

**MONTGOMERY COUNTY PLANNING COMMISSION**  
**October 20, 2010 @ 7:00 P.M.**  
**Board Room, Government Center**

**A G E N D A**

**CALL TO ORDER:**

**DETERMINATION OF A QUORUM:**

**APPROVAL OF AGENDA:**

**APPROVAL OF CONSENT AGENDA:**

**PUBLIC ADDRESS:**

**PUBLIC HEARING:**

An ordinance amending Chapter 10 Entitled Zoning, Section 10-37 of the Code of the County of Montgomery, Virginia by amending the Flood Damage Prevention Overlay to modify the language of the ordinance as it relates to modification, alteration, repair, reconstruction or improvement of any kind to existing structures located in any floodplain areas to an extent or amount less than fifty (50) percent of its market value.

- a. Staff Presentation (Dari Jenkins)
- b. Public Comment
- c. Discussion/Action

**OLD BUSINESS:**

A request by **Joseph & Elizabeth Maxwell (Agent: Rich Rosenfeld)** for a special use permit on 25.12 acres in a General Business (GB) zoning district to allow a 199 ft. telecommunication tower. The property is located at 1485 Harding Road, approximately 350 feet south of the intersection with Fleets Way (private), and is identified as Tax Parcel No. 041-A-60 (Acct # 012046) in the Mount Tabor Magisterial District (District A). The property currently lies in an area designated as Residential Transition in the 2025 Comprehensive Plan. **(Tabled 8/11/2010)**

- a. Staff Presentation (Steve Sandy)
- b. Applicant Presentation
- c. Discussion/Action

**NEW BUSINESS:**

**LIAISON REPORTS:**

- Board of Supervisors- John Muffo
- Agriculture & Forestal District- Bob Miller
- Blacksburg Planning Commission – Frank Lau
- Christiansburg Planning Commission – Bryan Rice
- Economic Development Committee- John Tuttle
- Public Service Authority – Malvin Wells
- Parks & Recreation- Walt Haynes
- Radford Planning Commission- Bob Miller
- School Board- Bill Seitz
- Transportation Safety Committee- Malvin Wells
- Planning Director’s Report- Steven Sandy
- 2010 Commonwealth Land Use and Zoning Conference, Hotel Roanoke, October 10-12, 2010

**MEETING ADJOURNED:**

**UPCOMING MEETINGS:**

October 28, 2010	Annual Planning Commission Dinner @ German Club, Virginia Tech (6:30 pm)
November 10, 2010	Planning Commission Public Hearing- Multi-purpose Room 2 (7:00 pm)
November 17, 2010	Planning Commission Site Visit (To be determined)
	Planning Commission Regular Meeting (7:00 pm)



MONTGOMERY COUNTY DEPARTMENT OF  
PLANNING & GIS SERVICES

PLANNING  
GIS & MAPPING

755 ROANOKE STREET, SUITE 2A, CHRISTIANSBURG, VIRGINIA 24073-3177

**MEMORANDUM**

TO: Bryan Rice, Chair  
Montgomery County Planning Commission

FROM: Dari S. Jenkins, CZO *DJ*  
Planning & Zoning Administrator

DATE: October 13, 2010

SUBJ: Proposed Zoning Ordinance Revision  
Section 10-37; Flood Damage Prevention Overlay

---

Attached is a copy of Section 10-37; Flood Damage Prevention Overlay for review. In working with property owners located in the floodplain regarding additions to existing structures, we have observed that an amendment to item 2 of Article V, Existing Structures in Floodplain Areas may be appropriate. Please refer to page 9 of the attachment.

As the section is currently written, anyone making an addition to a structure located in the floodplain to an amount of less than 50% of its market value would be allowed to construct the addition without meeting any regulation for "elevation of the addition". This means that during a flood event, it is likely the new addition will be flooded right along with the remainder of the house. Department of Conservation and Recreation (DCR) staff supports the local staff suggestion that the "proposed addition" should be elevated to at least one (1) ft. above the base flood elevation. Requiring the elevation of the addition would keep all new construction in the floodplain at least one (1) ft. above the base flood elevation. Item 3 of the section already requires "modifications, alterations, repair, reconstruction or improvement" to a structure to an amount of 50% or more of market its value to have the entire structure elevated and meet all requirements of the chapter.

Staff anticipates this ordinance amendment may help limit future flood damage to structures located within the floodplain.

DJ

Attachment: Proposed Revisions to Section 10-37; October 13, 2010

# Proposed Revisions to Section 10-37; October 13, 2010

(Revisions marked in yellow)

## Sec. 10-37. Flood damage prevention overlay.

### Article I--General Provisions

Section 1.1 *Purpose.* These provisions are created to regulate and restrict land use in areas which are subject to severe periodic inundation, in such a manner as to: (1) prevent the loss of life and property, (2) comply with federal and state laws and regulations that address the need for floodplain management and regulation, (3) qualify Montgomery County residents for the insurance and subsidies provided by the National Flood Insurance Program, (4) conserve the natural state of watercourses and watersheds, and minimize the damaging effects which development has on drainage conditions, pollution of streams, and other environmental impacts on water resources, (5) reduce the disruption of commerce and governmental services, (6) reduce the extraordinary and unnecessary expenditure of public funds for flood protection, rescue and relief, and (7) minimize the impairment of the tax base by:

- (a) Regulating uses, activities and development which, alone or in combination with other existing or future uses, activities and development, will cause unacceptable increases in flood heights, velocities and frequencies;
- (b) Restricting or prohibiting certain uses, activities and development from locating within districts subject to flooding;
- (c) Requiring all those uses, activities and developments that do occur in floodprone districts to be protected and/or floodproofed against flooding and flood damage;
- (d) Protecting individuals from buying land and structures which are unsuited for intended purposes because of flood hazards.

Section 1.2 *Authority.* Authority for these provisions includes:

- (a) Flood Damage Reduction Act, Code of Virginia, § 10.1-600 et seq.
- (b) Planning, Subdivision of Land and Zoning, Code of Virginia, Title 15.2, Chapter 22.
- (c) Soil Conservation Districts Law, Code of Virginia, § 10.1-506 et seq.
- (d) Erosion and Sediment Control Act, Code of Virginia, § 10.1-560 et seq.
- (e) National Flood Insurance Act of 1968, 42 U.S.C. 4001 et seq.

Section 1.3 *Compliance and liability.*

- (a) No land shall hereafter be developed, and no structure shall be located, relocated, constructed, reconstructed, enlarged or structurally altered except in full compliance with the terms and provisions of this article and any other applicable ordinances and regulations which apply to uses within the jurisdiction of this article.
- (b) The degree of flood protection sought by the provisions of this article is considered reasonable for regulatory purposes and is based on acceptable engineering methods of study. Larger floods may occur on rare occasions. Flood heights may be increased by man-made or natural causes, such as ice jams and bridge openings restricted by debris. This article does not imply that districts outside the floodplain district or that land uses permitted within such district will be free from flooding or flood damages.
- (c) This article shall not create liability on the part of Montgomery County or any officer or employee thereof for any flood damages that result from reliance on this article or any administrative decision lawfully made thereunder.

# Proposed Revisions to Section 10-37; October 13, 2010

(Revisions marked in yellow)

(d) Records of actions associated with administering this ordinance shall be kept on file and maintained by the zoning administrator.

## Section 1.4 *Qualifying/regulated lands.*

(a) These provisions shall apply to all lands within the jurisdiction of Montgomery County and identified as being in the one hundred (100)-year floodplain by FEMA (Federal Emergency Management Administration), Federal Insurance Administration.

Section 1.5 *Penalty for violations.* Any person who fails to comply with any of the requirements or provisions of this section shall be subject to the enforcement and penalties contained in section 10-52(2) of this zoning chapter.

## **Article II--Establishment of Floodplain Districts**

### Section 2.1 *Description of districts.*

(a) Basis of districts. The basis for the delineation of districts shall be the Flood Insurance Study and the Flood Insurance Rate Maps (FIRM) for Montgomery County, prepared by the Federal Emergency Management Agency, Federal Insurance Administration, dated September 25, 2009, as amended, which said Flood Insurance Study and Flood Insurance Rate Map are hereby incorporated and made a part of the official zoning map and this chapter. The boundaries of the special flood hazard area and floodplain districts are established as shown on the Flood Insurance Rate Map (FIRM) a copy of which shall be kept on file at the Montgomery County Planning Department offices.

1. The Floodway District is delineated, for purposes of this section, using the criterion that certain areas within the floodplain must be capable of carrying the waters of the one hundred (100)-year flood without increasing the water surface elevation of that flood more than one (1) foot at any point. The areas included in this district are specifically defined in Table 2 of the above-referenced Flood Insurance Study and shown on the accompanying Flood Insurance Rate Map (FIRM).

2. The Special Floodplain District shall be those areas identified as an AE Zone on the maps accompanying the Flood Insurance Study for which one hundred (100)-year flood elevations have been provided.

3. The Approximated Floodplain District shall be those areas identified as an A or A99 Zone on the maps accompanying the Flood Insurance Study. In these zones, no detailed flood profiles or elevations are provided, but the one hundred (100)-year flood elevations and floodway information from federal, state, and other acceptable sources shall be used, when available. Where the specific one hundred (100)-year flood elevation cannot be determined for this area using other sources of data, such as the U.S. Army Corps of Engineers Flood Plain Information Reports, U.S. Geological Survey Floodprone Quadrangles, etc., then the applicant for the proposed use, development and/or activity shall determine this elevation in accordance with hydrologic and hydraulic engineering techniques. Hydrologic and hydraulic analyses shall be undertaken only by professional engineers or others of demonstrated qualifications, who shall certify that the technical methods used correctly reflect currently-accepted technical concepts. Studies, analyses, computations, etc., shall be submitted in sufficient detail to allow a thorough review by the zoning administrator.

4. The Shallow Flooding District shall be those areas identified as Zone AO or AH on the Flood Insurance Rate Maps.

(b) *Overlay Concept.* The Floodplain Districts described above shall be overlays to the existing underlying districts as shown on the official zoning chapter map and as such the provisions for the floodplain districts shall serve as a supplement to the underlying district provisions. If there is any conflict between the provisions or requirements of the Floodplain Districts and those of any underlying district, the more restrictive provisions and/or those pertaining to the floodplain districts should apply.

Section 2.2 *District boundary changes.* The delineation of any of the floodplain districts may be revised where natural or manmade changes have occurred and/or where more detailed studies have been conducted or undertaken by the United States Army Corps of Engineers or other qualified agency, or an individual documents the need for such changes. However, prior to any such change, written approval must be obtained from the Federal Insurance Administration and the Montgomery County Zoning Administrator must receive official notification of any such changes. Any such changes must be formally recorded on appropriate maps approved by the Federal Insurance Administration and submitted to the zoning administrator.

Section 2.3 *Submitting technical data.* A community's base flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but not later than six (6) months after the date such information becomes available, a community shall notify the Federal Insurance Administration of the changes by submitting technical or scientific data. Such a submission is necessary so that upon confirmation of those physical changes affecting flooding conditions, risk premium rates and floodplain management requirements will be based upon current data.

### **Article III--District Provisions**

Section 3.1 *Permit and application requirements.*

(a) *Permit requirements.* All uses, activities, and development occurring within any floodplain district shall be undertaken only upon the issuance of a zoning permit. Such development shall be undertaken only in strict compliance with the provisions of this chapter and with all other applicable codes and ordinances, as amended, such as the Virginia Uniform Statewide Building Code (VA USBC) and the Montgomery County Subdivision Ordinance. Prior to the issuance of any such permit, the zoning officer shall require all applications to include compliance with all applicable state and federal laws.

(b) All applications for development within any floodplain district and all building permits issued for the floodplain shall incorporate the following information in addition to information normally required for such applications:

1. The elevation of the base flood at the site;
2. For structures that have been elevated, the elevation of the lowest floor (including basement);
3. For structures that have been floodproofed (nonresidential only), the elevation to which the structure has been floodproofed;
4. The elevation of the one hundred (100)-year flood; and
5. Topographic information showing existing and proposed ground elevations.
6. All required information shall be recorded on an elevation certificate or floodproofing certificate approved by the zoning administrator. The certificate shall be completed by a licensed surveyor, licensed engineer, or licensed architect, and shall be recorded with the clerk of circuit court prior to the issuance of an occupancy certificate.

Section 3.2 *General standards.* In all special flood hazard areas the following provisions shall apply:

(a) New construction and substantial improvements shall be according to the VA USBC, and anchored to prevent flotation, collapse or lateral movement of the structure.

(b) Manufactured homes shall be anchored to prevent flotation, collapse, or lateral movements. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This standard shall be in addition to and consistent with applicable state requirements for resisting wind forces.

# Proposed Revisions to Section 10-37; October 13, 2010

(Revisions marked in yellow)

- 
- 
- (c) New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
  - (d) New construction or substantial improvements shall be constructed by methods and practices that minimize flood damage.
  - (e) Electrical, heating, ventilation, plumbing, air conditioning equipment and other service facilities, including duct work, shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
  - (f) New and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.
  - (g) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into floodwaters.
  - (h) On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding.
  - (i) Any alteration, repair, reconstruction or improvements to a building that is in compliance with the provisions of this chapter shall meet the requirements of "new construction" as contained in this section.
  - (j) Any alteration, repair, reconstruction or improvements to a building that is not in compliance with the provisions of this ordinance, shall be undertaken only if said nonconformity is not furthered, extended, or replaced.
  - (k) Prior to any proposed alteration or relocation of any channels or of any watercourse, stream, etc., within this jurisdiction a permit shall be obtained from the U.S. Corps of Engineers, the Virginia Department of Environmental Quality, and the Virginia Marine Resources Commission (a joint permit application is available at any of these organizations). Furthermore, notification of the proposal shall be given by the application to all affected adjacent jurisdictions, the Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management) and the Federal Insurance Administration.
  - (l) The flood-carrying capacity within an altered or relocated portion of any watercourse shall be maintained.

Section 3.3 *Specific standards.* In all special flood hazard areas where base flood elevations have been provided in the Flood Insurance Study or generated according to Article III, Section 3.6, the following provisions shall apply:

- (a) *Residential Construction.* New construction or substantial improvement of any residential structure (including manufactured homes) shall have the lowest floor, including basement, elevated no lower than one (1) foot above the base flood elevation.
- (b) *Nonresidential construction.* New construction or substantial improvement of any commercial, industrial, or nonresidential building (or manufactured home) shall have the lowest floor, including basement, elevated to no lower than one (1) foot above the base flood elevation. Buildings located in all A 1-30, AE, and AH zones may be floodproofed in lieu of being elevated provided that all areas of the building components below the elevation corresponding to the BFE plus one (1) foot are watertight with walls substantially impermeable to the passage of water, and use structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied.
- (c) *Elevated buildings.* Enclosed areas, of new construction or substantially improved structures, which are below the regulatory flood protection elevation shall:
  - 1. Not be designed or used for human habitation, but shall only be used for parking of vehicles, building access, or limited storage of maintenance equipment used in connection with the premises. Access to the area shall be limited to emergency personnel.

# Proposed Revisions to Section 10-37; October 13, 2010

(Revisions marked in yellow)

---

---

enclosed area shall be the minimum necessary to allow for parking of vehicles (garage doors) or limited storage of maintenance equipment (standard exterior door), or entry to the living area (stairway or elevator).

2. Be constructed entirely of flood-resistant materials below the regulatory flood protection elevation;
3. Include, in Zones A, AO, AE, and A 1-30, measures to automatically equalize hydrostatic flood forces on walls by allowing for the entry and exit of floodwater. To meet this requirement, the openings must either be certified by a professional engineer or architect or meet the following minimum design criteria:
  - a. Provide a minimum of two (2) openings on different sides of each enclosed area subject to flooding.
  - b. The total net area of all openings must be at least one (1) square inch for each square foot of enclosed area subject to flooding.
  - c. If a building has more than one enclosed area, each area must have openings to allow floodwaters to automatically enter and exit.
  - d. The bottom of all required openings shall be no higher than one (1) foot above the adjacent grade.
  - e. Openings may be equipped with screens, louvers, or other opening coverings or devices, provided they permit the automatic flow of floodwaters in both directions.
  - f. Foundation enclosures made of flexible skirting are not considered enclosures for regulatory purposes, and, therefore, do not require openings. Masonry or wood underpinning, regardless of structural status, is considered an enclosure and requires openings as outlined above.

(d) *Manufactured homes.* All manufactured homes placed or substantially improved on individual lots or parcels, in expansions to existing manufactured home parks or subdivisions, in a new manufactured home park or subdivision, or in an existing manufactured home park or subdivision on which a manufactured home has incurred substantial damage as a result of a flood within the floodplain district shall be placed on a permanent foundation supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than thirty-six (36) inches in height above grade and elevated and anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement in accordance with the Virginia Uniform Statewide Building Code. All such mobile homes must provide an elevation certificate that conclusively demonstrates that the dwelling or structure is at least one (1) foot above the base flood elevation.

(e) *Recreational vehicles.* All recreational vehicles placed on sites must either be on the site for fewer than one hundred eighty (180) consecutive days; be fully licensed and ready for highway use (a recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices and has no permanently attached additions); or meet all the requirements of manufactured homes in Article III, Section 3.3(d).

## Section 3.4 *Standards for the Floodway District.*

(a) Encroachments including fill, new construction, substantial improvements and other development are prohibited, unless certification (with supporting technical data) by a registered professional engineer is provided to the zoning administrator demonstrating through hydrologic and hydraulic analyses that such encroachment would not result in any increase in the one hundred (100)-year flood elevation.

(b) The following uses and activities are permitted, provided that they are in compliance with the provisions of the underlying zoning district and are not prohibited by any other ordinances and provided that they do not require structures, fill, or storage of materials and equipment:

# Proposed Revisions to Section 10-37; October 13, 2010

(Revisions marked in yellow)

1. Agricultural uses, such as general farming, pasture, grazing, outdoor plant nurseries, horticulture, truck farming, forestry, sod farming, and wild crop harvesting;
2. Public and private recreational uses and activities, such as parks, play areas of a natural, permeable nature, day camps, picnic grounds, golf courses, boat launching and swimming areas, horseback riding and hiking trails, wildlife and nature preserves, game farms, trap and skeet game ranges, and hunting and fishing areas;
3. Fisheries uses such as fish hatcheries and harvesting;
4. Stormwater management improvements associated with uses permitted by right in the overlay district;
5. Utility lines, road crossings, private drives and private access easements not resulting in an increase in the water surface elevation of the base flood affecting existing buildings and structures;
6. Temporary storage of material or equipment necessary in the construction of uses permitted by right in the overlay district;
7. Accessory residential uses, such as yard areas, gardens, play areas and loading areas;
8. Accessory industrial and commercial uses, such as yard areas, parking and loading areas, airport landing strips, etc.
9. Expansion or enlargement of existing structures and/or uses up to one hundred (100) percent of structure floor area if the effect on flood heights is fully offset by accompanying improvements that are designed by and certified by a professional engineer;
10. Repairs, restoration and maintenance, including structural repairs may be made to a nonconforming structure only when the cost of the work does not exceed fifty (50) percent of the current fair market value and the work does not increase the cubic content volume of the nonconforming structure. Cost of the land shall not be considered in when determining the fair market value of the nonconforming structure. If a nonconforming structure is damaged or destroyed, the repair or restoration work shall commence within six (6) months of the date the damage occurred and complete the repair or restoration shall be completed within twenty-four (24) months of starting construction or the nonconforming use will be deemed abandoned.

(c) The placement of manufactured homes (mobile homes) is prohibited, except in an existing manufactured homes (mobile homes) park or subdivision. A replacement manufactured home may be placed on a lot in an existing manufactured home park or subdivision provided the anchoring, elevation and encroachments standards are met.

Section 3.5 *Standards for the Special Floodplain District.* The following provisions shall apply within the Special Floodplain District:

Until a regulatory floodway is designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within the areas of special flood hazard, designated as Zones A1-30 and AE on the Flood Insurance Rate Map, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development will not increase the water surface elevation of the base flood more than one (1) foot at any point within the County of Montgomery.

Development activities in Zones A1-30, AE, and AH, on the county's Flood Insurance Rate Map which increase the water surface elevation of the base flood by more than one (1) foot may be allowed, provided that the developer or applicant first applies - with the county's endorsement - for a conditional Flood Insurance Rate Map revision, and receives approval of the Federal Emergency Management Agency.

# Proposed Revisions to Section 10-37; October 13, 2010

(Revisions marked in yellow)

Section 3.6 *Standards for approximated floodplain.* The following provisions shall apply with the Approximate Floodplain District:

The Approximated Floodplain District shall be that floodplain area for which no detailed flood profiles or elevations are provided, but where a one hundred (100)-year floodplain boundary has been approximated. Such areas are shown as Zone A on the maps accompanying the Flood Insurance Study. For these areas, the one hundred (100)-year flood elevations and floodway information from federal, state, and other acceptable sources shall be used, when available. Where the specific one hundred (100)-year flood elevation cannot be determined for this area using other sources of data, such as the U.S. Army Corps of Engineers Floodplain Information Reports, U. S. Geological Survey Floodprone Quadrangles, etc., then the applicant for the proposed use, development and/or activity shall determine this elevation in accordance with hydrologic and hydraulic engineering techniques. Hydrologic and hydraulic analyses shall be undertaken only professional engineers or others of demonstrated qualifications, who shall certify that the technical methods used correctly reflect currently-accepted technical concepts. Studies, analyses, computations, etc., shall be submitted in sufficient detail to allow a thorough review by the county.

When such base flood elevation data is utilized, the lowest floor shall be one (1) foot above the base flood elevation. During the permitting process, the applicant/property owner shall obtain:

- 1) The elevation of the lowest floor (including the basement) of all new and substantially improved structures; and
- 2) If the structure has been floodproofed in accordance with the requirements of this article, the elevation to which the structure has been floodproofed.

Section 3.7 *Standards for the Shallow Flooding District.* The following provisions shall apply within the Shallow Flooding District:

- (a) All new construction and substantial improvements of residential structures shall have the lowest floor, including basement, elevated to or above the flood depth specified on the Flood Insurance Rate Map, above the highest adjacent grade. If no flood depth number is specified, the lowest floor, including basement, shall be elevated at least two (2) feet (recommend  $\geq$  one (1) foot freeboard) above the highest adjacent grade; or,
- (b) All new construction and substantial improvements of nonresidential structures shall:
  1. Have the lowest floor, including basement, elevated to or above the flood depth specified on the Flood Insurance Rate Map, above the highest adjacent grade. If no flood depth number is specified, the lowest floor, including basement, shall be elevated at least two (2) feet (recommend  $\geq$  one (1) foot freeboard) above the highest adjacent grade; or,
  2. Together with attendant utility and sanitary facilities be completely floodproofed to the specified flood level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
- (c) Adequate drainage paths around structures on slopes shall be provided to guide floodwaters around and away from proposed structures.

Section 3.8 *Standards for subdivision proposals.*

- (a) All subdivision proposals shall be consistent with the need to minimize flood damage;
- (b) All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage;
- (c) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards, and

(d) Base flood elevation data shall be provided for subdivision proposals and other proposed development proposals (including manufactured home parks and subdivisions) that exceed fifty lots or five (5) acres whichever is the lesser.

**Article IV--Variances; Factors to Be Considered**

In passing upon applications for variances, the board of zoning appeals shall satisfy all relevant factors and procedures specified in other sections of this chapter and consider the following additional factors:

1. The danger to life and property due to increased flood heights or velocities caused by encroachments. No variance shall be granted for any proposed use, development or activity within any floodway district that will cause any increase in the one hundred (100)-year flood elevation.
2. The danger that materials may be swept onto other lands or downstream to the injury of others.
3. The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination and unsanitary conditions.
4. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owners.
5. The importance of the services provided by the proposed facility to the community.
6. The requirements of the facility for a waterfront location.
7. The availability of alternative locations not subject to flooding for the proposed use.
8. The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.
9. The relationship of the proposed use to the comprehensive plan and floodplain management program for the area.
10. The safety of access by ordinary and emergency vehicles to the property in time of flood.
11. The expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters expected at the site.
12. The repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.
13. Such other factors which are relevant to the purposes of this article.

The board of zoning appeals may refer any application and accompanying documentation pertaining to any request for a variance to any engineer or other qualified person or agency for technical assistance in evaluating the proposed project in relation to flood heights and velocities and the adequacy of the plans for flood protection and other related matters.

Variances shall be issued only after the board of zoning appeals has determined that the granting of such will not result in (1) unacceptable or prohibited increases in flood heights; (2) additional threats to public safety; (3) extraordinary public expense; and will not (4) create nuisances; (5) cause fraud on or victimization of the public; or (6) conflict with local laws or ordinances. Variances shall be issued only after the board of zoning appeals has determined that the variance will be the minimum required to provide relief and that the failure to grant the requested variance would result in hardship to the applicant.

The board of zoning appeals shall notify the applicant for a variance, in writing, that the issuance of a variance to construct a structure below the one hundred (100)-year flood elevation increases the risks to life and property and will result in increased premium rates for flood insurance.

A record shall be maintained of the above notification as well as all variance actions, including justification for the issuance of the variances. Any variances which are issued shall be noted in the annual or biennial report submitted to the Federal Insurance Administrator.

## **Article VI--Existing Structures in Floodplain Areas**

A structure or use of a structure or premises which lawfully existed before the enactment of these provisions but which is not in conformity with these provisions may be continued subject to the following conditions:

1. Existing structures in the Floodway Area shall not be expanded or enlarged unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard emergency practices that the proposed expansion would not result in any increase in the base flood elevation.
2. Any modification, alteration, repair, reconstruction or improvement of any kind to a structure and/or use located in any floodplain areas to an extent or amount of less than fifty (50) percent of its market value shall conform to the VA USBC. **Any additions shall be constructed in full compliance with this chapter.**
3. The modifications, alterations, repair, reconstruction or improvement of any kind to a structure and/or use, regardless of its location in a floodplain area to an extent or amount of fifty (50) percent or more of its market value shall be undertaken only in full compliance with this chapter and shall require the entire structure to conform to the VA USBC.

## **Article VI--Definitions**

*Definitions.* For the purpose of this Flood Damage Prevention Overlay Ordinance, the following words and phrases shall have the meanings respectfully ascribed to them by this section. Any word, term or phrase used in this overlay ordinance not defined below shall have the meaning ascribed to the word in section 10-61 of the zoning chapter or if not defined there then in the most recent edition of Webster's unabridged Dictionary, unless in the opinion of the zoning administrator established customs or practices of the County of Montgomery justify a different or additional meaning.

*Base flood.\** The flood having a one (1) percent chance of being equaled or exceeded in any given year.

*Base flood elevation.\** The Federal Emergency Management Agency designated one hundred (100)-year water surface elevation.

*Basement.\** Any area of the building having its floor sub-grade (below ground level) on all sides.

*Board of zoning appeals.\** The board appointed to review appeals made by individuals with regard to decisions of the zoning administrator in the interpretation of this chapter.

*Development.\** Any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.

*Elevated building.\** A nonbasement building built to have the lowest floor elevated above the ground level by means of fill, solid foundation perimeter walls, pilings, or columns (posts and piers).

*Encroachment.\** The advance or infringement of uses, plant growth, fill, excavation, buildings, permanent structures or development into a floodplain, which may impede or alter the flow capacity of a floodplain.

*Existing manufactured home park or subdivision.\** A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the

# Proposed Revisions to Section 10-37; October 13, 2010

(Revisions marked in yellow)

installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the floodplain management regulations adopted by a community.

*Expansion to an existing manufactured home park or subdivision.\** The preparation of additional sites by the construction of facilities for servicing the lots on which the manufacturing homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

## *Flood or flooding.\**

1. A general or temporary condition of partial or complete inundation of normally dry land areas from:
  - a. The overflow of inland or tidal waters; or
  - b. The unusual and rapid accumulation or runoff of surface waters from any source.
2. The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in paragraph 1a. of this definition.
3. Mudflows which are proximately caused by flooding as defined in paragraph (a)(2)[1b.] of this definition and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current.

*Floodplain or floodprone area.\** Any land area susceptible to being inundated by water from any source.

*Floodproofing.* Any combination of structural and nonstructural additions, changes or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

*Floodway.\** The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

*Flood Insurance Rate Map (FIRM).\** An official map of a community on which both the special hazard areas and the risk premium zones applicable to the community are delineated.

*Freeboard.\** A factor of safety usually expressed in feet above a flood level for purposes of floodplain management. "Freeboard" tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization in the watershed.

*Highest Adjacent Grade.* The highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

*Historic structure.\** Any structure that is:

1. Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
2. Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
3. Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or

# Proposed Revisions to Section 10-37; October 13, 2010

(Revisions marked in yellow)

4. Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:
  - a. By an approved state program as determined by the Secretary of the Interior; or
  - b. Directly by the Secretary of the Interior in states without approved programs.

*Lowest floor.\** The lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor; provided, that such enclosure is not built so as to render the structure in violation of the applicable nonelevation design requirements of Federal Code 44CFR §60.3.

*Manufactured home.\** A structure, transportable in one (1) or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For floodplain management purposes the term manufactured home also includes park trailers, travel trailers, and other similar vehicles placed on a site for greater than one hundred eighty (180) consecutive days.

*Manufactured home park or subdivision.\** A parcel (or contiguous parcels) of land divided into two (2) or more manufactured home lots for rent or sale.

*Manufactured home park or subdivision, New.\** A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of floodplain management regulations adopted by a community.

*New construction.\** For the purposes of determining insurance rates, structures for which the "start of construction" commenced on or after the effective date of an initial Flood Insurance Rate Map on or after December 31, 1974, whichever is later, and includes any subsequent improvements to such structures. For floodplain management purposes, new construction means structures for which start of construction commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures.

*Recreational vehicle.\** A vehicle which is:

1. Built on a single chassis;
2. Four hundred (400) square feet or less when measured at the largest horizontal projection;
3. Designed to be self-propelled or permanently towable by a light duty truck; and,
4. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational camping, travel, or seasonal use.

*Shallow flooding area.\** A special flood hazard area with base flood depths from one (1) to three (3) feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate, and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

*Special flood hazard area.\** The land in the floodplain subject to a one (1) percent or greater chance of being flooded in any given year as determined in Article III, Section 3.2 of this section.

*Start of construction.\** The date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, substantial improvement or other improvement was within one hundred eighty (180) days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of the construction means the first alteration of any

# Proposed Revisions to Section 10-37; October 13, 2010

(Revisions marked in yellow)

---

---

wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

*Structure.\** For floodplain management purposes a walled and roofed building, including a gas or liquid storage tank is principally above ground, as well as a manufactured home. Structure for insurance coverage purposes means a walled and roofed building, other than a gas or liquid storage tank that is principally above and affixed to a permanent site, as well as a manufactured home on a permanent foundation. For the latter purpose, the term includes a building while in the course of construction, alteration or repair, but does not include building materials or supplies intended for use in such construction, alteration or repair, unless such materials or supplies are within an enclosed building on the premises.

*Substantial damage.\** Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed fifty (50) percent of the market value of the structure before the damage occurred.

*Substantial improvement.\** Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds fifty (50) percent of the market value of the structure before the start of construction of the improvement. This term includes structures which have incurred substantial damage regardless of the actual repair work performed. The term does not, however, include either:

1. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or
2. Any alteration of a historic structure, provided that the alteration will not preclude the structure's continued designation as a historic structure.

*Watercourse.\** A lake, river, creek, stream, wash, channel or other topographic feature on or over which waters flow at least periodically. Watercourse includes specifically designated areas in which substantial flood damage may occur. (Ord. No. 1999-12, §§ 3-500--3-508, 12-13-99; Ord. No. 2001-08, 6-11-01; Ord. No. 2003-09, 6-9-03; ORD-FY-10-07, 13-09; ORD-FY-10-10, 8-24-09)

**Note:** \* Denotes definitions to be used only for the purpose of this Flood Damage Prevention Overlay Ordinance, the words and phrases shall have the meanings respectfully ascribed to them by this section.



## MONTGOMERY COUNTY PLANNING & GIS SERVICES

755 ROANOKE STREET, SUITE 2A, CHRISTIANSBURG, VIRGINIA 24073-3177

### MEMORANDUM

**TO:** Planning Commission  
**FROM:** Planning Staff *gms/jrm*  
**DATE:** October 13, 2010  
**RE:** **Staff Analysis Update (SU-2010-07998)**

A request by **Joseph & Elizabeth Maxwell (Agent: Rich Rosenfeld)** for a Special Use Permit on 25.12 acres in a General Business (GB) zoning district to allow a 167 ft. telecommunication tower. The property is located at 1485 Harding Road, approximately 350 feet south of the intersection with Fleets Way (private), and is identified as Tax Parcel No. 041-A-60 (Acct # 012046) in the Mount Tabor Magisterial District (District A). The property currently lies in an area designated as Residential Transition in the 2025 Comprehensive Plan.

---

During the August 11<sup>th</sup> meeting of the Planning Commission a public hearing was held on the Special Use Permit request above and the Commission voted 7-0 (Miller and Seitz absent) to table the request to allow the applicant time to provide additional information. According to the Montgomery County Zoning Ordinance, the Planning Commission must make a recommendation to the Board of Supervisors within 100 days from the public hearing. The Planning Commission's October 20<sup>th</sup> meeting date will mark 70 days from the August 11<sup>th</sup> public hearing.

In discussion during the August 11<sup>th</sup> meeting, the Planning Commission felt the applicant had not adequately demonstrated attempts to comply with the policies outlined in the Montgomery County 2025 Comprehensive Plan (UTL 2.2.2) to provide the least negative impact to the citizens when constructing new telecommunications towers. The Planning Commission questioned whether the applicant had properly demonstrated the need for a height of 199 feet or fully demonstrated recent attempts at seeking collocation opportunities. In addition, the Commission wanted to receive the FAA and NEPA reports as well as updated site plans prior to making a recommendation to the Board of Supervisors.

Since the August 11<sup>th</sup> Planning Commission meeting, planning staff has communicated with the property owners' agent (Richard Rosenfeld) by email, phone, and mailed correspondence, and facilitated discussions regarding co-location opportunities between the Town of Blacksburg and the agent.

## **Issues and Concerns**

### **Tower Height**

During the August 11<sup>th</sup> meeting, in an effort to provide data illustrating the need for a height of 199 ft., legal counsel of the applicant stated that they would conduct a drive test to show how in-building coverage is affected by decreasing height. However, upon further research of logistical challenges and financial costs involved in conducting the proposed drive test, the applicant proposed a reduction in the height of the tower to 163 ft. with a 4 ft. lightning rod. Revised propagation maps, dated September 28, 2010, have been provided by the applicant. The applicant has been asked to provide revised photo simulations as well.

### **FAA Report**

The FAA report has been received by staff and the tower at the revised height of 167 ft. was determined to pose no hazard to air navigation. Virginia Tech Airport officials stated on September 30, 2010 that the airport is satisfied with the FAA's determination.

### **NEPA Report**

The FCC NEPA Environmental Report has been received by staff. The report concluded that no evidence was found that indicated adverse environmental impacts or effects, as defined in the FCC Rules in 47 CFR Sections 1.1301 through 1.1319, may result from the proposed tower construction.

### **Revised Site Plan**

Revised site plans prepared by BC Architects and Engineers dated September 7, 2010, have been received, and are included with this report. The revised plans indicate the tower is proposed to be a monopole structure with flush-mounted antennas. The tower is proposed to be painted in "umbra" a neutral matte brown which will help it to blend with the color of the surrounding trees. The revised site plan further indicates the proposed vegetative buffer will be planted with evergreen trees, and shows a nine foot (9) high chain link privacy fence with a black rubberized coating to screen the base of the tower and ground equipment. AT&T intends to fence 50 ft. x 60 ft. (3000 sq. ft.) of the proposed lease area.

On the revised site plans, the proposed 167 ft. tower location is approximately 45 ft. from Harding Road, and approximately 300 ft. from the closest residential structure. It may be advantageous for AT&T to shift the proposed lease area and tower location to the furthest northeast corner of the General Business (G-B) district so that the tower would be farther from Harding Road and residential structures while remaining in the General Business district.

The engineering "fall zone" of the tower has not been submitted to the county; therefore it is not known if this increased setback would be sufficient to accommodate the fall zone and eliminate the possibility that a tower failure could impact Harding Road. Typically, the required setback for a tower in A-1 Agricultural zoning district is 100 ft. from the property line. In the General Business (G-B) district the maximum building setback is 50 ft. unless a Special Use Permit is approved allowing a structure of greater height; however given the proximity to Harding Road and residential structures an increased setback may mitigate potential negative impacts.

### **Exploration of Co-Location Opportunities**

The applicant has contacted the Town of Blacksburg since the August 11<sup>th</sup> public hearing to discuss the possibility of co-location on the Clay Street water tank. Staff has also had several conversations with Town of Blacksburg staff, and the main issue with locating on the water tank, per Town staff is that there are concerns about the amount of ground space and the potential interference of the AT&T antennae with the Blacksburg Police Department equipment. The Town asked that the applicant verify that their equipment would not interfere with the police equipment and has previously stated that the requested information was not provided. Town staff has stated that locating an additional wireless carrier on the water tank was not out of the question, but rather that there was some additional information that needed to be supplied before the issue could be further considered.

### **Co-location Opportunities for Emergency Services**

Concern was expressed about the need for co-location opportunities for Emergency Services in Montgomery County. Montgomery County and the State of Virginia are currently working with RCC Consulting to develop a model for a county-wide radio system for Emergency Services. This system will encompass communications for Virginia Tech, Montgomery County, Town of Blacksburg, and the Town of Christiansburg. Staff contacted the Project Manager tasked with designing the system and inquired if the location of the proposed tower on Harding Rd. would be an integral part of the communications system. At this point in the project the consultants did not feel the location would be a necessary location for the functionality of the system. Although at this point in the research this site has not been designated as one integral to this communication network, the consultants did request that space still be provided on the tower, if approved.

### **Citizen Concerns**

A number of citizens cited health concerns as a reason for which they opposed the proposed telecommunications tower. However, The Telecommunications Act of 1996 expressly prohibits local governments or planning or zoning boards from considering the health or environmental risks associated with wireless communications facilities. Congress has vested exclusive jurisdiction to set and enforce radio frequency emissions standards in the FCC (No. 47 U.S.C. §332[c][7][b][iv]8).

Some citizens also expressed concern about the effect the telecommunications tower would have on the aesthetic appeals of the view shed. To help mitigate this impact, the applicant has proposed a monopole design, with flush-mounted antennas, as well as painting the tower in a neutral brown color. The revised site plans also show proposed landscaping and fencing to shield the base of the tower. The applicant has also proposed a 32 ft. reduction in overall height of the structure. A view shed analysis of the proposed tower location has been performed using the County's LIDAR data and digital imagery. This information will be shown electronically at the upcoming Board of Supervisors public hearing.

Citizens present at the August 11<sup>th</sup> meeting relayed concerns associated with frequent power outages, and the potential for frequent use of the tower generator. Staff contacted AEP regarding these concerns. According to AEP records, in the past 12 months (September 2009 through September 2010) the 1400 Block of Harding Rd. has experienced two power outages to date, lasting

on average 93 minutes per outage. In the event of a power outage, the tower would be operated by a backup generator, which would be fueled by a propane fuel tank.

Since the August 11<sup>th</sup> public hearing, the Planning and GIS Services office has been contacted by two adjoining property owners regarding this request. One adjoining property owner sought copies of the propagation maps and view shed analyses shown at the August 11<sup>th</sup> meeting. The requested information was provided and posted on the Planning and GIS Services website. Additionally, one citizen sent a letter to the Planning Commission and Board of Supervisors expressing his opinions about this proposal; his letter has been included with this report. Any additional correspondence is enclosed for your review.

All adjoining property owners were notified in compliance with the Code of Virginia and Section 10-52(3) of the Montgomery County Code on July 30, 2010. A second set of adjoining property owner notices were sent on October 5, 2010. Both notices advised the property owners in the area of balloon tests that were conducted by the property owners' agent to simulate tower height.

### **Staff Recommendation**

Staff preliminarily recommends denying this request for a Special Use Permit to allow a 167 ft. telecommunication tower on approximately 25.12 acres in General Business (GB) because the applicant has not successfully addressed the negative impacts to the area and it appears that coverage objectives could be met through the co-location on existing structures in the area. In particular, there appear to be suitable structures within the Town of Blacksburg that can be used which are significantly higher than ground elevation.

However, if the Planning Commission should recommend approval of the request, staff recommends that consideration be given to the following conditions in an effort to balance the need for wireless service in the area with the policies of the Comprehensive Plan and view sheds in the area.

1. Tower shall not exceed a total overall height of 167 feet inclusive of the proposed lightning rod. Tower shall not have lighting unless required by the FAA. Tower shall have a base diameter not to exceed forty (40) inches and a top diameter of twenty-two (22) inches.
2. Site development shall be in substantial conformance with the plans entitled, "Site Name: Alleghany, Site No: R0533D" prepared by BC Architects & Engineers dated September 7, 2010 and received by Montgomery County on September 7, 2010. Additionally, the tower shall be setback at the outmost boundary of the General Business (GB) zoning district, and shall be a minimum of 90 ft. from Harding Road and adjoining property lines.
3. AT&T shall access the site using a private entrance, approved by VDOT, off of Route 785 (Harding Road). All proper VDOT permits, regulations, and fees shall be paid prior to tower construction.
4. AT&T shall construct a twenty (20') ft. wide access/utility easement from the existing home to the telecommunications tower site.

5. Tower shall be of a "monopole stealth design" and all antennae shall be flush mounted (distance between face of tower and outer face of antennas not to exceed 12 inches) on the structure. Tower shall be painted brown (Umbra). All wiring and cables shall be located inside the tower structure.
6. Existing site vegetation shall not be cleared beyond the proposed lease area, except for that necessary for construction of an entrance road and utilities.
7. Engineering plans signed and sealed by a licensed engineer in the State of Virginia shall be submitted to and approved by the Building Official prior to issuance of a building permit.
8. No platforms or dishes shall be permitted on the structure above the tree line.
9. Tower shall meet all regulations found in Section 10-48(6) of the Montgomery County Zoning Ordinance.
10. Backup generator, if applicable, shall not be fueled by any liquid fuel source.
11. Owner/agent shall provide police, fire and rescue services antennae space on the proposed tower for the agreed upon rental rate of \$1 per year subject to the structural capacity of the tower and provided that emergency service antennae do not provide radio frequency interference to other antennae located upon the tower. Emergency service providers shall provide equipment. Tower owner/agent shall install the antennae at market rate.
12. The second highest space on the tower shall be made available to the County. In the event that Montgomery County has not used this space and another cellular carrier wishes to co-locate on the same tower, the tower owner shall give the Montgomery County Administrator fourteen (14) days notice by Certified Mail of their intent to occupy this location.

Enclosures: FAA Report dated September 22, 2010  
Revised Site Plans, dated September 7, 2010  
Citizen Correspondence  
Propagation maps, revised September 28, 2010



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

Aeronautical Study No.  
 2010-AEA-3321-OE

Issued Date: 09/22/2010

AT&T Mobility LLC  
 John E. Monday  
 5601 Legacy Drive #A-3  
 Plano, TX 75024

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

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

Structure:	Monopole RO533
Location:	Blacksburg, VA
Latitude:	37-14-37.56N NAD 83
Longitude:	80-23-32.62W
Heights:	167 feet above ground level (AGL) 2336 feet above mean sea level (AMSL)

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

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

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

To coordinate frequency activation and verify that no interference is caused to FAA facilities, prior to beginning any transmission from the site you must contact Arnold Fouch at 540-265-2293.

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

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

This determination expires on 03/22/2012 unless:

- (a) extended, revised or terminated by the issuing office.
- (b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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

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

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

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

If we can be of further assistance, please contact our office at (817) 838-1999. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2010-AEA-3321-OE.

**Signature Control No: 130207434-131168700**

( DNE )

Debbie Cardenas  
Technician

Attachment(s)  
Frequency Data

cc: FCC

Frequency Data for ASN 2010-AEA-3321-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
698	806	MHz	1000	W
806	824	MHz	500	W
824	849	MHz	500	W
851	866	MHz	500	W
869	894	MHz	500	W
896	901	MHz	500	W
901	902	MHz	7	W
930	931	MHz	3500	W
931	932	MHz	3500	W
932	932.5	MHz	17	dBW
935	940	MHz	1000	W
940	941	MHz	3500	W
1850	1910	MHz	1640	W
1930	1990	MHz	1640	W
2305	2310	MHz	2000	W
2345	2360	MHz	2000	W

**PROJECT INFORMATION**

SCOPE OF WORK: PROPOSED (6) SECTOR ANTENNAS MOUNTED ON A PROPOSED TOWER. EQUIPMENT WILL BE LOCATED AT THE BASE OF THE TOWER ON A SLAB. SITE IS AN UNMANNED TELECOMMUNICATIONS FACILITY.

SITE ADDRESS: 1485 HARDING RD  
BLACKSBURG, VA 24060

LATITUDE: 37° 14' 37.8" N (NAD 83)  
LONGITUDE: 80° 23' 32.6" W (NAD 83)  
GROUND ELEVATION: 2165' AMSL

JURISDICTION: MONTGOMERY COUNTY

ZONING DISTRICT CLASSIFICATION: R-2

PARCEL ID: 041-A-60 & 041-A-25

PROPOSED USE: TELECOMMUNICATIONS FACILITY

TOWER OWNER: NEW CINGULAR WIRELESS PCS, LLC

SITE NAME: ALLEGHANY

SITE #: R0533E

NAME OF APPLICANT: NEW CINGULAR WIRELESS PCS, LLC



**at&t**

**SITE NUMBER: R0533E**  
**SITE NAME: ALLEGHANY**

**UTILITY INFORMATION**

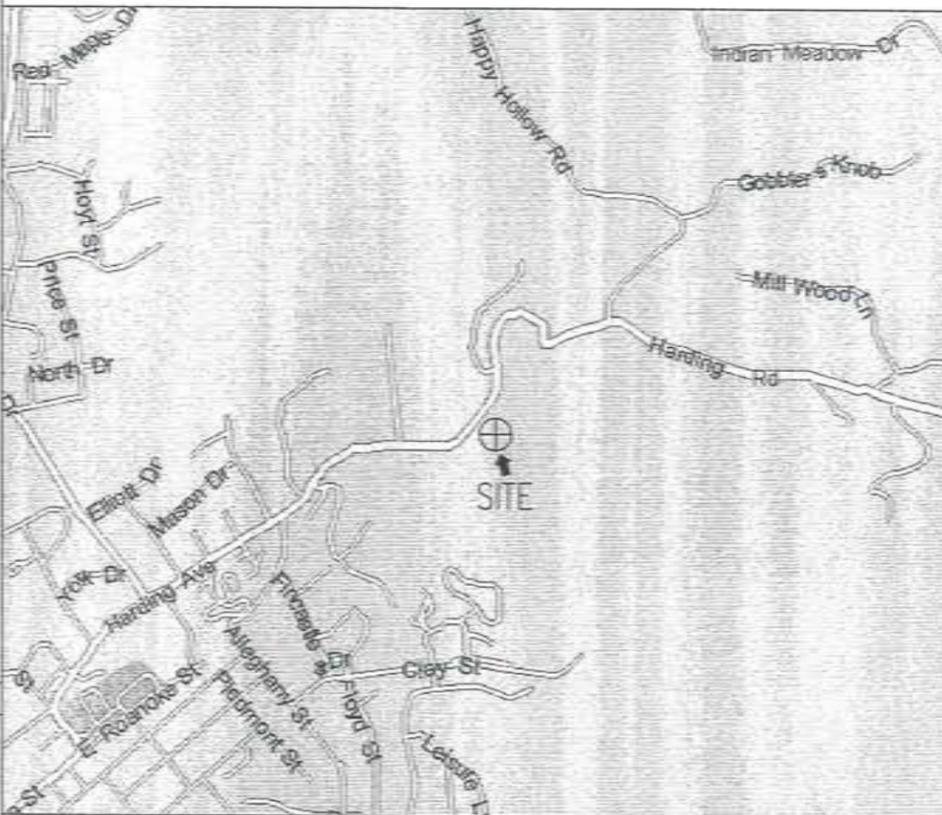
UTILITIES	DIVISION	PHONE
POWER	DOMINION	(888) 667-3000
TELCO	VERIZON	(804) 772-4042

**DRAWING INDEX**

		REV
T-1	TITLE SHEET	1
A-0	SITE PLAN	1
A-1	COMPOUND PLAN & ELEVATION	1
A-2	SHELTER LAYOUT & ELEVATIONS	1
L-1	LANDSCAPING PLAN	1

**VICINITY MAP**

**DIRECTION:**  
FROM 4801 COX RD, GLEN ALLEN, VA 23060 HEAD SOUTHWEST ON COX RD TOWARD N PARK DR 0.2 MI. TAKE THE 1ST RIGHT ONTO NUCKOLS RD 0.6 MI. MERGE ONTO I-295 N VIA THE RAMP TO I-64 W/CHARLOTTESVILLE 1.9 MI. TAKE EXIT 53A TO MERGE ONTO I-64 W TOWARD CHARLOTTESVILLE 121 MI. CONTINUE ONTO I-81 S 63.2 MI. TAKE EXIT 128 FOR VA-603 TOWARD US-11/ROUNDTOP 0.1 MI. TURN RIGHT AT N FORK RD/STATE ROUTE 603 8.7 MI. TURN RIGHT AT DEV HILL RD/STATE ROUTE 603 0.9 MI. SLIGHT RIGHT AT LUSTERS GATE RD/STATE ROUTE 723 3.8 MI. TURN LEFT AT VA-785 S/HARDING RD. DESTINATION WILL BE ON THE LEFT 1.8 MI.



**APPLICABLE BUILDING CODES AND STANDARDS**

SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (LAJ) FOR THE LOCATION. THE EDITION OF THE LAJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

BUILDING CODE:  
INTERNATIONAL BUILDING CODE (IBC 2006)

ELECTRICAL CODE:  
NATIONAL ELECTRICAL CODE (NEC 2008)

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:  
AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE  
AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION  
TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-F, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES  
TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM  
IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT

IEEE C62.41, RECOMMENDED PRACTICES ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY "C3" AND "HIGH SYSTEM EXPOSURE")

TELECORDIA GR-1275, GENERAL INSTALLATION REQUIREMENTS

TELECORDIA GR-1503, COAXIAL CABLE CONNECTIONS

ANSI T1.311, FOR TELECOM - DC POWER SYSTEMS - TELECOM, ENVIRONMENTAL PROTECTION

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

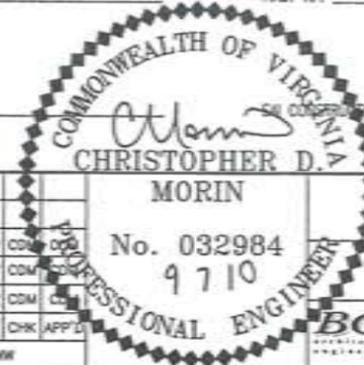
**NOTES**

MAGNETIC DECLINATION - 8° 6' W CHANGING BY 0° 2' W PER YEAR AS OF 05/25/10

SCALE: 1"=2000'

AT&T CONSTRUCTION: \_\_\_\_\_ AT&T REF: \_\_\_\_\_

AT&T COMPLIANCE: \_\_\_\_\_



3639 COLUMBIA PIKE, SUITE 101  
FALLS CHURCH, VA 22041-2888  
TEL: (703) 671-8000  
FAX: (703) 671-8300

**SITE NAME: ALLEGHANY**  
**SITE NO: R0533E**

1485 HARDING RD  
BLACKSBURG, VA 24060



NO.	DATE	REVISIONS	BY	CHK	APP
3					
2					
1	08-03-10	REVISED ZONING DRAWINGS	GMW	CDM	CDM
B	08-23-10	ZONING DRAWINGS	GMW	CDM	CDM
A	05-25-10	PRELIMINARY ZONING DRAWINGS	GMW	CDM	CDM

SCALE: AS SHOWN    DESIGNED: C. MORIN    DRAWN: GMW

BC ARCHITECTS ENGINEERS  
FALLS CHURCH, VA

TITLE SHEET

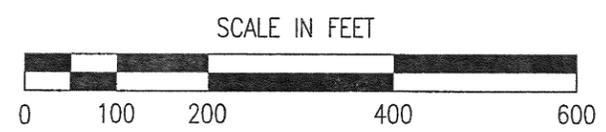
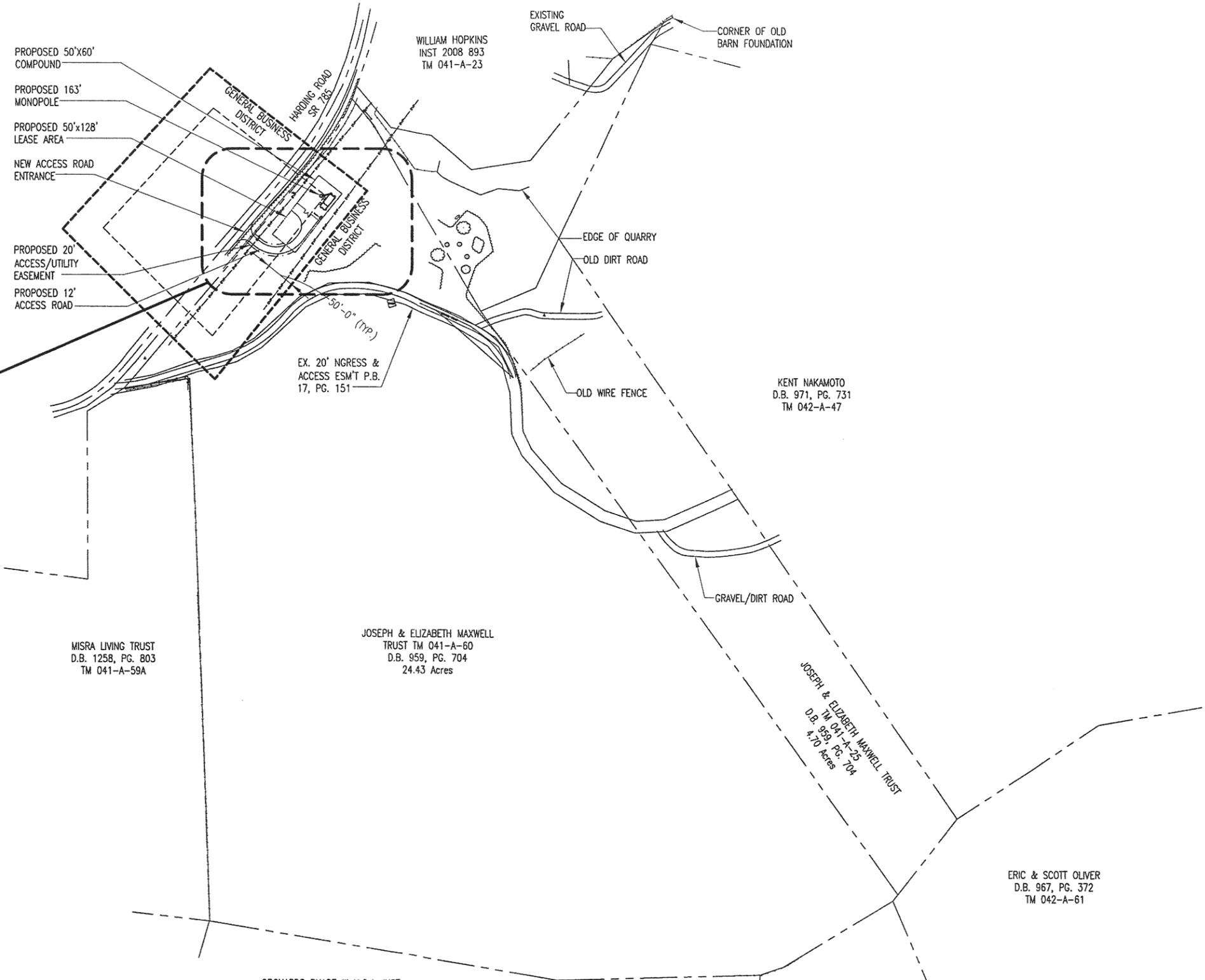
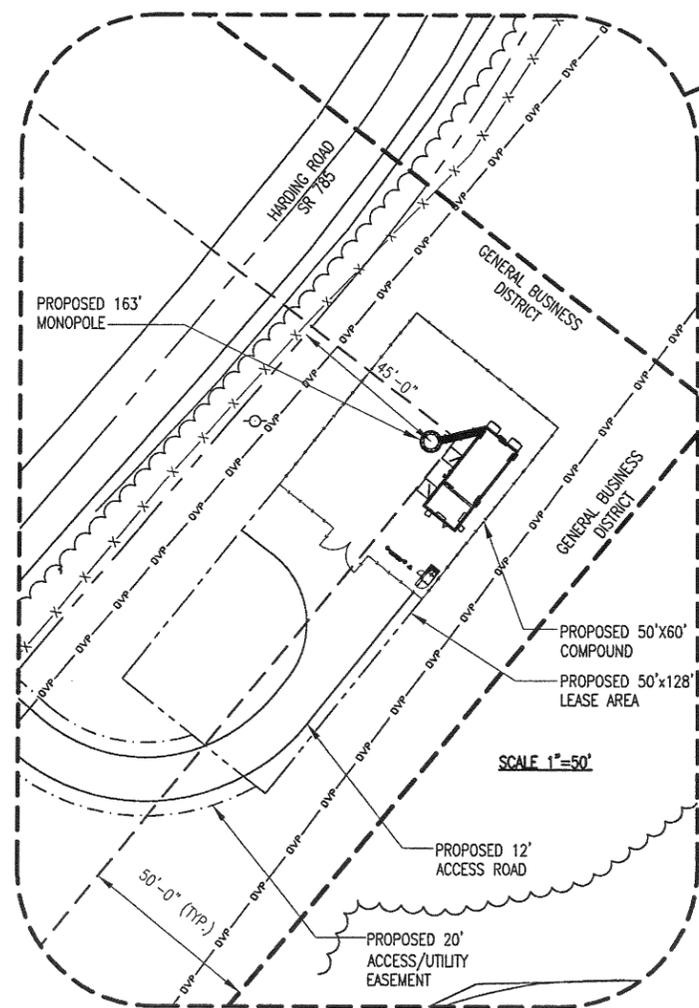
DRAWING NUMBER    REV

T-1    1

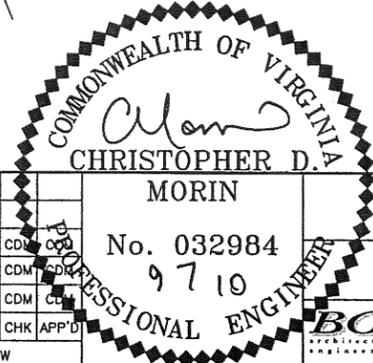
**LEGEND**

- NEW FENCE
- EXIST. FENCE
- SETBACK
- EASEMENT
- LEASE
- PROPERTY LINE
- EXIST. CONTOUR
- NEW CONTOUR
- TYP. BUILDING
- TYP. ROAD

- PROPOSED 50'x60' COMPOUND
- PROPOSED 163' MONOPOLE
- PROPOSED 50'x128' LEASE AREA
- NEW ACCESS ROAD ENTRANCE
- PROPOSED 20' ACCESS/UTILITY EASEMENT
- PROPOSED 12' ACCESS ROAD



SITE PLAN 1  
SCALE: 1"=200'  
A-0



Y:/Drawings - 2010/AT&T/\_Rawlands/R0533E/ZONING/A0.dwg 09-03-10 GREG WOLOZYN 17:22:45

**BC**  
architects  
engineers

5659 COLUMBIA PIKE, SUITE 101  
FALLS CHURCH, VA 22041-2868  
TEL: (703) 671-6000  
FAX: (703) 671-6300

**SITE NAME: ALLEGHANY**  
**SITE NO: R0533E**

1485 HARDING RD  
BLACKSBURG, VA 24060

LIBERTY PLAZA 1  
4801 COX RD, SUITE 300  
GLEN ALLEN, VA 23060

3				
2				
1	09-03-10	REVISED ZONING DRAWINGS	GMW	CDM
0	08-23-10	ZONING DRAWINGS	GMW	CDM
A	05-25-10	PRELIMINARY ZONING DRAWINGS	GMW	CDM
NO.	DATE	REVISIONS	BY	CHK
SCALE: AS SHOWN		DESIGNED C. MORIN	DRAWN	GMW

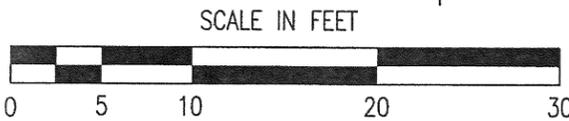
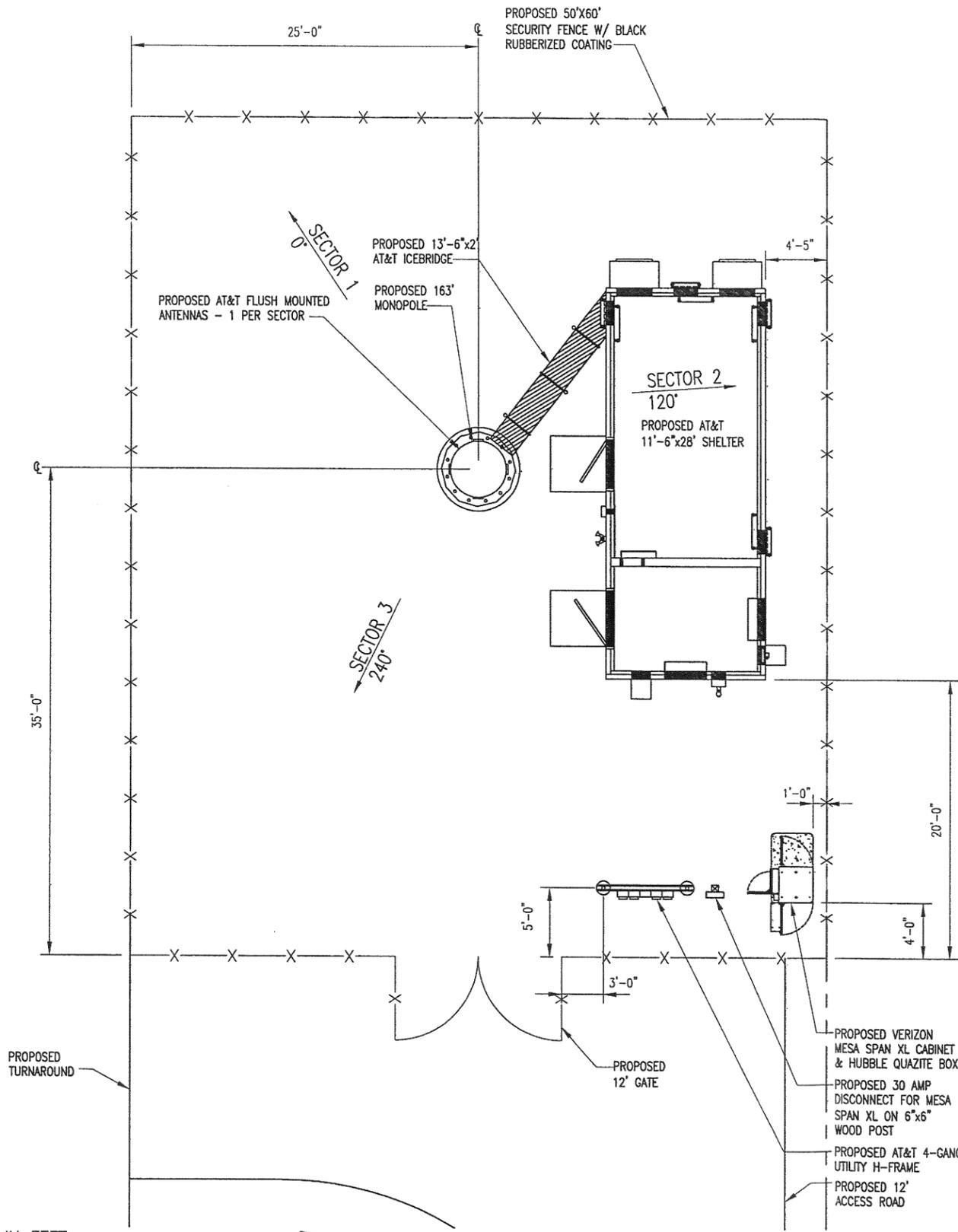
**MORIN**  
No. 032984  
9/7/10  
PROFESSIONAL ENGINEER

BC ARCHITECTS ENGINEERS  
FALLS CHURCH, VA

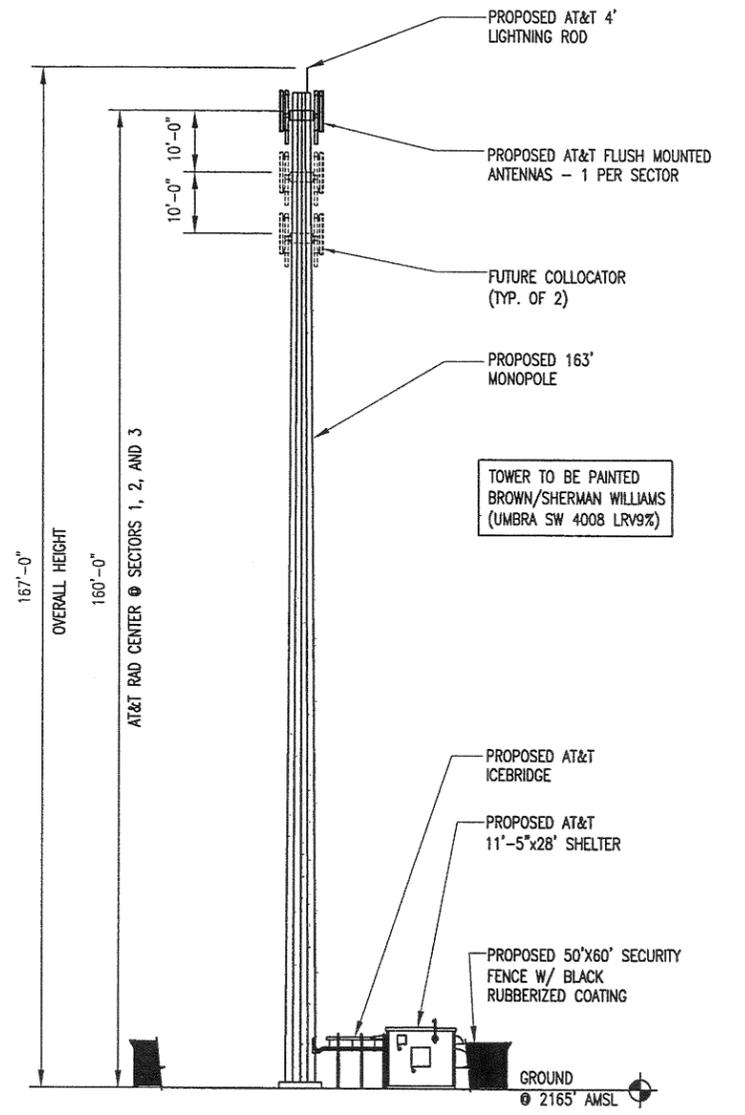
SITE PLAN

DRAWING NUMBER	REV
A-0	1

09-07-10 CHRIS MORIN 14:21:21 Y:/Drawings - 2010/AT&T/\_Rawlands/R0533E/ZONING/A1.dwg



COMPOUND PLAN (1) A-1  
SCALE: 1"=10'



5659 COLUMBIA PIKE, SUITE 101  
FALLS CHURCH, VA 22041-2868  
TEL: (703) 671-6000  
FAX: (703) 671-6300

SITE NAME: ALLEGHANY  
SITE NO: R0533E

1485 HARDING RD  
BLACKSBURG, VA 24060



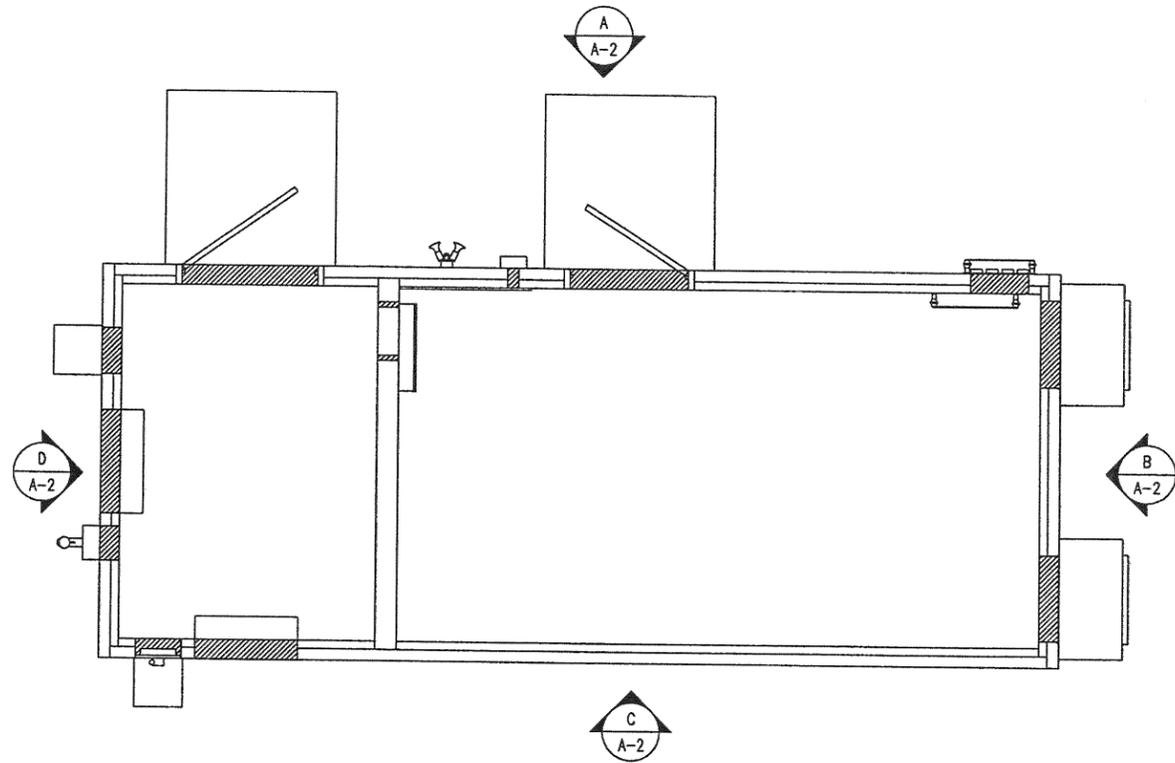
3					
2					
1	09-03-10	REVISED ZONING DRAWINGS	GMW	CDM	APP'D
0	08-23-10	ZONING DRAWINGS	GMW	CDM	CDR
A	05-25-10	PRELIMINARY ZONING DRAWINGS	GMW	CDM	CHK
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN			DESIGNED C. MORIN	DRAWN GMW	

CHRISTOPHER D. MORIN  
No. 032984  
9710  
PROFESSIONAL ENGINEER

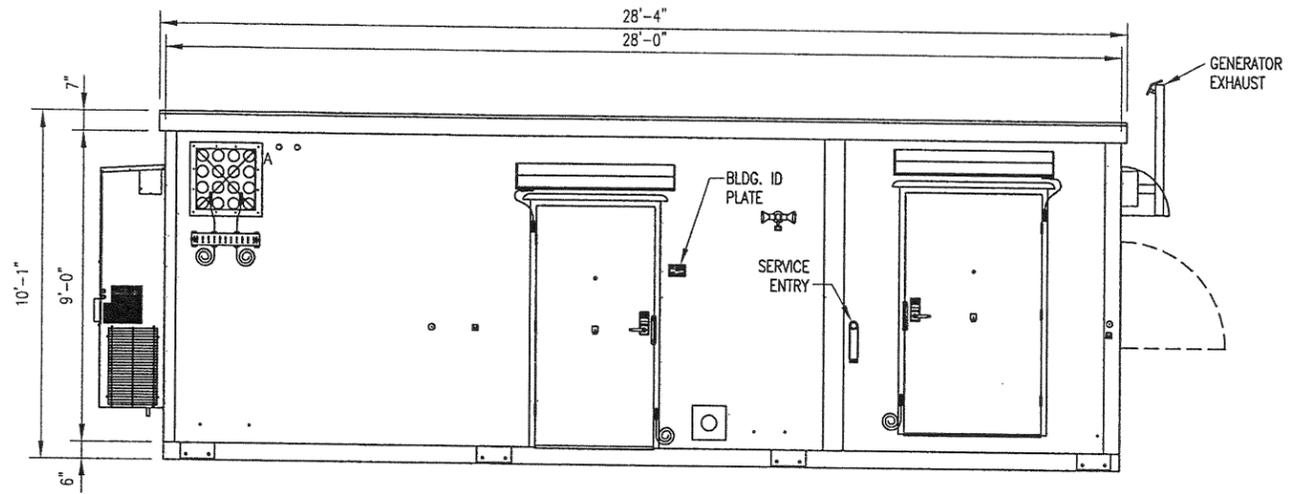
BC ARCHITECTS ENGINEERS  
FALLS CHURCH, VA  
COMPOUND PLAN & ELEVATION

DRAWING NUMBER	REV
A-1	1

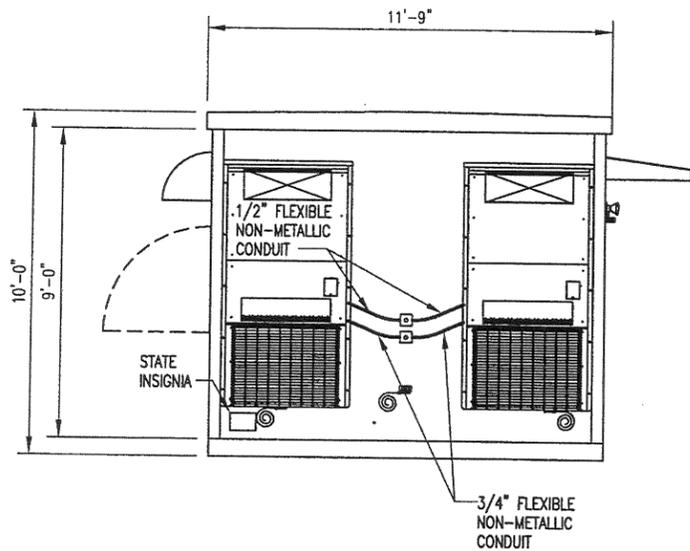
08-23-10 GREG WOLOZYN 17:16:50 Y:/Drawings - 2010/AT&T/\_Rawlands/R0533E/ZONING/A2.dwg



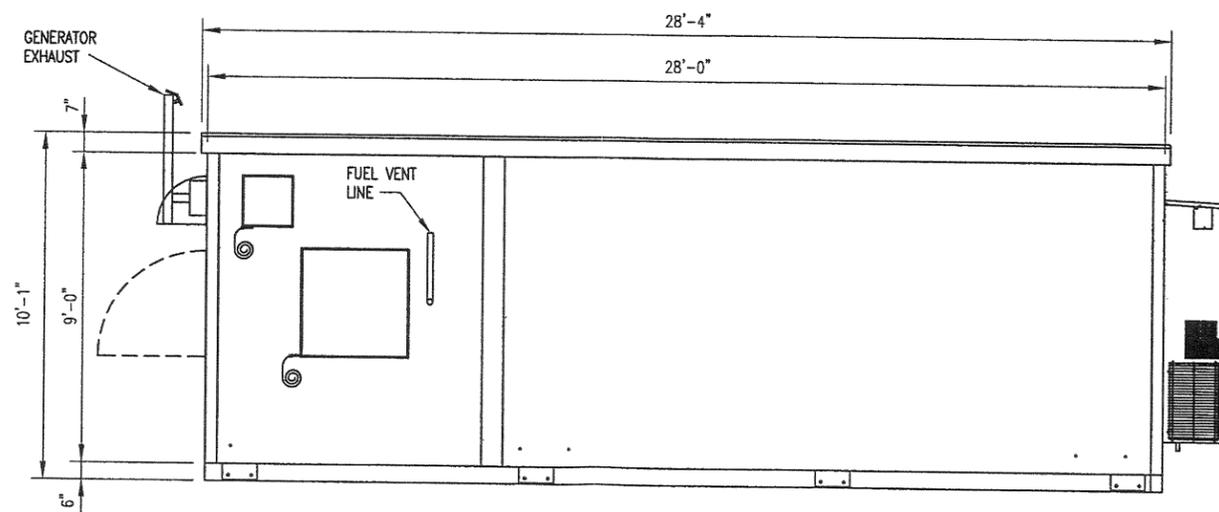
AT&T EQUIPMENT SHELTER 1  
SCALE: N.T.S. A-2



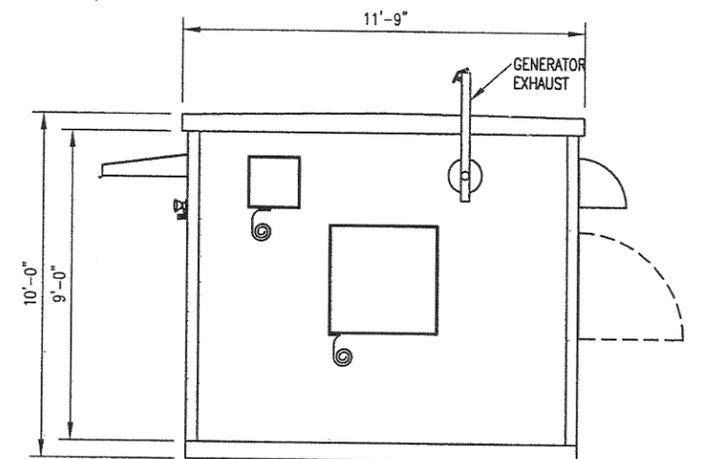
ELEVATION A A  
SCALE: N.T.S. A-2



ELEVATION B B  
SCALE: N.T.S. A-2



ELEVATION C C  
SCALE: N.T.S. A-2



COMMONWEALTH OF VIRGINIA  
*Christopher D. Morin*  
 CHRISTOPHER D. MORIN  
 No. 032984  
 9710  
 PROFESSIONAL ENGINEER  
 BC ARCHITECTS ENGINEERS  
 FALLS CHURCH, VA

**BC**  
architects  
engineers

5659 COLUMBIA PIKE, SUITE 101  
FALLS CHURCH, VA 22041-2868  
TEL: (703) 671-6000  
FAX: (703) 671-6300

SITE NAME: ALLEGHANY  
SITE NO: R0533E

1485 HARDING RD  
BLACKSBURG, VA 24060



3				
2				
1	09-03-10	REVISED ZONING DRAWINGS	GMW	CDM
0	08-23-10	ZONING DRAWINGS	GMW	CDM
A	05-25-10	PRELIMINARY ZONING DRAWINGS	GMW	CDM
NO.	DATE	REVISIONS	BY	CHK APP'D
SCALE: AS SHOWN		DESIGNED C. MORIN	DRAWN GMW	

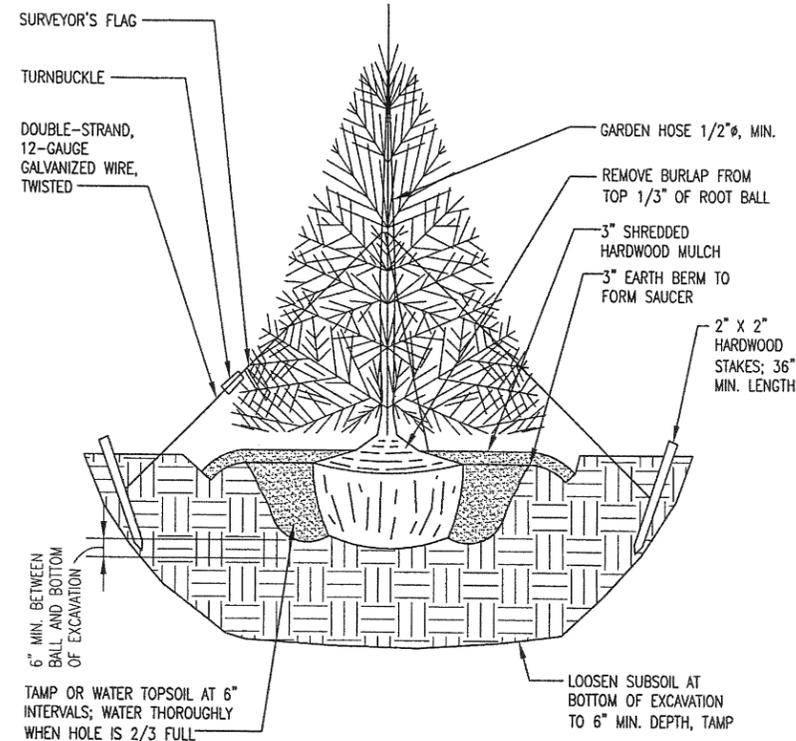
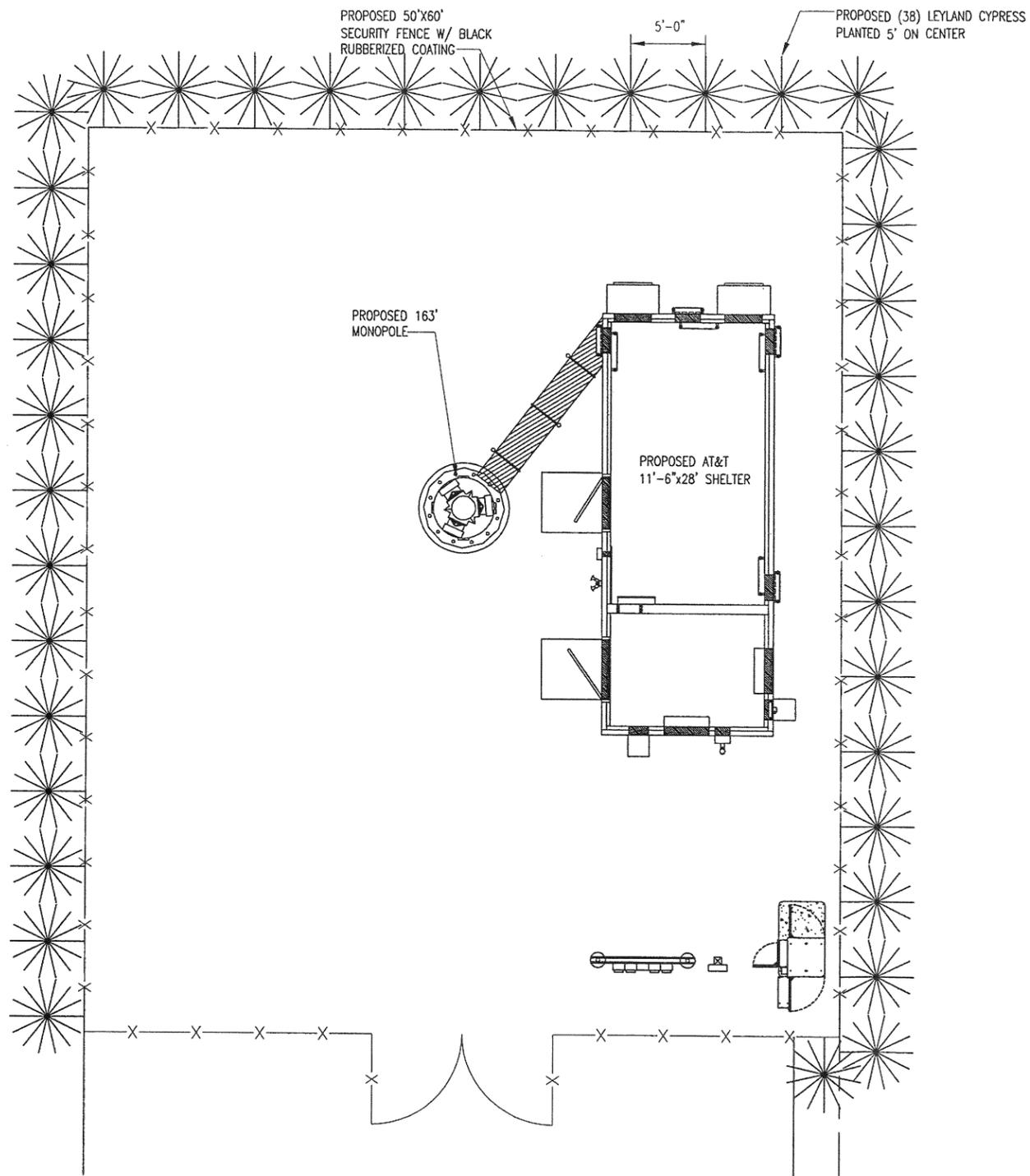
BC ARCHITECTS ENGINEERS  
FALLS CHURCH, VA

SHELTER DETAILS

DRAWING NUMBER REV

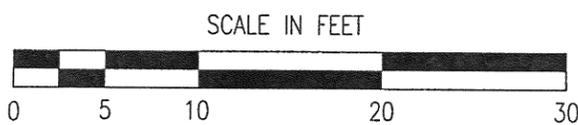
A-2 1

09-07-10 CHRIS MORIN 14:22:13 Y:/Drawings - 2010/AT&T/\_Rawlands/R0533E/ZONING/L1.dwg



NOTE(S):

- EVERGREEN TREE SHALL BE MIN. 5' IN HEIGHT PLANTED @ 5'-0" ON CENTER ON 5' WIDE PLANTING STRIP.
- SPECIES OF TREE SHALL BE LEYLAND CYPRESS.



LANDSCAPING PLAN 1 L-1  
SCALE: 1"=10'

PLANT INSTALLATION DETAIL 2 L-1  
SCALE: N.T.S.



5659 COLUMBIA PIKE, SUITE 101  
FALLS CHURCH, VA 22041-2868  
TEL: (703) 671-6000  
FAX: (703) 671-6300

SITE NAME: ALLEGHANY  
SITE NO: R0533E

1485 HARDING RD  
BLACKSBURG, VA 24060



3						
2						
1	09-03-10	REVISED ZONING DRAWINGS	GMW	CDM	CDM	
0	08-23-10	ZONING DRAWINGS	GMW	CDM	CDM	
A	05-25-10	PRELIMINARY ZONING DRAWINGS	GMW	CDM	CDM	
NO.	DATE	REVISIONS	BY	CHK	APP'D	
SCALE: AS SHOWN			DESIGNED	C. MORIN	DRAWN	GMW



BC ARCHITECTS ENGINEERS  
FALLS CHURCH, VA

LANDSCAPING PLAN

DRAWING NUMBER

L-1

REV  
1

Charles E. Dove Jr.  
1541 Harding Road  
Blacksburg, Virginia 24060

October 12, 2010

Montgomery County Planning Commission  
C/o Planning and GIS Services  
755 Roanoke Street  
Christiansburg, Virginia 24073

Commission Members,

I wish to comment on the letter I received regarding the Special Use Permit (SU-2010-07998) for Joseph Maxwell. I did not comment on the first notice send to adjacent landowners and missed the first meeting concerning the issue. After discussing the issue with my family (father at 1521 Harding and grandfather at 1531 Harding) I wanted to express an opinion. After reading the materials on the County's website I drew these conclusions.

The argument AT&T is using to persuade the Board is that the property is zoned General Business (GB). The Bug Shop garage needed to be rezoned in 1982 as a "business" to comply. If the Bug Shop was not in business or existed when rezoning was adapted by the County or went out of business; then the proposed site would be R-2 like at my house and my surrounding neighbors. Since the County requested at the time a 100 foot buffer zone surrounding the Bug Shop be zoned GB it created the 100 foot by 409 foot "parcel" for the cell tower. To me that's a huge convenience for the applicant. Had the "zone" not extended across the road onto the land purchased by Mr. Maxwell; the cell tower may not be an issue today. Would not the state's right of way distance be figured into the distance of the buffer? Was not the buffer intended to limit the distance a residence could be placed, not for an additional business? By proposing a tower in a GB parcel they see no reason to expect refusal. The County prefers a cell tower to be placed in a business area (category "C"). AT&T seems to have "blindness" on however when viewing the surrounding parcel's zoning; R-2 is considered category "H", much lower on the desirability scale the County instituted for cell tower placement.

The views of the valley coming from the Town limits are awesome. As you pass Windsor Hill apartments you see Paris Mountain and the other ridges extending towards the county line with Roanoke. People pull over to take photos here at times, and discover what my family has seen for five generations of living along Harding Road; the unobstructed views.

Also, in the comments from the Town Of Blacksburg regarding the tower, they also expressed concern over views being maintained. Perhaps with the passage of this permit precedence would exist for future requests of cell towers along ridges and views obstructed further. The Town's letter also hinted to me that they would consider placement of cellular antennas on the Clay St. water tower if AT&T wanted. Thank you for your consideration of my family's opinion

Sincerely,  
Charles E. Dove Jr.

Citizens in opposition to SU-2010-07998 (Phone Call/In Person/Email)

July 14, 2010:

On July 14, 2010 Mr. Jeffrey Ames approached Planning Commissioner John Tuttle about the proposed telecommunications tower (SU-2010-07998). Mr. Ames reported concerns about health effects from transmission lines, and inquired about whether or not the tower could be placed at the rear of the property in/around a quarry. Mr. Ames resides at 1441 Harding Road and was notified as an adjoining property owner.

July 16, 2010:

On July 16, 2010 Dr. Martha Wunsch called Planning Staff about the proposed telecommunications tower (SU-2010-07998). She stated that she was opposed to the request, and would be in attendance at the Public Hearing(s). Dr. Wunsch resides at 1457 Harding Road and was notified as an adjoining property owner.

July 23, 2010:

On July 23, 2010 Mr. Hara Misra called Planning Staff about the proposed telecommunications tower (SU-2010-07998). He stated that he was opposed to this request and reported concerns about health effects from the tower. Mr. Misra resides at 1451 Harding Road and was notified as an adjoining property owner.

**Dari S. Jenkins**

---

**From:** Jim Watkins [watkinsllc@gmail.com]  
**Sent:** Thursday, July 29, 2010 6:51 PM  
**To:** Dari S. Jenkins  
**Subject:** Special Use permit request (SU-2010-07998)

Mr. Jenkins,

My wife and I own a townhome in the Orchards Subdivision III and have no objections to this proposal. We would like to recommend that the planning commission and the board of supervisors approve this request.

Regards  
Jim Watkins

August 5, 2010

To the Montgomery County Planning Commission and Board of Supervisors:

This letter is in response to the possible erection of a Telecommunications Tower on Harding Road.

We are Owners of a Townhouse in The Orchards, on Cherry Lane, in Blacksburg after retiring and moving here from Charlotte, North Carolina.

One major reason for choosing our home was the beauty of the Mountain Scenery.

If this tower is erected, we will see it closely from our back deck and so will all our neighbors. WHY? put a 224 foot tower on land on Harding Avenue? This area is heavily populated.

The commission should know a tower does not belong there.

Even more important, studies have shown emissions from such towers are harmful to adults and children.

Please do not allow this tower to be erected at this location.

I am sending this letter because we will be out of town and cannot attend the hearing

Only in the past week and a half have we learned of this plan. We should have been notified EARLIER!

Thank you,

*John and Janet K. Plink*  
*1027 The Orchards*



July 29, 2010

2536 Blossom Trail West  
The Orchards  
Blacksburg, VA 24060

Board of Supervisors  
Montgomery County Department of Planning and GIS Services  
755 Roanoke Street, Suite 2A  
Christiansburg, VA 24073-3177

Dear members of the Board of Supervisors:

As the homeowner of 2536 Blossom Trail West, I strongly encourage you to vote to deny the special use permit (SU-2010-07998) to allow for the construction of a 199-ft. telecommunication tower at 1485 Harding Road. The property where this tower would be built lies in an area currently designated as Residential Transition in your 2025 Comprehensive Plan. Building a 199-ft. tower will interfere with the serene vista of the valley for many residential owners. There must also have been valid reasons that this property was designated as residential in your 2025 plan.

I will be unable to attend the public hearings concerning this request, but I strongly encourage you to vote against the permit and ask you to stand firmly against the tower construction, which will forever be a visual blight on the horizon of the valley.

Sincerely,

Nancy Canavero

cc: Planning Commission  
Darr Jenkins, Zoning Administrator  
The Orchards Homeowners Association c/o Raines Management



**From:** Denny Carlyle [mailto:dcarlyle@gmail.com]  
**Sent:** Friday, July 16, 2010 9:44 AM  
**To:** Steve Sandy  
**Cc:** 'Jeff Schultz'; 'John Byers'  
**Subject:** SUP-2010-07998 Proposed Cell Tower

Mr. Sandy -

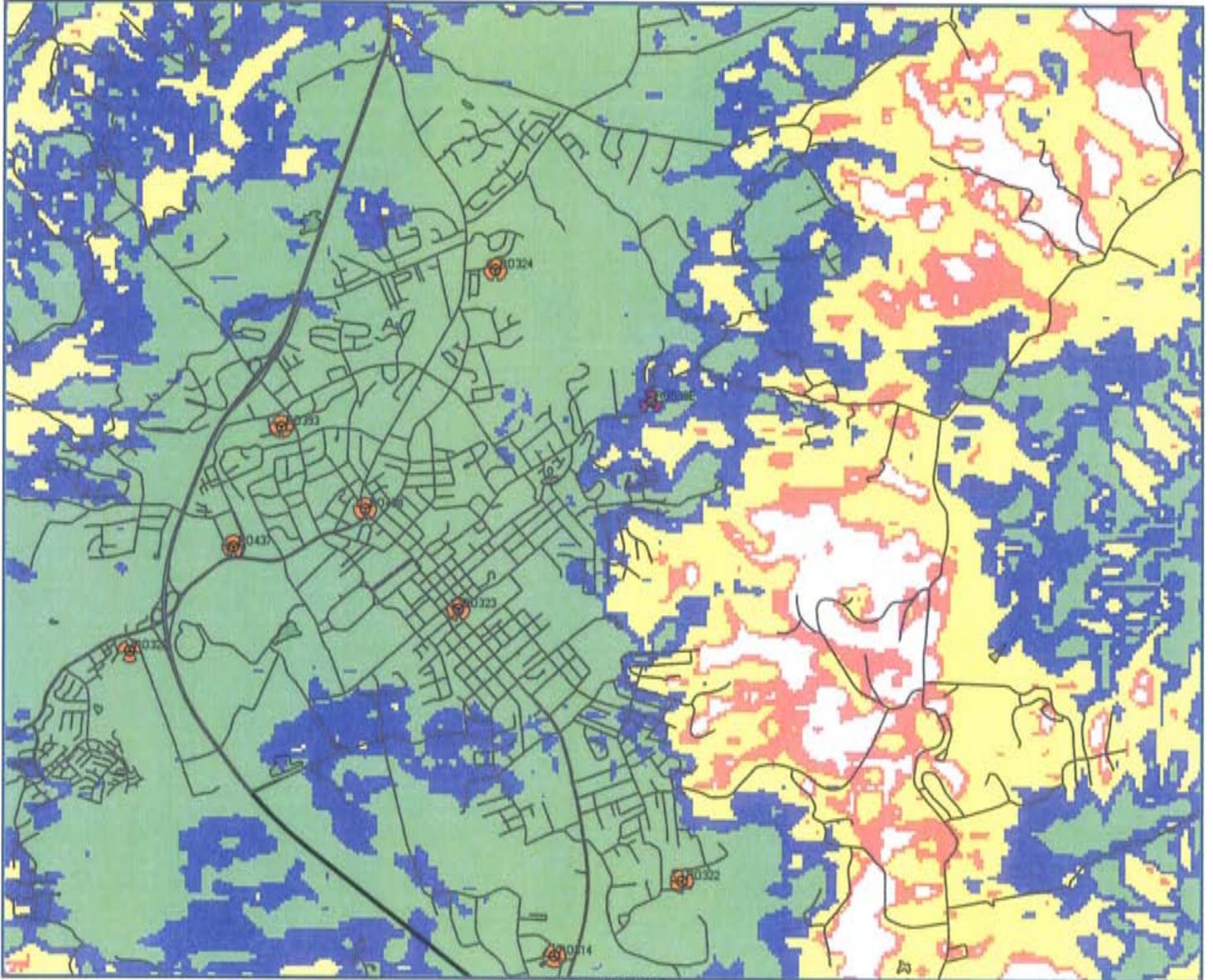
I learned yesterday of a proposal to allow AT&T to install a cellular telephone tower on a parcel of land across the street from the Bug Shop on Harding Rd. I am the president of the Orchards phases IIA & B and on behalf of the Homeowners Association would like to express deep concern about this proposal. We in the Orchards enjoy one of the most unspoiled views looking northeast of the mountains and valley and there is no question that erection of a 199 foot cell tower at that location would be most unwelcome. The memorandum I was handed (by a neighbor who lives immediately next to the proposed location) from you dated July 9, 2010, indicated that there was a balloon test, presumably to provide some visual indication of the degree to which the tower would obstruct various views. To my knowledge, nobody on the Orchards Board of Directors received this memo and consequently, none of us observed the test which was conducted on July 14 during working hours. (The property owner who gave me a copy of the memo didn't receive it either by formal channels, but got a copy from another neighbor).

My purpose for writing is to inquire as to the formal procedure for lodging a complaint regarding the erection of this tower and to request that another balloon test be conducted for the benefit of those of us who were not made aware of the first one.

I am copying Jeff Schultz, who is the president of Orchards Phase III, because I doubt that he or any of his BOD members were made aware of this either.

Thank you for your prompt attention to this matter.

Denny Carlyle  
Orchards Phases II A & B President

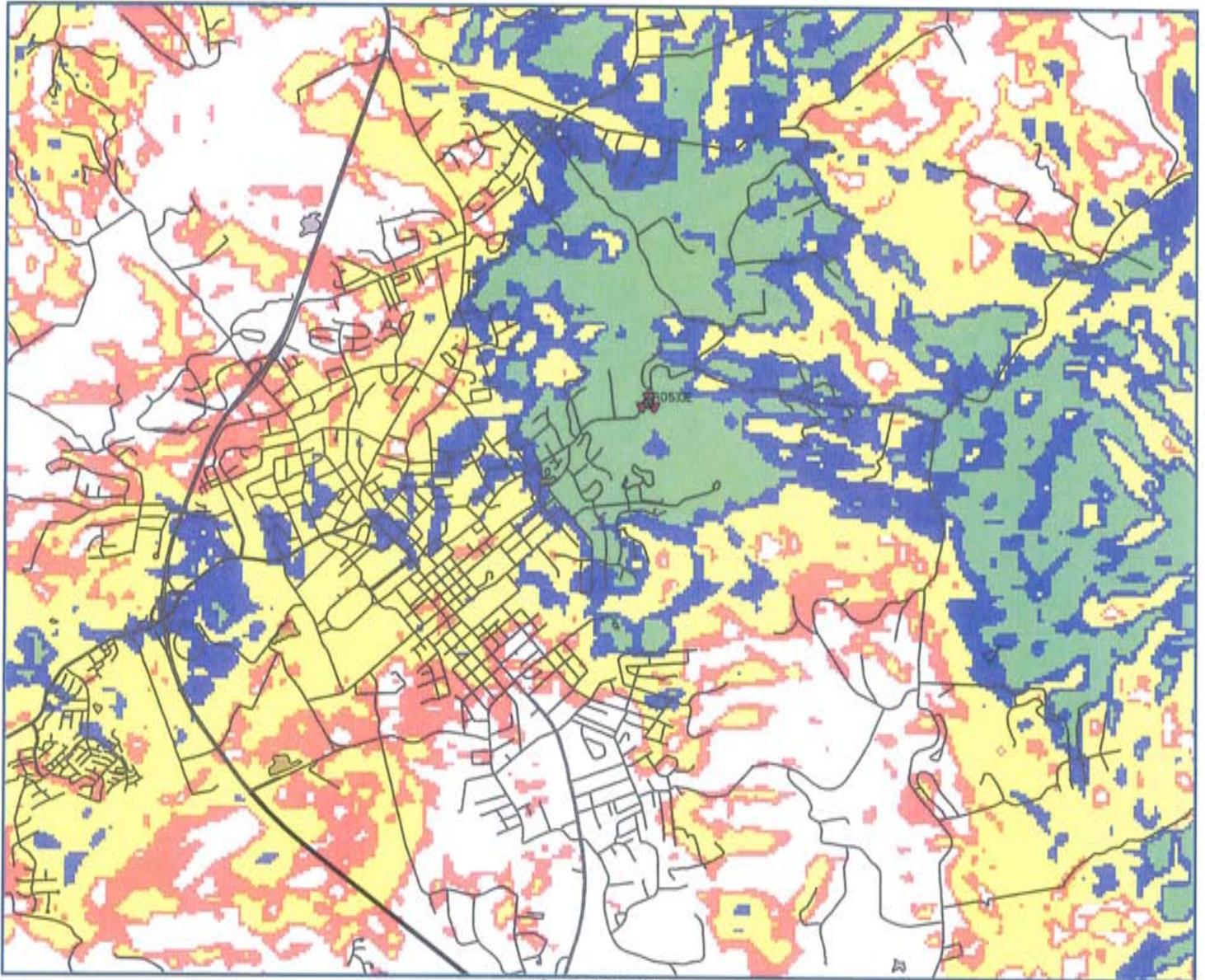


test 1

- Best Signal Level (dBm)  $\geq -74$
- Best Signal Level (dBm)  $\geq -82$
- Best Signal Level (dBm)  $\geq -92$
- Best Signal Level (dBm)  $\geq -104$

Scale: 1:50,945

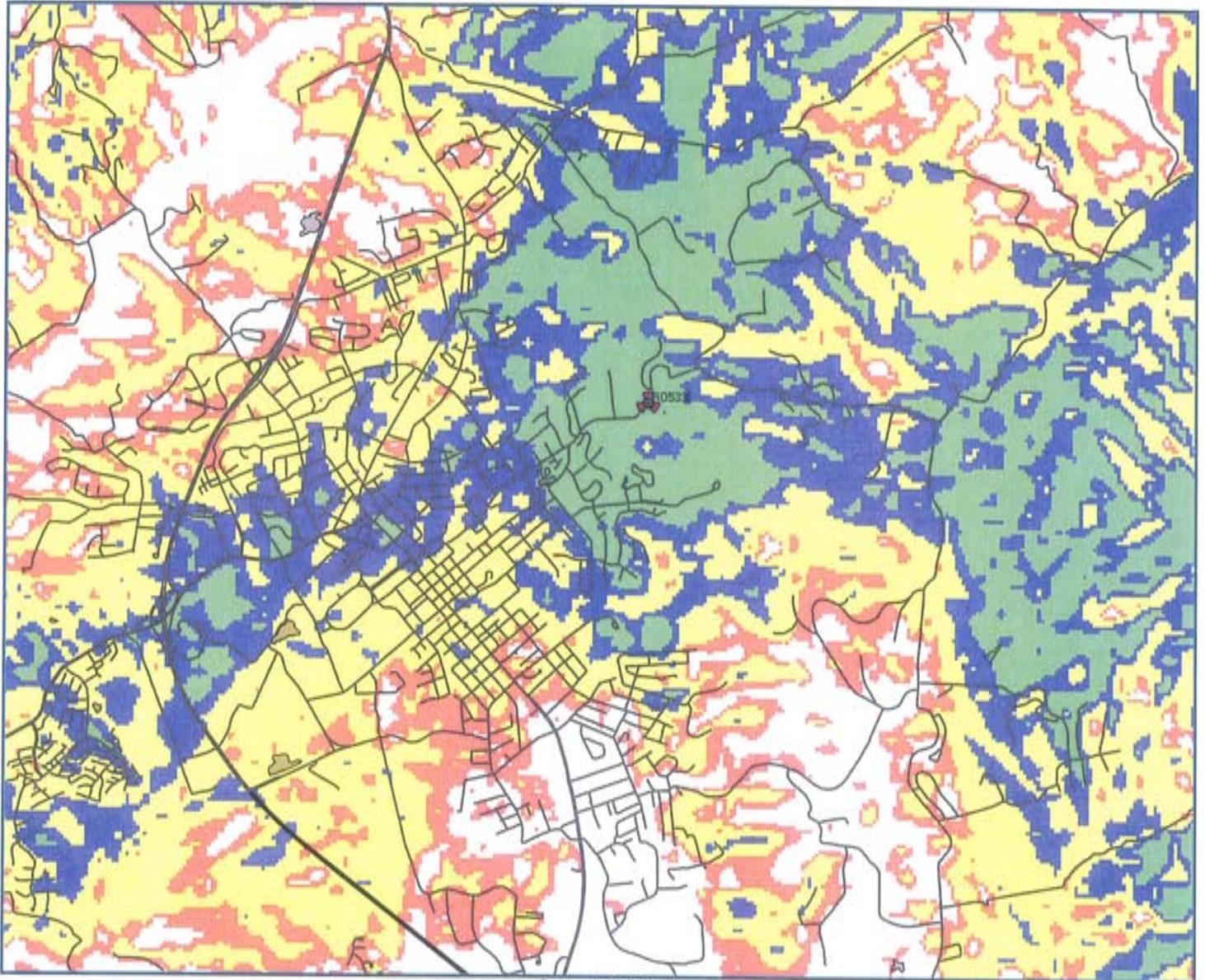
0 0.5 1 1.5 miles



test 5

- Best Signal Level (dBm)  $\geq -74$
- Best Signal Level (dBm)  $\geq -82$
- Best Signal Level (dBm)  $\geq -92$
- Best Signal Level (dBm)  $\geq -104$

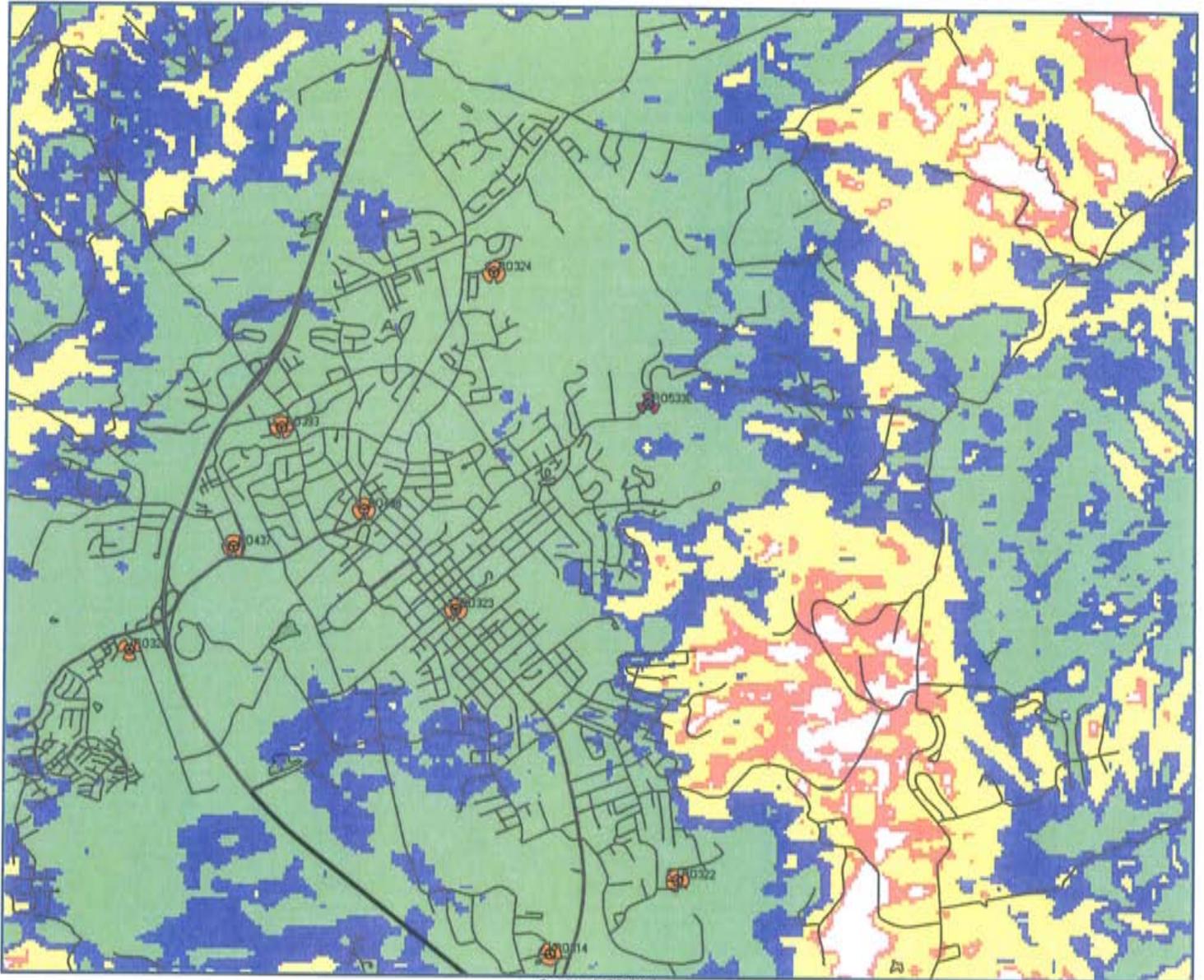
Scale: 1:50,945  
0 0.5 1 1.5 miles



test 4

-  Best Signal Level (dBm)  $\geq -74$
-  Best Signal Level (dBm)  $\geq -82$
-  Best Signal Level (dBm)  $\geq -92$
-  Best Signal Level (dBm)  $\geq -104$

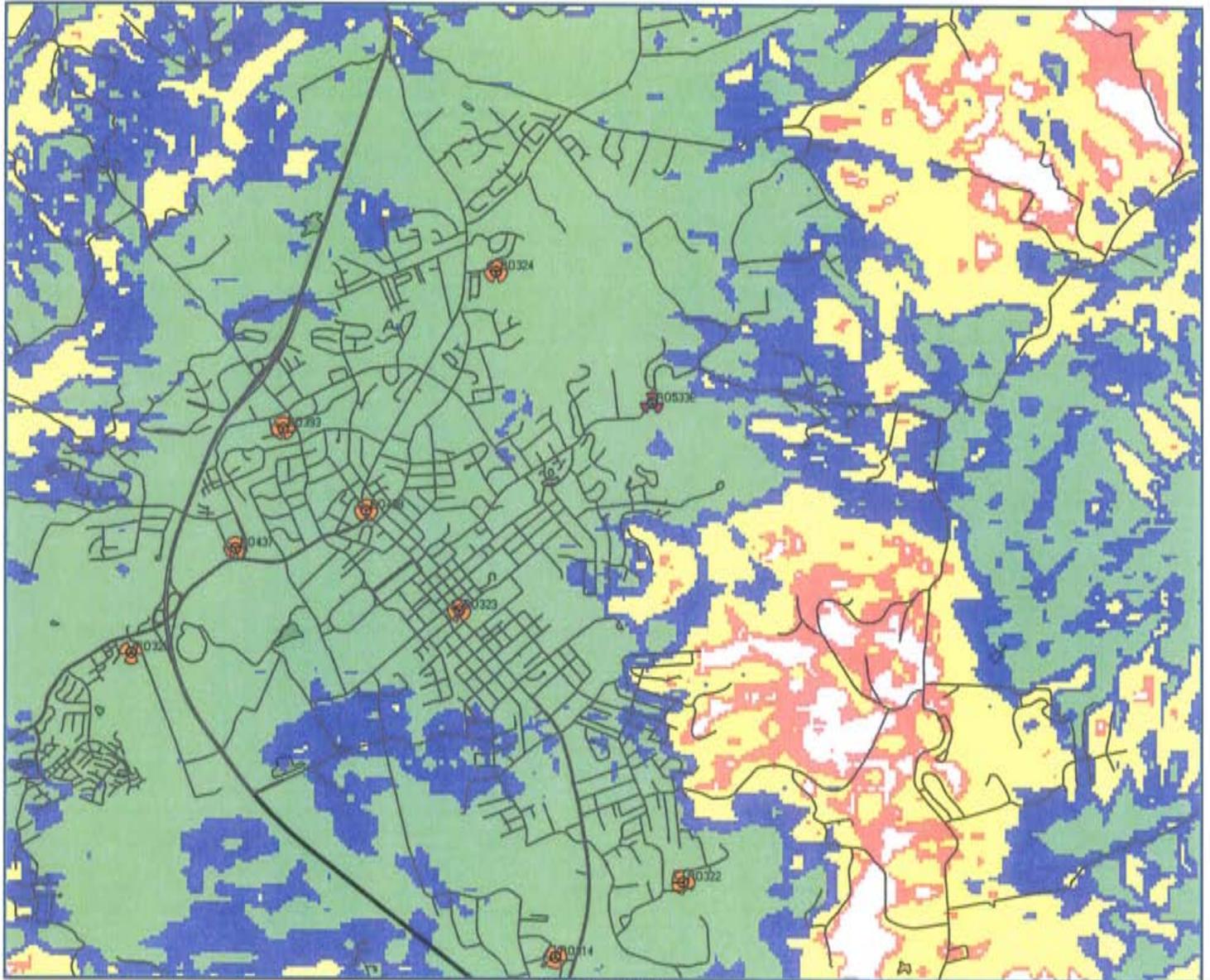
Scale: 1:50,945  
0 0.5 1 1.5miles



test 3

- Best Signal Level (dBm)  $\geq -74$
- Best Signal Level (dBm)  $\geq -82$
- Best Signal Level (dBm)  $\geq -92$
- Best Signal Level (dBm)  $\geq -104$

Scale: 1:50,945  
0 0.5 1 1.5 miles



test 2

- Best Signal Level (dBm)  $\geq -74$
- Best Signal Level (dBm)  $\geq -82$
- Best Signal Level (dBm)  $\geq -92$
- Best Signal Level (dBm)  $\geq -104$

Scale: 1:50,945  
0 0.5 1 1.5 miles