



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

▶ **FILE #:** 9-B-14-UR

AGENDA ITEM #: 26

AGENDA DATE: 9/11/2014

▶ **APPLICANT:** VERIZON TENNESSEE PARTNERSHIP BY FAULK & FOSTER

OWNER(S): Stephen R. Badgett

TAX ID NUMBER: 93 G C 002

JURISDICTION: City Council District 3

STREET ADDRESS: 4800 Western Ave

▶ **LOCATION:** South side of Western Ave., east of Third Creek Rd.

▶ **APPX. SIZE OF TRACT:** 85.41 acres

SECTOR PLAN: Northwest City

GROWTH POLICY PLAN: Urban Growth Area (Inside City Limits)

ACCESSIBILITY: Access is via Western Ave., a major arterial street that is currently being upgraded from a two to a five lane section within a minimum 100' right-of-way.

UTILITIES: Water Source: Knoxville Utilities Board

Sewer Source: Knoxville Utilities Board

WATERSHED: Third Creek

▶ **ZONING:** C-4 (Highway and Arterial Commercial)

▶ **EXISTING LAND USE:** Commercial businesses

▶ **PROPOSED USE:** 150' Monopole Commercial Telecommunications Tower

HISTORY OF ZONING: None noted

SURROUNDING LAND USE AND ZONING: North: Mixed businesses / C-4 (Highway and Arterial Commercial) & C-5 (Tourist Commercial)

South: Vacant land and Third Creek / A-1 (General Agricultural), F-1 (Floodway) & RP-1 (Planned Residential)

East: Mixed businesses / C-3 (General Commercial)

West: Vacant land and Third Creek / C-3 (General Commercial), A-1 (General Agricultural) & F-1 (Floodway)

NEIGHBORHOOD CONTEXT: The site is located on the south side of Western Ave., which serves as a major commercial corridor in this area. Residential neighborhoods are located north, south and west of this commercial corridor.

STAFF RECOMMENDATION:

▶ **APPROVE the request for a 150' monopole commercial telecommunications tower in a C-4 (Highway and Arterial Commercial) zoning district subject to 7 conditions .**

1. Meeting all applicable requirements of the Knoxville Zoning Ordinance.
2. Installing the access driveway and turnaround area for the site in compliance with the City of Knoxville's utility access driveway standards.

3. Meeting all applicable requirements of the Knoxville Fire Prevention Bureau.
4. Meeting all applicable requirements of the Knoxville Department of Engineering.
5. Installing the evergreen landscaping screen along the fenced enclosure, as identified on the tree planting plan, within six months of the tower becoming operational.
6. Since the FAA does not require any lighting for this facility, there shall be no lighting on the tower.
7. 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.

With the conditions noted above, this request meets all criteria for a use-on-review in the C-4 zoning district.

COMMENTS:

This is a request for a new 150' monopole commercial telecommunications tower (159' with lightning rod) to be located within a 10,000 square foot lease area on a portion of an 85.41 acre commercial tract. The tower will be located on the south side of Western Ave. behind A+ Auto Sales. The subject property is zoned C-4 (Highway and Arterial Commercial) and telecommunication towers require a use on review approval in this district. Access to the site is by an easement off of Western Ave., a major arterial street that is currently being upgraded from a two to a five lane street. The driveway serving this site is required to meet the Utility Access Driveway standards of the Knoxville Fire Prevention Bureau which requires at a minimum, a 16' wide paved access driveway.

The proposed tower is required to be located 165 feet (110% of the tower height) from the nearest residentially zoned property. The proposed tower exceeds that minimum standard since the nearest residentially zoned property line is approximately 300' from the base of the tower. The nearest residence is over 1450' from the base of the tower on the south side of Western Ave. and 1000' from the nearest residence on the north side of Western Ave. The applicant is proposing a 9' high security fence around the tower and equipment area. The FAA does not require any lighting for a tower of this height.

The applicant states that there are no existing structures in the area that can be used for antenna placement to obtain the required coverage. The applicant is proposing up to 4 telecommunication carrier antenna arrays on this tower. Verizon Wireless will be the principal client for the tower. A letter has been submitted stating that Verizon Wireless agrees to make its facilities available to other wireless providers.

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 150' monopole tower is technically justified by the materials submitted by the applicant (see attached report).

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 utilities are available to serve this site.
2. The tower site, being located in a major commercial corridor, should have minimal impact on residential neighborhoods in the area.

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

1. With the recommended conditions, the proposed commercial telecommunications tower at this location meets the standards required in the C-4 (Highway and Arterial Commercial) 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, Northwest City Sector Plan, One Year Plan and Wireless Communications Facility Plan. The use is in harmony with the general purpose and intent of the Zoning Ordinance. Since this site is in an area consisting of larger tracts of land, 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

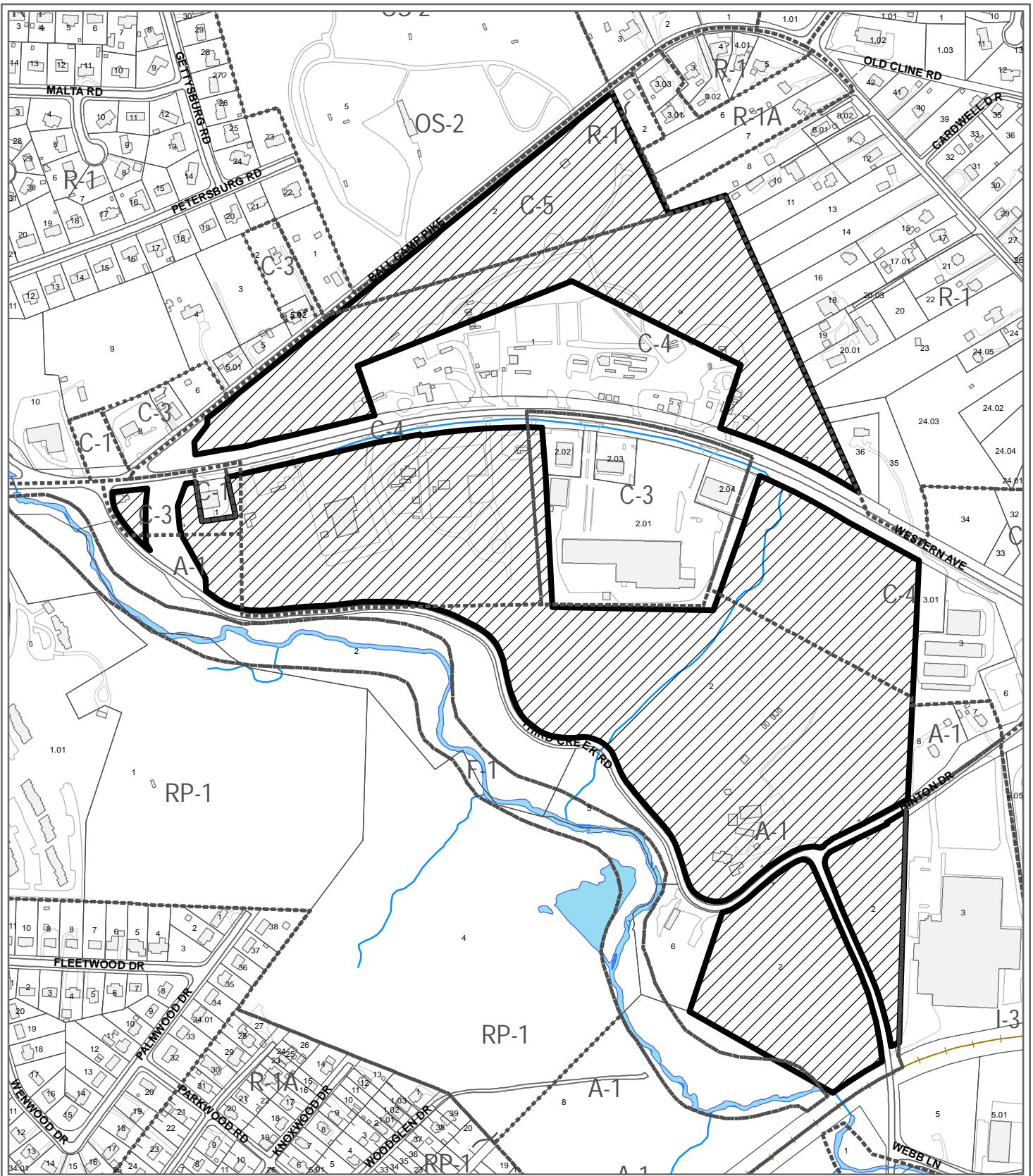
1. The Northwest City Sector Plan and One Year Plan propose commercial uses on this property.
2. Under the guidelines for tower placement in the Wireless Communications Facility Plan, this proposed

tower falls within an "Opportunity Area" since the tower site is located within an "office/commercial corridor". The Plan takes a neutral position on moderate to tall monopole towers located in these areas.
3. The site is located within the Urban Growth Area on the Knoxville-Knox County-Farragut Growth Policy Plan map.

ESTIMATED TRAFFIC IMPACT: Not required.

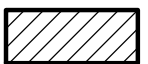
ESTIMATED STUDENT YIELD: Not applicable.

MPC's approval or denial of this request is final, unless the action is appealed to the Knoxville City Council. The date of the Knoxville City Council hearing will depend on when the appeal application is filed. Appellants have 15 days to appeal an MPC decision in the City.



**9-B-14-UR
USE ON REVIEW**

Petitioner: Verizon Tennessee Partnership
by Faulk & Foster



150' Monopole Commercial Telecommunications Tower in C-4 (Highway and Arterial Commercial)

Original Print Date: 8/25/2014
Metropolitan Planning Commission * City / County Building * Knoxville, TN 37902

Revised:

Map No: 93
Jurisdiction: City

0 500
Feet



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						X		
Shopping Center								

SENSITIVE AREAS								
Within 500' of a Residence								
Rural Residential								
Non-residential Property in Residential Area (church, cemetery, library, etc.)								
Multi-family Residential								
On Hill below Ridgeline								

AVOIDANCE AREAS								
Conservation Open Space								
Scenic Highway								
Public Park								
Ridgetop/Ridgeline								
Scenic Vista								
Historic District/Site								
Single-family Residential								
Vacant Residential Lot								

Discouraged

Neutral

Encouraged

9-B-14-UR

Verizon WIRELESS

Telecommunications Tower Site Review

USE ON REVIEW APPLICATION # 9-B-14-UR

CONSULTANT'S SUMMARY

WEST HAVEN

Knoxville City

Location: 4801 Western Avenue between 3rd Creek Road and Ball Camp Pike in Knoxville City.

Proposed Tower Height: 150 foot monopole (159 including lightning rod)

Address: 4801 Western Avenue
Knoxville, Tennessee

District: #3 City **Parcel ID#:** 093GC002

Use: Telecommunications antenna support structure

Zoning: C4 (Commercial Business)

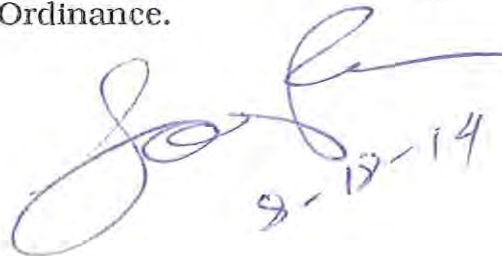
Land Planning Area: Commercial

Variances and waivers: None

Need: The applicant is Verizon Wireless a licensed cellular carrier by the Federal Communications Commission and possibly other users. The applicant has proven a need for the site for its coverage requirements for its 4G service.

Instant Proposal: Construct a 150 foot monopole type support structure.

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

A handwritten signature in blue ink, followed by the date "9-12-14" written in blue ink.

**REPORT TO
METROPOLITAN PLANNING COMMISSION**

for

Proposed Telecommunications Tower Site
Located at 4801 Western Avenue
Knoxville County, TN known as

WEST HAVEN

VERIZON WIRELESS

9-B-14-UR

COMPLIANCE WITH

**THE MPC TELECOMMUNICATIONS FACILITY ORDINANCE
8/18/2014**

The proposed site for the applicant is a 150 foot monopole antenna support structure (including antennas and lightning rod) to be located south of Western Avenue, near Ball Camp Pike and 3rd Creek Road in Knox County. The supporting material from applicant has been reviewed for technical and Federal/State legal compliance As well as with the Knoxville Wireless Communication Facilities Plan from 2002. This is a new telecommunications site. This site is a fill site. This means that there is little or minimal signal level at the site at the present.

REQUESTED

1. **Location.** The location is within the **City of Knox** in **District 3**

Parcel ID#: 093GC002

2. **Zoning.** C4 (Commercial Business)
3. **Growth Policy Plan Designation:** Commercial
4. **Proposed Tower Height:** 150 foot monopole (159 overall)
5. **Address:** 4801 Western Avenue
Knoxville, Tennessee

6. **Tower height.** The requested height is 150 feet (159' with lightning rod) above ground level should support up to 3 additional

telecommunications carrier antennas for a total of 4 users. Lighting will **not** be required on this structure.

7. Variances. The set back requirements in Article 5 Section 20 B (2) of the Ordinance for Knoxville City for "C" sites requires that the structure be set back a minimum distance of 110% of the structure height or in this case 165 feet from the nearest property line. The proposed site is located behind a commercial auto business and meets that requirement and no variances are required as the nearest property line is more than 165 feet from the base of the tower. Also, the setback from Western Avenue is more than 300 feet and meets the Ordinance requirements. No variances are requested nor required.

8. Site. This application is for the construction of a new monopole type antenna support structure to be located in a commercially zoned district and not near any residences.

9. Use. This antenna support structure will be used for telecommunications with the present state of the art communications technology using (Personal Communication Service) PCS and cellular communication sources. The applicant is Verizon Wireless and there are 3 possible additional telecommunications users for the facility according to the application.

10. Setbacks. The setback requirements are that the facility must be 110% height of the tower from any property line (165 feet in this case) and 50 feet from the centerline a roadway right of way. The applicant meets that requirement and no variances are required.

11. Height. The proposed structure is for 159 feet with no lighting required.

EVALUATION

The following is a list of items reviewed:

Zoning Ordinance for Knoxville Tennessee by Metropolitan Planning Commission---Telecommunication Facilities Section (as amended thru July 1, 2006)

Knoxville 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 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.

Check Compliance with TCA 13-24-305

Check Compliance Telecommunications Act of 1996

DISCUSSION

I visited the proposed tower site that is a part of this review.

The site elevation at this location is about 1031 feet. It is located behind a commercial business located south of Western Avenue on level ground

The request is for a 150 foot monopole (actually 159 feet with lightning rod) of which Verizon will use the top 25 feet and the additional usable lower area is for other carriers' expansion.

This a fill site. By that is meant that there is little coverage or no coverage in this area, and that the signal level of the present coverage is not

sufficient to allow for the use of the new 4G technology this is used with handheld devices that are so popular. The use of 4G technology reduces the signal coverage area somewhat while increasing the speed of the data that is transmitted, thus the requirement for this additional site.

The applicant proposed to design the tower for 3 additional users for a total of 4. There are 7 carriers in the local area (of a total of 13 licensed by the FCC) and as the 4G technology becomes more popular, the other carriers are going to need similar coverage in the area and thus the recommendation for the added design capability of the monopole.

The proposed structure should not affect adjacent property as it is on a parcel of land that is zoned Commercial but is located behind a commercial auto business.

Using the MPC's Wireless Facilities Matrix the site qualifies as an OPPORTUNITY AREA site in that it is between 150 feet and 199 feet in height and located in a commercial area not within 500 feet of a residence. It is NEUTRAL with regard to land use. *(See attached Exhibit Chart)*

There are no other usable antenna support structures within 1 mile of this site.

There is no water required or needed at the unmanned site that will be visited about 3 times a year by a technician.

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 (159 feet) coupled with no lighting requirements and even though located behind a commercial business off Western Avenue and being a monopole should have little impact on the view aesthetics of the area.

(2) **Land Use Compatibility**---The site will be unmanned and will have no impact on noise, traffic or air pollution.

(3) **Design Compatibility**---The new structure will be a monopole type structure less than 150 feet and which is one of the least obtrusive type antenna support structures from a visibility viewpoint.

(A) **Neutral**---This location is in an OPPORTUNITY Area and is NEUTRAL land use by the Matrix due to its height. *(See Exhibits)*

SUMMARY

(1) The proposed antenna support structure is a 159 foot monopole including antennas and lightning rod. Lighting will NOT be required for this structure by the FAA due to its proposed height.

(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, but the recommendation here is for four other users in the initial design of the structure.

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

(4) The area surrounding the site is zoned C-4 Commercial. There are no residences within 500 feet of the structure.

(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 5 section 20 C requires it to be removed.

(6) The proposed equipment housing facility is an equipment shelter and will have no impact on the aesthetics of the adjacent land uses. The landscape plan indicates that the compound will be enclosed with a safety chain link fence with landscaping.

(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 minimal impact on the community when considering the service it will provide for the immediate area in the use of handheld devices using the 4 LGT technology.

(9) There are no other usable antenna support structures within 1 mile of the proposed site that are usable for the coverage required.

(10) There is no waiver required or requested.

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

(12) 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.

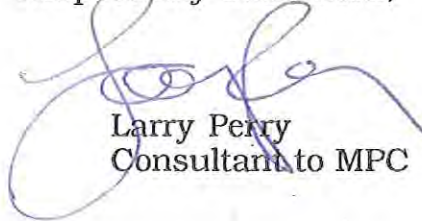
(13) There is a need for the structure in this area to provide for the 4G wide spectrum wireless data service and for other wireless voice and data services to be provided under government regulation by the various proposed carriers who plan to use the site.

(14) Access road for emergency personnel will be via Western Avenue Road. However, the site is an unmanned site. Access road is fairly flat and access to the site should provide safe accessibility to the site that will be unmanned.

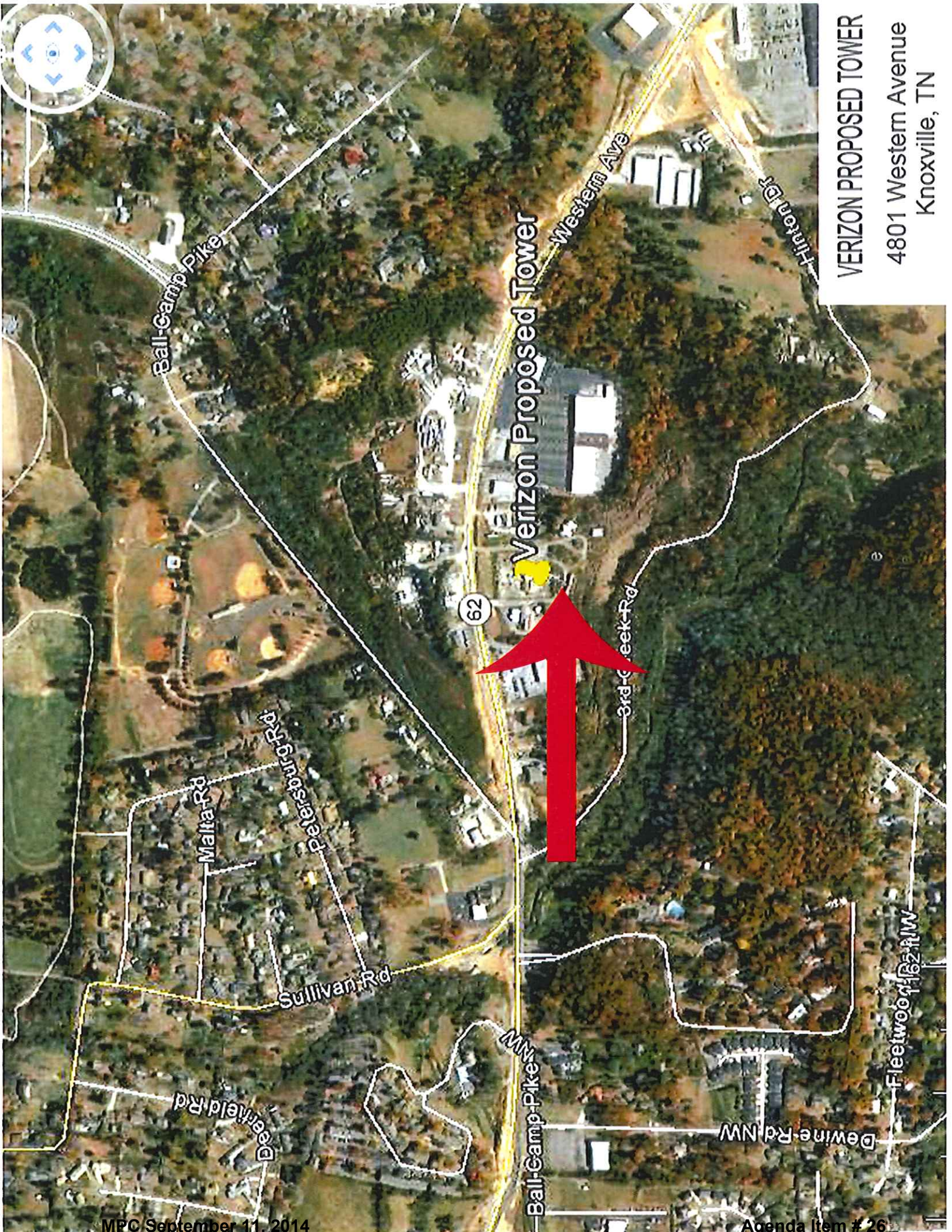
RECOMMENDATION

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 federal requirements.

Respectfully submitted,



Larry Perry
Consultant to MPC



VERIZON PROPOSED TOWER
4801 Western Avenue
Knoxville, TN



VERIZON PROPOSED TOWER
4801 Western Avenue
Knoxville, TN

© 2014 Google

3rd-Creek-Rd

268 ft



Faulk & Foster

July 26, 2014

SENT VIA FEDERAL EXPRESS

Metropolitan Planning Commission
Suite 403, City County Building
Knoxville, TN 37902

Re: Cellular Tower Site Plan Review Requests – Verizon
- Proposed 150' Monopole on Western Avenue
Knoxville, TN (Verizon Site – **West Haven**)

Dear Sirsi:

I enclose an application for Use on Review Approval for the site set forth above.

The application contains:

- 1 Check 27435 made payable to the Metropolitan Planning Commission for \$ 1,500.00.
- 2 Use on Review Application.
- 3 10 copies of the Ordinance Compliance Statement with following exhibits:
 - A. Exhibit A - A full set of Construction Drawings signed and stamped by a TN engineer.
 - B. Exhibit B - Letter from Verizon committing to co-location
 - C. Exhibit C – Existing and Proposed LTE Coverage maps of the area.
 - D. Exhibit D – Search ring and location of near-by towers

If you have any questions, or if I can submit anything additional that will be supportive of our applications please let me know and I will comply promptly.

Very truly yours,


James L. LaPann
Zoning Specialist – Faulk & Foster
(518) 791-3740

Network Operations



Verizon Wireless
8921 Research Drive
Charlotte, North Carolina 28262

Phone 704 510-8500

July 21, 2014

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

Attention: Tom Brechko

**Re: Cellular Tower Use on Review Request – Verizon
Letter of Commitment**

- **Proposed 150' Monopole at 4801 Western Avenue
Knoxville, TN (Verizon Site – West Haven)**

Dear Sirs:

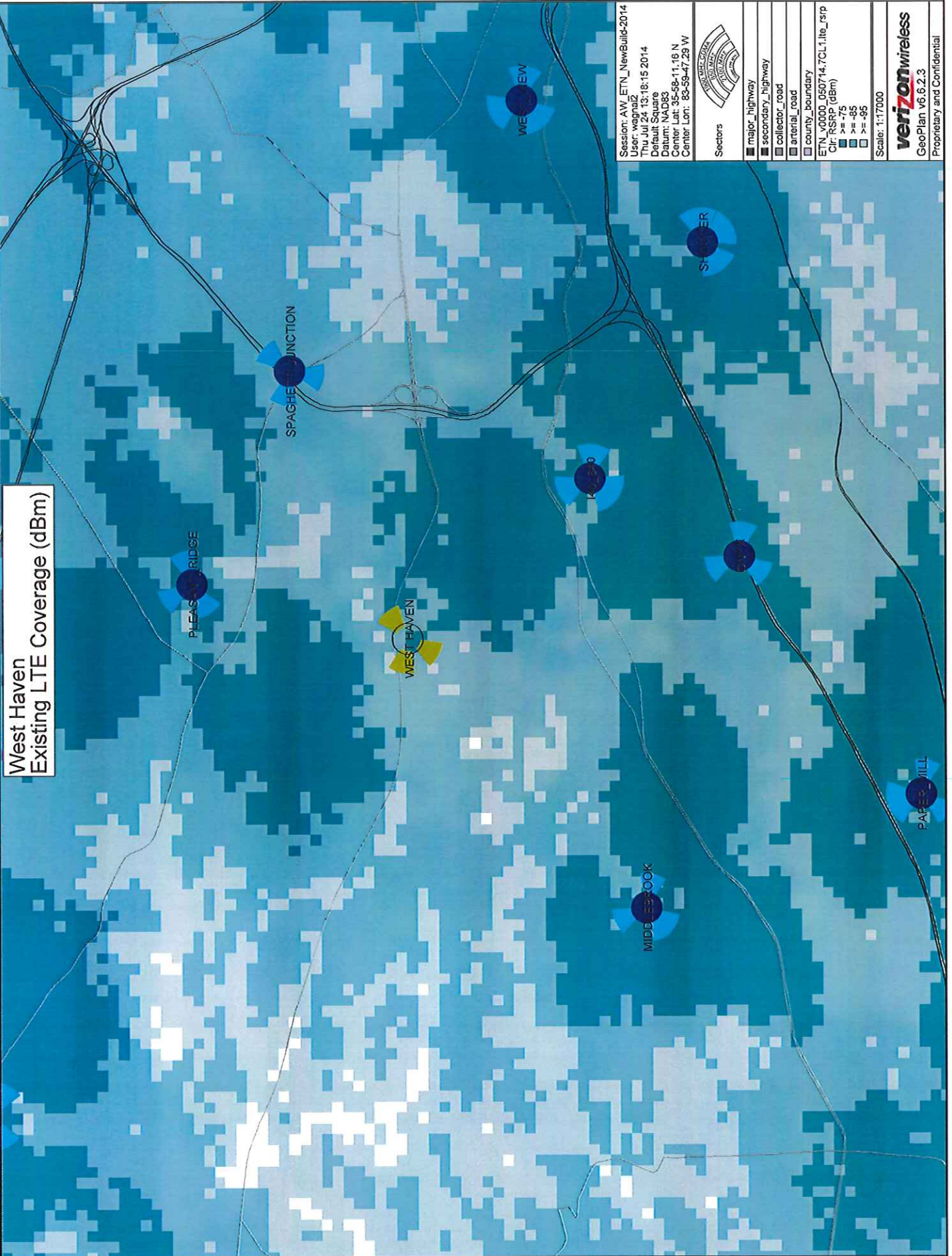
I am providing this Letter of Commitment to comply with City of Knoxville Zoning Code Section 20 B (1) b related to shared use of the proposed tower.

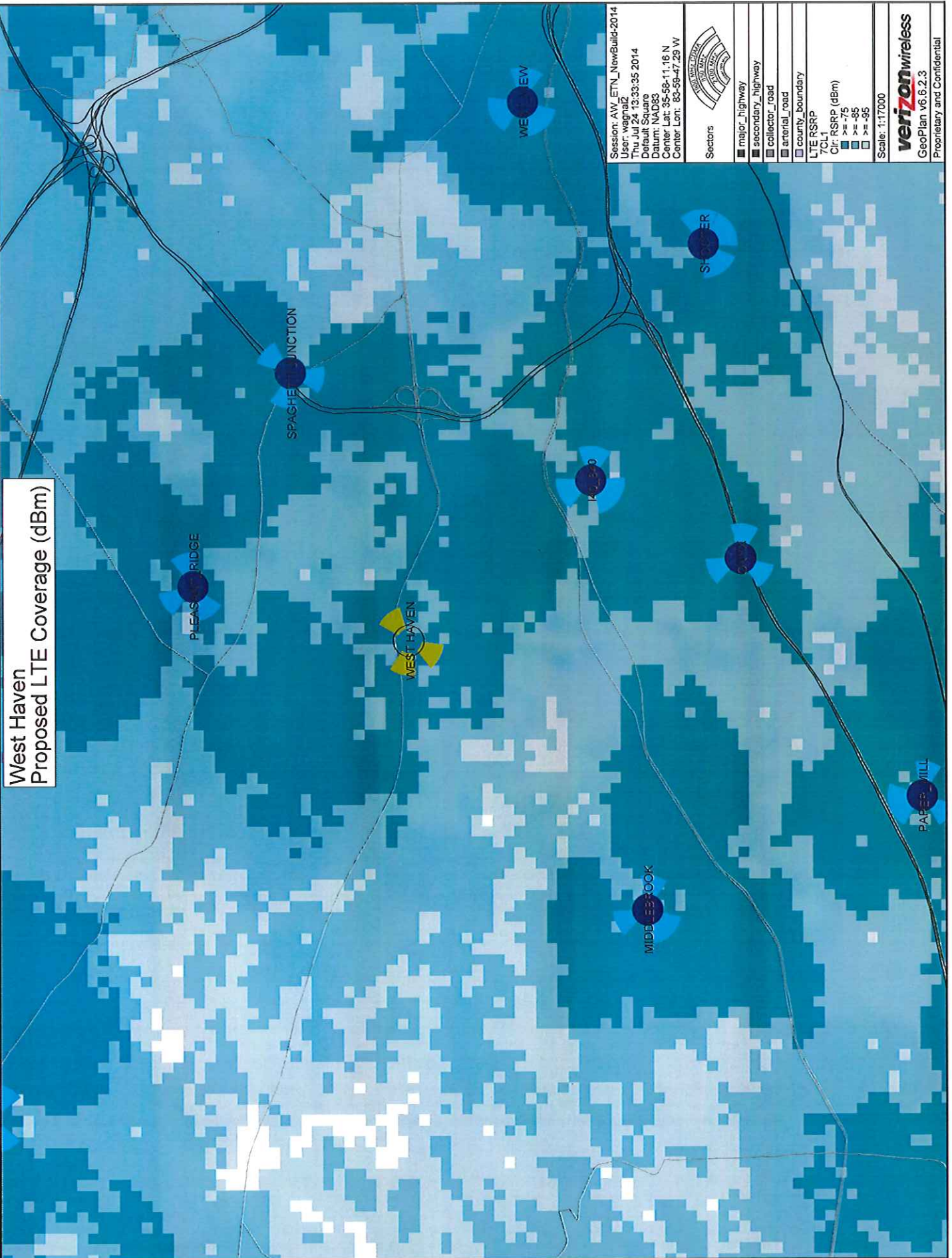
Verizon Wireless agrees to allow future collocations (including combined antennas) at the above referenced facility, where reasonable and structurally feasible. However, as noted in the ordinance, Verizon will only be required to accept collocations if they are at reasonable charges for shared use, which shall be defined as the market lease rates.

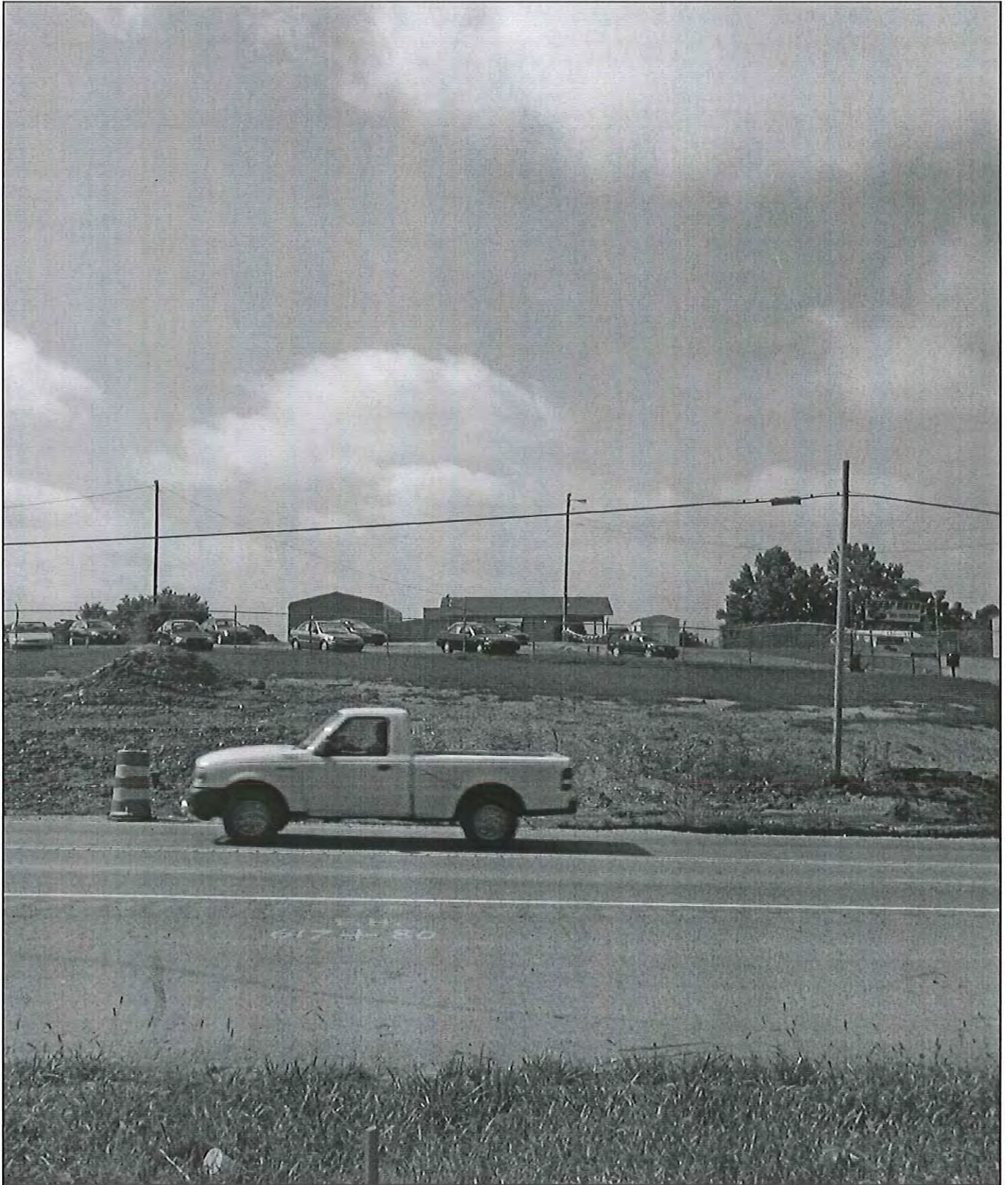
Sincerely,

A handwritten signature in cursive script that reads "Betty F. Johnson".

Betty F. Johnson
Real Estate Manager
Verizon Wireless







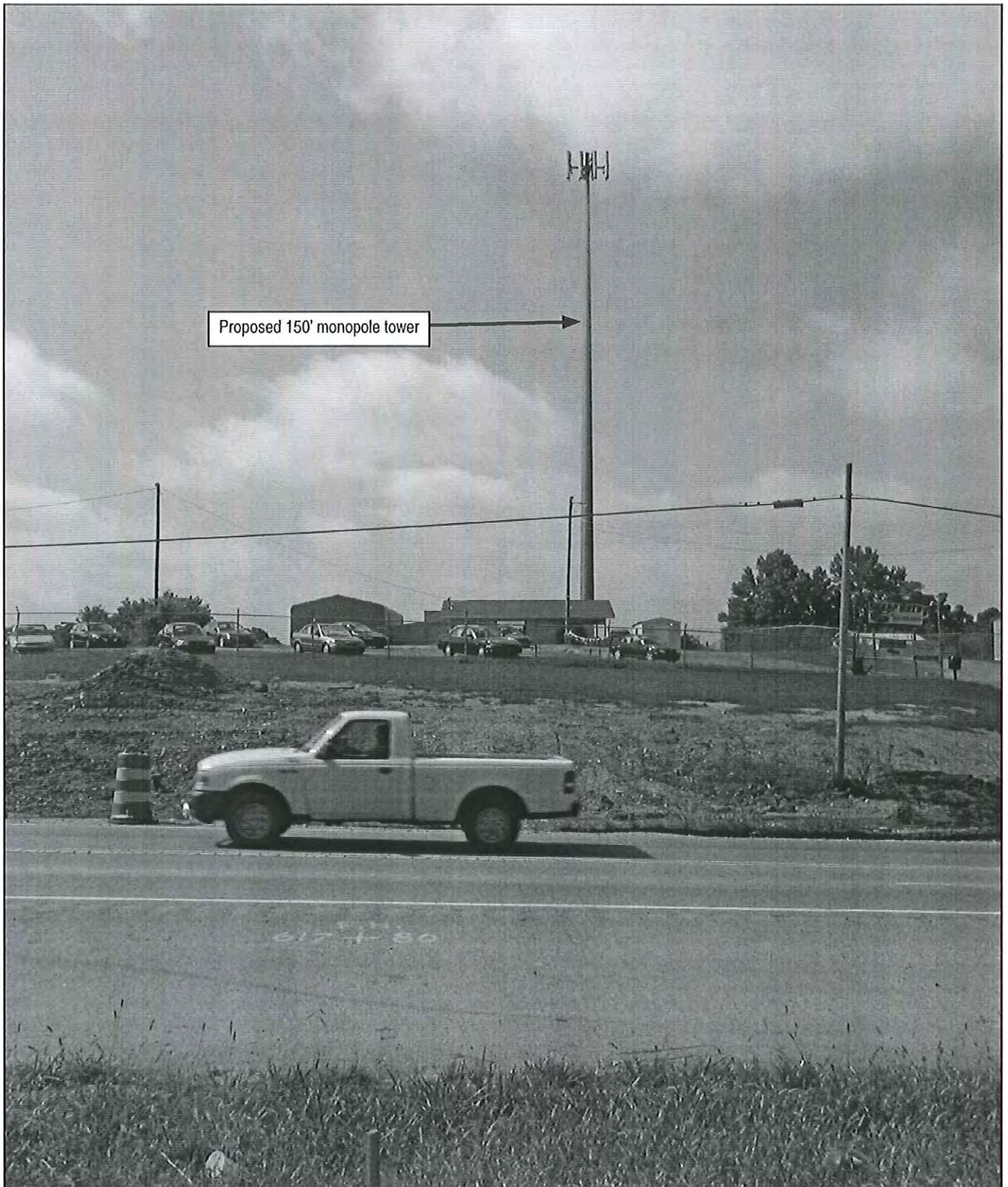
View looking south from north side of Western Avenue

Existing

Kimley»Horn

Verizon Wireless - West Haven
4801 Western Avenue
Knoxville, TN 37921





View looking south from north side of Western Avenue

Proposed

Kimley»Horn

Verizon Wireless - West Haven
4801 Western Avenue
Knoxville, TN 37921



verizon wireless

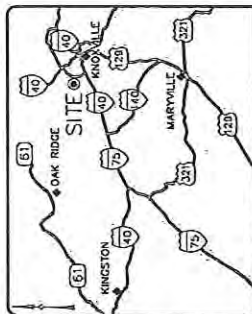
Tennessee Partnership

WEST HAVEN

SITE NO. 266780
PROJECT NO. 20130890953

4754 WESTERN AVENUE
KNOX COUNTY
KNOXVILLE, TENNESSEE 37921

PROPOSED 150' MONOPOLE TOWER
WITH MULTIPLE CARRIERS



REGION MAP SCALE: NONE

POWER COMPANY
KNOXVILLE UTILITIES BOARD
CONTACT: -
PHONE: (865) 524-2911

TELEPHONE COMPANY
BELL SOUTH
CONTACT: -
PHONE: (865) 694-2112

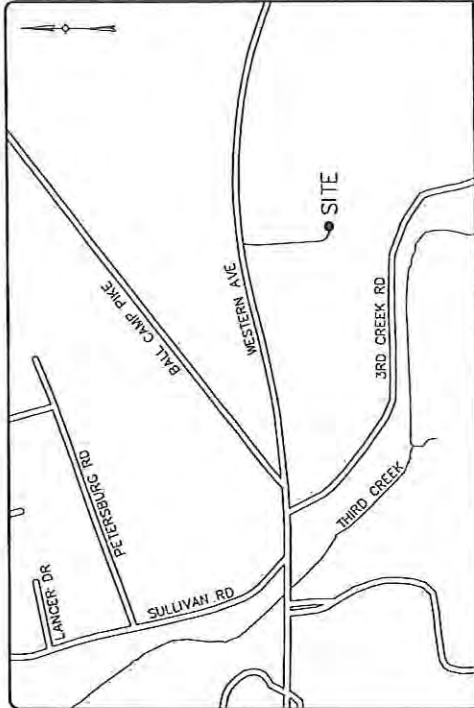
LAW ENFORCEMENT
KNOXVILLE POLICE DEPARTMENT
PHONE: (865) 215-1444

FIRE DEPARTMENT
KNOXVILLE FIRE DEPARTMENT
PHONE: (865) 523-7666

CONTACTS

ARCHITECTURAL DESIGN ENGINEER

BTM Engineering, Inc
3001 TAYLOR SPRINGS DRIVE
LOUISVILLE, KENTUCKY 40220
(502) 459-8402 PHONE
(502) 459-8427 FAX



VICINITY MAP SCALE: NONE

DIRECTIONS TO SITE

FROM VERIZON MTSO, TAKE I-24 EAST (5.9 MILES). TAKE A SLIGHT LEFT TO STAY ON I-24 E (SIGNS FOR INTERSTATE 24/INTERSTATE 40 E/CHATTANOOGA/KNOXVILLE) (4.8 MILES). ANOTHER SLIGHT LEFT ONTO I-40 E (172 MILES). TAKE EXIT 385 FOR I-75 N. MERGE ONTO I-75 N (1.6 MILES). TAKE EXIT 1 AND MERGE ONTO WESTERN AVE (1.7 MILES). TURN LEFT ONTO THE ACCESS ROAD AND CONTINUE TO THE SITE.

SITE NAME
WEST HAVEN

SITE NUMBER
266780

SITE ADDRESS
4754 WESTERN AVENUE
KNOXVILLE, TN 37921

PROPERTY OWNER
STEPHEN R. BADGETT
4519 HINTON RD
KNOXVILLE, TN 37921
CONTACT: STEPHEN R. BADGETT
PHONE: (865) 588-5105

APPLICANT
VERIZON WIRELESS
575 HICKORY HILLS BLVD
WHITES CREEK, TN 37040
CONTACT: KEVIN CALDWELL
PHONE: (615) 714-7114

TOWER TYPE
MONOPOLE

TOWER HEIGHT
150' AGL

RAD CENTER
75' AGL

1-A COORDINATES
35° 58' 29.04" N
83° 59' 50.00" W

SITE ELEVATION
1018.4' ANSL

AREA OF PARCEL
LEASE AREA = 10,000 SF

PROJECT INFORMATION

CONSTRUCTION
KEVIN CALDWELL, VERIZON WIRELESS
SITE ACQUISITION
RHONDA HUNT, FAULK & FOSTER
ARCHITECTURE/ENGINEERING
BRETT GRAVES, BTM ENGINEERING
SURVEYOR
FRANK NEELY, SHARONDALE SURVEYING

SITE VISIT ATTENDEES

SHEET NUMBER	DESCRIPTION
T-1	TITLE SHEET & SITE INFO
S-101	SURVEY PLAN
S-202	LEGAL DESCRIPTION & CHIBIDY
ARCHITECTURAL	
C-3	SITE PLAN
C-4	DETAILED SITE PLAN
C-5	TOWER ELEVATIONS
C-6	FOUNDATION DETAIL
C-7	CONTROL PLAN
C-8	FOUNDATION DETAILS
C-9	ICE-BRIDGE DETAILS
C-10	FENCE DETAILS
C-11	CIVIL DETAILS
C-12	ANTENNA AND COAX DETAILS
LANDSCAPE PLAN	
ELECTRICAL	
E-1	CONDUIT ROUTING PLAN
E-2	GROUNDING PLAN
E-3	EQUIPMENT GROUNDING PLAN
E-4	ELECTRICAL AND GROUND NOTES
E-5	UTILITY H-FRAME
E-6	UTILITY DETAILS
E-7	GROUNDING DETAILS

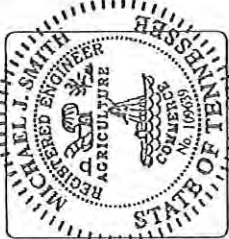
SHEET INDEX

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE TENNESSEE ONE CALL SYSTEM, PHONE 1-800-351-1111, WHICH WAS ESTABLISHED TO PROVIDE ACCURATE LOCATIONS OF UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE UTILITY PROTECTION CENTER 72 HOURS IN ADVANCE OF ANY CONSTRUCTION OPERATIONS IN AREAS WITHIN 2 FEET OF ANY UTILITIES. PROVIDE A WARNING TAPE @ 12 INCHES ABOVE BURIED UTILITIES.

UTILITY PROTECTION NOTE

verizon wireless
Tennessee Partnership
575 HICKORY HILLS BLVD.
WHITES CREEK, TENNESSEE 37040
(615) 714-7114 PHONE
(615) 631-7411 FAX

BTM Engineering, Inc
3001 TAYLOR SPRINGS DRIVE
LOUISVILLE, KENTUCKY 40220
(502) 459-8402 PHONE
(502) 459-8427 FAX



SITE NAME:	WEST HAVEN
SITE NUMBER:	266780
SITE ADDRESS:	4754 WESTERN AVE KNOXVILLE, TN 37921
AREA:	LEASE AREA = 10,000 SF
PROPERTY OWNER:	STEPHEN R. BADGETT 4519 HINTON RD KNOXVILLE, TN 37921
TAX MAP NUMBER:	035
PARCEL NUMBER:	002
SOURCE OF TITLE:	INST. 20100813001015
CURTAINS:	N. 53° 30' 50.00"
CONTRIBUTORS:	W. 83° 59' 50.00"
NO. REVISION/ISSUE:	DATE
1	ISSUE FOR COMMENT 2/5/14
2	CONSTRUCTION ISSUE 7/25/14
3	CONSTRUCTION REISSUE 8/4/14
TITLE: TITLE SHEET, SITE INFO AND SHEET INDEX	
SHEET: T-1	

REVISED
9-2-14

9-B-14-UR

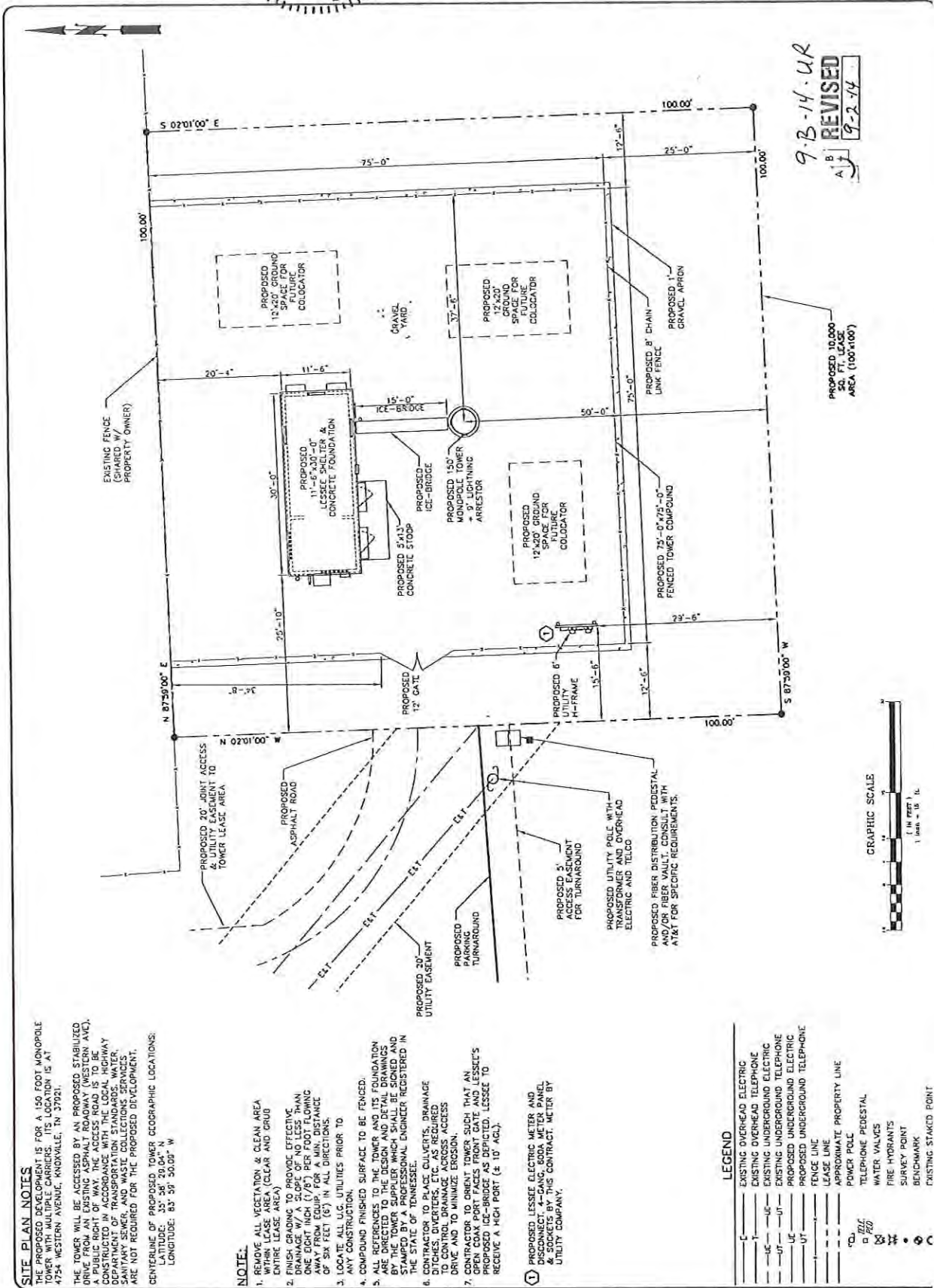
verizon wireless
 Tennessee Partnership
 575 HICKORY HILLS BLVD.
 WHITES CREEK, TENNESSEE 37040
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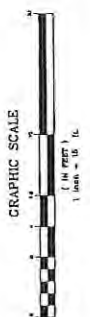


SITE NAME:	WEST HAVEN	
SITE NUMBER:	200700	
SITE ADDRESS:	4754 WESTERN AVE KNOXVILLE, TN 37921	
AREA:	LEASE AREA = 10,000 SF	
PROPERTY OWNER:	STEPHEN R. BACETT KNOXVILLE, TN 37921	
TAX MAP NUMBER:	935	
PARCEL NUMBER:	005	
SOURCE OF TITLE:	INST. 20100913001613	
LATITUDE:	N 35° 58' 26.04"	
LONGITUDE:	W 83° 59' 50.00"	
NO.	REVISION/ISSUE	DATE
1	ISSUE FOR COMMENT	2/2/14
2	CONSTRUCTION ISSUE	7/25/14
2	CONSTRUCTION REISSUE	8/1/14
TITLE: DETAILED SITE PLAN		

SHEET: C-4



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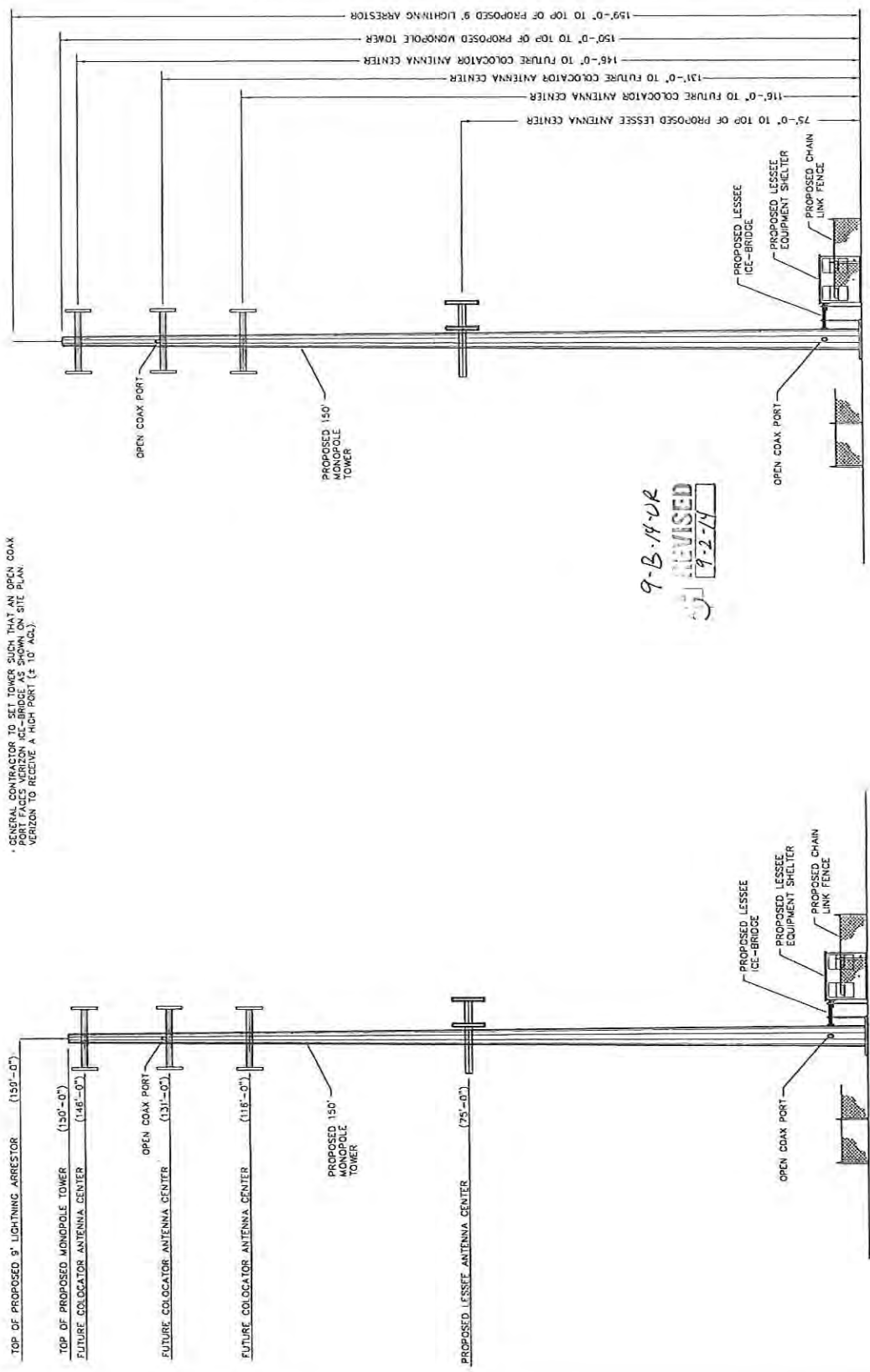
SITE NAME: WEST HAVEN
 SITE NUMBER: 2687ND
 SITE ADDRESS: 1754 WESTERN AVE
 KNOXVILLE, TN 37923
 AREA: LEASE AREA = 10,000 SF
 PROPERTY OWNER: STEPHEN R. BACCHETT
 4510 HINTON RD
 KNOXVILLE, TN 37923
 TAX MAP NUMBER: 032
 PARCEL NUMBER: 002
 SOURCE OF TITLE: INST. 201009130016113
 LATITUDE: N 35° 56' 20.04"
 LONGITUDE: W 83° 59' 50.00"

NO.	REVISION/ISSUE	DATE
1	ISSUE FOR COMMENT	2/6/14
2	CONSTRUCTION ISSUE	7/23/14
2	CONSTRUCTION RESOLVE	8/4/14

TITLE: TOWER ELEVATIONS
 SHEET: C-5

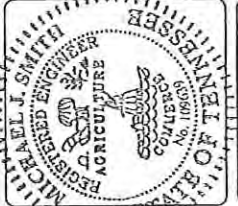
- NOTES:**
- * THE ELEVATIONS SHOWN ON THIS SHEET ARE FOR PICTORIAL PURPOSES ONLY. REFER TO TOWER PLANS FOR TOWER DESIGN.
 - * ROUTE PROPOSED COAXIAL LINES INTERNALLY THROUGH MONOPOLE USING TOP AND BOTTOM COAX PORTS IN TOWER SHELL.
 - * GENERAL CONTRACTOR TO SET TOWER SUCH THAT AN OPEN COAX PORT FACES VERIZON ICE-BRIDGE AS SHOWN ON SITE PLAN. VERIZON TO RECEIVE A HIGH PORT (+10' ADJ.).

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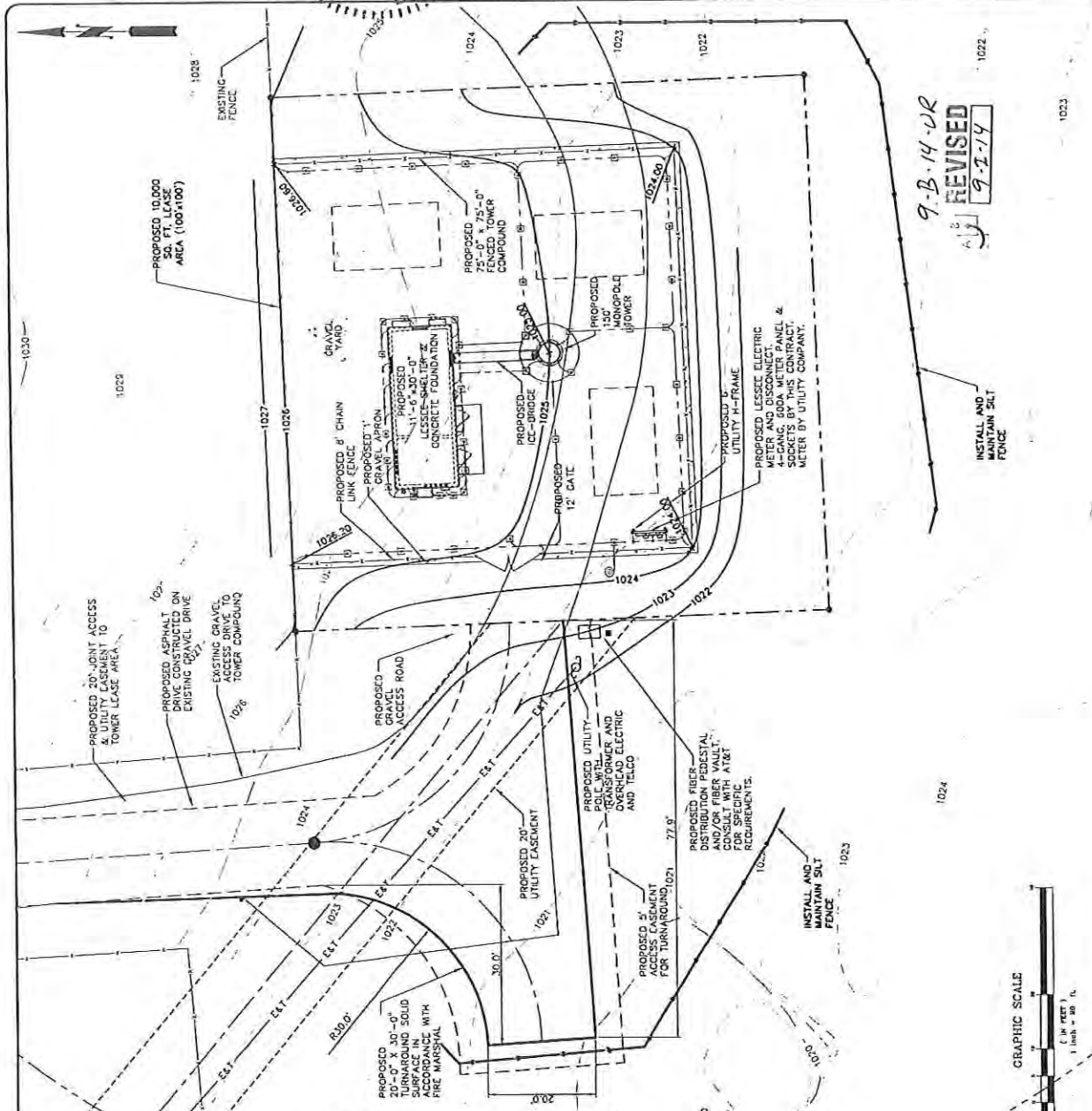
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 (502) 438-8427 FAX



SITE NAME:	WEST HAVEN	
SITE NUMBER:	206780	
SITE ADDRESS:	4754 WESTERN AVE KNOXVILLE, TN 37925	
AREA:	LEASE AREA = 10,000 SF	
PROPERTY OWNER:	STEPHEN N. BARNETT KNOXVILLE, TN 37923	
TAX MAP NUMBER:	035	
PARCEL NUMBER:	002	
SOURCE OF TITLE:	10000130016115	
CARTITUDE:	N 35° 30' 20.04" E W 85° 59' 35.04" S	
NO.	REVISION/ISSUE	DATE
1	ISSUE FOR COMMENT	2/6/14
2	CONSTRUCTION ISSUE	7/25/14
2	CONSTRUCTION RECESSUE	8/4/14

TITLE: **GRADING AND SEDIMENT CONTROL PLAN**

SHEET: **C-6**



- GENERAL NOTES: EROSION CONTROL**
1. SILT CONTROL MEASURES SHALL BE MAINTAINED IN GOOD OPERATING CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.
 2. CONSTRUCTION ACCESS SHALL BE CONTROLLED AT GRAVELLER DRIVES TO ROADWAYS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ENTRANCES FREE FROM MUD, DIRT, DEBRIS, ETC.
 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLACEMENT OF SOIL EROSION CONTROL MEASURES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL MAINTAIN THE DEVICES DURING THE GRADING AND CONSTRUCTION PERIOD UNTIL SUCH TIME AS THE VEGETATIVE COVER HAS BECOME ESTABLISHED.
 4. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES AS REQUIRED BY THE OWNER'S ENGINEER TO PROTECT EXISTING PLANT MATERIAL UNLESS OTHERWISE DESIGNED FOR REMOVAL.
 5. TOPSOIL SHALL BE STRIPPED, STORED AND ADEQUATELY PROTECTED FROM EROSION ON SITE BEFORE USE FOR FILL GRADING.
 6. ADJUSTMENTS AND/OR ADDITIONS TO THE PLACEMENT OF EROSION CONTROL MEASURES MAY BE NECESSARY AT THE DISCRETION OF THE OWNER OR THE OWNER'S ENGINEER, CONTRACTOR AT THE DISCRETION OF THE OWNER OR THE OWNER'S ENGINEER, NECESSARY TO FUNCTION EFFICIENTLY.
 7. SILT BASINS AND CHECK DAMS SHALL BE CLEANED OUT AND MAINTAINED AS NECESSARY TO FUNCTION EFFICIENTLY.
 8. SILT CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE ACTUAL FIELD CONDITIONS OR CONSTRUCTION PRACTICES SHALL BE INSTALLED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES PER THE EPA'S 1982 "STORM WATER MANAGEMENT FOR CONSTRUCTION ACTIVITIES" MANUAL.
- GENERAL NOTES: EXCAVATION & GRADING**
1. GRANITE FOUNDATIONS SHALL NOT BE PLACED ON ORGANIC MATERIAL. IF SOIL IS NOT REACHED AT THE DESIGNATED EXCAVATION DEPTH, THE UNSATISFACTORY SOIL SHALL BE EXCAVATED TO ITS FULL DEPTH AND EITHER BE BACKFILLED WITH GRANULAR MATERIAL OR FILL WITH THE SAME QUALITY SPECIFIED FOR THE FOUNDATION.
 2. ANY EXCAVATION OVER THE REQUIRED DEPTH SHALL BE FILLED WITH EITHER MECHANICALLY COMPACTED GRANULAR MATERIAL OR CONCRETE OF THE SAME QUALITY SPECIFIED FOR THE FOUNDATION. CRUSHED STONE MAY BE USED TO FILL EXCAVATIONS. CONCRETE, IF USED, SHALL NOT BE USED AS COMPACTING CONCRETE THICKNESS.
 3. AFTER COMPLETION OF THE FOUNDATION AND OTHER CONSTRUCTION BELOW UNDESIRABLE MATERIAL, SUCH AS VEGETATION, TRASH, DEBRIS, AND SO FORTH, BACKFILLING SHALL:
 - BE APPROVED MATERIALS CONSISTING OF EARTH, LOAM, SANDY CLAY, SAND AND GRAVEL, OR SIFT SHALE.
 - BE FREE FROM CLUMPS OR STONES OVER 25" MAXIMUM DIMENSION.
 - BE COMPACTED TO THE PROPOSED FINISH GRADE.
 - PROCTOR IS ACCEPTABLE. UNDESIRABLE AREAS, WHERE BOX STANDARD PROCTOR IS ACCEPTABLE, CONTRACTOR SHALL PROVIDE A 2% PARTY COMPACTION TEST TO VERIFY COMPACTION.
 3. PROTECT GRAVEL SURFACING AND SUB-GRADE IN AREAS WHERE EQUIPMENT IS TO BE OPERATED. REPAIR DAMAGE TO GRAVEL SURFACING OR SUB-GRADE WHERE SUCH DAMAGE IS DUE TO THE CONTRACTOR'S OPERATIONS. DAMAGED GRAVEL SURFACING SHALL BE RESTORED TO MATCH THE ADJACENT UNCHANGED GRAVEL SURFACING AND SHALL BE OF THE SAME THICKNESS.
 6. ALL CUT AND FILL SLOPES SHALL BE 2:5:1 MAXIMUM, UNLESS OTHERWISE NOTED.
 7. ENSURE POSITIVE DRAINAGE FROM SITE AT ALL TIMES. AVOID TRAPPING WATER.
- LEGEND**
- C- EXISTING OVERHEAD ELECTRIC
 - T- EXISTING UNDERGROUND TELEPHONE
 - UE- EXISTING UNDERGROUND ELECTRIC
 - UT- EXISTING UNDERGROUND TELEPHONE
 - UE- EXISTING UNDERGROUND ELECTRIC
 - UT- PROPOSED UNDERGROUND TELEPHONE
 - UT- PROPOSED UNDERGROUND ELECTRIC
 - F- FENCE LINE
 - L- LEASE LINE
 - P- PROPOSED PROPERTY LINE
 - R- POWER POLE
 - T- TELEPHONE PEDISTAL
 - V- WATER VALVES
 - H- FIRE HYDRANTS
 - I- SET 3/8" IRON PIN WITH CAP
 - B- BENCHMARK
 - O- FOUND #3 REBAR

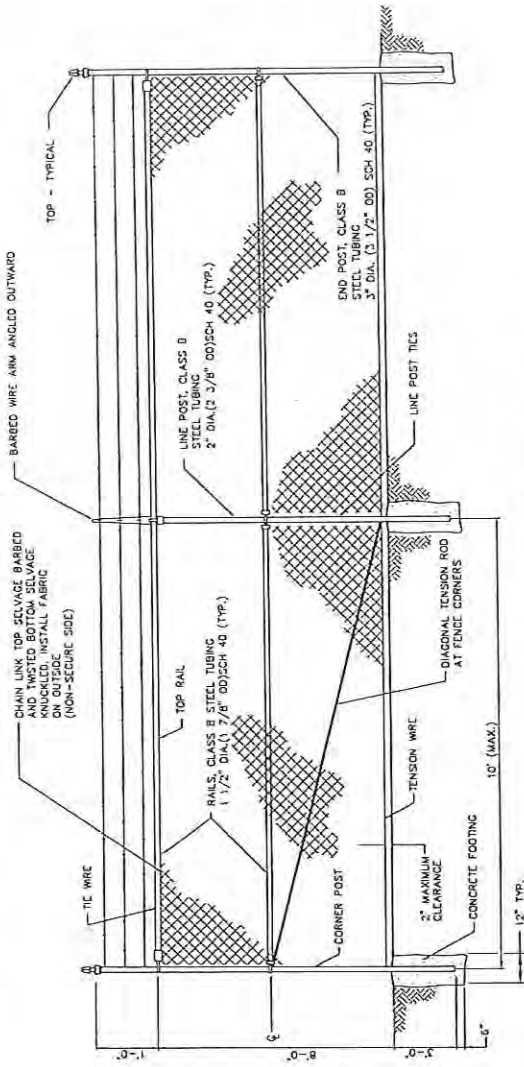
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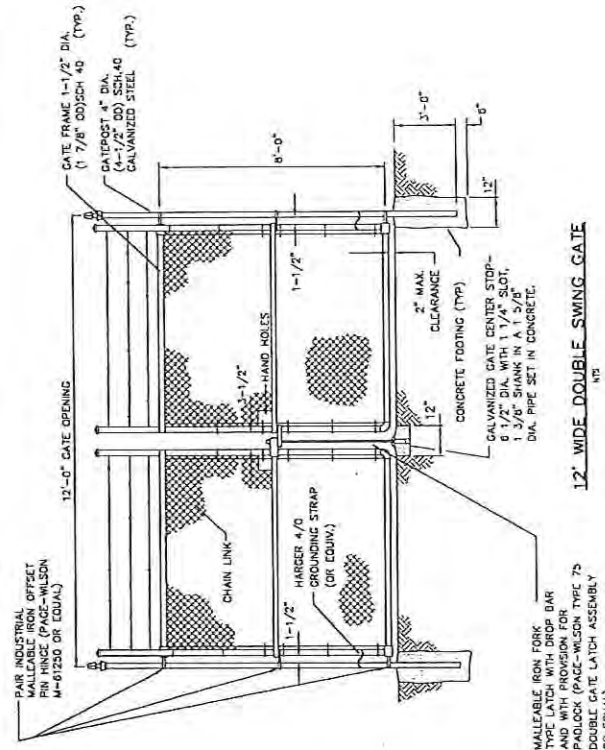
SITE NAME:	WEST HAVEN	
SITE NUMBER:	768790	
SITE ADDRESS:	4754 WESTERN AVE KNOXVILLE, TN 37921	
AREA:	LEASE AREA = 10,000 SF	
PROPERTY OWNER:	STEPHEN R. BARCETT 4510 HAYDON RD KNOXVILLE, TN 37925	
TAX MAP NUMBER:	932	
PARCEL NUMBER:	002	
SOURCE OF TITLE:	INST: 20100013001815	
LATITUDE:	N 35° 58' 23.04"	
LONGITUDE:	W 83° 50' 50.00"	
NO.	REVISION/ISSUE	DATE
1	ISSUE FOR COMMENT	2/6/14
2	CONSTRUCTION ISSUE	7/25/14
2	CONSTRUCTION ISSUE	8/6/14
TITLE: FENCE DETAILS		
SHEET: C-9		

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CHAIN LINK FENCE DETAIL (ELEVATION)

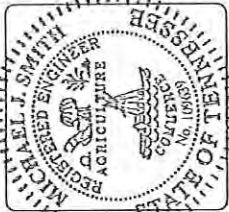
- TYPICAL WOVEN WIRE FENCING NOTES**
 (INSTALL FENCING PER ASTM F-387, SWING GATES PER ASTM F- 900)
1. GATE POST (4"x8"), CORNER, TERMINAL OR PULL POST (3"x6") SCHEDULE 40 FOR GATE WIDTHS UP THRU 6 FEET OR 12 FEET FOR DOUBLE SWING GATE PER ASTM-F1083.
 2. LINE POST: 2"x (2 3/8" OD) SCHEDULE 40 PIPE PER ASTM-F1083.
 3. GATE FRAME: 1 1/2"x (1 7/8" OD) SCHEDULE 40 PIPE PER ASTM-F1083.
 4. TOP RAIL & BRACE RAIL: 1 1/2"x (1 7/8" OD) SCHEDULE 40 PIPE PER ASTM-F1083.
 5. FABRIC: 9 GA. CORE WIRE SIZE 2" MESH, CONFORMING TO ASTM-A952
 6. TIE WIRE: MINIMUM 11 GA. GALVANIZED STEEL AT POSTS AND RAILS A SINGLE WRAP OF FABRIC TIE AND AT TENSION WIRE BY HOC RINGS SPACED MAX 24" INTERVALS.
 7. TENSION WIRE: 7 GA. GALVANIZED STEEL.
 8. BARBED WIRE: DOUBLE STRAND, 35-40" O.D. TWISTED WIRE TO MATCH W/ FABRIC 14 GA. # 17. BARBS SPACED ON APPROXIMATELY 4" CENTERS.
 9. GATE LATCH: 1-3/8" O.D. PLUNGER ROD W/ MUSHROOM TYPE CATCH AND LOCK.
 10. LOCAL ORDINANCE OF BARBED WIRE PERMIT REQUIREMENT SHALL BE COMPLIED IF REQUIRED.
 11. HEIGHT = 5' VERTICAL = 1' BARBED WIRE VERTICAL DIMENSION.
 12. PROVIDE MASTER LOCK FOR GATE AND SET COMBINATION TO 6258.
 13. INSTALL GATE STOPS (BUCKHEADS) TO EACH SIDE OF ACCESS DRIVE.
 14. CUT HAND HOLES IN GATE FABRIC BY LATCH FOR CHAIN AND LOCKS.



12' WIDE DOUBLE SWING GATE

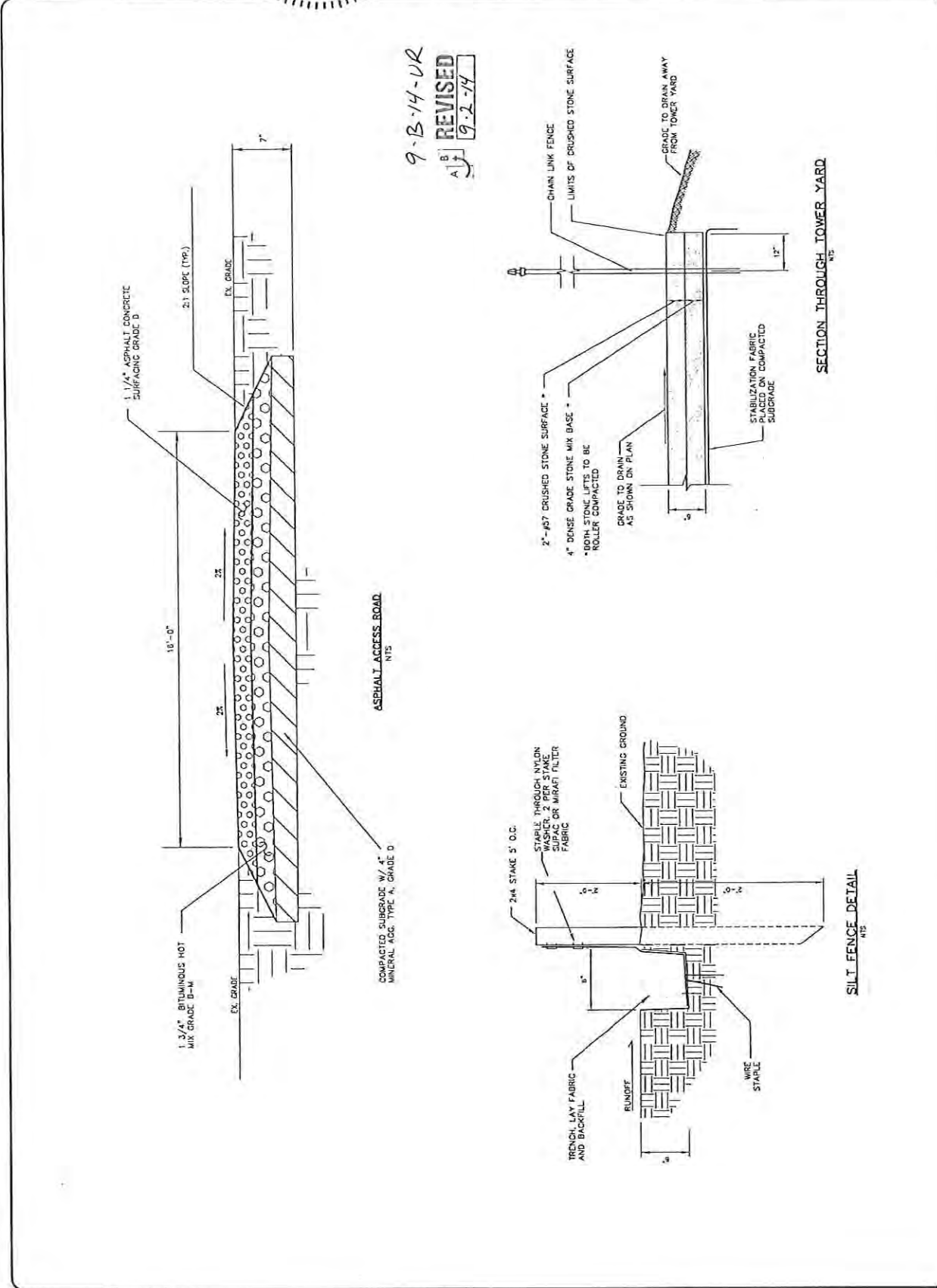
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 (603) 459-8427 FAX



SITE NAME:	WEST HAVEN	
SITE NUMBER:	26678D	
SITE ADDRESS:	4754 WESTERN AVE KNOXVILLE, TN 37923	
AREA:	LEASE AREA = 18,000 SF	
PROPERTY OWNER:	STANLEY R. BACCHETT 4510 HINTON RD KNOXVILLE, TN 37923	
TAX MAP NUMBER:	93E	
PARCEL NUMBER:	805	
SOURCE OF TITLE:	INST. 20100013001815	
CAPTURED LONGITUDE:	N 157.50' 20.00" W 83.30' 40.00"	
NO.	REVISION/ISSUE	DATE
1	ISSUE FOR COMMENT	2/6/14
2	CONSTRUCTION ISSUE	7/25/14
2	CONSTRUCTION REISSUE	9/4/14

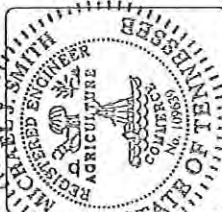
TITLE: CIVIL DETAILS
 SHEET: C-10



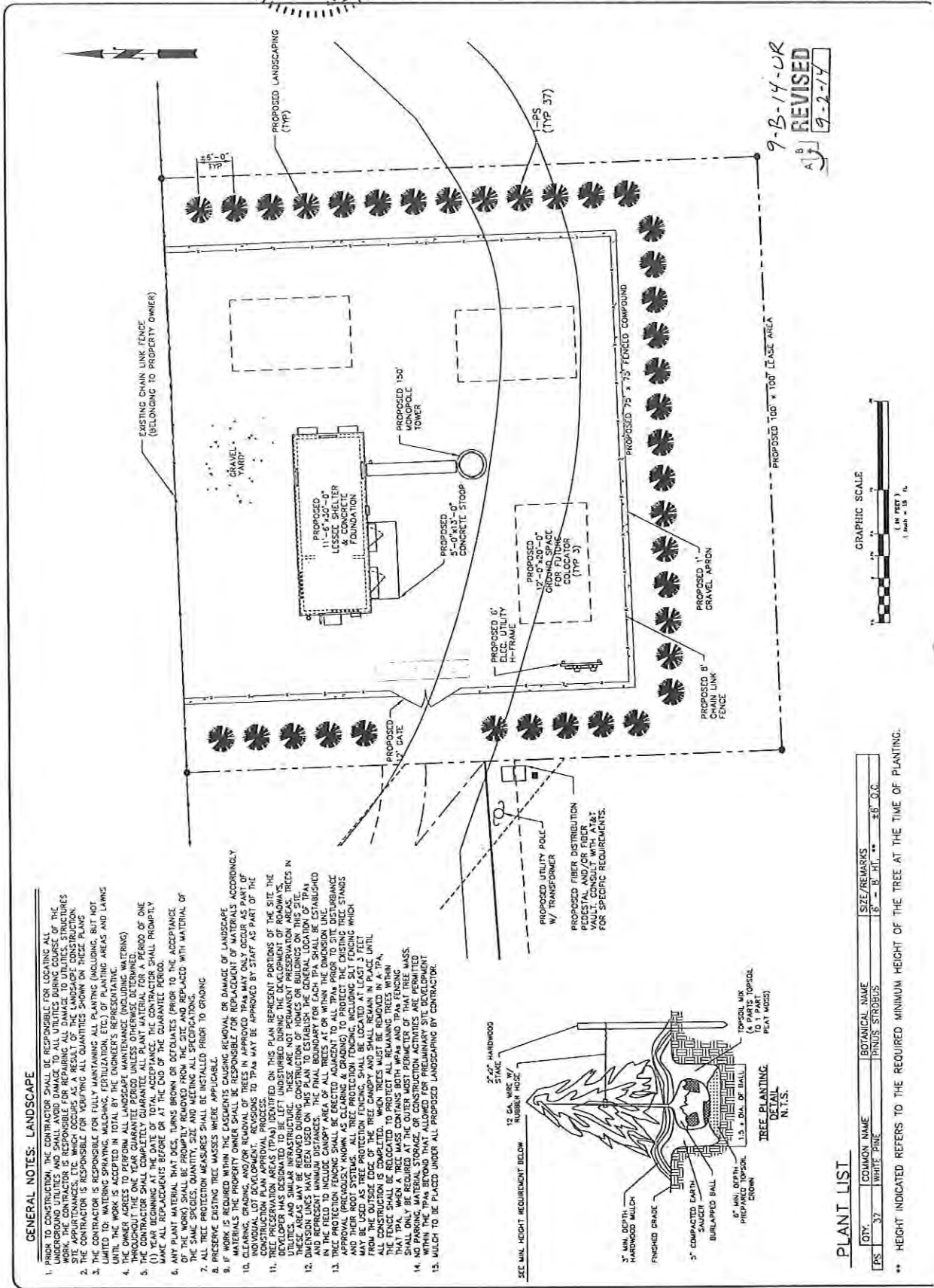
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SITE NAME:	WEST HAVEN	
SITE NUMBER:	765790	
SITE ADDRESS:	4754 WESTERN AVE ANDYVALE, TN 37025	
AREA:	LEASE AREA = 10,000 SF	
PROPERTY OWNER:	STEPHEN R. BACCI FOR FUTURE ANDYVALE, TN 37025	
TAX MAP NUMBER:	035	
PARCEL NUMBER:	002	
SOURCE OF TITLE:	INST. 2010001001615	
CAPTURED:	N 35° 50' 29.00" W 83° 59' 55.00"	
NO.	REVISION/ISSUE	DATE
1	ISSUE FOR COMMENT	2/9/14
2	CONSTRUCTION ISSUE	7/25/14
2	CONSTRUCTION ISSUE	8/4/14

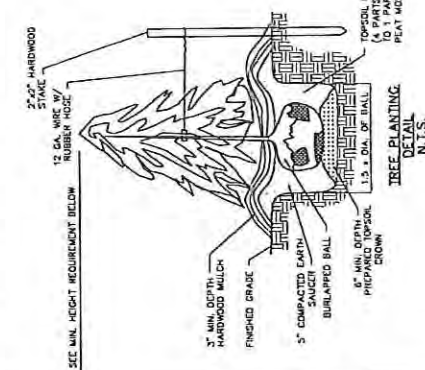


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GENERAL NOTES: LANDSCAPE

- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES AND RECORDING THEM ON THE SITE PLAN. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ALL DAMAGE TO UTILITIES, STRUCTURES, SITE APPURTENANCES, ETC. WHICH OCCURS AS A RESULT OF THE LANDSCAPE CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES SHOWN ON THESE PLANS LIMITED TO MATERIALS, LABOR, AND TOTAL BY THE ENGINEER'S REPRESENTATIVE.
- THE CONTRACTOR SHALL MAINTAIN ALL PLANTING INCLUDING, BUT NOT LIMITED TO, WATERING, MULCHING, AND WEEDING THROUGHOUT THE ONE YEAR GUARANTEE PERIOD UNLESS OTHERWISE DETERMINED.
- THE CONTRACTOR SHALL COMPLETELY GUARANTEE ALL PLANT MATERIAL FOR A FULL YEAR. ALL REPLACEMENTS SHALL BE MADE AT THE END OF THE GUARANTEE PERIOD.
- ANY PLANT MATERIAL THAT DIES, TURNS BROWN OR DEFOLIATES PRIOR TO THE ACCEPTANCE OF THE WORK SHALL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH MATERIAL OF THE SAME SPECIES, QUANTITY, SIZE AND MEETING ALL SPECIFICATIONS.
- ALL TREE PROTECTION MEASURES SHALL BE INSTALLED PRIOR TO GRADING.
- PRESERVE EXISTING TREE MASSES WHERE APPLICABLE.
- IF ANY REMOVAL OR DAMAGE TO EXISTING TREES OR DAMAGE TO LANDSCAPE MATERIALS OCCURS, THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR REPLACEMENT OF MATERIALS ACCORDINGLY.
- CLEARING, GRADING, AND/OR REMOVAL OF TREES IN APPROVED TPAs MAY ONLY OCCUR AS PART OF AN INDIVIDUAL LOT DEVELOPMENT. REMOVALS TO TPAs MAY BE APPROVED BY STAFF AS PART OF THE CONSTRUCTION PLAN APPROVAL PROCESS.
- DEVELOPER HAS DESIGNATED TO BE LEFT UNDISTURBED DURING THE DEVELOPMENT OF ROADWAYS, UTILITIES, AND SIMILAR INFRASTRUCTURE. THESE ARE NOT PERMANENT PRESERVATION AREAS. TREES IN THESE AREAS MAY BE REMOVED ON THE PLAN TO ESTABLISH THE GENERAL LOCATION OF TPAs AND REPRESENT MINIMUM DISTANCES. THE FINAL BOUNDARY FOR EACH TPA SHALL BE ESTABLISHED IN THE FIELD TO INCLUDE CANOPY AREA OF ALL TREES AT OR WITHIN THE DIMENSION LINE.
- TREE PROTECTION MEASURES SHALL BE INSTALLED AND MAINTAINED THROUGHOUT CONSTRUCTION AND THEIR ROOT SYSTEMS. ALL TREE PROTECTION FENCING, INCLUDING BUT NOT LIMITED TO, MULCH, SHALL BE USED AS TREE PROTECTION FENCING. SHALL BE LOCATED AT LEAST 3 FEET FROM THE OUTSIDE EDGE OF THE TREE. TREE TRUNKS MUST BE REMOVED IN A TPA.
- THE FENCE SHALL BE RELOCATED TO PROTECT ALL REMAINING TREES WITHIN THAT TPA. WHEN A TREE MASS CONTAINS BOTH TPAs AND TPA FENCING, ONLY THE TPA FENCING SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION ACTIVITIES ARE PERMITTED WITHIN THE TPA BEYOND THAT ALLOWED FOR PRELIMINARY SITE DEVELOPMENT.
- MULCH TO BE PLACED UNDER ALL PROPOSED LANDSCAPING BY CONTRACTOR.



PLANT LIST

FR	QTY	COMMON NAME	BOTANICAL NAME	SIZE/REMARKS
FR 37		WHITE PINE	Pinus strobus	18" - 21" Ht. - #0,00

** HEIGHT INDICATED REFERS TO THE REQUIRED MINIMUM HEIGHT OF THE TREE AT THE TIME OF PLANTING.