. Lighting the tower as may be required by the FAA.
4. Installing a 6' high security fence around the tower and equipment area prior to the tower becoming operational.
5. 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.

6. The tower will be required to be setback a minimum distance of 209' from any existing or future residential dwelling unit.

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

COMMENTS:

This is a request for a new 190' monopole telecommunications tower to be located within a 5600 square foot lease area located on a 33 acre parcel. The proposed tower will have access to a 30' access easement from the terminus of Hayeswood Rd. The subject property is zoned A (Agricultural), and telecommunication towers are considered as a use on review in this district.

The current proposal provides for an 270' setback between the proposed tower and the nearest residence which is located on the 33 acre site. According to the Knoxville-Knox County Wireless Communications Facility Plan, rural/heavily wooded areas 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, (190') and the fact that the property is zoned A, the Facility Plan identifies this as an acceptable site for a telecommunication tower.

The visual impact on nearby residences will be minimal due to the fact that the proposed site is heavily wooded. This vegetation will provide a natural buffer between the tower and adjacent residences. The applicant will be required to install a 6' high security fence prior to the tower becoming operational. 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 3 telecommunication carrier antenna arrays. T-Mobile will be the principal client for the tower.

The proposed tower will be located next to an existing telecommunication tower operated by Bell South and an existing City of Knoxville water tank. According to the applicant the adjacent tower is structurally inadequate to allow for co-location and the water tank does not have sufficient height to accommodate the requested coverage. The applicant states that there are no other existing or acceptable structures within this area and that the proposed site is to relieve capacity of existing or nearby site (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 190' tower is technically justified by the materials submitted by the applicant (see attached report).

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 within a low density residential area, is required to be heavily screened. Since this 33-acres parcel is heavily wooded and provides a natural vegetative buffer between the proposed lease area and nearby properties, the impact on nearby residences will be minimal. The applicant will be required to install a 6' tall security fence.

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 A 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. Since this is a heavily wooded area and there is an existing telecommunication tower adjacent to the site, 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 East County Sector Plan proposes low density residential uses and slope protection on this property. The proposed development is consistent with this land designation.
2. The Wireless Communications Facility Plan identifies the proposed 190' 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 rural/heavily wooded areas (see attached matrix). As previously stated, the tower will be setback approximately 270' 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.



T MOBILE

Telecommunications Tower Site Review

USE ON REVIEW APPLICATION # 11-M-07-UR

CONSULTANT'S SUMMARY

Hayeswood Site

Knox County

Location: Hayeswood Road near Pine Grove Road (East Knox County)

Proposed Tower Height: 190 foot Monopole

Address: 1425 Hayeswood Road
Knoxville, Tennessee

District: # 8th County **Map Number:** 84 **Parcel** 011

Use: Telecommunications antenna support structure

Zoning: A (Agricultural/Urban Growth)

Variances and waivers: None required

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

Instant Proposal: Construct a 190 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.

REPORT TO
METROPOLITAN PLANNING COMMISSION

for

Proposed Telecommunications Tower Site
Located at 1435 Hayeswood Road
Knoxville, TN known as

HAYESWOOD SITE

T-MOBILE

UOR 11-M-07-UR

COMPLIANCE WITH

THE MPC TELECOMMUNICATIONS FACILITY ORDINANCE

10/25/2007

The proposed site for the applicant is a 190 foot monopole antenna support structure (including antennas and lightning rod) to be located just off Pine Grove Road at 1425 Hayeswood 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 84 Parcel 011**

2. **Zoning.** A (Agricultural/Urban Growth)

3. **Tower height.** The requested height is 190 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 4 of the Ordinance for Knox County for "A" sites are met with the instant proposal. Section 4.92.02(2)(a) of the Knox County Zoning Ordinance requires a proposed tower to be more than 110% of the tower height (209 feet in this case) from a residential home. There are no residential homes near this proposed site other than the land owner. 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 an area adjacent to an existing Crown Castle tower and a water utility tank. The site is located on a 33 acre parcel of wooded land.

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 are that the facility must be 110% height of the tower from any dwelling unit or 209 feet in this case. The applicant meets that requirement. (Art. 4 Section 4.92.02(2)(a). The landowner's house is located within this area, but by signing the agreement with T Mobile, he has waived the requirement. Also, I discussed this with the landowner on my site review and he acknowledged that he was aware of the requirement and had no objection to same.

8. **Height.** The proposed structure is for 190 feet. (Note: The request is for a 180 foot tower plus lightning rod or approximately 190 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. I also met with Mr. McGrimsley, owner of the parcel of land.

The site elevation at this location is 1030 feet. There is a water tank on a ridge with a ground elevation of 1040 feet about 300 + from the proposed site. There is also a Crown Castle tower located about 60 feet from the proposed structure. Normally, the two towers side by side would not be acceptable for several reasons, but in this case a structural analysis of the existing tower indicates that it could not accommodate any more antennas without serious overload as the legs of the tower are fairly small.

A review of the water tank shows that it is much too short to be of any use for Cellular or PCS antennas coverage as it is surrounded by 55 foot plus trees.

The request is for a 190 foot monopole of which T Mobile will use the top 25 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 is fairly isolated and there are no residential homes other than that of the land owner near the site. The residential home of the landowner is well beyond the fall zone of the proposed structure.

The proposed structure should not affect adjacent property as it is very wooded 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 (190 feet) coupled with no lighting requirements and located in a fairly isolated wooded area should present no problems as to view.

(2) **Land Use Compatibility**---The proposed site is on a slightly wooded parcel of land immediately adjacent to a preexisting tower and a utility water tank on a ridge in East Knox county. The structure and associated building/facilities would be compatible with the local land use and the surrounding area is wooded. The site will be unmanned and will have no impact on noise, traffic or air pollution.

(3) **Design Compatibility**---The proposed landscaping and facility design would blend in with surrounding agricultural land usage and design. The new structure will be a monopole type structure which are the least obtrusive type antenna support structures.

(A) **Opportunity Areas**---This proposed site is in an area zoned Agricultural/Urban Growth and is wooded and meets the requirements of an opportunity area. It is unlikely to become a blighting influence on the surrounding area.

(B) **Sensitive Areas**---This site is not in a sensitive area as it is isolated and surrounded by woods.

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

SUMMARY

(1) The proposed antenna support structure is a 190 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 three other potential users in the future.

- (3) The structure design meets or exceeds FCC and EIA requirements.
- (4) The area surrounding the site is wooded and zoned Agricultural. There are no residences in the immediate area.
- (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 wooded vegetation that is presently existing.
- (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

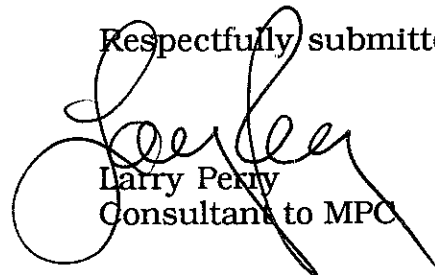
time, the radiation produced by the combination of all the users at the same time using the standards and protocols proposed and used by the carriers today, will be considerably below that established by the Federal Communications Commission and the EPA as creating any danger to humans or animals.

(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 County of Knox. While I would normally not recommend two antenna structures to be located as close as these are, it is required in this case as the preexisting tower is much too small and inadequate for the antennas and equipment needed by this applicant.

Respectfully submitted,



Larry Perry
Consultant to MPC

11-M-07-WR



PYRAMID NETWORK SERVICES, LLC.

TELECOMMUNICATIONS CONSTRUCTION SERVICES AND CONSULTING

2393 Pendley Road
Suite 200
Cumming, GA
30041

678-679-0920
678-679-0934 Fax

October 8, 2007

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

RE: T-Mobile Proposed 190' Monopole Tower @ 1435 Hayeswood Road
(Map 084 Parcel 011): 9KX0060/Hayeswood

Dear Honorable Commission Members:

On behalf of T-Mobile and the land owner, Mr. Michael McGimsey Sr., 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 190' monopole tower (including lightning rod) to be located at 1435 Hayeswood Road, just south of Pine Grove 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.

T-Mobile first investigates existing structures for co-location. Unfortunately, an adjacent Crown Castle tower is structurally inadequate to allow additional antennas. In addition, a nearby KUB water tank does not have sufficient height to provide the coverage required by T-Mobile.

According to the Land Use/Wireless Facilities Matrix the proposed facility and monopole tower is within an Opportunity Area because of the "Rural/Heavily Wooded" nature of the subject parcel and other nearby properties, however, due to the height of 190' the Land Use/Wireless Facilities Matrix is neutral to the proposal. The site will be within 500' of a residence which is discouraged. However the proposed facility will be well screened by natural land forms and vegetation. Additionally, the proposed tower will meet the 110% height of the tower setback from any Dwelling Unit.

The tower will be within 100'+/- existing Crown Castle tower site; as stated earlier this tower was investigated for co-location but is structurally inadequate. It also with 250' +/- of an existing KUB water tank but the tank does not have sufficient height to meet the needs of T-Mobile's coverage objectives. Although the placement of the towers or other structures in close proximity to each other is a concern expressed in the Wireless

Communications Facilities Plan, the proposed location meets the criteria of being placed in area that is out of public view. The location is well screened from neighboring parcels with natural wooded areas.

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 190' (including lightening rod) and will be a monopole design and will therefore have a minimal impact on surrounding properties. Due to the proposed height of 190' there will be no lighting on the structure.
- (2) Land Use Compatibility - The subject property is zoned A, Agricultural Zone. The subject property and surrounding area is rural and sparsely populated. This facility will be unmanned and will add no substantial increase in noise, air pollution, or traffic. Furthermore the proposed facility will not burden any county services.

Adjacent and surrounding properties are zoned A, Agricultural Zone. The surrounding properties are generally large agricultural or heavily wooded lots. The proposed location is within a Opportunity Area in that it is "Rural/Heavily Wooded" although the Land Use/Wireless Facilities Matrix is neutral to the proposal due to the monopole's height of 190'. The proposed facility is also discouraged because it is within 500' of residence according to the Land Use/Wireless Facilities Matrix, however, this property is currently impacted by a KUB water tank and a lattice tower. This residence will be screened from the proposed tower by natural land forms and wooded areas.

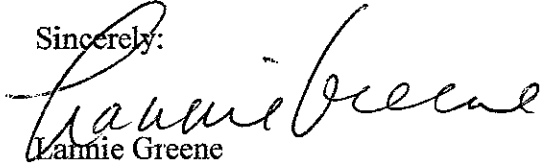
- (3) Design Compatibility --The facility design, which will include a monopole tower will not impact the existing uses of surrounding properties due to its location on a 33 acre parcel. The proposed facility and monopole is well buffered by naturally thick wooded areas surrounding it. Monopoles are 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

Finally, 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 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:

A handwritten signature in cursive script that reads "Lannie Greene". The signature is written in black ink and is positioned above the printed name.

Lannie Greene

Pyramid Network Services for T-Mobile & Mr. Michael McGimsey, Sr.

11-M-07-WR



PYRAMID NETWORK SERVICES, LLC.
TELECOMMUNICATIONS CONSTRUCTION SERVICES AND CONSULTING

2393 Pendley Road
Suite 200
Cumming, GA
30041

678-679-0920
678-679-0934 Fax

October 8, 2007

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

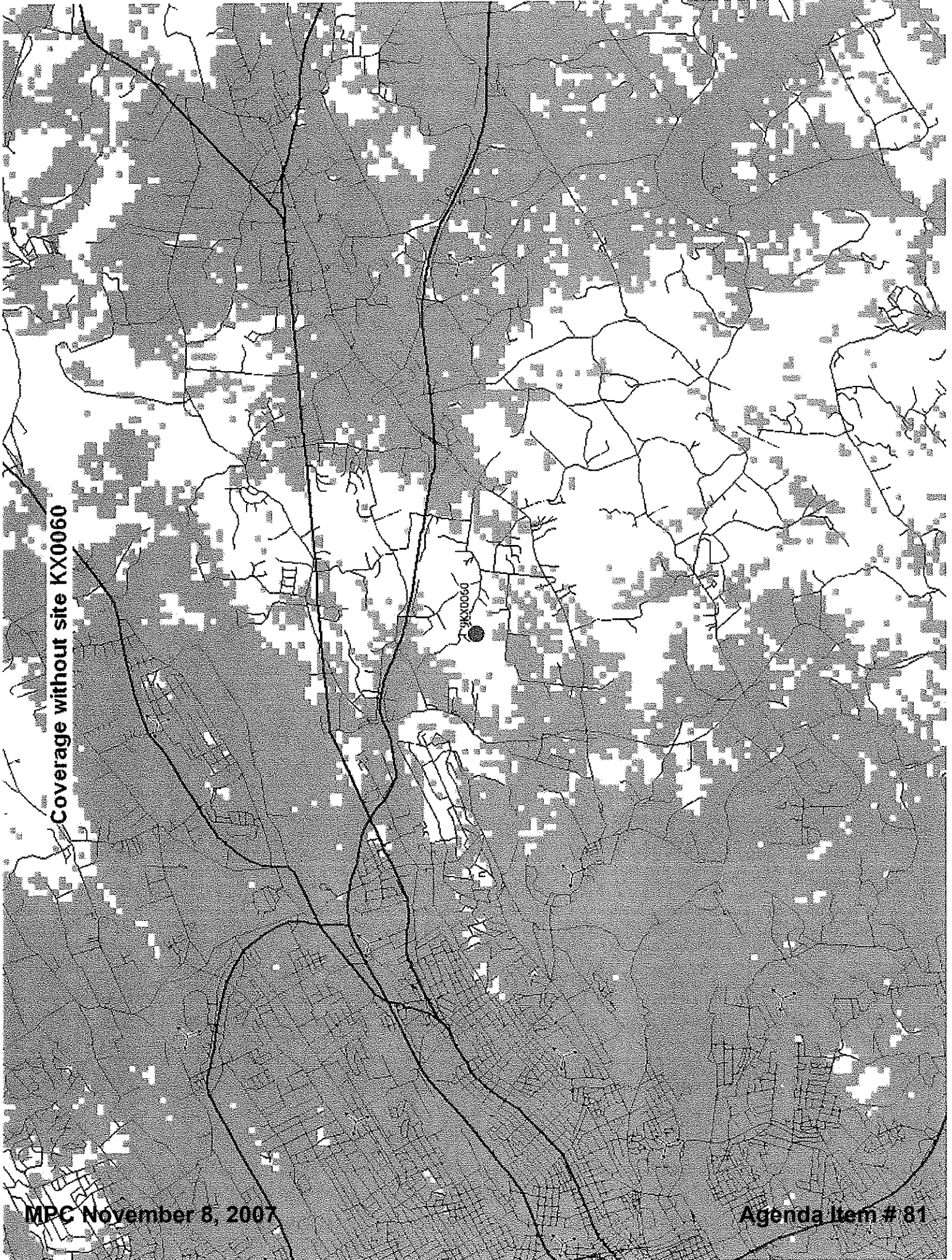
RE: Proposed T-Mobile 190' Monopole @ 1435 Hayeswood Road

Dear Honorable Commission Members:

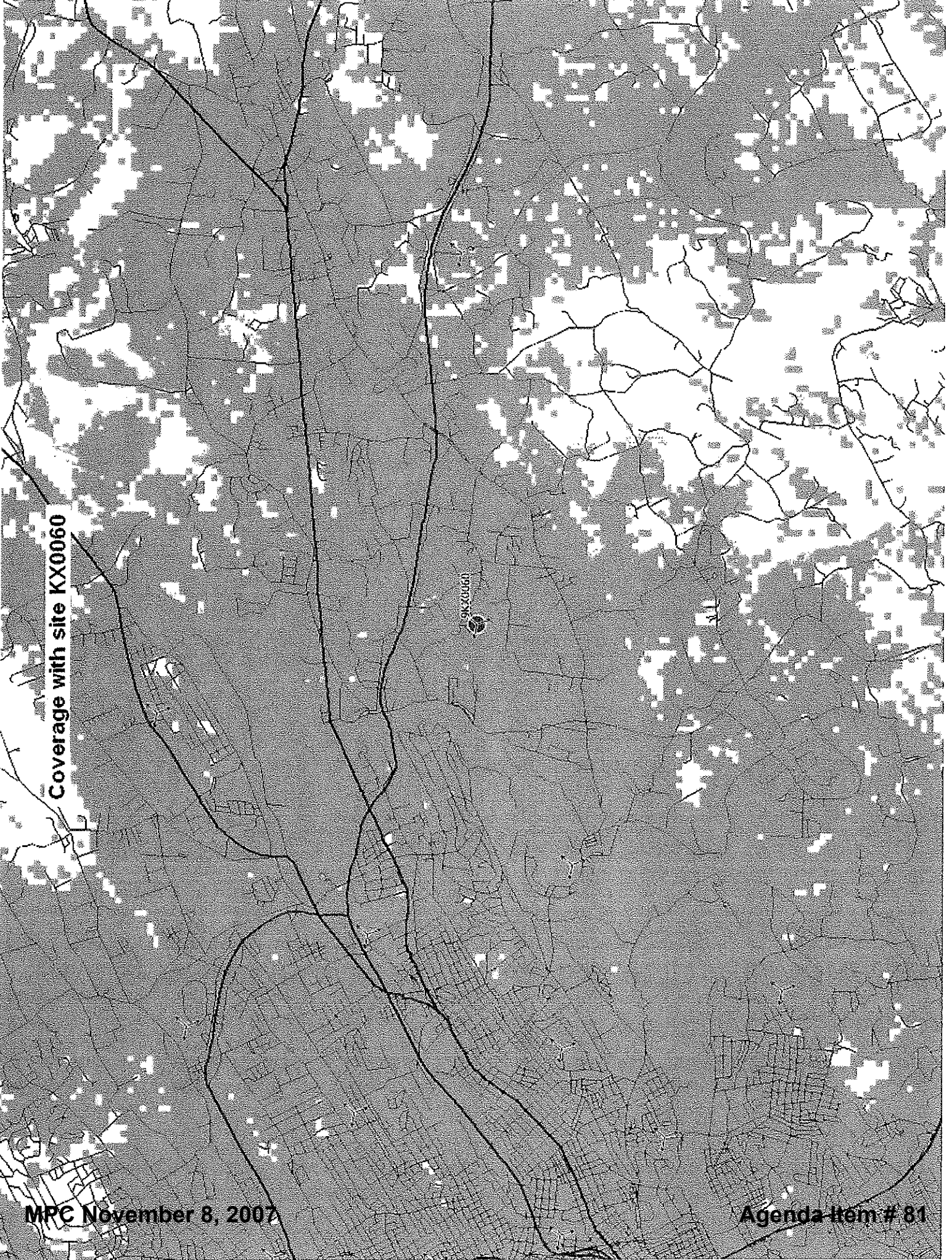
Please allow this letter to confirm that T-Mobile agrees to make all of its wireless telecommunications facilities in Knox County and the City of Knoxville available to other wireless providers for co-location, provided such facilities are structurally and technically able to accommodate additional providers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

Sincerely,

Lannie Greene
Pyramid Network Services for T-Mobile



Coverage without site KX0060



Coverage with site KX0060



SITE DEVELOPMENT PLANS FOR T-MOBILE SOUTH, LLC

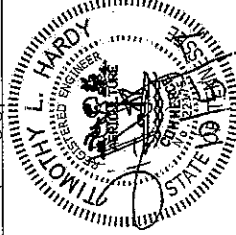
SITE # : KX0060B
SITE NAME: HAYESWOOD
SITE ADDRESS: 1425 HAYESWOOD ROAD
KNOXVILLE, TENNESSEE 37914

SIGNATURE AUTHORIZATIONS:

RF ENGINEER APPROVAL:	DATE:
SIGNATURE:	
CONSTRUCTION MANAGER APPROVAL:	DATE:
SIGNATURE:	
SITE ACQUISITION AGENT APPROVAL:	DATE:
SIGNATURE:	
LAND OWNER APPROVAL:	DATE:
SIGNATURE:	
CPS APPROVAL:	DATE:
SIGNATURE:	
ZONING/PERMITTING APPROVAL:	DATE:
SIGNATURE:	

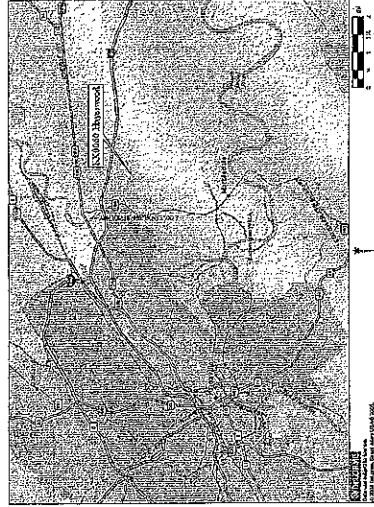
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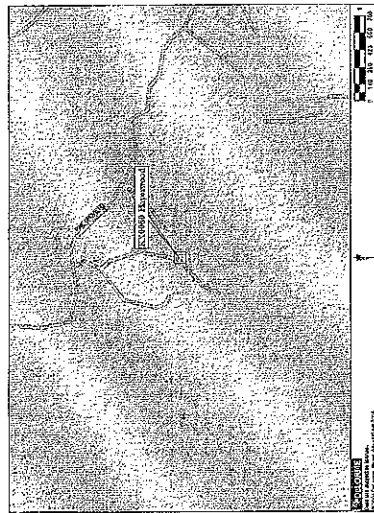


REGISTERED PROFESSIONAL ENGINEER SEAL

INDEX:	TITLE SHEET	REV.:	DATE:
J1	SURVEY		
00	SITE GRADING PLAN		
C1	SITE LAYOUT LAYOUT		
C1.5	COMPOUND & FOUNDATION LAYOUT		
C2	TOWER ELEVATION		
C3	ADDITIONAL COORDINATING DETAILS		
C3.1	COAX GROUNDING DETAIL		
C3.2	GROUND WESER DIAGRAM		
C4	ELECTRICAL ELEVATION		
C5	ELECTRICAL DETAILS		
C6	CONDUIT LAYOUT		
C7.1	PANEL BOARD CALCULATIONS		
C8	(NOT USED)		
C9	WIRING DIAGRAM		
C10	UTILITY TRENCH DETAILS		
C11	FENCE DETAILS		



VICINITY MAP
(NOT TO SCALE)



DIRECTIONS: TAKE I-40 EAST TO KNOXVILLE TO EXIT #398 - STRAWBERRY PLAINS PIKE FROM NASHVILLE. GO APPROX. 0.5 MILES TO PINE GROVE ROAD AND TURN RIGHT. GO APPROX. 1.5 MILE TO HAYESWOOD ROAD AND TURN LEFT (ACROSS FROM SMALL CHURCH). FOLLOW DRIVE TO RIGHT TO SITE NEXT TO CROWN CASTLE SITE AND KUB WATER TANK.

GENERAL NOTES:

- ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE CITY OF KNOXVILLE REGULATIONS.
- CONTRACTOR SHALL NOTIFY ALL UTILITIES AT LEAST 24 HOURS PRIOR TO START OF CONSTRUCTION TO VERIFY LOCATION OF ALL UTILITIES SHOWN OR NOT SHOWN.
- ALL UTILITIES WITHIN ROADWAY SHALL BE BACKFILLED WITH STONE.
- CONTRACTOR SHALL REPAIR AT HIS EXPENSE DAMAGE TO ANY EXISTING IMPROVEMENTS DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO DRAINAGE, UTILITIES, PAVEMENT, STRIPPING, CURBS, ETC.. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL UNUSABLE MATERIALS FROM THE SITE.
- CONTRACTOR SHALL COORDINATE WITH POWER COMPANY PROVIDING TEMPORARY SERVICE FOR CONSTRUCTION FACILITIES DURING CONSTRUCTION.
- 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.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE EXACT LOCATION OF EXISTING UTILITIES WHICH MAY CONFLICT WITH PROPOSED IMPROVEMENTS.
- THIS PROJECT WILL NOT REQUIRE WATER OR SEWER SERVICE.
- CONTRACTOR SHALL REMOVE ANY DIRT OR MUD FROM TIRES OF ANY CONSTRUCTION VEHICLES PRIOR TO LEAVING SITE.
- REFER TO BUILDING/TOWER PLANS FOR PROPOSED DIMENSIONS AND OTHER SPECIFICS WHICH ARE NOT SHOWN.
- CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A PROPER TRAFFIC CONTROL PLAN FOR PUBLIC SAFETY ADJACENT TO CONSTRUCTION SITE. CONTROL PLAN MUST BE IN ACCORDANCE WITH LATEST MUTCD EDITION.

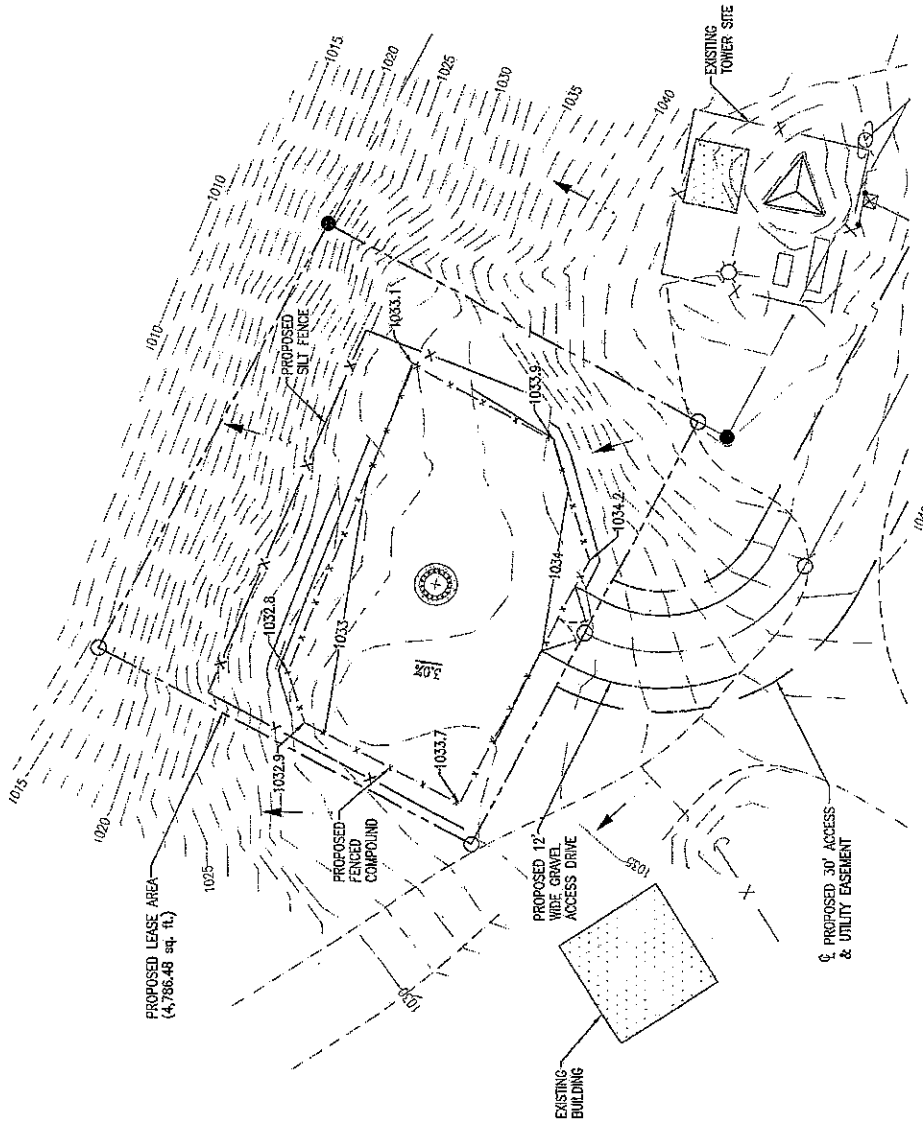
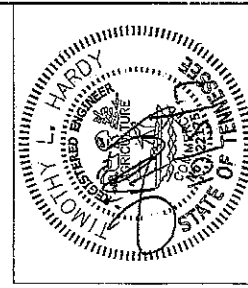
NOTICE TO CONTRACTORS
SHOULD ARTIFACTS, ARCHAEOLOGICAL FEATURES OR HUMAN REMAINS BE ENCOUNTERED DURING PROJECT ACTIVITIES, STOP WORK IMMEDIATELY AND CONTACT THE T-MOBILE FIELD CONSTRUCTION MANAGER FOR INSTRUCTIONS.

PROPERTY ZONING:	COORDINATES:	LESSEE:	ENGINEER:
	LATITUDE: 36° 59' 45.60" N LONGITUDE: 83° 48' 30.61" W GROUND ELEV: 1009 FT.	T-Mobile T-MOBILE - NASHVILLE MARKET 3600 W. BOWEN BLVD. SUITE 815 NASHVILLE, TENNESSEE 37211 CONTACT: REAL ESTATE DEPARTMENT	HARDY ENGINEERING, INC. 209 LINDEN STREET TRUSSVILLE, ALABAMA 35173 CONTACT: TIM HARDY PHONE: (205) 655-1427 MOBILE: (205) 222-7563
TELEPHONE CO.:	ELECTRIC CO.:	LANDLORD INFO:	BUILDING PERMIT:
BELLSOUTH CONTACT: CUSTOMER SERVICE PHONE: (866) 620-6000	KNOXVILLE UTILITY P.O. BOX 59017 KNOXVILLE, TN 37850-9017 CONTACT: CUSTOMER SERVICE PHONE: (865) 524-2911	MICHAEL O. MCGINSEY, Sr. 1400 WATKINS ROAD KNOXVILLE, TN 37912 CONTACT: MICHAEL O. MCGINSEY, SR. PHONE: (865) 524-2378 (HOME)	CITY OF KNOXVILLE CONTACT: BESSICA JOHNSON SENIOR PERMIT TECHNICIAN PHONE: (865) 215-1991 HOURS: 8-2 CENTRAL BUSINESS DISTRICT

GRADING NOTES:

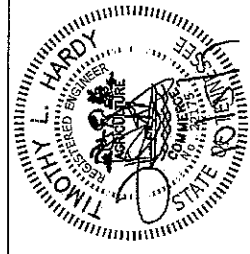
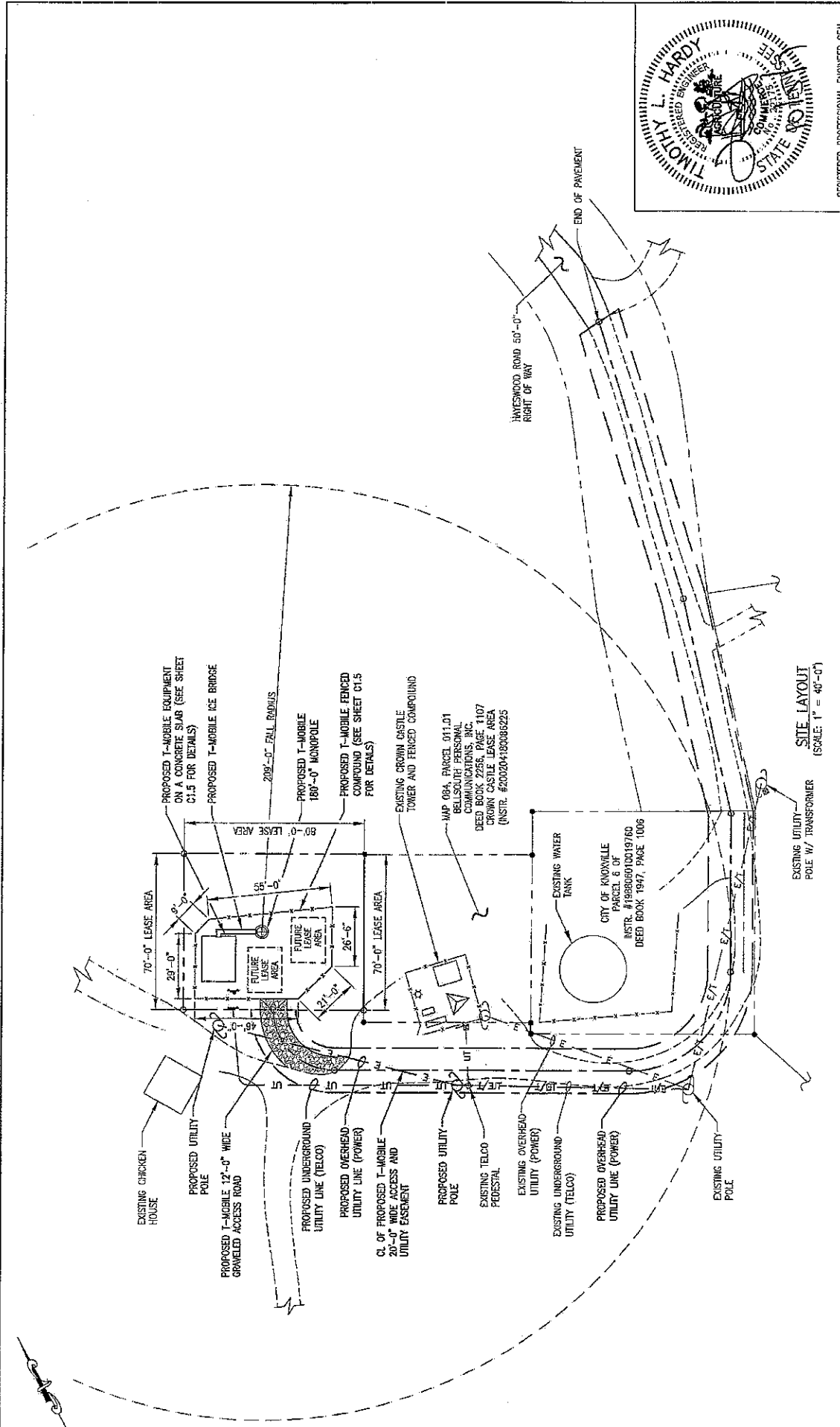
1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH KNOX COUNTY REGULATIONS.
2. CONTRACTOR IS RESPONSIBLE FOR REMOVING AND DISPOSING OF ALL TREES AND OBSTRUCTIONS INSIDE THE LEASE AREA AND ACCESS EASEMENT.
3. CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF EROSION AND SEDIMENTATION 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 (MOTOR) EDITION.
6. CONTRACTOR SHALL USE BEST MANAGEMENT PRACTICES FOR CONSTRUCTION TO PREVENT THE IMPACTS 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.

LEGEND	
—●—●—●—	DRAINAGE FLOW LINE
— — — —	PROPOSED CONTOURS
— · — · — · — ·	EXISTING CONTOURS
— X — X — X —	CHAIN-LINK FENCE
— X — X — X —	SILT FENCE
— — — —	LEASE LINE



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

REGISTERED PROFESSIONAL ENGINEER SEAL		SITE GRADING PLAN	
KNOX COUNTY, TENNESSEE		KNOX COUNTY, TENNESSEE	
T-MOBILE SOUTH, LLC		T-MOBILE SOUTH, LLC	
KNOXVILLE, TENNESSEE		KNOXVILLE, TENNESSEE	
AS SHOWN		AS SHOWN	
PROJECT NO. KNOX060_CD		PROJECT NO. KNOX060_CD	
DATE: 10-4-07		DATE: 10-4-07	
DRAWN BY: A. KIRK		DRAWN BY: A. KIRK	
CHECKED BY: T.L. HARDY		CHECKED BY: T.L. HARDY	
SCALE: 1" = 20'-0"		SCALE: 1" = 20'-0"	
PROJECT: HARDY ENGINEERING, INC.		PROJECT: HARDY ENGINEERING, INC.	
ENGINEERING AND CONSULTING		ENGINEERING AND CONSULTING	
209 LYNDEN STREET, P.O. BOX 708		209 LYNDEN STREET, P.O. BOX 708	
TRUSSVILLE, AL 35173		TRUSSVILLE, AL 35173	
PHONE: (205) 665-1427 FAX: (205) 661-9027		PHONE: (205) 665-1427 FAX: (205) 661-9027	



REGISTERED PROFESSIONAL ENGINEER SEAL
TIMOTHY L. HARDY
 LICENSE NO. 15087
 STATE OF TENNESSEE

SITE LAYOUT
 KX00606 SITE: HAYESWOOD
 KNOXVILLE, TENNESSEE
 FOR
 T-MOBILE SOUTH, LLC
 NASHVILLE, TENNESSEE
 DRAWING NO. KX00606_C1 DATE AS SHOWN SHEET NO. C1

HARDY ENGINEERING, INC.
 ENGINEERING AND CONSULTING
 209 LINDEN STREET, P.O. BOX 700
 TRUSSVILLE, AL 35173
 PHONE: (205) 655-1427 FAX: (205) 661-8027

DATE: 10-04-07
 DRAWN BY: J.E. STEGER
 CHECKED BY: T.L. HARDY
 PROJECT NO.: 10-04-07

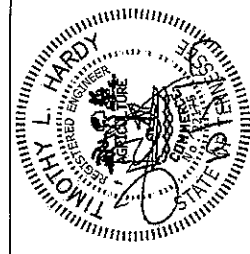
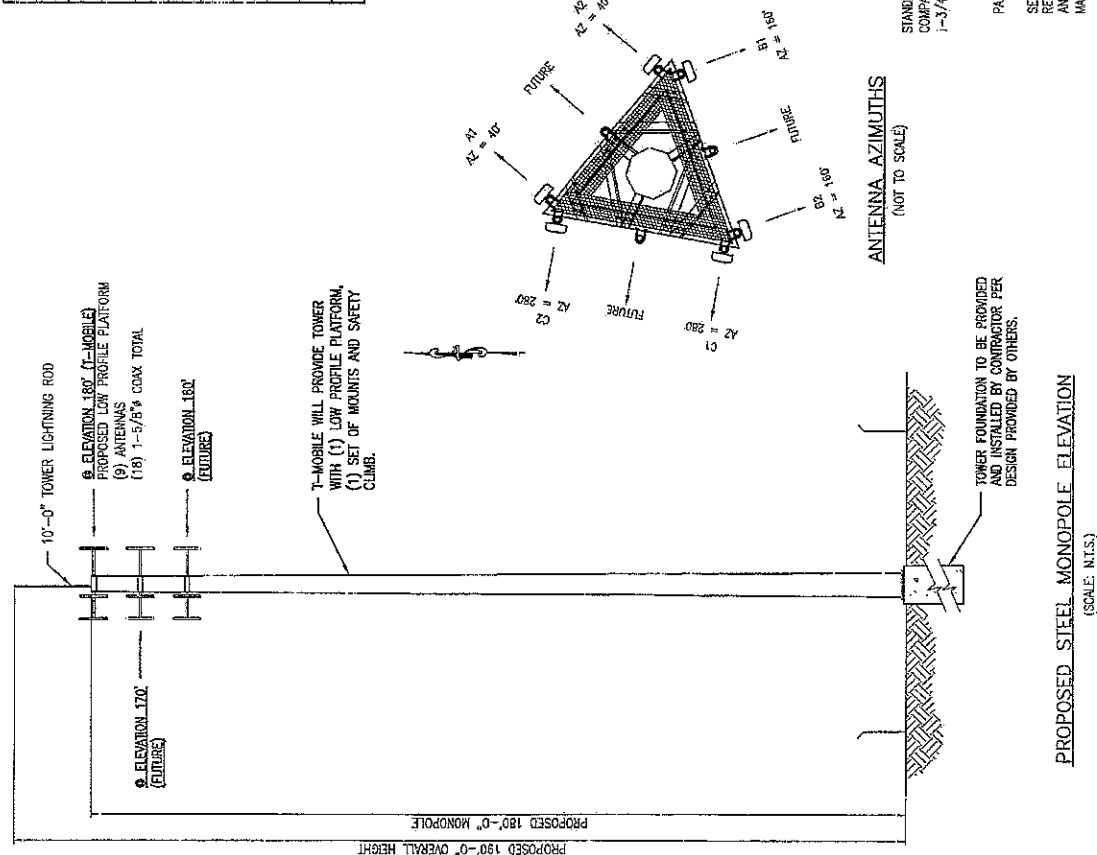
NO.	REVISIONS	BY	CHK. BY	DATE

SITE LAYOUT
 (SCALE: 1" = 40'-0")

ANTENNA AND COAX SCHEDULE

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

- 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.



REGISTERED PROFESSIONAL ENGINEER SEAL
MONOPOLE ELEVATION
 KX00060 SITE, HAYESWOOD
 KNOXVILLE, TENNESSEE
 T-MOBILE SOUTH, LLC
 WASHINGTON, TENNESSEE

DATE: 10-03-07
 DRAWN BY: J.E. STEGER
 CHECKED BY: T.L. HARDY
 PROJECT NO.: KX00060_C2

HARDY ENGINEERING, INC.
 (SCALE: N.T.S.)
 ENGINEERING AND CONSULTING
 209 LINDEN STREET, P.O. BOX 706
 TRUSSVILLE, AL 35173
 PHONE: (205) 655-4477 FAX: (205) 661-0627

REVISIONS	BY	CHK. BY	DATE