
FOR THE
BERKS COUNTY PUBLIC SAFETY RADIO SYSTEM
SITE KNOWN AS

ALBANY

**RESERVOIR ROAD
ALBANY TOWNSHIP, PENNSYLVANIA**

July 9, 2013

PREPARED ON BEHALF OF:

COUNTY OF BERKS DEPARTMENT OF EMERGENCY SERVICES
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READING, PENNSYLVANIA 19605

SUBMITTED TO:

FEDERAL COMMUNICATIONS COMMISSION
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PREPARED BY:



TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1.0 Project Information.....	2
2.0 Scope and Purpose	3
3.0 General Information	4
3.1 Project Summary.....	4
3.2 Site and Facility Description.....	4
3.3 Zoning Classification.....	4
3.4 Communications with Local, State, and Federal Authorities	5
3.5 Discussion of Environmental Controversy.....	5
4.0 Site Selection	6
4.1 Summary	6
4.2 Candidate Sites.....	6
4.3 Primary Candidate Selection Considerations	7
5.0 Environmental Effects.....	8
5.1 FCC NEPA Category Review Checklist (47 CFR §1.1307).....	8
5.2 FCC NEPA Category Review Summary (47 CFR §1.1307).....	8
5.2.1 Facilities that are to be located in an officially designated wilderness area [47 CFR §1.1307(a)(1)].	8
5.2.2 Facilities that are to be located in an officially designated wildlife preserve [47 CFR §1.1307(a)(2)].	8
5.2.3 Facilities that: (i) May affect listed threatened or endangered species or designated critical habitats; or (ii) are likely to jeopardize the continued existence of any proposed endangered or threatened species or likely to result in the destruction or adverse modification or adverse modification of proposed critical habitats, as determined by the Secretary of the Interior pursuant to the Endangered Species Act of 1973 [47 CFR §1.1307(a)(3)]	9
5.2.4 Facilities that may affect districts, sites, buildings, structures or objects, significant in American history, architecture, archaeology, engineering or culture, that are listed, or eligible for listing, in the National Register of Historic Places [47 CFR §1.1307(a)(4)].....	11
5.2.5 Facilities that may affect Indian religious sites [47 CFR §1.1307(a)(5)].....	13
5.2.6 Facilities to be located in a flood plain [47 CFR §1.1307(a)(6)]	13
5.2.7 Facilities whose construction will involve a significant change in surface features (e.g. wetlands fill, deforestation, or water diversion [47 CFR §1.1307(a)(7)].....	14
5.2.8 Antenna towers and/or supporting structures that are to be equipped with high intensity white lights which are to be located in residential neighborhood, as defined by the applicable zoning law [47 CFR §1.1307(a)(8)].....	15
5.2.9 Facilities whose operation or transmitter would cause human exposure to levels of radiofrequency radiation in excess of the limits [47 CFR §1.1307(b)].....	15
5.3 Migratory Birds.....	15
6.0 Signatures of Personnel	17
7.0 References	18
8.0 Limitations	19

APPENDICES

APPENDIX A - SITE DRAWINGS

APPENDIX B - ZONING AND GOVERNMENT DOCUMENTATION

APPENDIX C - SITE SELECTION DOCUMENTATION

APPENDIX D - RESOURCE MAPS

APPENDIX E - PROTECTED SPECIES REVIEW DOCUMENTATION

APPENDIX F - HISTORIC RESOURCE REVIEW DOCUMENTATION

APPENDIX G - MEMORANDUM OF AGREEMENT

APPENDIX H - NATIVE AMERICAN CONSULTATION DOCUMENTATION

APPENDIX I - BIOLOGICAL ASSESSMENT

APPENDIX J - QUALIFICATIONS

EXECUTIVE SUMMARY

EBI Consulting prepared the following Environmental Assessment in accordance with the Federal Communications Commission's National Environmental Policy Act rules set forth in 47 CFR §1.1301-1.1319. This report was prepared to evaluate the potential effects of a proposed telecommunications tower facility on the quality of human environment, including the potential impacts of the facility on migratory birds.

The proposed action consists of the construction of a 195-foot tall self-supporting lattice tower with a 4-foot top-mounted lightning rod (overall height of 199 feet) and the installation of new associated ground-level support equipment. The proposed tower facility will be part of a multi-site public safety radio system for the Berks County government and is required for the County to maintain effective communications and satisfy the FCC narrowbanding mandate.

Based on the findings of this report, the proposed telecommunications tower facility is anticipated to have no significant impact on the environment with respect to facilities identified by the Federal Communications Commission, which are outlined in 47 CFR §1.1307(a) and (b), with the exception of an impact to one Historic Property. Based on consultation with the Pennsylvania State Historic Preservation Office and several interested consulting parties, the proposed tower facility will have an "Adverse Impact" on the Appalachian Trail, which is eligible for listing on the National Register of Historic Places. A Memorandum of Agreement (MOA) was negotiated in an effort to mitigate (offsetting) the impacts on this environmental and historical resource.

I.0 PROJECT INFORMATION

Project: Berks County Public Safety Radio System
Site Name: Albany

Project Location: Reservoir Road
Albany Township, Pennsylvania
Albany Site: 40° 35' 48.8" N / 75° 56' 1.6" W

Lead Federal Agency: Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Applicant: County of Berks Department of Emergency Services
2561 Bernville Road
Reading, PA 19605

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2.0 SCOPE AND PURPOSE

In accordance with Federal Communications Commission (FCC) rules implementing the National Environmental Policy Act (NEPA) as set forth in Title 47 Code of Federal Regulations (47 CFR) §1.1306 thru 1.1308 and 1.1311, EBI Consulting (EBI) has prepared this Environmental Assessment (EA) for the proposed public safety radio tower facility identified as “Albany.”

EBI previously completed a NEPA Screening Report for the proposed Albany public safety radio tower facility to assess whether the proposed project is categorically excluded from further environmental processing under FCC rules implementing NEPA, specifically 47 CFR §1.1307. EBI’s NEPA Screening Report concluded that the proposed action classifies as a facility requiring further environmental review under §1.1307(a).

The Project Site is located on the Blue Mountain / Kittatinny Ridge (BM-KR) and has been identified as being located within a designated Important Bird Area by the Pennsylvania Natural Heritage Program (PA NHP) and as a migratory bird flyway of global importance by the National Audubon Society and its Pennsylvania chapter. In a January 10, 2012 email from Mr. William B. Allen of the National Park Service (NPS) to Mr. Steve Del Sordo of the FCC, the NPS expressed a concern regarding the potential effects that the proposed Albany tower facility (and two other proposed towers) to be located along the Blue Mountain - Kittatinny Ridge (BM-KR) region, may have on migratory birds and raptors. Similarly, in a letter dated June 6, 2012, the Appalachian Trail Conservancy (ATC) also expressed a concern over the potential effects on migratory birds which may result from the proposed tower facility (and two other proposed towers) to be located along the BM-KR.

The Project Site is located approximately 250 feet south of the Appalachian Trail, a resource eligible for listing on the National Register of Historic Places. The NPS and ATC have all expressed a concern with the proposed location of the Project Site due to its proximity to the Appalachian Trail. The Pennsylvania Historical and Museum Commission’s State Historic Preservation Office (SHPO) has determined that the proposed project will have an “Adverse Effect” on the Appalachian Trail. As a result of the “Adverse Effect” finding from the SHPO, the County of Berks negotiated a Memorandum of Agreement (“MOA”) with these agencies, the SHPO, and the FCC to resolve the finding and to mitigate (offsetting) the “Adverse Effect” the Albany tower facility (collectively, the compound, tower, and tower support structures will be referenced hereinafter as “Albany Tower”) will have on the Appalachian Trail. Since the MOA is complete, FCC Rules require that Berks County finalize and submit this *Environmental Assessment (EA)* to the FCC for review and comment. The purpose of this report is to assess the potential effects of the proposed Albany Tower on the environment, with particular focus on the Albany Tower’s potential effects on migratory birds and the Appalachian Trail.

3.0 GENERAL INFORMATION

3.1 Project Summary

The County of Berks, Pennsylvania (herein, Berks County) is improving its current public safety radio system and complying with a federal mandate to “narrowband” its public safety radio frequencies. The FCC’s narrowbanding mandate requires that all public safety radio systems operating in the 150-512 MHz radio bands must cease operating 25 kHz efficiency technology and either begin using at least 12.5 kHz efficiency technology or abandon its 25 kHz technology. Upon Berks’ County’s application, the FCC waived the narrowbanding requirement for Berks County, extending the deadline for compliance from January 1, 2013, to March 31, 2014.

As part of its efforts to meet the FCC’s narrowbanding requirements, Berks County is constructing a new public safety radio network comprised of a total of 23 separate installation sites. Of these 23 sites, 20 sites are located in Berks County, and three sites are located just over the Berks County line in adjacent counties. Eight of the twenty-three (23) sites are proposed collocations on existing infrastructure, while the remaining 15 sites have required the construction of new tower facilities. The new public safety radio network relies on the construction of three critical tower facilities along the Blue Mountain - Kittatinny Ridge (BM-KR) to ensure county-wide radio coverage--the Albany Tower, the Bethel Tower, and the Blue Mountain Tower. The Albany Tower is one of these three critical towers. The other two facilities located in Bethel Township, Berks County, and on Blue Mountain, Schuylkill County, are each the subject of individual EAs.

3.2 Site and Facility Description

The proposed Albany Tower will be located on an approximately 0.633-acre parcel of predominantly forested land (herein, the “Subject Property”) owned by Berks County following Berks County’s exercise of eminent domain over the Subject Property and an access road leading to this site. An observatory belonging to the Lehigh Valley Amateur Astronomical Society is located approximately 200 feet to the east of the Subject Property, and a First Energy radio tower is located approximately 250 feet to the northwest of the Subject Property on a parcel adjacent to the Subject Property. The Appalachian Trail crosses over the First Energy parcel to the northwest. The Subject Property, the First Energy tower, and the observatory all access the closest public street, Reservoir Road, via a gravel road owned in one section by the Hamburg Municipal Authority and the other section by Berks County. Interstate Highway 78 is located approximately 1.5 miles south of the Subject Tower.

This Subject Property is situated approximately 3.9 miles northeast of the center of the Borough of Hamburg.

Berks County proposes to construct a 195-foot tall self-supporting lattice tower with a 4-foot top-mounted lightning rod (overall height of 199 feet). Per Federal Aviation Administration (FAA) guidelines, the Albany Tower will not be lighted. The tower, as well as a 12-foot by 36-foot equipment shelter, two propane tanks, and an emergency generator will be located within a proposed approximately 95-foot by 60-foot chain-link fenced compound. An existing drive may be improved to provide vehicular access to the tower facility. Power will be routed underground southwest, north, and then west from an existing utility pole to equipment on the Subject Property. Please see Appendix A for drawings depicting the proposed installation.

3.3 Zoning Classification

According to the Albany Township Zoning Ordinance, the Subject Property is located within an area zoned as Woodland Conservation “WC” District. This classification is defined as districts that are protected from excessive development in areas that are environmentally sensitive or that have inadequate road access. According to the Zoning Ordinance, communications antennas and towers are not permitted in this district, with the exception of antennas for emergency services providers. As such the proposed facility does not diverge from the intended zoning requirements.

3.4 Communications with Local, State, and Federal Authorities

As part of the Section 106 consultation process, Berks County contacted the Albany Township Planning Commission, the Albany Township Historical Society, and the Historical Society of Berks County, inviting these entities to participate in consultation. None of these entities responded to the invitation. Berks County also contacted Albany Township and was advised by Albany Township that the County of Berks was exempt from the Albany Township zoning permit requirement, as described in the letter attached in Appendix B.

Berks County communicated with Hawk Mountain – Acopian Center for Conservation Learning with regards to the proposed facility's potential effects on migratory birds. Berks County also communicated extensively with the Pennsylvania SHPO, the National Park Service – Appalachian National Scenic Trail (NPS), the Appalachian Trail Conservancy (ATC), and Hawk Mountain – Acopian Center for Conservation Learning (Hawk Mountain) through the Section 106 consultation process. Berks County negotiated a MOA with these consulting parties. The MOA required Berks County to secure a protective easement in favor of the NPS over a 370-acre parcel of land near the Albany site and adjacent to the Appalachian Trail, protecting the 370-acre parcel from future eminent domain actions and giving the NPS the standing to protest should the owner of the parcel, the Borough of Hamburg, decide to develop or allow the development of the parcel. The MOA also includes the following language regarding the removal of the tower:

In the event that The County of Berks or its successor(s) abandons the Albany Tower and associated facilities described herein, The County of Berks or its successor(s) shall disassemble the Albany Tower and associated facilities and notify the Pennsylvania SHPO accordingly. At such time as The County of Berks deploys public safety communications technology that makes unnecessary the communication system performance provided by continued maintenance of the Albany Tower at its current location or current height, as determined by The County of Berks in its sole discretion, The County of Berks will modify or deconstruct the Albany Tower. This commitment extends to a reduction in vertical impact of the Albany Tower in that, if continued maintenance of the Albany Tower is necessary, but the Albany Tower could be reduced in height as the need to deploy antennas at the higher elevations becomes unnecessary, The County of Berks will modify or deconstruct the Albany Tower to the maximum height necessary. The County of Berks will consider the availability of external funding sources (eg. federal grants) in determining the feasibility of deploying new public safety communications technology that would allow The County of Berks to reduce the height or deconstruct the Albany Tower.

The Memorandum of Agreement is contained within Appendix G to this EA.

3.5 Discussion of Environmental Controversy

As described in Section 2.0., the Project Site is located on the BM-KR. The Pennsylvania Natural Heritage Program (PA NHP) has identified the BM-KR as being within a designated Important Bird Area (IBA). The National Audubon Society and its Pennsylvania chapter has also identified the BM-KR as being located within a migratory bird flyway of global importance. Correspondence from the NPS, the ATC, and Hawk Mountain expressed concerns regarding the potential effects that the proposed Albany tower facility may have on migratory birds and raptors. Please refer to Section 5.3 for a more detailed discussion on this matter.

Also as described in Section 2.0, the Project Site is located approximately 250 feet south of the Appalachian Trail, a resource eligible for listing on the National Register of Historic Places. Correspondence from the NPS, the ATC, Hawk Mountain, and the SHPO expressed concerns regarding the potential adverse visual effects that the proposed Albany tower facility may have on the Appalachian Trail. Consultation with these parties concluded with the negotiation of a MOA to mitigate (offsetting) the potential adverse visual impact of the Albany Tower on the Appalachian Trail. Please see Section 5.2.4 for complete details regarding EBI's review of proposed tower site's potential effects on historic resources, including the Appalachian Trail, and a summary of consultation carried out with interested parties.

EBI was not made aware of any other matters concerning environmental controversy with regard to the proposed Albany tower facility.

4.0 SITE SELECTION

4.1 Summary

The following summary of the site selection process is an excerpt from a July 2012 'Alternates Analysis' report prepared by the Berks County Department of Emergency Services. This combined report was written both for the Albany Tower and the Bethel Tower, and the statement below is applicable to the greater system requirements of the proposed public safety radio system:

Within a countywide public safety system, each remote site must provide two distinct end products in order to function as an effective component within the overall design: coverage and connectivity. A site that is unable to provide this critical combination is not considered a viable candidate. The sum of the combined coverage from all of the system's sites is specified to provide usable radio coverage to not less than 95% of the entire physical landmass of Berks County. Each site utilizes a unique combination of frequency band specific antennas which transmit or receive wireless radio signals. The primary Berks County system, being in the 700 MHz band, generally affords a coverage area within a six to eight mile radius, located immediately around any given site. This coverage provides the actual means to communicate for the first responders operating within that specific area. Simultaneously, licensed microwave frequencies provide the point to point connectivity which ties the constellation of remote sites together into a single radio system. Microwave paths require unobstructed lines of sight to provide the connecting link between any two remote sites. This connectivity also provides a certain level of redundancy, enabling the radio system to retain functionality even if forced to overcome the loss of an individual site within a microwave connected loop.

Please refer to Appendix C for copies of relevant portions of the aforementioned 'Alternates Analysis' report.

4.2 Candidate Sites

According to the Alternates Analysis for Albany and Bethel attached hereto in C, a series of four existing communications tower sites and three sites for potential new tower construction were considered as possible candidate sites for the proposed "Albany" (identified as "Pulpit Rock" in this report) tower facility. Each of these seven sites was evaluated in July of 2011. At the request of the FCC, an Addendum to the Alternates Analysis for Albany and Bethel was submitted by Berks County in July 2012. The table below summarizes the findings of these evaluations.

Alternate Analyzed	Alternate Type	Reason Alternate is Unacceptable					Comments
		Inadequate Property	Inadequate Site Capacity*	No Access/Ground Lease Possible	Impact to Section 106 Feature Worse than Proposed Location	Lack of Microwave Path	
Blue Mountain	Raw Land			X	X	X	This site is directly adjacent to The Pinnacle overlook directly off the Appalachian Trail and is equally (or more) visible from the AT as the proposed site
Albany Maintenance	Collocation	X	X			X	No engineering analysis conducted due to obvious deficiency in location in relation to surrounding terrain.

Alternate Analyzed	Alternate Type	Reason Alternate is Unacceptable					Comments
		Inadequate Property	Inadequate Site Capacity*	No Access/Ground Lease Possible	Impact to Section 106 Feature Worse than Proposed Location	Lack of Microwave Path	
Lenhartsville Cell Towers	Collocation	X				X	No engineering analysis conducted due to obvious deficiency in location in relation to surrounding terrain.
Pulpit Rock First Energy	Collocation	X	X				Tower is located immediately adjacent to (within a few hundred feet) of the proposed location but it is 1/2 the height and already significantly loaded with microwave.
Port Clinton Commonwealth	Raw Land			X	X		Due to the subjective high viability of this site, investment was made in a limited (portable on street coverage) analysis was conducted of the propagation from this location. The location was deemed inadequate in the limited run, so additional runs (paging, interop bands and in building coverage) were not completed. Mapping of this limited analysis is attached. Additionally, the top real estate on this tower is fully occupied (picture attached).
Round Top	Raw Land			X	X		This site is directly in the eastern sight line from The Pinnacle overlook directly off the Appalachian Trail and is equally (or more) visible from the AT as the proposed site.
Complete Elimination	N/A	X					Comprehensive propagation analysis has been provided within the County's April, 2012 filing.

* Inadequate in terms of structural capacity, vertical real estate, and/or ground space

Please refer to Appendix C for copies of relevant portions of the aforementioned Alternates Analysis for Albany and Bethel, including the Addendum of July 2012, which pertain specifically to the Albany site.

4.3 Primary Candidate Selection Considerations

As outlined in the Alternates Analysis for Albany and Bethel, the proposed Albany site was the only viable tower site option for Berks County to meet its coverage and propagation needs in the Albany Township area.

The proposed location was also selected to maximize coverage while minimizing impact to the environment by situating the site as close as possible to the existing First Energy tower. The proposed site will also utilize the existing access road and utility easement, thereby placing the tower in a location that is already developed, with minimal additional driveway improvements from the existing road.

5.0 ENVIRONMENTAL EFFECTS

5.1 FCC NEPA Category Review Checklist (47 CFR §1.1307)

The following FCC NEPA checklist summarizes the findings of EBI's review of the proposed Albany tower site on environmental and historic resources as set forth by the FCC in 47 CFR §1.1307(a) and (b). Please refer to Section 5.2 below for further details pertaining to the review completed by EBI for each of these categories.

FCC NEPA CATEGORIES 47 CFR 1.1307	YES	NO
Facilities to be located in an officially designated wilderness area		X
Facilities to be located in an officially designated wildlife preserve		X
Facilities that may affect listed threatened or endangered species or designated critical habitats, or are likely to jeopardize the continued existence of any proposed endangered or threatened species, or likely to result in the destruction or adverse modification of proposed critical habitat		X
Facilities that may affect districts, sites, buildings, structures, or objects significant in American history, architecture, archaeology, engineering, or culture, that is listed or is eligible for listing in the National Register of Historic Places	X	
Facilities that may affect Indian Religious Sites		X
Facilities to be located in a floodplain		X
Facilities whose construction will involve significant change in surface features (e.g., wetland fill, deforestation, or water diversion)		X
Antenna towers and/or supporting structures that are to be equipped with high-intensity white lights which are to be located in residential neighborhoods, as defined by the applicable zoning law		X
Facilities whose operation or transmitter would cause human exposure to levels of radiofrequency radiation in excess of the limits		X

5.2 FCC NEPA Category Review Summary (47 CFR §1.1307)

5.2.1 Facilities that are to be located in an officially designated wilderness area [47 CFR §1.1307(a)(1)].

Based on EBI's review of the United States National Wilderness Preservation System (NWPS) interactive online map (<http://www.wilderness.net/index.cfm?fuse=NWPS>), the Project Site is not located in an officially designated wilderness area.

EBI's review of available online resources (<http://www.rivers.gov>) indicates that the Project Site is not located within one mile of a Wild and Scenic River.

5.2.2 Facilities that are to be located in an officially designated wildlife preserve [47 CFR §1.1307(a)(2)].

Based on EBI's review of the USFWS's National Wildlife Refuge System interactive online refuge locator (<http://www.fws.gov/refuges/>), the Project Site is not located in an officially designated wildlife preserve.

5.2.3 Facilities that: (i) May affect listed threatened or endangered species or designated critical habitats; or (ii) are likely to jeopardize the continued existence of any proposed endangered or threatened species or likely to result in the destruction or adverse modification or adverse modification of proposed critical habitats, as determined by the Secretary of the Interior pursuant to the Endangered Species Act of 1973 [47 CFR §1.1307(a)(3)]

On November 8, 2011, EBI completed the Pennsylvania Natural Heritage Program's Pennsylvania online Natural Diversity Index (PNDI; <http://www.gis.dcnr.state.pa.us/hgis-er/default.aspx>) Project Environmental Review. The PNDI review provides project details to, and solicits preliminary comments from four jurisdictional agencies, including the United States Fish and Wildlife Service (USFWS), the Pennsylvania Game Commission (GC), the Pennsylvania Department of Conservation and Natural Resources (DCNR), and the Pennsylvania Fish and Boat Commission (FBC). The PNDI environmental review encompassed an 800-foot buffer search around a site.

According to the PNDI Project Environmental Review receipt, the USFWS Pennsylvania Field Office and the GC concluded that the proposed Albany Tower would have "No Known Impact" and responded "No Further Review Required." However, the PNDI receipt indicated that the DCNR and FBC identified a "Potential Impact" and requested further information. Although the PNDI indicated that further consultation with the USFWS was not required, based upon the location of the Project Site (proximate to the Appalachian Trail), EBI invited to the USFWS to comment on the proposed project.

Pennsylvania Department of Conservation and Natural Resources (DCNR)

On November 30, 2011, EBI submitted a letter, project information, and associated maps and figures requesting comments relative the potential impacts of the project on federally-listed threatened or endangered species to the DCNR. In a response letter dated March 9, 2012, the DCNR stated that "PNDI records indicated a geologic feature located in the vicinity of the project. However, based on the information you submitted concerning the nature of the project, the immediate location, and our detailed resource information, DCNR has determined that no impact is likely. No further coordination with our agency is needed for this project." The DCNR further stated:

In regards to your letter of November 30, 2011, requesting a PNDI assessment for a site in Albany Township, Berks County, PA the "erosional remnants" referred to at this site are geologic features related to "Pulpit Rock", an outcrop of hard resistant quartzite (Silurian age, Tuscarora formation) resembling a pulpit has been exposed by the erosion of a tight fold in Blue Mountain. Pulpit Rock is not only a significant outcropping of geologic rock type but also has a high geoheritage value as a view shed platform. It is our opinion that the construction of a tower located at a site shown on the attached map will not significantly impact the quality of the scenic view of Spitzenberg Hill to the east, or the view of the Pinnacle to the north. If construction is limited to the west of the access road as shown on the project site map (attached below) and the forest tree cover is allowed to remain to the east of the access road, it should not affect the geoheritage value of Pulpit Rock.

The DCNR response is valid for one year from the date of their letter. Subsequent to this initial PNDI search, Berks County conducted a new PNDI search on November 15, 2012. The DCNR indicated in a response dated December 20, 2012, that no impact was anticipated.

Pennsylvania Fish and Boat Commission (FBC)

On November 30, 2011, EBI submitted a letter, project information, and associated maps and figures requesting comments relative the potential impacts of the project on federally-listed threatened or endangered species to the FBC. In a response letter dated December 27, 2011, the FBC stated "...the timber rattlesnake (*Crotalus horridus*, PA candidate) is known from the vicinity of the proposed project site. They prefer forested areas to forage for small mammals (e.g., mice and chipmunks) and southerly-facing slopes for hibernating and other thermoregulatory activities." The FBC further stated:

There have been observations of timber rattlesnakes in the vicinity of the project area, but based on our review of the information you sent as well as mapping overlays, we do not anticipate any direct adverse impacts to the timber rattlesnake from the proposed project. However, the project areas could be used

as foraging habitat for timber rattlesnakes and this warrants some concern about rattlesnake-human conflicts. Although the nature of the timber rattlesnake is rather docile, it can be dangerous if cornered or handled. Therefore, the workers should be mindful of the presence of the snakes in the area. Rattlesnakes are attracted to open, rocky, log-strewn areas for basking and forested areas with thick deciduous leaf litter that tend to support high populations of rodents. We recommend that the workers responsible for implementing this project be advised that timber rattlesnakes may be encountered and that avoidance is the best means of minimizing risks to personal safety. These workers should also be advised that the timber rattlesnake is a state protected species and is not to be harmed. Killing of timber rattlesnakes without a proper permit is prohibited by the Commission pursuant to Chapter 79.6, subsection 2102(b) of the Fishing and Boating Regulations. If any timber rattlesnakes are observed on-site, please notify this office.

United States Fish and Wildlife Service

On December 9, 2011, EBI submitted a letter and project information to the USFWS requesting comments relative the potential impacts of the project on federally-listed threatened or endangered species. In a response letter dated February 6, 2012, the USFWS stated "Except for occasional transient species, no federally listed or proposed threatened or endangered species under our jurisdiction are known to occur within the project impact area. Therefore, neither a biological assessment nor further consultation under the Endangered Species Act, are required with the Fish and Wildlife Service (Service)."

The USFWS response continued, recommending that the *County of Berks* "...carefully evaluate their proposed project in light of the National Bald Eagle Management Guidelines to determine whether or not eagles might be disturbed as a direct or indirect result of the project." According to the USFWS, "Bald eagles generally nest near coastlines, rivers, large lakes or streams that support an adequate food supply. They often nest in mature or old-growth trees; snags (dead trees); cliffs; rock promontories; rarely on the ground; and with increasing frequency on human-made structures such as power poles and communication towers. In forested areas, bald eagles often select the tallest trees with limbs strong enough to support a nest that can weigh more than 1,000 pounds. Nest sites typically include at least one perch with a clear view of the water where the eagles usually forage. Shoreline trees or snags located in reservoirs provide the visibility and accessibility needed to locate aquatic prey." The proposed tower site adheres to the recommendations outlined in the National Bald Eagle Management Guidelines to the extent practicable.

Update:

Please note that as of the date of this EA, the PNDI submittal originally completed for this project on November 8, 2011 has expired. At the time of the original review, PNDI review policy stated that the online review was valid for a period of one year. PNDI review policy has since been changed to extend the period in which the PNDI is valid to two years. However, EBI completed a new PNDI online review for the project on November 15, 2012. The results of the updated PNDI review were unchanged from the original submittal. Specifically, the results indicated that the Pennsylvania Field Office of the USFWS and the Pennsylvania Game Commission concluded "No Known Impact" and responded "No Further Review Required." However, the PNDI receipt also indicated that the DCNR and the FBC identified a "Potential Impact" and requested further information. Based on the former DCNR policy that responses are valid for one year from the date of their letter, EBI forwarded a letter dated November 30, 2012 to this agency, explaining that the proposed action had not changed from the original correspondence and requesting confirmation that the original determinations of each agency would likewise be unchanged.

In a response letter dated December 20, 2012 the DCNR stated that no impact is anticipated or likely. The DCNR response is valid for two years from the date of their letter. Copies of the PNDI Project Environmental Review Receipt, as well as correspondence with the DCNR, FBC, and USFWS are included in Appendix E.

As of the date of the EA, all consultation with applicable federal and state agencies in regards to the potential effects of the proposed facility on protected species and/or critical habitat is complete and up to date.

Please refer to Section 5.3 for details pertaining to EBI's assessment of the potential effects of the proposed 'Albany' tower facility on migratory birds and raptors.

5.2.4 Facilities that may affect districts, sites, buildings, structures or objects, significant in American history, architecture, archaeology, engineering or culture, that are listed, or eligible for listing, in the National Register of Historic Places [47 CFR §1.1307(a)(4)]

EBI reviewed the proposed project plans against the Exclusions of the *Nationwide Programmatic Agreement Regarding the Section 106 National Historic Preservation Act Review Process* (NPA). EBI concluded that construction of the proposed telecommunications tower facility does not meet any of the Exclusions listed in Section III of the NPA. Therefore, consultation with the Pennsylvania Historical & Museum Commission (PHMC) was required.

Based on EBI's review of files online at the National Register Information System (www.nr.nps.gov) and Pennsylvania State Historic Preservation Office (SHPO) files, one Historic Property – the Appalachian Trail (Key #144291) – was identified within the ½-mile Area of Potential Effect (APE) for visual effects (VE) of the proposed tower. No Historic Properties were identified within the APE for direct effects (DE).

Ms. Vanessa Sullivan and Ms. Aniela Travers, EBI Project Archaeologists, performed an evaluation of the proposed Project Site for the likelihood of containing archaeological resources. Ms. Sullivan advanced six shovel tests at the Project Site and no cultural materials were identified. Ms. Travers concluded, “In light of available information, it is my professional opinion that the APE-DE for the present project is not sensitive for the presence of significant archaeological resources due to the negative results of shovel testing. The likelihood of encountering intact archaeological deposits is negligible. In addition, the limited extent of the excavation associated with this project mitigates the disturbance of any sub-surface historic resources. Accordingly, I recommend that no further archaeological work be conducted in conjunction with the present project. If cultural deposits or artifacts are encountered during construction of the proposed facility, all work must immediately cease and the PHMC shall be contacted.”

EBI submitted project plans, the results of the archaeological survey, project plans, and a request for comment on FCC Form 620 to the Pennsylvania SHPO via the FCC's e-I06 system, certified on November 10, 2011, and via FedEx on November 10, 2011. In correspondence dated December 14, 2011, the Pennsylvania SHPO stated that the project will have “No Effect” on historic properties located in the Area of Potential Effect (APE) for direct effects and an “Adverse Effect” on historic properties located in the APE for visual effects. The Pennsylvania SHPO stated, “This project will have an adverse effect on the Appalachian Trail.” The Pennsylvania SHPO further stated, “The archaeological report meets our standards and specifications as outlined in Guidelines for Archaeological Investigations in Pennsylvania (BHP 2008) and the Secretary of the Interior's Guidelines for Archaeological Documentation. We agree with the recommendations of this report and in our opinion no further archaeological work is necessary for this project.”

EBI received comments from the Appalachian Trail Conservancy (ATC) dated November 28, 2011, which stated in part, “Based on our participation in the balloon tests conducted by the county on October 26, 2011, we have confirmed that the tower would have significant adverse impacts on the scenic resources of the Trail in the immediate vicinity at Pulpit Rock and at locations northeast of the site between Pulpit Rock and the Pinnacle.” EBI also received a letter from the National Park Service (NPS), dated November 30, 2011 which stated in part, “We believe that the proposed undertakings would have adverse effects on the historically significant scenic elements of the Trail within the respective APEs.” The National Park Service additionally requested consulting party status. Copies of these responses were sent to the Pennsylvania SHPO via the FCC's e-I06 system on December 9, 2011.

In response to the Pennsylvania SHPO's determination of effects, EBI sent the Pennsylvania SHPO balloon test photographs and photo simulations via the FCC's e-I06 system on January 22, 2012. In correspondence dated March 6, 2012, the Pennsylvania SHPO stated, “Thank you for providing the photo simulations in January. It is clear from these photos that the tower will be visible from various places along the Appalachian Trail. It remains our opinion that the proposed tower will have an adverse effect on the National Register eligible Appalachian Trail.”

The NPS, ATC, and Pennsylvania SHPO have stated that the proposed project will have an “Adverse Effect” on the Appalachian Trail. As a result of the “Adverse Effect” finding from the Pennsylvania SHPO, EBI recommended that a Memorandum of Agreement (MOA) be prepared to resolve the finding. In order to continue the Section 106

consultation process, on May 23, 2012, EBI submitted a letter entitled “Options for Mitigation Discussion” to the NPS, ATC, and Hawk Mountain, with copies to the FCC and the Pennsylvania SHPO. Representatives of the ATC, NPS, and Hawk Mountain Sanctuary responded, indicating that sufficient mitigation measures had not been proposed that would minimize the adverse visual impact of the proposed tower on the Appalachian Trail. The parties discussed mitigation options on a conference call on August 1, 2012. After this conference call, the NPS submitted a document suggesting that land acquisition in the form of fee title or conservation easement held “the most promise” as a mitigation measure.

After receiving this document and list of priority parcels from the NPS on August 22, 2012, Berks County researched the parcels identified and the likely cost of conservation easements over said properties. Over the course of the following months, Berks County commissioned appraisals of a protective easement over a 370-acre parcel owned by the Borough of Hamburg and subsequently negotiated a protective easement with the Borough of Hamburg in favor of the NPS.

Berks County posted a revised MOA describing this protective easement and proposed mitigation on March 8, 2013.

On April 9, 2013, a package was submitted to the Advisory Council for Historic Preservation (ACHP) outlining the consultation to date with regard to the impact of the proposed tower on historic properties. This package indicated that pursuant to the NPA (stipulation VII.D.4), EBI will negotiate a MOA with the Pennsylvania SHPO and other consulting parties and send the MOA to the FCC for review and execution. The FCC will then file the executed MOA with the ACHP. In a letter dated April 25, 2013, the Advisory Council on Historic Preservation (ACHP) concluded that the criteria contained within Appendix A to Part 800, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, do not apply to this Section 106 case.

On April 10, 2013, the consulting parties, FCC, Pennsylvania SHPO, and Berks County convened a conference call to discuss this mitigation option. The consulting parties requested revisions to the MOA. Berks County posted a revised MOA on May 8, 2013.

On May 10, 2013, the consulting parties, FCC, Pennsylvania SHPO, and Berks County continued their consultation on appropriate mitigation for the Albany Tower site, discussing the concepts of scale and sufficiency of the proposed mitigation in reference to the likely adverse effect the Albany Tower would have on the Appalachian Trail. Berks County posted another revised MOA for the Albany Tower site on May 21, 2013.

On May 22, 2013, the consulting parties, FCC, Pennsylvania SHPO, and Berks County convened another conference call to discuss mitigation. The Pennsylvania SHPO invited the ACHP to participate on the May 22, 2013, consultation call to assist with the mitigation discussions. On this call, the consulting parties, Pennsylvania SHPO, ACHP, and FCC agreed that the substantive mitigation offered by Berks County – a protective easement over a 370-acre parcel constituting viewshed and corridor lands protection, as well as decommissioning and deconstruction provisions for the Albany Tower – would be adequate mitigation for the Albany Tower.

A draft of the MOA which incorporated changes discussed by the parties on the May 22, 2013 call was circulated to all parties on May 24, 2013. The NPS and the ATC offered comments and suggested revisions to this draft on June 3, 2013. Berks County considered the suggested revisions and comments, made changes to the draft MOA, drafted a letter explaining why certain revisions suggested by the NPS and ATC were not adopted, and forwarded the draft MOA and draft response to the FCC on June 6, 2013. After receiving FCC feedback and approval, Berks County posted the final draft of the MOA and the explanation of its rationale for rejecting certain requested changes on June 19, 2013. The NPS posted an official response objecting to two paragraphs contained in the final MOA, in conjunction with its executed signature page, on June 28, 2013. Hawk Mountain executed the MOA on June 24, 2013. The Pennsylvania SHPO executed the MOA on June 28, 2013. Berks County executed the MOA on June 27, 2013. The ATC posted a comment to the e-106 system on June 28, 2013, explaining its reason for not executing the final MOA. The FCC executed the MOA on July 2, 2013. Thus, the final MOA was fully executed on July 2, 2013.

The final MOA is attached to this report in Appendix G.

5.2.5 Facilities that may affect Indian religious sites [47 CFR §1.1307(a)(5)]

Based on the requirements of the *Nationwide Programmatic Agreement Regarding the Section 106 National Historic Preservation Act Review Process* (NPA), Tribal consultation was required for this project because the proposed tower construction did not meet Exclusions A, B, C or F of the NPA.

EBI submitted documentation regarding the proposed project to the FCC's Tower Construction Notification System (TCNS; ID #80236). On October 21, 2011 the FCC's TCNS sent the project information to Tribes listed on their database who have interest in the state in which the project is planned. Additionally, EBI submitted follow-up requests for comment to each of the Tribes indicated by the TCNS to have a potential interest in the area of the project.

Tribal communication to date for this project is summarized in the following table.

#	Tribe Name	Initial Notification (via TCNS ID#80236)	Response to Initial Contact	Additional Contact Attempts	Response to Additional Attempts	Action Recommended
1	Delaware Nation	October 21, 2011	Request review fee for all projects (TCNS Details)	Letter and review fee sent; November 22, 2011 (Mail)	Location of project does not endanger known sites of interest; December 28, 2011 (Fax)	No Further Action
2	Absentee-Shawnee Tribe of Indians of Oklahoma	October 21, 2011	Request follow-up letter with archaeological report and SHPO response letter; May 13, 2011 (Record of Communication)	Letter sent; January 25, 2012 (Mail)	No interest if no response received within 30 days of sending requested information; May 13, 2011 (Record of Communication)	No Further Action
3	Onondaga Indian Nation	October 21, 2011	None	Letter sent; November 16, 2011 (Email)	None	No Further Action
				Follow up letter sent; December 16, 2011 (Email)	None	
				FCC Contacted tribe; December 29, 2011	Consult with Tribe if project plans change; January 23, 2012 (Mail)	
4	Tuscarora Nation	October 21, 2011	No interest if no response received within 30 days (TCNS Exclusion)	N/A	N/A	No Further Action
5	Keweenaw Bay Indian Community	October 21, 2011	No properties of interest regarding religious or cultural sites at the proposed location and request review fee; October 19, 2011 (Email)	Review fee sent; November 22, 2011 (Mail)	N/A	No Further Action
6	Seneca-Cayuga Tribe of Oklahoma	October 21, 2011	No interest if no culturally-significant Native American artifacts and/or funerary objects unearthed; no interest if no response received within 30 days (TCNS Exclusion)	N/A	N/A	No Further Action

#	Tribe Name	Initial Notification (via TCNS ID#80236)	Response to Initial Contact	Additional Contact Attempts	Response to Additional Attempts	Action Recommended
7	Eastern Shawnee Tribe of Oklahoma	October 21, 2011	No interest if no response received within 30 days (TCNS Exclusion)	N/A	N/A	No Further Action
8	Wyandotte Nation	October 21, 2011	Interested in consulting; October 31, 2011 (Email)	Letter and review fee sent; January 26, 2012 (Mail)	None	No Further Action
				Follow up letter sent; February 17, 2012 (Email)	None	
				Follow up letter sent; February 29, 2012 (Email)	No objections; March 9, 2012 (Email)	
9	Shawnee Tribe	October 21, 2011	Interested in consulting; November 3, 2011 (Email)	Letter and review fee sent; January 26, 2012 (Mail)	No known historic properties will be negatively impacted by constructing the tower site and no issues of concern at the tower location; February 2, 2012 (Fax)	No Further Action
10	Delaware Tribe of Indians of Oklahoma	October 21, 2011	Request project information and review fee (TCNS Details)	Letter and review fee sent; November 22, 2011 (Mail)	No religious or culturally significant sites in project area and requested a copy of the cultural resources survey report; November 30, 2011 (Mail)	No Further Action
				Cultural resources survey report sent; March 15, 2012 (Email)	N/A	

Correspondence between EBI and the Tribes that includes copies of the Tower Construction Notification System emails, follow-up correspondence, and Tribal responses are appended to this *Report* (Appendix H).

On December 29, 2011, EBI contacted the FCC and indicated that the Onondaga Indian Nation was not responsive to EBI's attempts to contact them to inquire whether they had interest in commenting on the proposed project. The FCC contacted this Tribe on December 29, 2011. On January 23, 2012, the Onondaga Indian Nation responded stating that they would like to be consulted if project plans change.

Please note, in the unlikely event that unanticipated Historic Properties, cultural artifacts, archeological deposits, or human remains are inadvertently encountered during the proposed construction and associated excavation activities, Berks County must halt activities immediately and contact the appropriate tribal governments, local officials and state agencies, in accordance with Federal and State regulations (36 CFR 800.13(b)).

5.2.6 Facilities to be located in a flood plain [47 CFR §1.1307(a)(6)]

According to the FEMA Flood Insurance Rate Map data for the Township of Albany, Pennsylvania (Community Map #421046, Panel #0160E) included on the Land Resources Map (Appendix D), the Project Site is not located within

a 100-year floodplain. A review of the Flood Insight Flood Zone determination (Appendix D) confirmed that the Project Site is not located within a floodplain.

5.2.7 Facilities whose construction will involve a significant change in surface features (e.g. wetlands fill, deforestation, or water diversion [47 CFR §1.1307(a)(7)])

It is EBI's opinion that no documented or potential wetlands are located at or within a 100-foot radius of the proposed tower based upon the following facts:

- Limited or no hydrophytic vegetation was observed at the tower site. Additionally, no surface water was observed at the proposed tower site.
- According to the Fish and Wildlife Service National Wetlands Inventory (NWI) information, included on the Land Resources Map (Appendix D), no mapped wetlands are located at or within close proximity to the proposed tower site.
- According to the Natural Resources Conservation Service (NRCS) Web Soil Survey (WSS) website (<http://websoilsurvey.nrcs.usda.gov/app/>), the dominant soil type in the vicinity of the Project Site is classified as Hazleton very channery loam, 8 to 25 percent slopes, extremely stony association. This association consists of deep, well drained, very channery loam soils formed from sandstone. These soils do not meet the characteristics of hydric soils necessary to support wetland vegetation.

The area proposed to be occupied by Berks County consists of undeveloped, wooded land. The proposed construction plans call for minimal clearing of mature trees; therefore, the proposed installation will not result in deforestation. According to the proposed construction plans and onsite observations, surface water body diversion will not occur.

5.2.8 Antenna towers and/or supporting structures that are to be equipped with high intensity white lights which are to be located in residential neighborhood, as defined by the applicable zoning law [47 CFR §1.1307(a)(8)]

According to client representatives and site plans (see Appendix A), the proposed installation will not include high intensity white lights and will not be located in a residential neighborhood.

5.2.9 Facilities whose operation or transmitter would cause human exposure to levels of radiofrequency radiation in excess of the limits [47 CFR §1.1307(b)]

According to FCC Rules set forth in 47 CFR §1.1307(b)(1), the routine environmental evaluation and the preparation of an EA for facilities exceeding permissible exposure limits is required only for facilities, operations and transmitters that fall into the categories listed in table I, or specified in paragraph (b)(2) of this section. All remaining categories of facilities are excluded from this requirement. As the proposed facility is a Public Safety Radio System, and covered under subpart B of Part 90 Rules, and not listed in table I or paragraph (b)(2) of §1.1307, it is excluded from this requirement.

5.3 Migratory Birds

The Project Site is located on the Blue Mountain – Kittatinny Ridge (BM-KR) and has been identified as being located within a designated Important Bird Area (IBA) by the PA NHP and as a migratory bird flyway of global importance by the National Audubon Society and its Pennsylvania chapter. Additionally, the National Park Service and Hawk Mountain Sanctuary have expressed concerns regarding the impact of the proposed project on migratory birds.

As such, EBI prepared a Biological Assessment (BA) specifically to evaluate the potential effects of this proposed tower site, as well as two other proposed tower sites located along the BM-KR, on migratory birds. In preparation of this BA, EBI coordinated with the Pennsylvania Audubon Society and the Hawk Mountain Sanctuary, and conducted supplemental research for the preparation of this BA. Both the Pennsylvania Audubon Society and Hawk Mountain Sanctuary provided research material, technical data and field observation records at the request of Berks County.

On October 25, 2012, EBI forwarded both electronic and hard copies of the aforementioned BA to the Pennsylvania Field Office of the USFWS, requesting a review and comment with regard to the findings and potential effects of the proposed tower sites on migratory birds. In a response letter dated November 30, 2012, the USFWS indicated that the BA had “thoroughly addressed the need for the project, the logistical challenges to the Service’s recommendations, and the impacts to migratory birds as a result of the project’s location within a major migratory bird flyway.” Further, as a result of the potential for avian mortality resulting from collisions with the proposed tower sites, the USFWS made the following recommendations:

- (i) Seasonal Restrictions: Due to the potential impacts to habitat of sensitive species in the area of the proposed tower sites (including the Albany site), the USFWS recommends that where disturbance will occur, the clearing of natural and semi-natural habitats (e.g. forests, woodlots, shrubby areas) be completed between September 1st and March 31st, which is outside the nesting season of most native bird species. Alternatively, the USFWS recommends constructing the towers outside of the breeding seasons of the species compiled in Tables 2 and 6 of the BA.
- (ii) Monitoring: Due to the potentially significant impact of the proposed tower sites (including the Albany site) on migratory birds, the USFWS recommends that a monitoring plan be implemented during construction and operation of the towers to document bird mortality and to implement future best practices as they are developed.” The USFWS further requested that incidents of avian mortality and injuries be reported the USFWS’s web-based ‘Bird Fatality/Injury Reporting Program.

Please refer to Appendix I for a copy of relevant portions of BA and the November 30, 2012 letter from the USFWS.

To the extent practicable, with consideration given to both the FCC’s mandated deadline for activation of the proposed facility and to the timely issuance of a ‘Finding of No Significant Impact’ by the FCC as provided for under 47 CFR §1.1308 of FCC NEPA Rules, Berks County will endeavor to complete construction of the proposed ‘Albany’ tower facility within the recommended timeframe of September 1st and March 31st or the outside of the specific breeding seasons of the species noted in Tables 2 and 6 of the BA. Further, Berks County will request that all tower operations and maintenance personnel associated with the tower facility, observe and report any incidents of avian mortality and injuries using the USFWS’s web-based ‘Bird Fatalities/Injury Reporting Program.’

6.0 SIGNATURES OF PERSONNEL

The following EBI personnel contributed in the preparation of this EA and associated supporting reports and consultations included within the appendices of this report. The professional qualifications of these EBI personnel are presented in Appendix J.



Caitlin Graff
Senior Scientist



Andrew Simpson
Project Scientist / Tribal Interaction Specialist



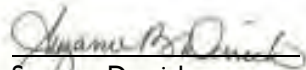
Christine Kimbrough
Senior Archaeologist



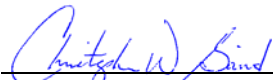
Richard Bolton
Wetlands Biologist / Natural Resource Specialist



Lee Brewer
Program Manager



Suzanne Derrick
Technical Director, Cultural Resource Management



Christopher W. Baird
Technical Director, NEPA

7.0 REFERENCES

EBI review of threatened or endangered species habitats or designated critical habitats on Pennsylvania Natural Heritage Program online Natural Diversity Index, October 27, 2011; updated November 15, 2012.

Pennsylvania Department of Conservation and Natural Resources correspondence dated March 9, 2011 and December 20, 2012.

Pennsylvania Fish and Boat Commission correspondence dated December 27, 2011.

United State Fish and Wildlife Service (USFWS) correspondence, dated February 6, 2012 and November 30, 2012.

Service Interim Guidelines for Recommendations on Communications Tower Siting, Construction, Operation, and Decommissioning, issued by USFWS dated September 14, 2000.

National Bald Eagle Management Guidelines, issued by USFWS.

EBI correspondence with the Hawk Mountain Bird Sanctuary dated August 2, 2012 and April 15, 2013.

Pennsylvania Historical & Museum Commission comments on the FCC e106 system, dated December 14, 2011, through present (consultation ongoing).

EBI correspondence with the National Park Service, Appalachian National Scenic Trail, dated November 28, 2011 through present (consultation ongoing).

Alternates Analysis Report prepared by Berks County Department of Emergency Services dated April 2012.

Schematics and specifications for the proposed tower, dated September 7, 2011.

National Environmental Policy Act Screening Report, prepared by EBI Consulting, dated April 16, 2012 (Updated June 17, 2013).

Biological Assessment for Migratory Birds, prepared by EBI Consulting, dated October 16, 2012.

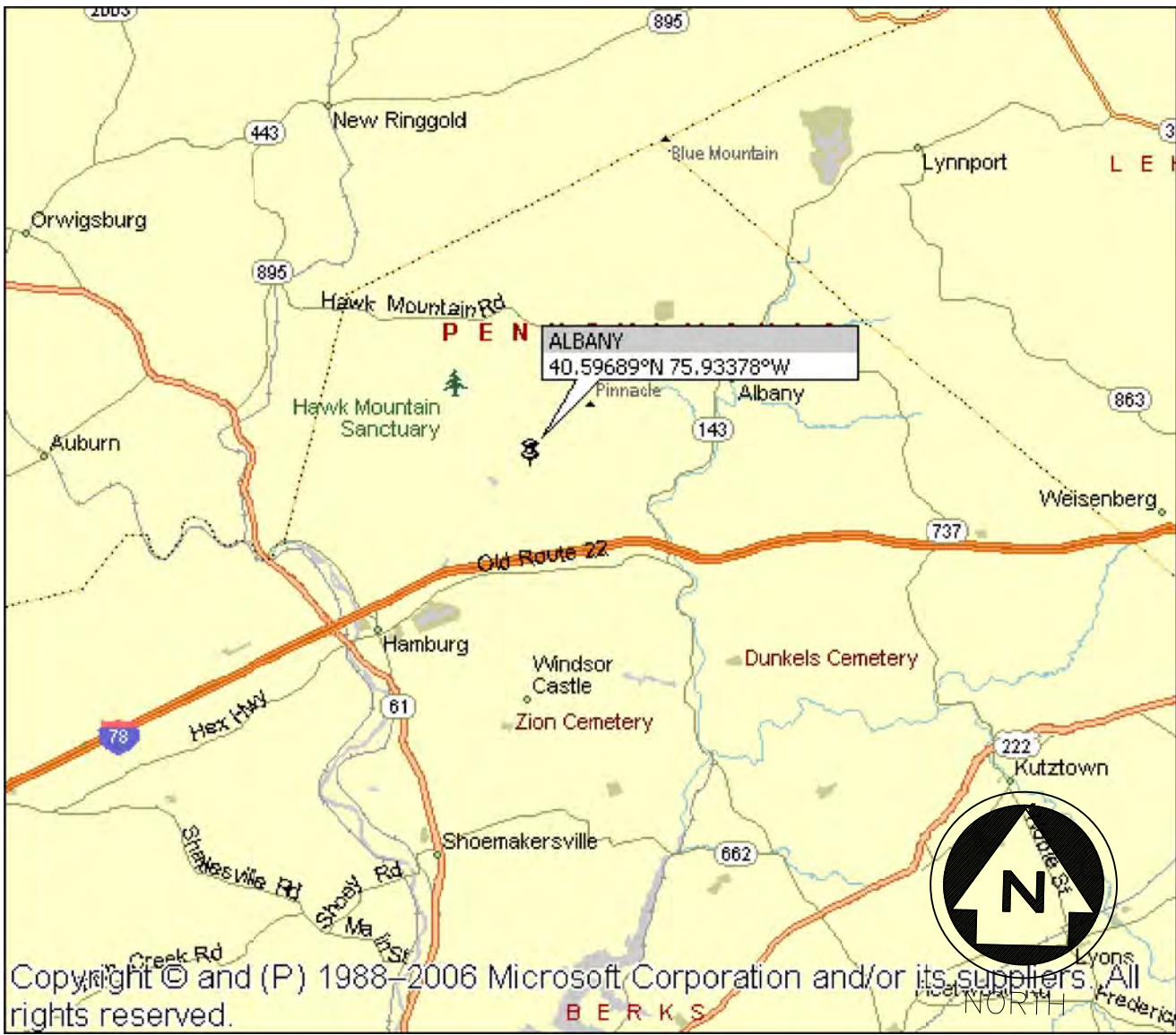
8.0 LIMITATIONS

This *EA* was prepared on behalf of Berks County, for the purpose of submittal to the FCC for further environmental processing per the requirements set forth in 47 CFR §1.1307. This *EA* was completed in accordance with guidelines set forth by the FCC in 47 CFR §1.1306 thru 1.1308 and 1.1311, general industry standards, and the terms and conditions authorized by you.

The observations in this *EA* are valid on the date of the investigation. Changes to the proposed action may result in different findings and may require updates or revisions to this *EA*, and notification to the FCC for consideration.

There are no intended or unintended third party beneficiaries to this *Report*, unless specifically named. EBI is an independent contractor, not an employee of either the property owner, the project proponent (i.e. the County Berks, Pennsylvania), and its compensation was not based on the findings or recommendations made in the *Report* or on the closing of any business transaction.

APPENDIX A
SITE DRAWINGS

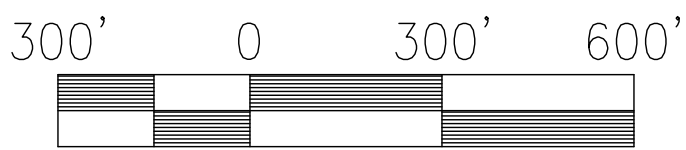


LOCATION MAP
NOT TO SCALE

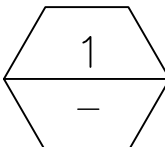
HAMBURG MUNICIPAL WATER
AUTHORITY
D.B.V. 624 PG.632
TAX #540600596761

EXISTING ACCESS
DRIVE TO RESERVOIR
ROAD (±5,500')

GRAPHIC SCALE



SCALE (11x17): 1" = 600'-0"
SCALE (22x34): 1" = 300'-0"



OVERALL SITE PLAN
SCALE: AS NOTED

APPROXIMATE LOCATION OF
EXISTING PROPERTY LINE (TYP.)

HAMBURG BOROUGH
D.B.V. 1597 PG 299
TAX#: 5406-00-46-9197

EXISTING
WOODED
AREA

PROPOSED 195' SELF
SUPPORT TOWER WITH 4'
LIGHTNING ROD/AIR TERMINAL

PROPOSED 95'x60' FENCED
COMPOUND W/ 8' HIGH CHAIN
LINK FENCE W/ 1" RAZOR RIBBON

LANDS OF THE COUNTY
OF BERKS
INSTRUMENT #: 2012034032

LANDS OF METED COMP.
DBV4110 PG1235

EXISTING SELF
SUPPORT TOWER

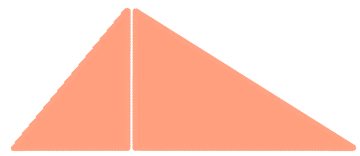
APPROXIMATE
LOCATION OF EXISTING
PROPERTY LINE (TYP.)

EXISTING OBSERVATORY
EQUIPMENT (TYP.)

LANDS OF LEHIGH VALLEY
ASTRONOMICAL SOC.
DBV1518 PG 665

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	7/3/13	REVISED PER COMMENT	CAA	RGB	CJW
1	7/27/12	REVISED PER COMMENT	CAA	RGB	CJW
0	8/24/11	ISSUED FOR ZONING	CAA	RGB	CJW

infinigy
engineering
2255 SEWELL MILL ROAD
SUITE 130
MARIETTA, GA 30062
678-444-4463
127-416



Pyramid Network Services, LLC



MOTOROLA SOLUTIONS

ALBANY

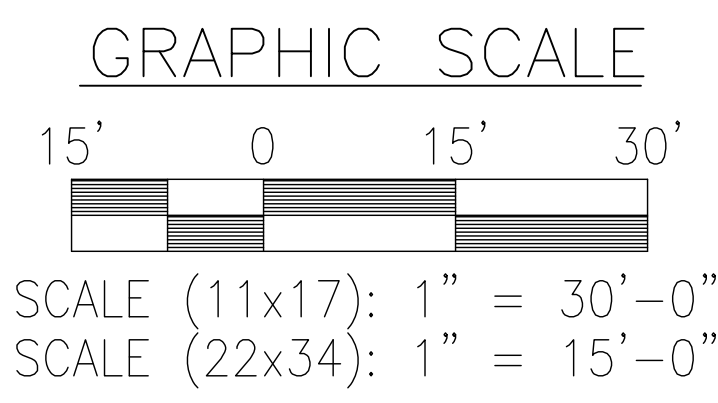
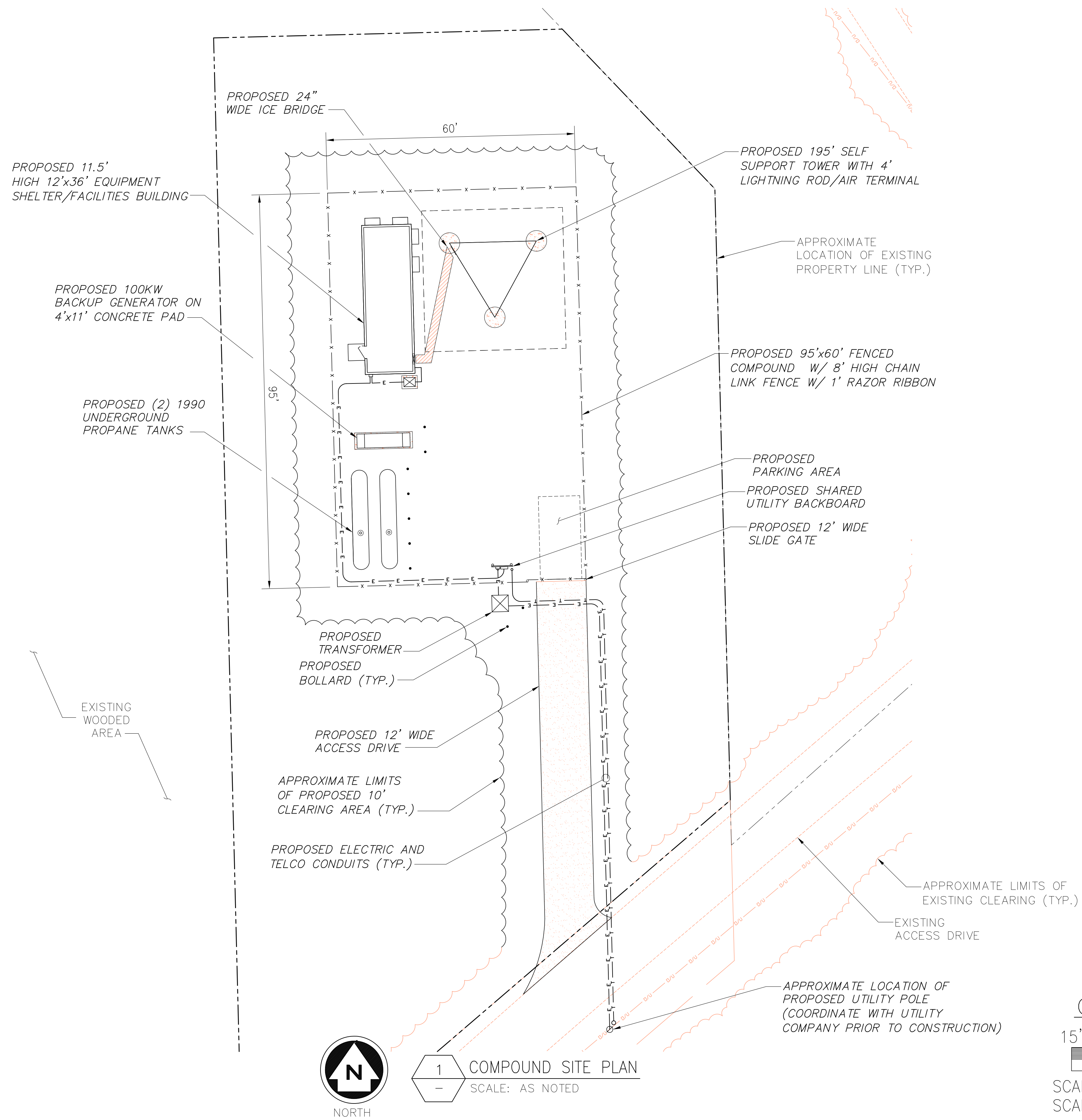
OVERALL SITE PLAN

BERKS, COUNTY

Z1

REV
2

IT IS A VIOLATION OF LAW FOR ANY PERSON,
UNLESS THEY ARE ACTING UNDER THE DIRECTION
OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER
THIS DOCUMENT.



NO.	DATE	REVISIONS	BY	CHK	APP'D
2	7/3/13	REVISED PER COMMENT	CAA	RGB	CJW
1	7/27/12	REVISED PER COMMENT	CAA	RGB	CJW
0	8/24/11	ISSUED FOR ZONING	CAA	RGB	CJW

infinigy
engineering

2255 SEWELL MILL ROAD
SUITE 130
MARIETTA, GA 30062
678-444-4463

127-416



ALBANY

COMPOUND SITE PLAN

BERKS, COUNTY

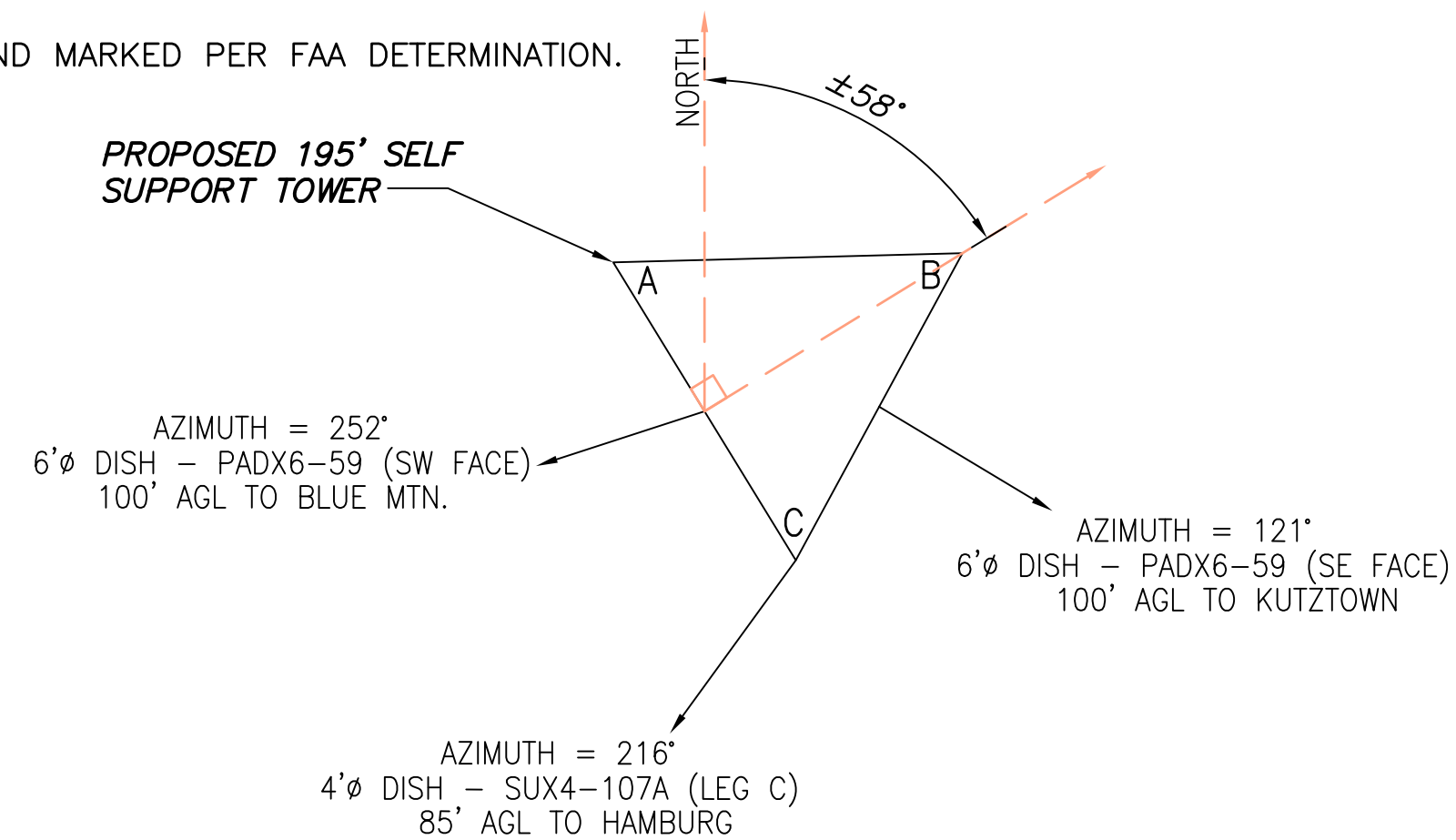
Z3

REV
2

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

GENERAL NOTES:

1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP AND BOTTOM OF THE TOWER (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION AND NEAR THE ENTRY PORT ON THE SHELTER). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS TO 75 FEET.
2. THE CONTRACTOR SHALL CONDUCT A SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION AND STIMULUS RESPONSE MEASUREMENTS.
3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE BUILDING.
4. ALL TRANSMISSION LINES SHALL BE MARKED WITH APPROPRIATE COLOR TAPE BANDS (ONE INCH WIDE COLOR TAPE) FOR IDENTIFICATION NEAR THE ANTENNA, JUST BEFORE ENTERING THE BUILDING AS WELL AS INSIDE THE BUILDING, BEFORE CONNECTING TO THE SURGE SUPPRESSERS. SEE EQUIPMENT AND COAXIAL CABLE SCHEDULE FOR COLOR CODING SCHEME.
5. TOWER TO BE LIGHTED AND MARKED PER FAA DETERMINATION.



1 TOWER & MW DISH ORIENTATION PLAN
NOT TO SCALE

PROPOSED LMR LOADING							
ANTENNA #	MANUFACTURER	MODEL #	CABLE TYPE	MOUNTING HEIGHT (FT.)	LEG	COLOR CODE	AZIMUTH
L1	SINCLAIR	SD-110	7/8"	100' *	C (S LEG)	TBD	TBD
L2	SINCLAIR	SD-110	7/8"	125' *	C (S LEG)	TBD	TBD
L3	SINCLAIR	SC229SFXLDF	7/8"	125' *	B (E LEG)	TBD	TBD
L4	SINCLAIR	SC412-HF2LDF	7/8"	150' *	AB (N FACE)	TBD	TBD
L5	RFS	RFS-BPS-10-A	7/8"	150' *	C (S LEG)	TBD	TBD
L6	RFS	RFS-BPS-10-A	7/8"	150' *	A (W LEG)	TBD	TBD
L7	AMPHENOL	BCD-7509-3-25	7/8"	150' *	B (E LEG)	TBD	TBD
L8	KATHREIN	OGB8-460	7/8"	150' *	BC (SE FACE)	TBD	TBD
L9	SINCLAIR	SC412-HF2LDF	7/8"	174' *	AB (N FACE)	TBD	TBD
L10	AMPHENOL	BCD-7509-3-25	1-1/4"	174' *	A (W LEG)	TBD	TBD
L11	AMPHENOL	BCD-7509-3-25	1-1/4"	174' *	C (S LEG)	TBD	TBD
L12	SINCLAIR	SC229SFXLDF	1-1/4"	174' *	B (E LEG)	TBD	TBD
L13	KATHREIN	OGB8-460	7/8"	174' *	BC (SE FACE)	TBD	TBD
TTA	TBD	TBD	1/2"	176'	B (E LEG)	TBD	TBD

* - MOUNTING HEIGHT IS BASE OF ANTENNA

PROPOSED MW LOADING								
DISH #	MODEL #	CABLE TYPE	ICE SHIELD	MOUNTING HEIGHT (FT.)	AZIMUTH	REMARKS	LEG	COLOR CODE
M1	SUX4-107A	TBD	ISMD4	85' **	216° ***	TO HAMBURG	C (S LEG)	TBD
M2	PADX6-59	TBD	ISMD6	100' **	121° ***	TO KUTZTOWN	BC(SE FACE)	TBD
M3	PADX6-59	TBD	ISMD6	100' **	252° ***	TO BLUE MTN.	AC(SW FACE)	TBD

** - MOUNTING HEIGHT IS CENTERLINE OF DISH
*** - AZIMUTH BASED ON TRUE NORTH

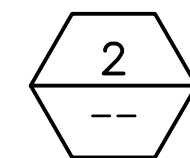
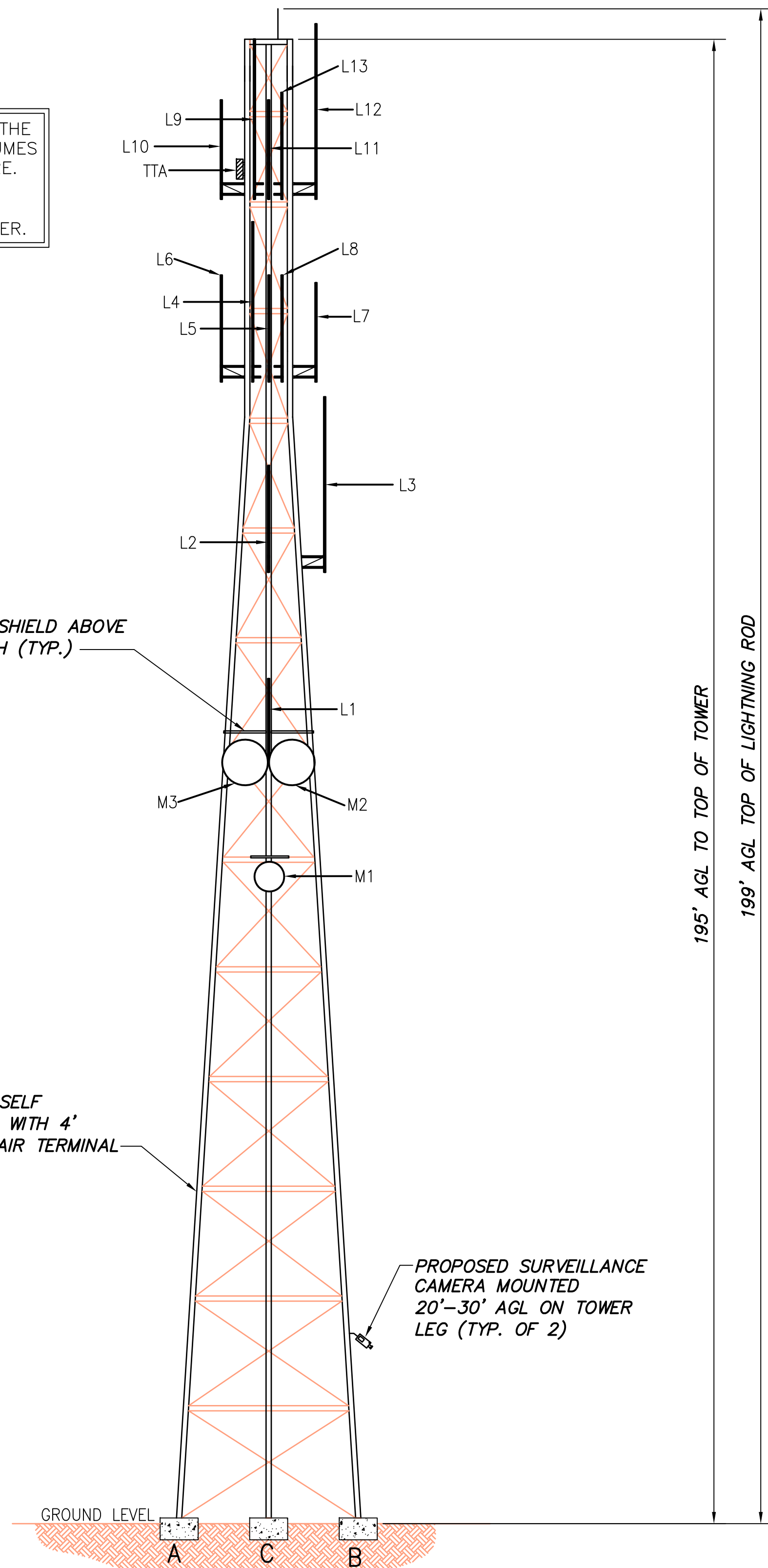
INFINIGY ENGINEERING HAS NOT EVALUATED THE PROPOSED TOWER FOR THIS SITE AND ASSUMES NO LIABILITY FOR THE PROPOSED STRUCTURE. IT IS THE CARRIER'S RESPONSIBILITY TO INVESTIGATE ANY LOADING CONCERNS WHEN ADDING ADDITIONAL EQUIPMENT TO THE TOWER.



PROPOSED ICE SHIELD ABOVE MICROWAVE DISH (TYP.)

PROPOSED 195' SELF SUPPORT TOWER WITH 4' LIGHTNING ROD/AIR TERMINAL

PROPOSED SURVEILLANCE CAMERA MOUNTED 20'-30' AGL ON TOWER LEG (TYP. OF 2)



2 TOWER ELEVATION
NOT TO SCALE

NOTES:

1. INSTALLATION CONFIGURATION SHOWN IS FOR Rx ANTENNA. CONFIGURATION IS ALSO APPLICABLE FOR Tx ANTENNAS (WITHOUT TOWER TOP AMPLIFIER AND SUPPORTS). FIELD VERIFY MOUNTING HARDWARE OF Tx & Rx ANTENNAS AND STAND-OFF BRACKETS AT BOTH HEIGHTS. COORDINATE MAXIMUM SPACING BETWEEN Tx ANTENNAS WITH MOTOROLA RF ENGINEER.
2. CONTRACTOR TO CONFIRM ANTENNA TYPES, COAX LENGTHS, AZIMUTHS AND HEIGHTS WITH FINAL RF INFORMATION.

6	3/28/13	REVISED PER COMMENTS	SKB	AGF	CJW
5	3/18/13	REVISED PER COMMENTS	SKB	AGF	CJW
4	3/14/13	REVISED PER COMMENTS	SKB	AGF	CJW
3	2/12/13	REVISED PER COMMENTS	SKB	AGF	CJW
2	1/28/13	REVISED PER COMMENTS	MJB	AGF	CJW
NO.	DATE	REVISIONS	BY	CHK	APP'D

infinigy
engineering
2255 SEWELL MILL ROAD
SUITE 130
MARIETTA, GA 30062
678-444-4463
127-416

Pyramid Network Services, LLC



ALBANY
CREST OF BLUE MOUNTAIN
RESERVOIR ROAD
HAMBURG, PA 19526

TOWER ELEVATION & DETAILS
BERKS COUNTY, PA

C5

REV
6

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

APPENDIX B
ZONING & GOVERNMENT DOCUMENTATION

PAUL R. OBER & ASSOCIATES

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September 14, 2011

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Exton, PA 19341-0673

RE: County of Berks/Albany Township
Our File No.: X6077-1-11

Dear Ronald:

Many thanks for chatting with me on August 29, 2011. As we discussed, the township's position is that the county of Berks is exempt from the Albany Township zoning permit requirement. The Township expresses no opinion as to whether or not the County is exempt from the requirements of the Labor and Industry Department of the Commonwealth of Pennsylvania, since Albany Township has opted out from the Pennsylvania Building Code. Ordinarily, L&I or private inspections are required.

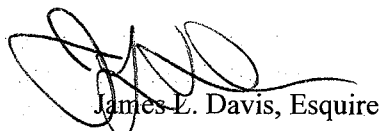
We further discussed that you will provide me with a site plan which I will share with the Planning Commission and the supervisors for any comments that they may have. However, no formal plan will be required.

The supervisors hope that the county will work with the community and with Hawk Mountain in determining all possible antenna locations, so as to pick the best alternative with due respect to cost, view shed, danger to migrating birds and efficacy of the communication equipment.

If I can provide you with any additional information, please let me know. I appreciate your help and courtesy as well as your interest in Albany Township.

Very truly yours,

PAUL R. OBER & ASSOCIATES


James L. Davis, Esquire

JLD/aec

cc: Charles Volk
Derrick Shoemaker
Josh Rabert
Dennis Reiss

SUBURBAN OFFICES
by appointment

HAMBURG, PA 19526 (610) 562-5879
1244 WEST HAMILTON STREET, ALLENTOWN, PA 18102 (610) 437-4455
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APPENDIX C
SITE SELECTION DOCUMENTATION



BERKS COUNTY PUBLIC SAFETY RADIO SYSTEM

ALTERNATES ANALYSIS

ALBANY and BETHEL

RADIO TRANSMISSION SITES

Prepared April, 2012

**Berks County Department of Emergency Services
L.R. Kimball & Associates**



TABLE OF CONTENTS

TABLE OF CONTENTS.....	1
INTRODUCTION.....	2
PROJECT BACKGROUND.....	3
ALBANY SITE.....	6
BETHEL SITE.....	11
 <u>APPENDICES</u>	
APPENDIX A – ALBANY LOCATIONS.....	16
APPENDIX B – BETHEL LOCATIONS.....	17
APPENDIX C – ALBANY SITE ELIMINATION COMPARISON 20DB.....	18
APPENDIX D – ALBANY SITE ELIMINATION COMPARISON 12DB.....	19
APPENDIX E – ALBANY SITE ELIMINATION COMPARISON POS.....	20
APPENDIX F – ALBANY SITE ELIMINATION COMPARISON POS.....	21
APPENDIX G – BETHEL SITE ELIMINATION COMPARISON 20DB.....	22
APPENDIX H – BETHEL SITE ELIMINATION COMPARISON 12DB.....	23
APPENDIX I – BETHEL SITE ELIMINATION COMPARISON POS.....	24
APPENDIX J – BETHEL SITE ELIMINATION COMPARISON POS.....	25

INTRODUCTION

This document provides a concise but detailed summary of the methodology and evaluation process that went into selecting viable candidate sites for inclusion in the Berks County, Pennsylvania Emergency Communications Radio System. While this assessment will deal specifically with the locations that were considered in the **Albany** and **Bethel Township** areas, it will also provide an overview of the county-wide design and the resulting technical considerations which, to a large part, dictate site location and selection within the system. Each of the candidate sites included here, were evaluated not just on their individual merits, but also on their ability to contribute effectively to the 'greater whole' of a unified, county-wide radio system. This document will also touch briefly on the general concepts and specific methodology that went into selecting an efficient, effective constellation of sites to meet the need of the Berks County design.

PROJECT BACKGROUND: THE NECESSITY OF INTEROPERABILITY OVERLAY SYSTEMS AND THE IMPACT OF THE FCC'S NARROW BANDING REQUIREMENTS ON SITE SELECTION

This complex public safety initiative was undertaken in the interest of designing, developing and deploying a county-wide, emergency communications radio system. Once implemented, this system will provide a clear and dependable wireless communications platform for police, fire and emergency medical personnel to use while operating in and around Berks County. By utilizing an integrated network of linked communications sites and dispatch facilities combined with state of the art equipment, this design will meet not only the in-county coverage requirements essential for an effective Public Safety wireless system, but it will also afford the critical interoperability overlay systems which will enable Berks County first responders to communicate effectively with their counterparts in neighboring counties who are currently operating on disparate radio systems. While mutual aid response occurs most commonly in the fire service discipline, multi-jurisdictional incidents are increasingly commonplace with law enforcement agencies and large scale catastrophic events necessitate coordinated emergency medical response from countless entities, emphasizing the importance of interoperability overlay systems as part of a comprehensive county-wide communications system. Having six different counties, with radio systems operating in multiple frequency bands, bordering against various sections of Berks County it had become essential that radio coverage be both dependable and versatile in the boundary areas.

The need to deploy interoperability systems directly impacts site selection, as it mandates where specific coverage, in a particular frequency band, is required and dictates which antennas will need to be placed on a given tower in that area. Antennas from separate frequency bands require physical separation to keep them from interfering with each other when deployed in close proximity, making this type of public safety tower deployment much more space dependant than cellular / commercial, where fairly consistent antenna schemes are used. Additionally, the majority of antennas required by the varied public safety frequency bands do not conform to the panel type commonly utilized in the commercial communication industry. Omni directional sticks and directional dipole and yagi antennas are often required to efficiently address specific system design criteria in a given area. The sizes, shapes and required deployment separations of these antennas can range drastically, further complicating and often restricting the site selection process.

Apart from the basic over-arching need to allow the many disparate public safety radio systems, which had evolved over the past several decades, in and around Berks County, to communicate effectively with each other there was another, larger imperative to undertake this critical project at this particular point in time. The Narrow Banding requirement implemented by the Federal Communications Commission (FCC) was developed to effectively double the amount of radio spectrum in the VHF and UHF frequency bands, thereby addressing the complete lack of available frequencies for license in these bands. This regulation stipulates that all wireless communications systems must be able to function on licensed channels that are limited to 12.5 kHz, effective January 1st, 2013. Most of the existing radio systems currently operating in Berks County are technically incapable of making this transition and are therefore on the verge of becoming, not only obsolete, but illegal to operate. The Berks County Public Safety Radio Project is intended to provide a unified, compliant radio system for its emergency communicators prior to that deadline.

ADDITIONAL SITE SELECTION CONSIDERATIONS: COVERAGE AND CONNECTIVITY

Within a countywide public safety system, each remote site must provide two distinct end products in order to function as an effective component within the overall design: **coverage** and **connectivity**. A site that is unable to provide this critical combination is not considered a viable candidate. The sum of the combined coverage from all of the system's sites is specified to provide usable radio coverage to not less than 95% of the entire physical landmass of Berks County. Each site utilizes a unique combination of frequency band specific antennas which transmit or receive wireless radio signals. The primary Berks County system, being in the **700 MHz band**, generally affords a coverage area within a six to eight mile radius, located immediately around any given site. This coverage provides the actual means to communicate for the first responders operating within that specific area. Simultaneously, licensed microwave frequencies provide the point to point connectivity which ties the constellation of remote sites together into a single radio system. Microwave paths require unobstructed, lines of site to provide the connecting link between any two remote sites. This connectivity also provides a certain level of redundancy, enabling the radio system to retain functionality even if forced to overcome the loss of an individual site within a microwave connected loop.

THE IMPACT OF TERRAIN ON SITE SELECTION: KITTATINNY RIDGE/BLEU MOUNTAIN

Terrain plays a critical role in the complicated balance of site selection to maximize coverage and connectivity. While generally rural areas, which comprise a significant part of Berks County's 866 square miles, can be effectively covered with potentially fewer tower sites, to do so it is essential to place those sites where they can take maximum advantage of available terrain. At a minimum, the radio system's constellation of sites must be able to overcome the often dominant negative influence of terrain. Running from west to northeast along the northern boundary of Berks County, Blue Mountain geographically dominates the entire western half of its landmass. The crest of the mountain literally is the border between Berks County and its primary neighbor to the north, Schuylkill County. Kittatinny Ridge Blue Mountain (used hereinafter interchangeably in referring to the terrain feature) also rises between 900 and 1100 feet above the generally flatter terrain to its south. Blue Mountain's geographic influence over the adjacent countryside clearly explains why so many existing communications sites have been developed along the ridge over the past several decades. From a communications standpoint, it is a critical location to afford both coverage and connectivity.

In the spring of 2010, the L.R. Kimball team began to assess site candidates for the Berks County system and immediately acknowledged that Blue Mountain was the single geographic feature with the ability to make or break the system design, from a coverage standpoint, both along the northern tier and down the western half of Berks County. Priority was given to the assessment of the existing sites and potential raw land locations that were oriented along the crest of Blue Mountain. Given the environmentally sensitive nature of the ridge, use of existing tower sites for collocation was the preferred method to attempt to address the coverage requirement in this area. Unfortunately, with the crest of the mountain also constituting the boundary between Berks and Schuylkill Counties the existing towers were found to be, to a large extent, fully loaded and collocation was not possible. Many site alternatives were considered prior to the selection of the current proposed Albany and Bethel sites. The following sections provide

detail of the locations and towers that were evaluated during this process, and ultimately why they were not viable for use within the context of the Berks County radio system.

Table 1 clearly illustrates the over-arching need for radio sites in this part of the county in order to provide necessary coverage (95% reliability in 95% land area using portable radios) to emergency responders. The data for this table was developed by the County's radio system vendor – Motorola Solutions Inc., at the request of the County, in order to evaluate the need for the Kittatinny Ridge sites. Propagation modeling is performed by the Motorola Hydra tool, a proprietary but universally accepted and reliable methodology of radio propagation modeling. For the purpose of this study, Motorola was asked to run propagation modeling for the system in the following scenarios:

1. As designed/proposed
2. As designed/proposed but eliminating the Bethel site
3. As designed/proposed but eliminating the Albany site
4. As designed/proposed but eliminating all Kittatinny Ridge sites

Table 1 demonstrates the need for each of the proposed sites to be incorporated into the system design in order to accomplish necessary coverage. This table is referenced elsewhere in this document.

Blue Ridge Consolidated Coverage Analysis Results							
System Types	700 MHz Trunked			Conventional Interops			
Configuration Analyzed	20dB	12dB	On Street	800 MHz	UHF	VHF	Low
System As Designed	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Design Excluding Bethel	Pass	Pass	Fail	Fail	Fail	Fail	Fail
Design Excluding Albany	Pass	Fail	Fail	Fail	Fail	Fail	Fail
Design w/o Both Sites Above	Fail	Fail	Fail	Fail	Fail	Fail	Fail

Table 1. Summary of Propagation Analysis Results. Data based on modeling when considering the elimination of one or more proposed Kittatinny Ridge radio transmission sites. (Data provided by Motorola Solutions Incorporated)

Appendices C through J graphically illustrate the coverage differentials that would be experienced with and without each of the sites under consideration. The modeling for this analysis was run in each of the following design scenarios:

1. 20 dB In Building Loss – This scenario represents coverage/lack of coverage experienced by a responder operating in a 20 dB structure. 20 dB loss is comparable to the basement of a residential structure or the above grade floors of a modern commercial structure.
2. 12 dB In Building Loss – This scenario represents coverage/lack of coverage experienced by a responder operating in a 12 dB structure. 12 dB loss is comparable to the above grade floors of a light commercial structure or older construction residential structure.
3. Portable On Street – This scenario represents coverage/lack of coverage experienced by a responder operating outside a structure using a portable radio (walkie-talkie).
4. Mobile – This scenario represents coverage/lack of coverage experienced by a responder operating with a mobile (vehicular mounted) radio.

ALBANY RADIO TRANSMISSION SITE

Appendix A shows the locations and elevations of all considered site alternatives as well as the proposed Hamburg – Pulpit Rock Site.

ALBANY ALTERNATIVE 1: BLUE MOUNTAIN

In March of 2010, the original proposed location for a site in the north central section of Berks County was called Blue Mountain and had been included in an earlier conceptual radio system design as a potential raw land candidate. The co-ordinates provided were 40 35 28.16N and -75 55 14.16W (NAD 83).

This site was intended to cover both to the north and south of Blue Mountain. Geographically, Albany Township is almost entirely situated to the north of Blue Mountain, while the heavily traveled Interstate 78 corridor is immediately to its south. During a scouting of the general area of this proposed site candidate, it was found to have virtually no access road or utility service into the area. The proposed location was oriented in Pennsylvania (PA) State Game Lands #106 and was found to be in immediate proximity to both the Appalachian Trail (AT) and the Pinnacle Scenic Overlook. This location was considered to be not viable, due to potential adverse impact on the AT and the Pinnacle Scenic Overlook and the construction difficulties inherent in the lack of infrastructure. It was eliminated from consideration and a search for alternate sites was undertaken.

ALBANY ALTERNATIVE 2: ALBANY TOWNSHIP MAINTENANCE BUILDING

An existing monopole type tower was identified along PA Route 143 behind the Albany Township Maintenance Building and Kempton Fire Company at the following co-ordinates: 40 37 21.4N and -75 51 47.8W (NAD83). This was a commercial tower site owned by American Tower Corporation (ATC #308600) and was a monopole type tower that measured 178 feet AGL. At that time, it had two different cellular arrays deployed at and near its top. The tower was open below 160 feet. There was a very limited amount of space available inside the elevated, fenced compound. Unfortunately, it was obvious from its physical location, in relation to the surrounding terrain, that the site would only afford coverage to the north of Blue Mountain and in the immediate valley in which it was located. It also would not be physically able to provide the line of site microwave connectivity that was required to tie it into the overall radio system. This site alternative was eliminated from consideration because of these coverage and connectivity inadequacies.

ALBANY ALTERNATIVE 3: LENHARTSVILLE CELLULAR TOWERS

Two commercial cellular towers south of Blue Mountain that are located just outside of the Borough of Lenhartsville were identified at the following co-ordinates: 40 34 20.10N and -75 53 39.51W (NAD83). The low lying position of these sites again limited their potential to work within the county-wide radio system. They would effectively cover the immediate section of Route 78 but were completely screened from Albany Township to the north, by Blue Mountain. Utilizing this location in tandem with the Albany Township cell tower was evaluated, but as expected, the model

revealed significant coverage gaps above, below and on Blue Mountain itself. These towers also afforded only limited potential for the lines of sight for system connectivity. These sites were eliminated due to technical coverage limitations resulting from their locations.

ALBANY ALTERNATIVE 4: PULPIT ROCK – FIRST ENERGY

An existing self supporting tower was identified near the crest of Blue Mountain, located due southwest of the Pinnacle. The location of this site had the potential to achieve the difficult coverage needed in this section of Berks County. Further investigation revealed that the site was owned by First Energy and it was located at the following co-ordinates: 40 35 50.75N and -75 56 02.26W (NAD83). The tower measured 90 feet AGL and had a significant loading of mixed antennas and microwave dishes already deployed on it.

In April 2010, we met with First Energy's representatives to discuss the potential for collocation on this tower. This meeting revealed that the tower was very near its structural maximum and, at that time, had additional antenna loading pending that would fill its remaining capacity. Tower extension was not physically possible and site expansion with tower replacement was not a viable option, as the site was situated literally on top of the Appalachian Trail. The parent parcel was also too small to support development of a second site. The site was not viable due to tower and ground space limitations.

ALBANY ALTERNATIVE 5: PORT CLINTON

A series of three Commonwealth of PA towers located in the Conrad Weiser State Forest, just east of the Borough of Port Clinton, were evaluated for use in the Berks County system. These towers were all located in the same fenced compound and measured 90, 120 & 160 feet AGL. They were located at the following co-ordinates: 40 36 14.33N and -75 59 37.67W (NAD83).

There was very real potential for use of this site. In 2006 Berks County had executed a 'Mutual Use' agreement to share communication tower assets with the Commonwealth of PA. These towers were evaluated in tandem with several other Berks candidate sites, but specifically with one located in West Penn Township of Schuylkill County. It initially appeared likely that the tandem coverage from this site combination would cover the majority of the hard to reach Albany Township. Unfortunately, due to terrain shadowing the propagation model revealed significant areas of non-coverage, not only in Albany Township but also within the Boroughs of Hamburg and Port Clinton, which were physically located in close proximity to the site. The Port Clinton site had to be eliminated from consideration due to its limited coverage potential.

ALBANY ALTERNATIVE 6: ROUND TOP – SPITZENBERG HILL

Other than the southern extension of Blue Mountain itself, only one other terrain feature was found to be capable of providing radio coverage to both the north and south of Blue Mountain in the Albany Township area; Round Top or Spitzenberg Hill. This hill was located east of PA Route 143 and actually reaches a height of 1000 feet AGL at the following co-ordinates: 40 36 03.31N and -75 51 38.22W (NAD83). The hill is actively cleared for farming on its eastern flank and the landowner was interested in hosting a Berks County communications site.

The computer model predicted excellent coverage, but further investigation revealed that the property was enrolled in a State/ County Agriculture Preservation program and could not be developed. Further analysis of the western side of the hill revealed no access road or utilities extended to the hilltop, affording no viable location to deploy a site. The Spitzenberg Hill candidate area had to be removed from consideration because a public safety radio tower cannot be located on this parcel as a result of the parcel being enrolled in a State/County Agriculture Preservation Program.

ALBANY ALTERNATIVE 7 - PROPOSED SITE LOCATION: HAMBURG – PULPIT ROCK

Having no other viable options that were capable of achieving the required combination of coverage and connectivity, Berks County approached Hamburg Borough, who owns a significant tract of property on Blue Mountain near Pulpit Rock, with the request to develop a raw land site to meet the need of the Berks County 9-1-1 communications system. Hamburg Borough agreed to move forward provided the County met several pre-requisite conditions.

ALBANY (HAMBURG – PULPIT ROCK) SITE CONDITIONS

To satisfy the first condition, the County sought permission from the estate of the family that had originally deeded the property to the Hamburg Borough, which was graciously granted in consideration of the overriding community benefit. Berks County was also required to coordinate with the Lehigh Valley Amateur Astronomical Society (LVAAS) to assure that placement of the site would not impact the observatory's primary view shed in the western sky. Berks County actively worked with LVAAS to select a location. Based on that location, technical due diligence was also undertaken to assure non-interference with the existing Pulpit Rock - First Energy communication tower, which had been previously assessed by Berks County. The proposed location was selected to maximize potential radio coverage while also minimizing impact by situating the site as close as possible to the existing First Energy tower. The Berks County site on Hamburg Borough's property would also utilize the existing access road and utility easement, thereby limiting the amount of construction required for the actual site area, with a minimal driveway to be run off of the existing road. The proposed location of the site development is at the following co-ordinates: 40 35 48.83N and -75 56 01.59W (NAD83).

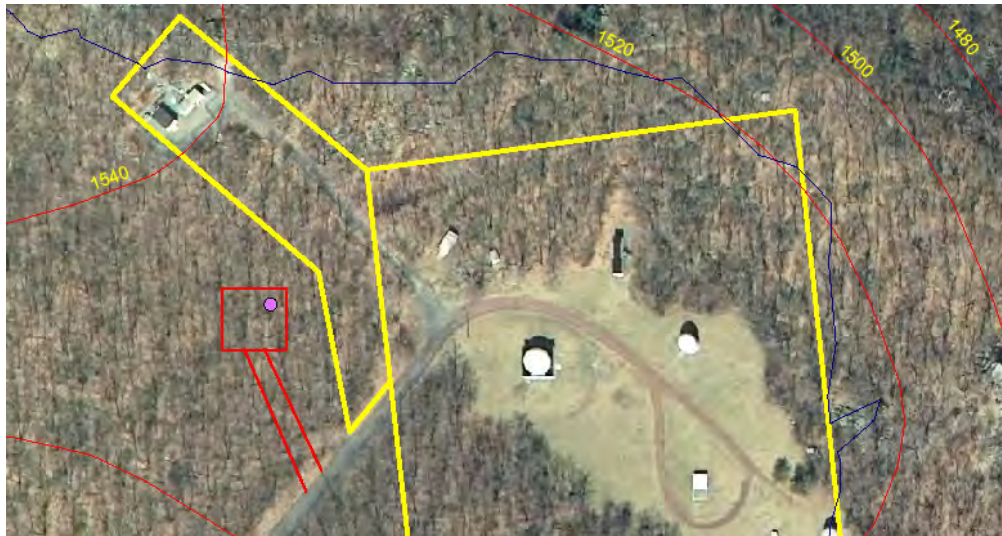


Figure 1. Aerial View of the Proposed Site: Driveway and compound in red, tower center (provided co-ordinates) is the purple dot. Parcel boundaries are yellow and the Appalachian Trail is depicted as the blue line.

ALBANY (HAMBURG – PULPIT ROCK) PROPOSED TOWER DESIGN AND CONSTRUCTION

The proposed site would consist of a three-legged, self supporting tower measuring 199 feet AGL (no tower lighting will be required per FAA study 2012-AEA-987-OE). A pad mounted pre-fabricated composite shelter would be deployed to provide a safe, environmentally controlled space for the radio equipment. Commercial electric service would be distributed from a utility board located inside of the compound, while back up power will be provided by a 100 kW generator and its associated twin 1,990 gallon liquid propane tanks, to be installed underground. The entire site would be enclosed within a secured, fenced perimeter compound measuring approximately 60-foot-by-60-foot. The gated perimeter fence will be eight feet in height and topped by razor wire. An integrated grounding system, specifically designed for this site, would be installed to afford maximum protection from lightning strikes and electrical surges for the protection of the equipment and the safety of any technicians working at the site. Every aspect of the design and construction would meet or exceed industry standards for critical (public safety grade) communications sites.

ALBANY (HAMBURG – PULPIT ROCK) PROPOSED TRANSMISSION SITE COVERAGE

This proposed site deployment, working in tandem with the adjacent sites of the system, would afford the majority of the required radio coverage in its immediate area, which is essential in this heavily used recreational area of Berks County. However, difficult to reach, non-coverage holes remain in other portions of Albany Township that may require deployment of an additional 'fill site' to meet required coverage parameters of the full system. Berks County and Motorola are currently engaged to find a deployable solution in this exceedingly difficult geographic area of the county. It should also be noted that if the proposed Albany site were to be removed from the crest of Blue Mountain,

the resulting coverage and connectivity gaps could not be compensated for by the remaining sites in the system. The County commissioned a Coverage Analysis from Motorola to evaluate coverage and interoperability if the proposed Albany site were not built as part of the project. Table 1 illustrates that without inclusion of the proposed Albany site, all coverage scenarios, save one, fail to meet Motorola's contractual coverage guarantees provided to Berks County in order to meet the needs of the emergency response community being served by the system.

The proposed Albany site is a key nexus in the microwave system in the north-central section of Berks County. It provides line of site links to three separate remote sites within the framework of the county-wide system. Given the geography of northern Berks County, these links could not be physically sustained from low lying sites located off of the ridgeline. Additionally, while multiple low lying sites might achieve some level of coverage in their immediate areas of deployment, the mountain itself would remain a huge gap in coverage. This gap would not only render the 95% county-wide coverage specification unattainable, it would create an absolute safety issue not only for the citizens who would seek to recreate along Blue Mountain, but also for the first responders who are compelled to respond to incidents which occur in the area.

ALBANY SITE CONCLUSIONS

In summary, Berks County has considered seven locations for the Albany Site in which to either collocate or construct a new tower facility in order to meet their coverage and connectivity objectives to insure a functional public safety radio system. Six of the sites will not meet the stated objectives due to limitations in structural capacity, coverage, connectivity, land use limitations and/or constructability issues. The Hamburg Borough – Pulpit Rock site was determined to be the only alternative to meet the complex needs of the Berks County project in the Albany Township area.

BETHEL RADIO TRANSMISSION SITE

Appendix B shows the locations and elevations of all considered site alternatives as well as the proposed Bethel Township – Hill Road Site.

SITE ALTERNATIVE 1: BETHEL CONCEPTUAL SITE

The original search for a viable site location in the northwestern section of Berks County was called Bethel and was included in a previously developed conceptual radio system design as a raw land candidate. This site was intended to provide radio coverage and line of sight connectivity to the northwestern section of Berks County as well as interoperability communications with neighboring Schuylkill and Lebanon Counties, to the north and west, respectively. Again, the local terrain dictated that a site on top of the ridge would be essential to delivery of the required combination of coverage and connectivity. The reference co-ordinates provided were as follows: 40 30 52.92N and -75 17 22.02W (NAD 83).

In March 2010, we made a site visit to the general area of this proposed location and found it to be a random high spot located in PA State Game Lands # 80 on the crest of Blue Mountain. Unfortunately, there was no accessibility or utility service into the area. It was also found to be in proximity to the AT. This location was discounted as not feasible due to these environmental and infrastructure concerns. The site was eliminated from consideration and a search for alternate sites began by Berks County.

SITE ALTERNATIVE 2: BETHEL TOWNSHIP – FIRST ENERGY

An existing self supporting tower was identified near the crest of Blue Mountain, just north of PA Route 501. Investigation revealed that it was owned by First Energy and was located at the following co-ordinates: 40 30 47.05N and -76 20 35.65W (NAD83). The tower measured 90 feet AGL and had a significant load of multiple microwave dishes and top mounted antennas already deployed. Berks County met with the site's management company and discovered that the tower was very near its structural capacity and was not able to be extended. Additionally, the compound was full and site expansion with tower replacement was not a viable option as the site parcel left no room to expand its footprint. The site was not viable for Berks County to use due to both tower and ground space limitations.

SITE ALTERNATIVE 3: HILL ROAD TOWERS

Visual inspection of the ridge line revealed two light duty guyed towers that were located east of PA Route 501. Given the requirement for Berks County to deploy two or three 6 foot microwave dishes at each of its sites for system connectivity, it was obvious that these towers were structurally undersized to handle the proposed deployment. Initially these towers were not evaluated further or considered for use in the Berks County system.

However, during a June 2011 meeting with the PA's Department of Conservation and Natural Resources (DCNR), Berks County responded to a request to reconsider these towers and conducted due diligence to assess the viability of these towers. They are both located north of Hill Road in Bethel Township. The first site (westernmost tower) was found to be privately owned by Donley Communications and located at the following co-ordinates: 40 30 50.9N and -76 19 43.8W (NAD83). The site consisted of an older, light duty guyed tower measuring 140 feet AGL. It had significant antenna loading already in place. There was no secured perimeter to enclose the existing equipment or generator shelters. It was confirmed that this site was not viable for use in the Berks County system because of coverage, tower space limitations and structural concerns with the tower.

The second site (easternmost tower) was determined to be owned by American Tower Corporation (ATC) and was located at the following co-ordinates: 40 30 52.2N and -76 19 42.7W (NAD83). The site was called Bethel 1 (ATC #75082) and it featured a 180 foot guyed tower that utilized short guying to make the site conform to the property boundaries. In spite of its moderate loading, the tower did not possess either the physical space or structural capacity required to accommodate Berks County's proposed loading. Therefore, this site was also confirmed to be insufficient for use by Berks County.

SITE ALTERNATIVE 4: AMERICAN TOWER #88183 (APPLEBEE)

In April of 2010 this site was also identified as being located north of PA Route 183, along the crest of Blue Mountain at the following co-ordinates: 40 30 58.1N and -76 20 09.5W (NAD83). The site consisted of a guyed tower measuring 188 feet AGL and featured an irregularly shaped, fenced compound with two buildings deployed. This was an older, heavy duty tower with a single 9 panel cellular array deployed at its top and three ten foot microwave dishes in the upper one-third of its length. Otherwise the tower was open.

A site visit was scheduled with the regional site manager from ATC to discuss the potential Berks County deployment. ATC's representative indicated that the one shelter was actually empty and could potentially be renovated for use by Berks County. He also indicated that the microwave dishes were no longer in use and could be removed to create more space and structural capacity. Being the only structurally viable option in this area, the site became a conceptual candidate for the proposed radio system. In the fall of 2010 Motorola was selected as the radio system vendor and a conceptual site plan was developed. In January 2011 the preliminary site design was proposed to ATC in order to obtain an estimated lease cost. The original lease proposed by ATC was \$5600 monthly and included annual escalators. At that projected cost, the County began to research site development options. In April 2011, ATC significantly reduced its asking price and an application package was prepared and submitted to formally request space at the site. Unfortunately, ATC subsequently indicated that a recent structural analysis performed on the tower revealed that it was near its capacity (not inclusive of the significant proposed loading required by Berks County). Results of further technical analysis by ATC determined that the level of structural enhancement required to accommodate Berks County was not possible. In the intervening time, ATC had taken on an additional commercial entity, making the proposed raw land development site that was proposed with DCNR the next best option for efficiently providing radio coverage in the western border section of Berks County.

SITE ALTERNATIVE 5: BETHEL – DCNR SITE

In March 2011, Berks County approached the DCNR to inquire if it would be interested in having Berks County develop a 'dual use' communication tower on their westernmost tract of property in the Conrad Weiser State Forest. The Use Agreement executed in 2006 between Berks County and the Commonwealth of PA would have allowed for shared use of radio system infrastructure on a non-interference basis. The proposed concept was that DCNR would provide the ground space along the existing access road into the site for Berks County to develop its site. This location would have situated the proposed tower in immediate proximity to access, utilities and the existing ATC tower site located in the immediate area. Regional DCNR representatives indicated that the idea of providing a shared site to address communication needs for multiple Commonwealth of PA entities (DCNR, PA Game Commission & PA State Police) was appealing. The proposed tower site was planned to afford both structural capacity and physical space to accommodate Berks County and Commonwealth of PA entities.

In early April, 2011, representatives of DCNR and Berks County performed a site walk to discuss the concept and logistics of the proposed site development. A location was mutually selected that would utilize the existing access road and utility easement in an effort to limit environmental disturbance as much as possible. The co-ordinates for the proposed location are: 40 30 54.8N and -76 20 04.9W (NAD83). DCNR was specific that they would require Berks County to undertake consultation with the NPS given the close proximity of the Appalachian Trail.

That process led to meeting in June of 2011 with representatives of the NPS, Appalachian Trail Conservancy (ATC), Hawk Mountain Wildlife Sanctuary, PA Audubon, Berks County Conservancy (BCC) and the DCNR regional and state Right of Way departments. At that meeting, it became clear that the DCNR Right of Way office did not share the local region's interest in the proposed site and Berks County was encouraged to find another viable deployment option for Bethel Township.

BETHEL ALTERNATIVE 6 - PROPOSED SITE LOCATION: BETHEL TOWNSHIP – HILL ROAD

Based on discussion at the June 2011 environmental stakeholders meeting, the Pennsylvania DCNR representatives told Berks County that it would have to formally assess and determine the viability of the existing light duty, guyed towers and their parent properties located along Hill Road, as a pre-requisite to any further consideration of the proposed development on the DCNR tract in the Conrad Weiser State Forest (see Bethel – DCNR section above). The DCNR representatives further indicated that they would find this location to be a desirable alternative to the proposed location on DCNR property. A site visit to assess both the ATC and Donley Communications Towers was scheduled (see Hill Road Towers section above).

The site / property owner for the Donley Communications site, Mr. Doug Donley, requested to attend the site visit with Berks County. Having discussed the proposed Berks County site deployment in detail and having found the Donley tower to be both physically and structurally deficient to meet the system requirements, Mr. Donley offered to lease ground space on his Hill Road property to enable Berks County to develop a dedicated public safety tower site. This property was found to afford equivalent coverage to the DCNR property, provided that the tower height was increased to offset the lower ground elevation of the Hill Road location (60 feet less than the DCNR location,

mandating a tower height of 255 feet AGL). The proposed deployment would situate the tower at the following coordinates: 40 30 51.6N and -76 19 40.4W (NAD 83).

BETHEL SITE CONDITIONS

One of the very compelling attributes of the proposed Bethel location is a lack of special conditions attached to the property usage. The one exception is access to the parcel. The property is currently accessed across a private roadway commonly known as Hill Road. In order to reach the parcel owned by the County's landlord, there are three separate parcels that must be crossed on this private driveway. At the time of this writing, the County has bought one parcel, bought access on a second, and is finalizing the securing of easement across the third.

PROPOSED BETHEL TOWER DESIGN AND CONSTRUCTION

The proposed site would consist of a three-legged, self supporting tower measuring 255 feet AGL (tower lighting will be required per FAA study 2011-AEA-2712-OE). A pad mounted pre-fabricated composite shelter would be deployed to provide a safe, environmentally controlled space for the radio equipment. Commercial electric service would be distributed from a utility board located inside of the compound, while back up power will be provided by a 100 kW generator and its associated twin 1,990 gallon liquid propane tanks, to be installed underground. The entire site would be enclosed within a secured, fenced perimeter compound measuring approximately 80-foot-by-100-foot. The gated perimeter fence will be eight feet in height and topped by razor wire. An integrated grounding system, specifically designed for this site, would be installed to afford maximum protection from lightning strikes and electrical surges for protection of the equipment and the safety of any technicians working at the site. Every aspect of the design and construction would meet or exceed industry standards for critical (public safety grade) communications sites.

PROPOSED BETHEL TOWER COVERAGE

The proposed Bethel Township site deployment, working in concert with the adjacent sites of the county-wide radio system, is predicted to afford the required radio coverage in western Berks County, and the critical inter-operational coverage to enable effective communication with neighboring Lebanon and Schuylkill Counties. Again, it is essential to acknowledge that if the proposed Bethel site were to be removed from the crest of Blue Mountain, the impact to the county-wide system as a whole could not be compensated for by the remaining sites in the system. The Motorola Coverage Analysis discussed above in Section IV(g)(iii) for the Albany site, similarly demonstrates that without inclusion of the proposed Bethel site, all but two coverage scenarios fail to meet Motorola's contractual coverage guarantees with Berks County, necessary for the project. Furthermore, if the Bethel site is not constructed, the coverage from the new paging and back up paging system will be less than the current coverage provided under the existing paging systems in the Bethel area.

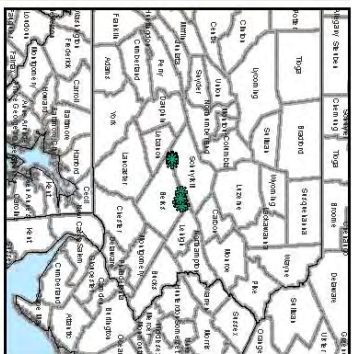
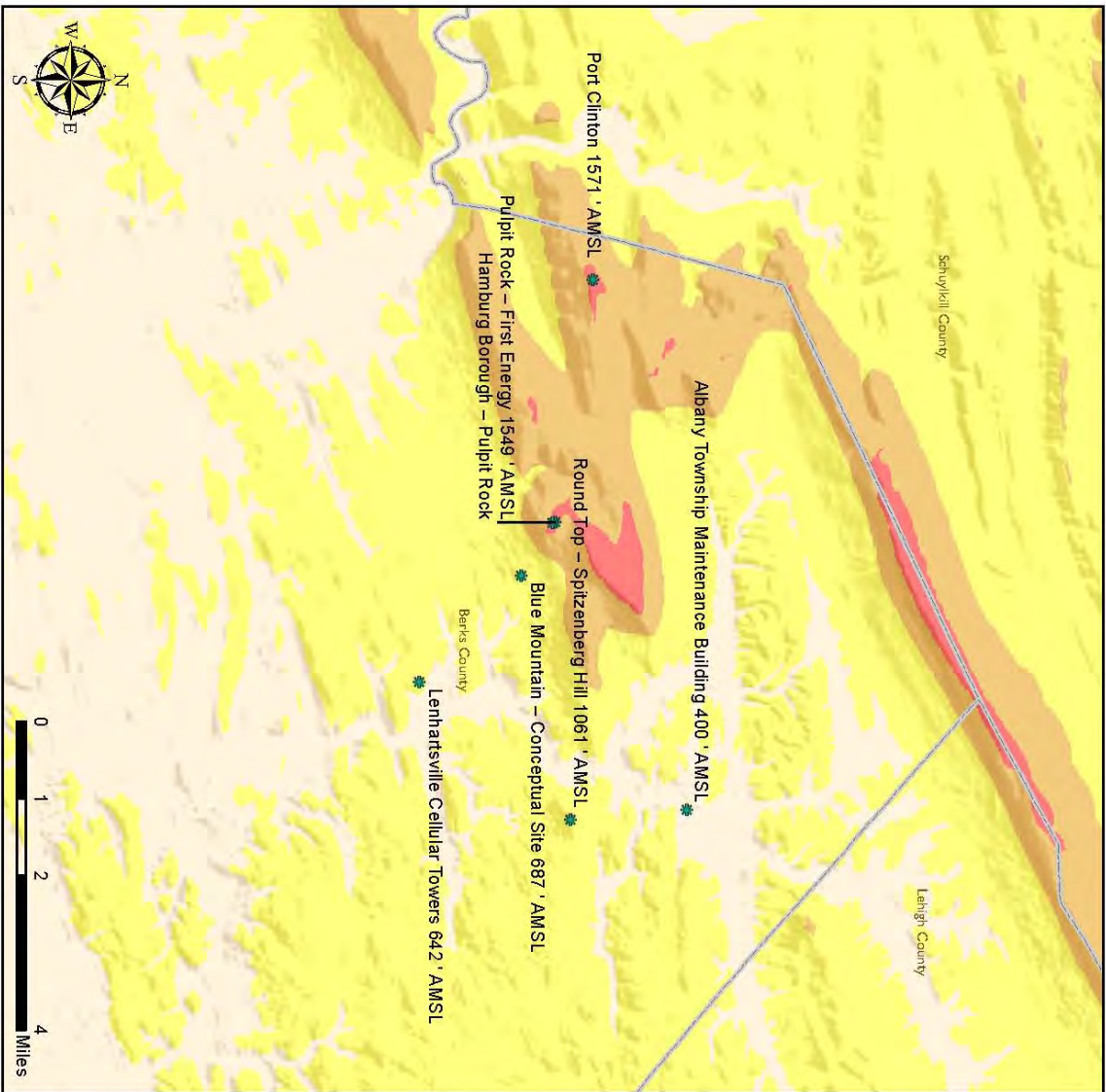
While substituting multiple low lying sites might achieve limited coverage in their immediate areas of deployment, the connectivity linkage that the Bethel site easily provides could not be efficiently replicated. In that scenario, the

mountain itself would remain a huge gap in coverage, which would render the goal of 95% county-wide coverage unattainable. It would also create an absolute safety issue for the citizens who live and recreate in the region, and for the law enforcement, fire and emergency medical personnel that respond to incidents which occur in and around the Bethel Township area.

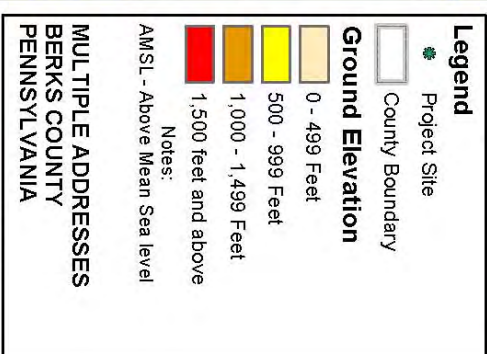
BETHEL SITE CONCLUSIONS

In summary, Berks County has considered six locations for the Bethel site at which to either collocate on existing towers, or look to construct a new tower facility in order to meet their coverage and connectivity objectives to insure an effective public safety radio system. Five of the sites will not meet the objectives whether due to limitations in coverage, structural capacity, connectivity, land use limitations and/or constructability issues. The Bethel Township – Hill Road site is determined to be the only remaining alternative to achieve the radio system's requirements in Bethel Township.

APPENDIX A – ALBANY LOCATIONS



Berks County Projects Albany - Overview



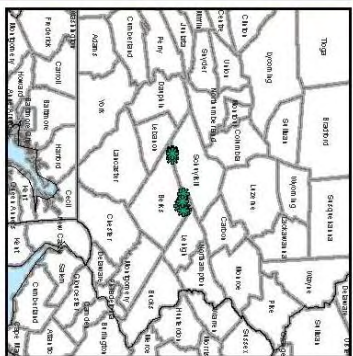
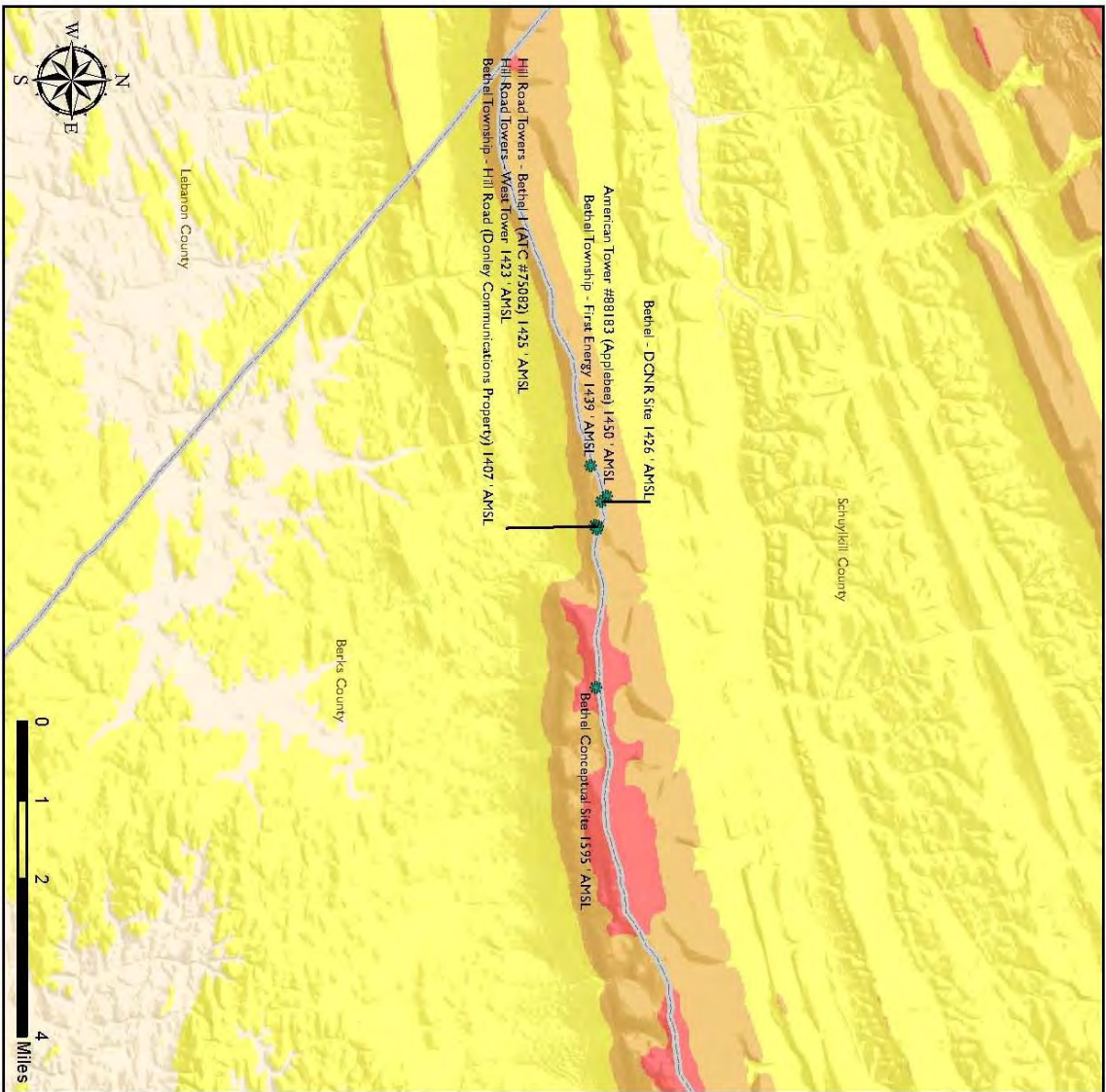
Source: Selected data from ESRI, USGS & EBI.

Project # _____ Created By: _____

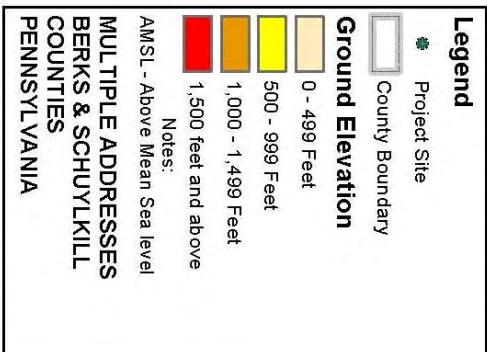
Multiple Sites _____ EBI OIS _____

Date: 3/28/2012

APPENDIX B – BETHEL LOCATIONS



Berks County Projects Bethel - Overview



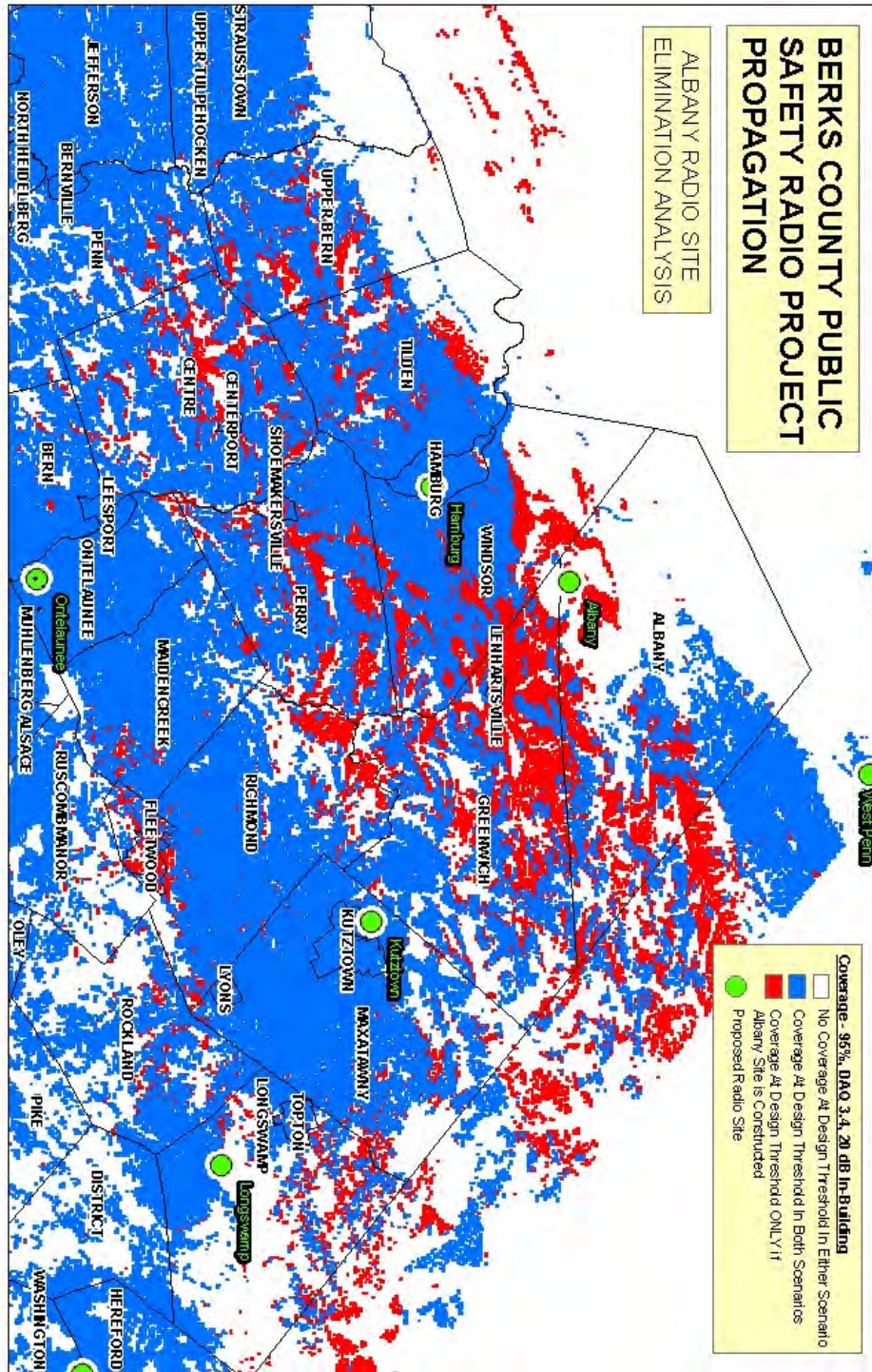
Source: Selected data from ESRI, USGS & EBI.

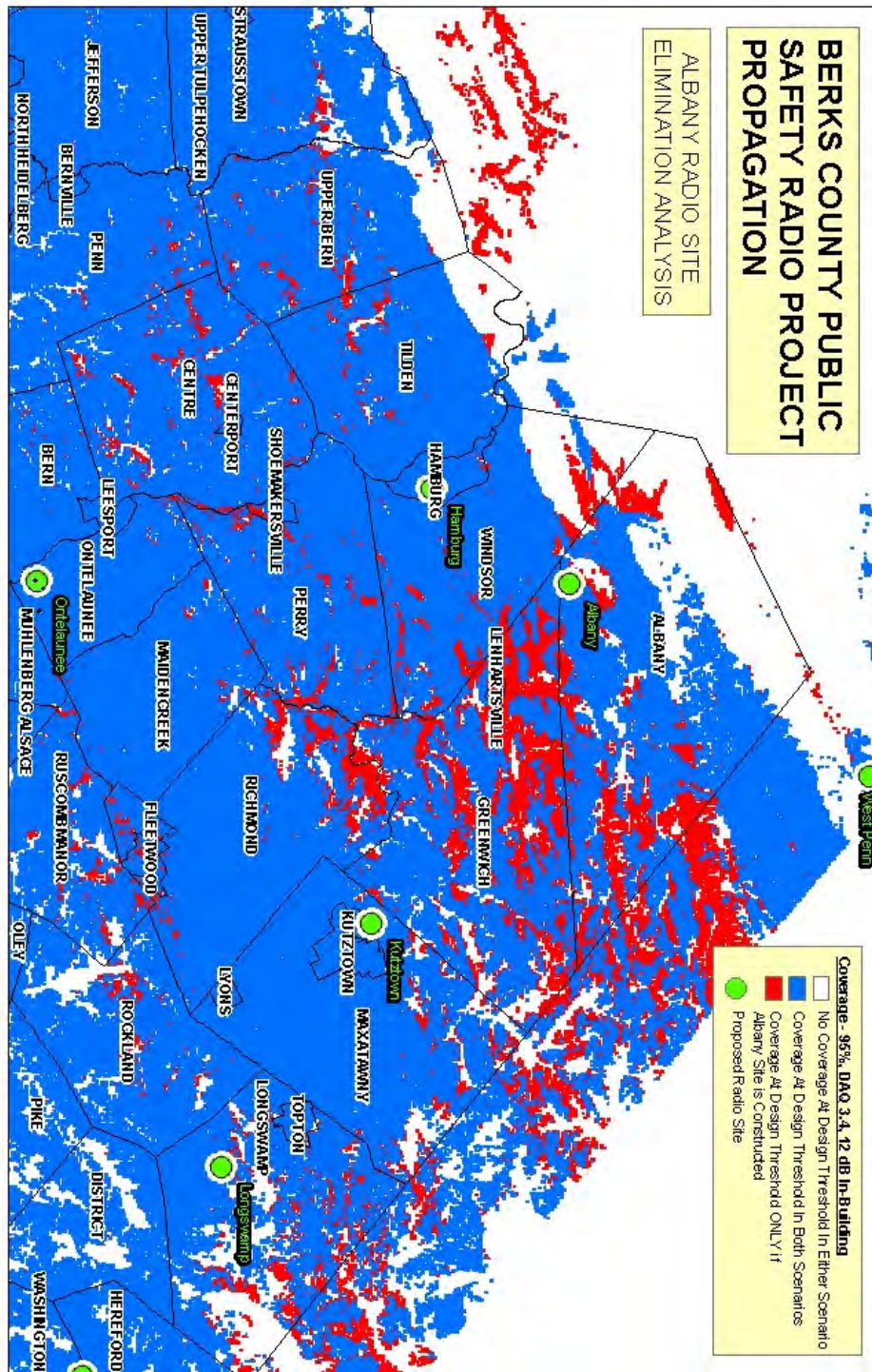
Project # _____ Created By: _____

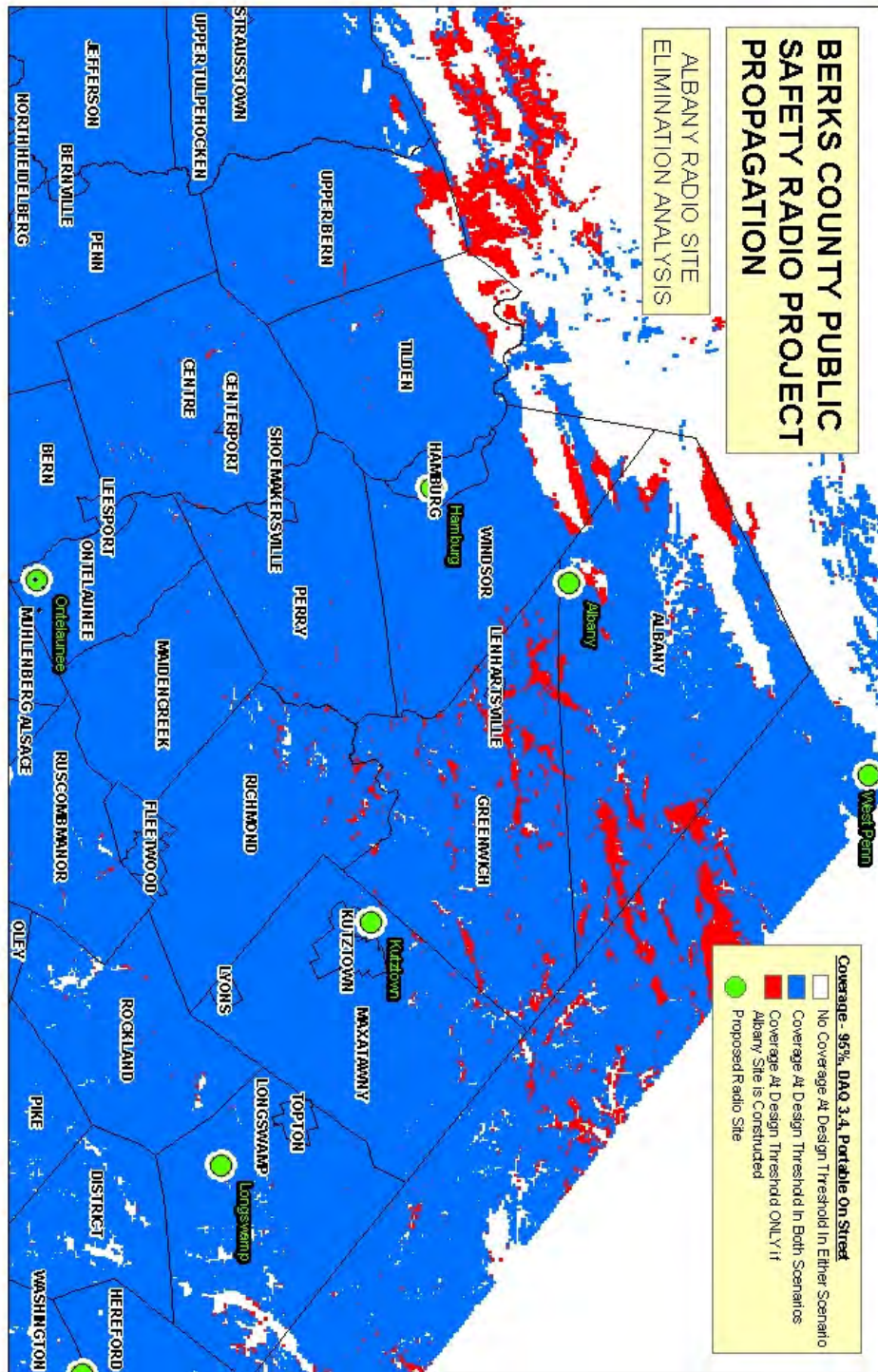
Multiple Sites _____ EBI O/S _____

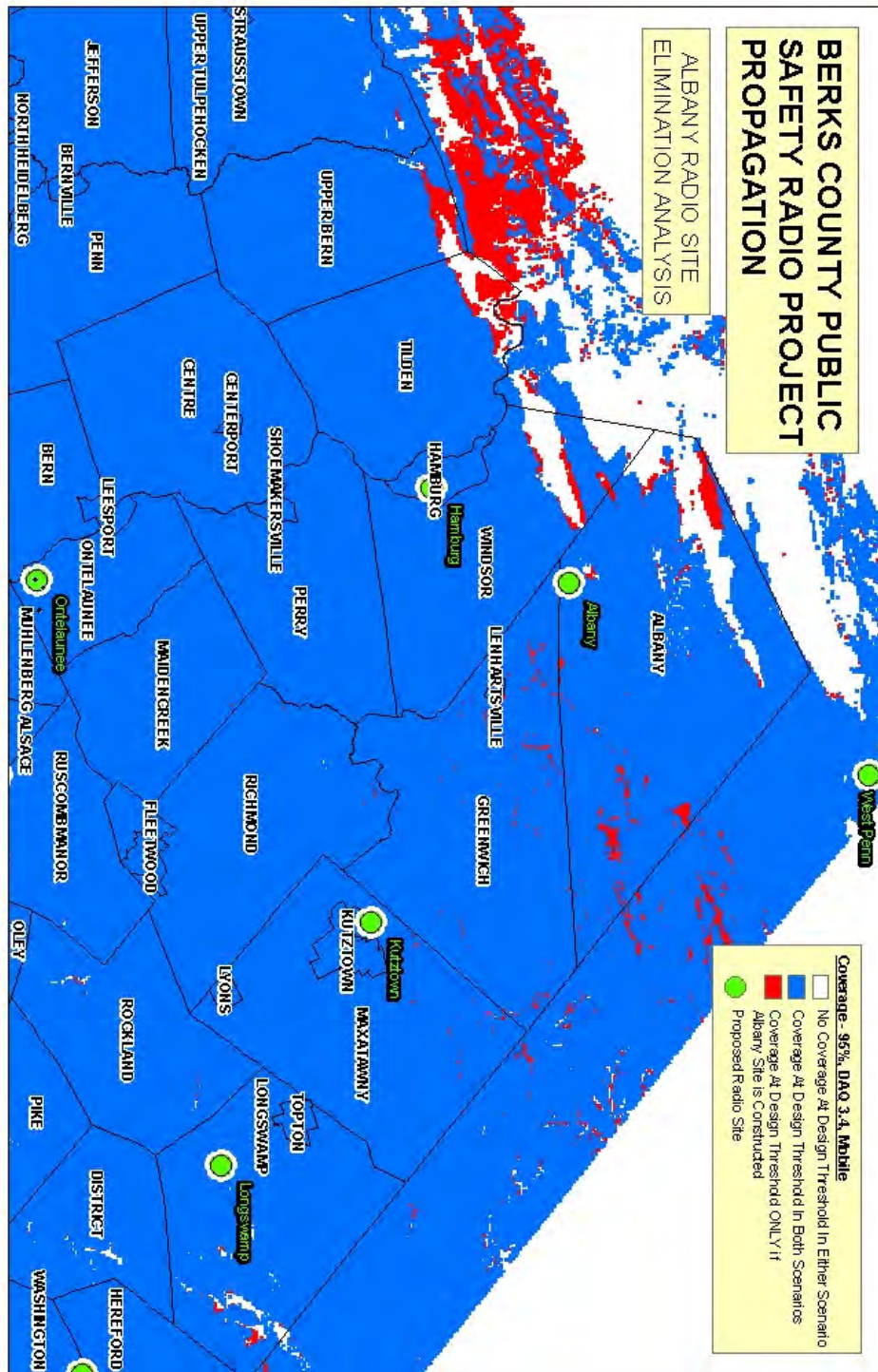
Date: 3/28/2012

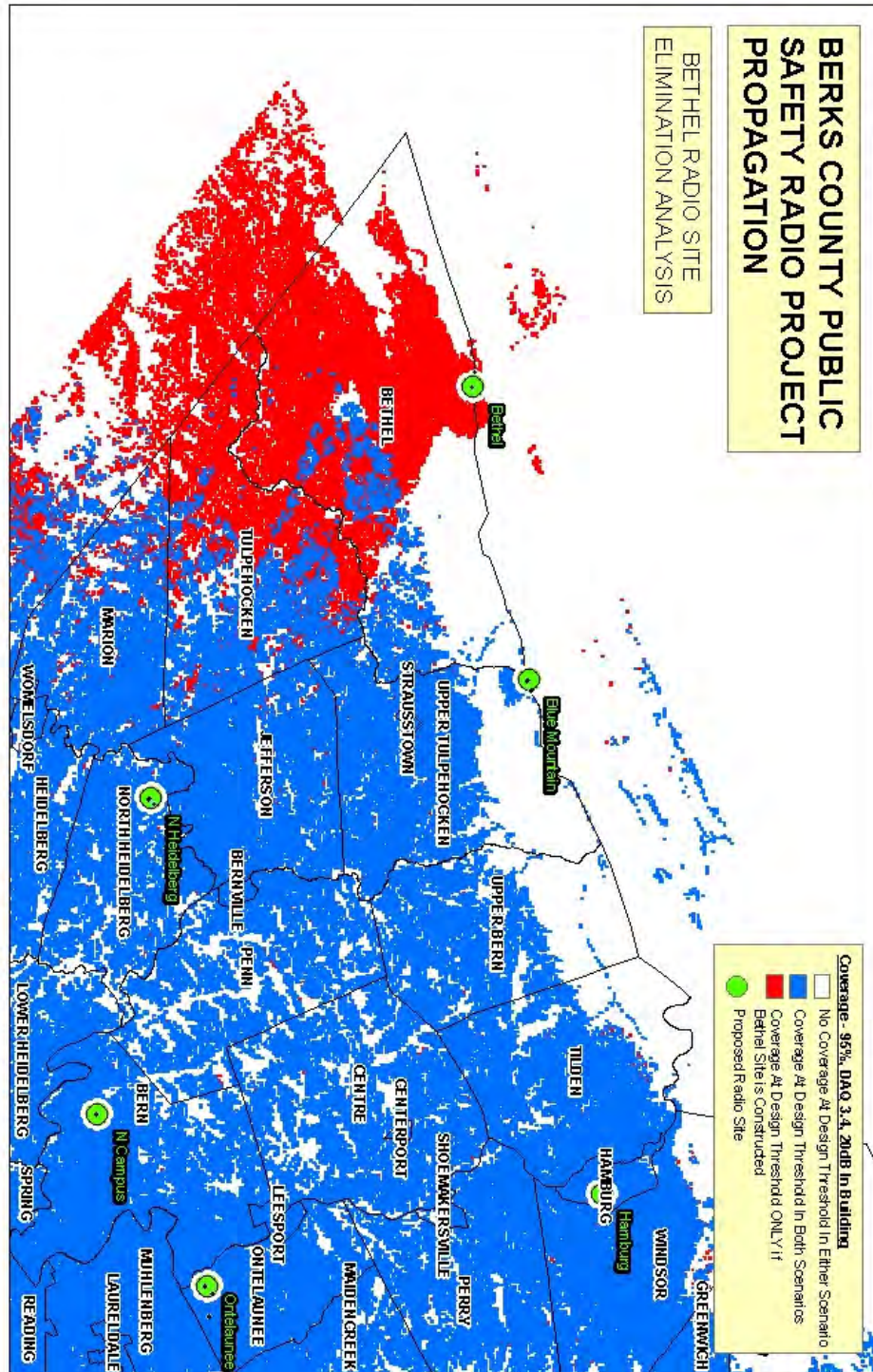
APPENDIX C – 20DB COVERAGE COMPARISON, ALBANY SITE ELIMINATION

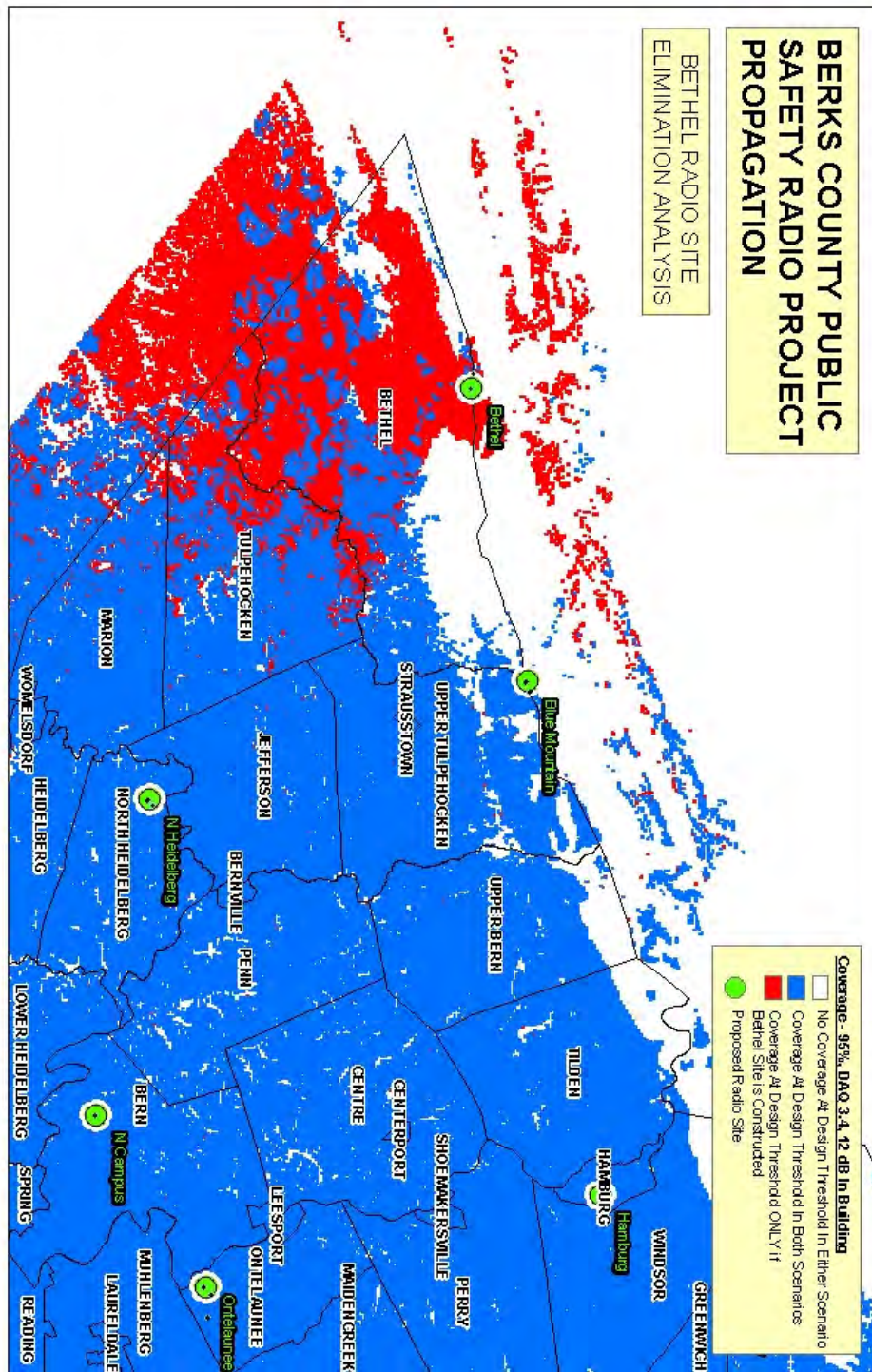


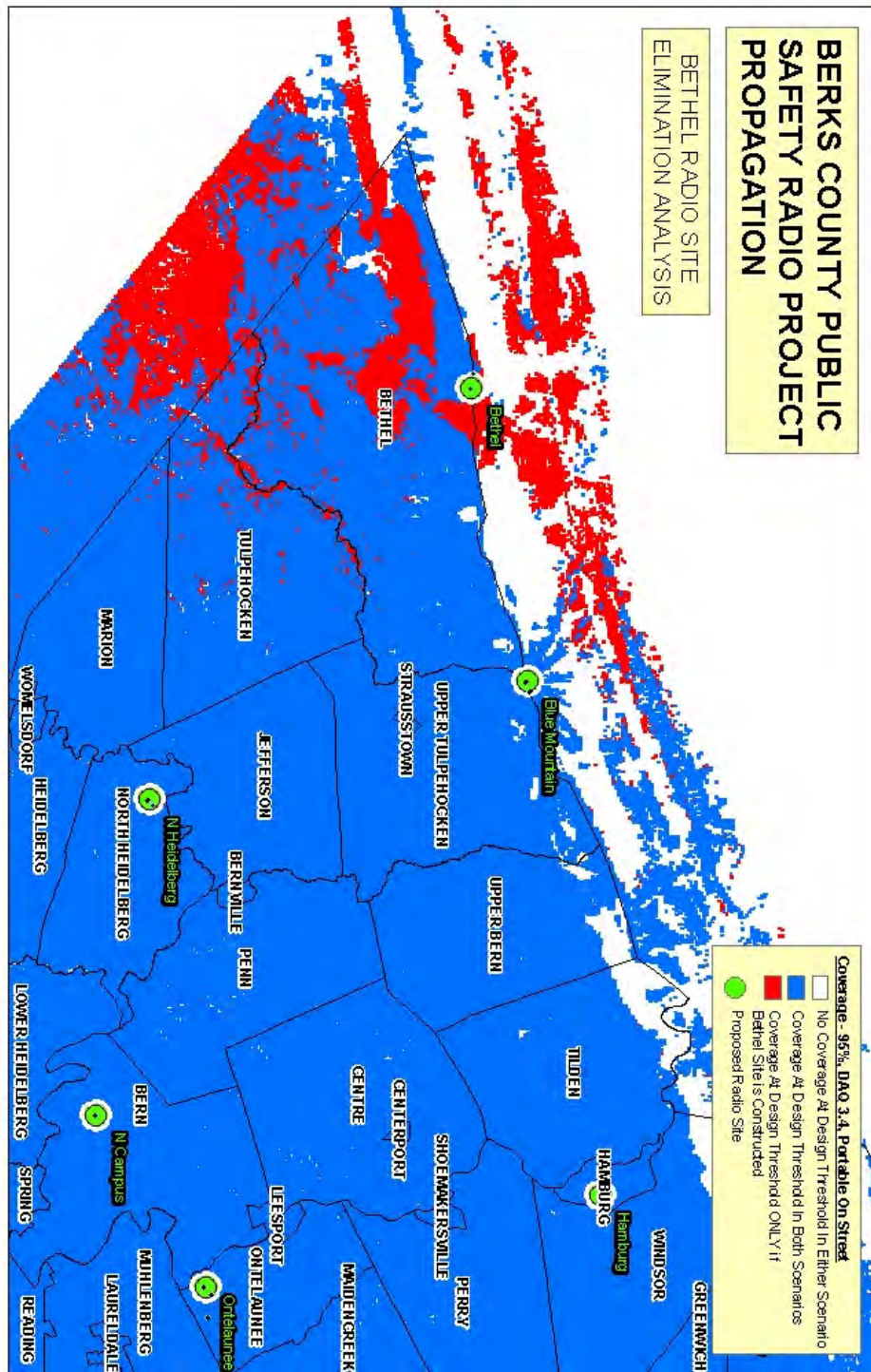




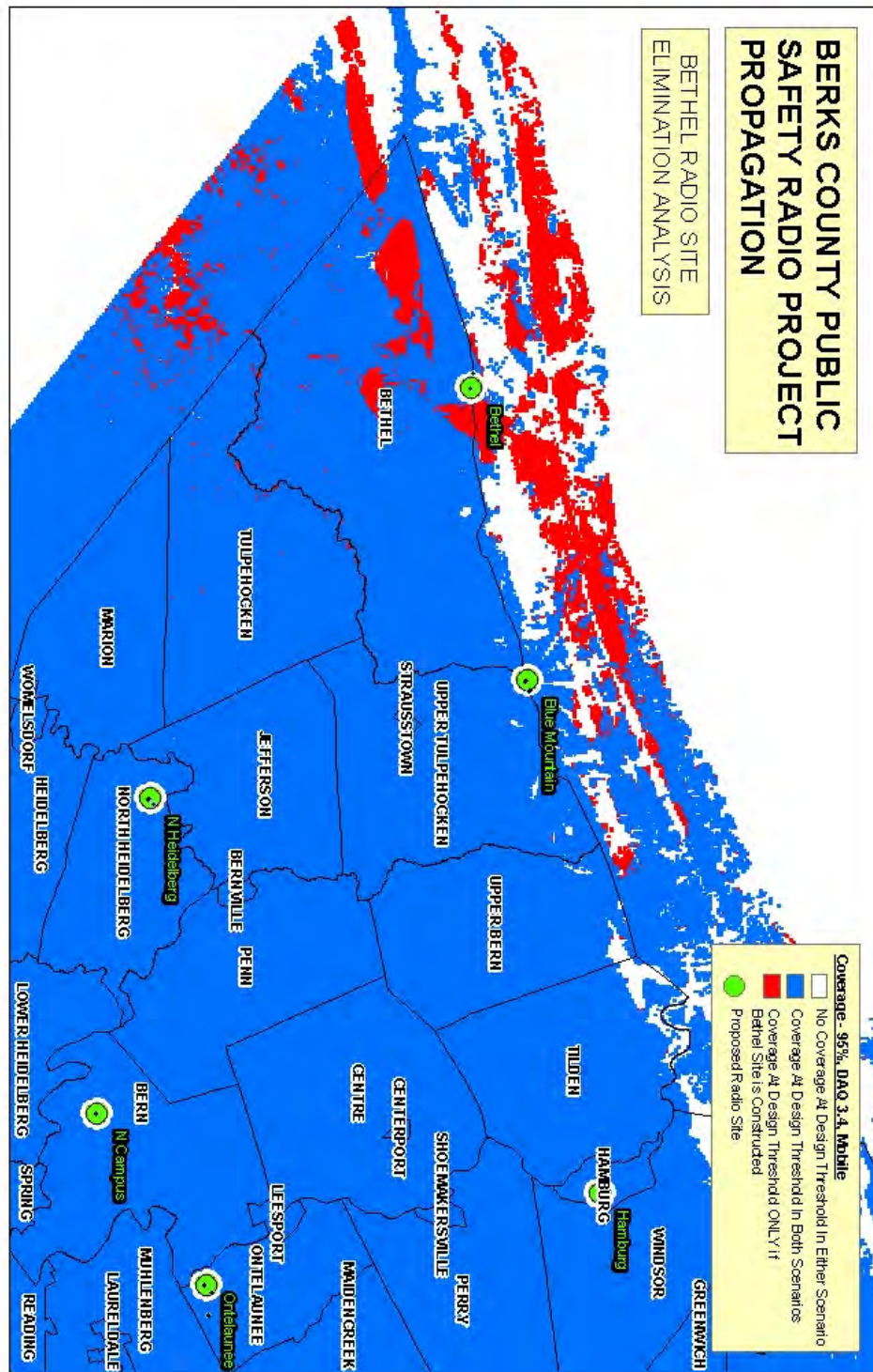








APPENDIX J – MOBILE RADIO COVERAGE COMPARISON, BETHEL SITE ELIMINATION



BERKS COUNTY PUBLIC SAFETY RADIO SYSTEM

ALTERNATES ANALYSIS

ALBANY and BETHEL

RADIO TRANSMISSION SITES

Addendum I

Prepared July, 2012

Berks County Department of Emergency Services



TABLE OF CONTENTS

TABLE OF CONTENTS.....	1
INTRODUCTION.....	2
ALBANY SUMMARY.....	3
BETHEL SUMMARY	4
DISCUSSION.....	5

APPENDICES

APPENDIX A – PORT CLINTON PROP COMPARISON.....	6
APPENDIX B – PORT CLINTON TOWER TOP.....	7

INTRODUCTION

This document is provided in response to the request of Federal Communications Commission Federal Preservation Officer Stephen Del Sordo's July 12, 2012 request for summary tables indicating the reason each alternate analyzed in the licensee's original April, 2012 Alternates Analysis submission was found inadequate. Additionally, at the request of Mr. Del Sordo, propagation information is provided for cases where the lack of coverage from the alternate is not obvious based on location/tower height and surrounding terrain, and where this considerably expensive formal engineering was completed.

All propagation mapping is based on modeling data derived from the Motorola Hydra modeling tool.

ALBANY SUMMARY TABLE

Alternate Analyzed	Alternate Type	Reason Alternate is Unacceptable					Comments
		Inadequate Prop	Inadequate Site Capacity *	No Access/Ground Lease Possible	Impact to Section 106 Feature Worse Than Proposed Location	Lack of Microwave Path	
Blue Mountain	Raw Land			X	X	X	This site is directly adjacent to The Pinnacle overlook directly off the Appalachian Trail and is equally (or more) visible from the AT as the proposed site
Albany Maintenance	Collocation	X	X			X	No engineering analysis conducted due to obvious deficiency in location in relation to surrounding terrain.
Lenhartsville Cell Towers	Collocation	X				X	No engineering analysis conducted due to obvious deficiency in location in relation to surrounding terrain.
Pulpit Rock First Energy	Collocation	X	X				Tower is located immediately adjacent to (within a few hundred feet) of the proposed location but it is 1/2 the height and already significantly loaded with microwave.
Port Clinton Commonwealth	Collocation	X	X				Due to the subjective high viability of this site, investment was made in a limited (portable on street coverage) analysis was conducted of the propagation from this location. The location was deemed inadequate in the limited run, so additional runs (paging, interop bands and in building coverage) were not completed. Mapping of this limited analysis is attached. Additionally, the top real estate on this tower is fully occupied (picture attached).
Round Top	Raw Land			X	X		This site is directly in the eastern sight line from The Pinnacle overlook directly off the Appalachian Trail and is equally (or more) visible from the AT as the proposed site.
Complete Elimination	N/A	X					Comprehensive propagation analysis has been provided within the County's April, 2012 filing.

* Inadequate in terms of structural capacity, vertical real estate, and/or ground space

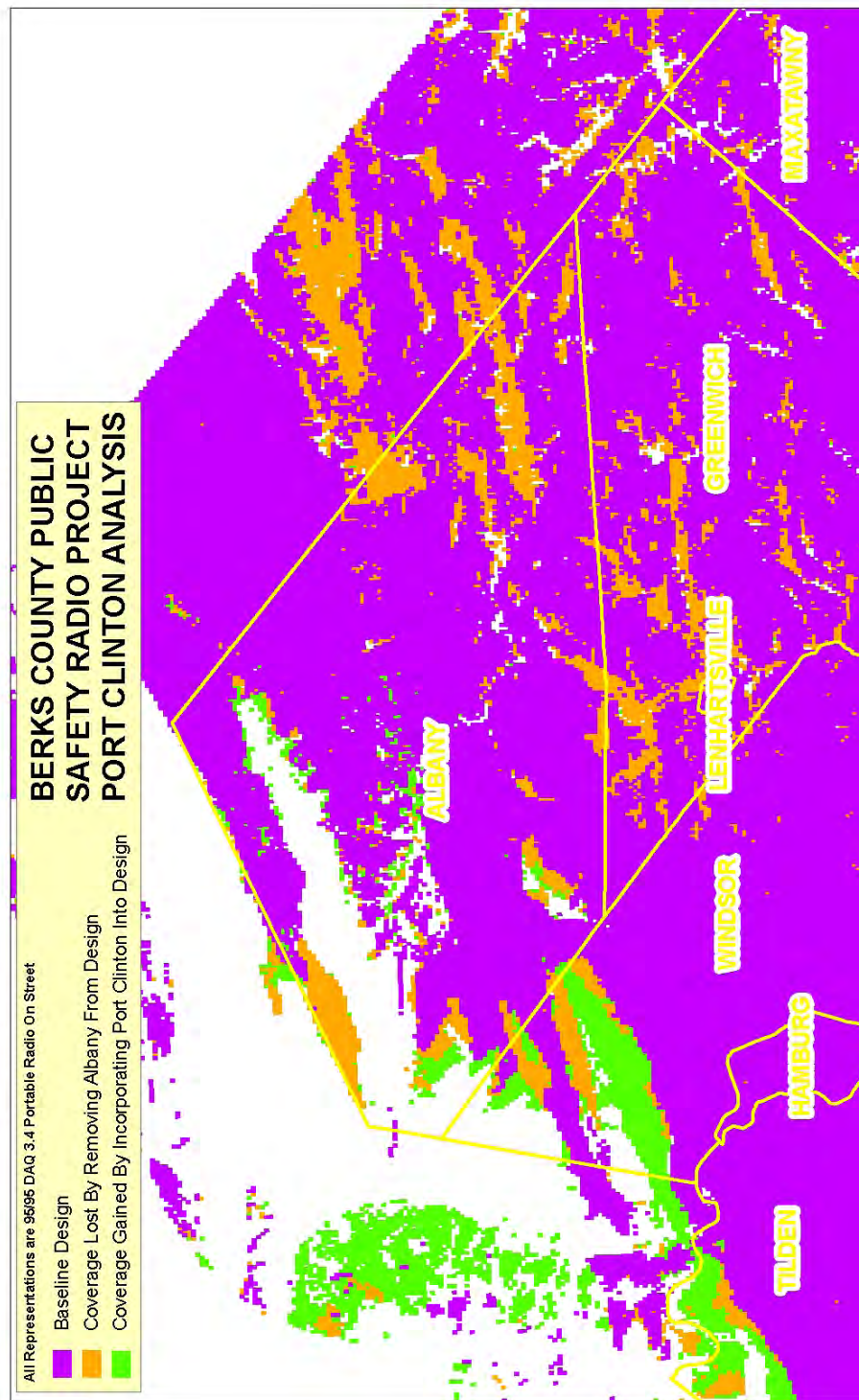
BETHEL SUMMARY TABLE

Alternate Analyzed	Alternate Type	Reason Alternate is Unacceptable					Comments
		Inadequate Prop	Inadequate Site Capacity *	No Access/Ground Lease Possible	Impact to Section 106 Feature Worse Than Proposed Location	Lack of Microwave Path	
Bethel Conceptual	Collocation			X	X		
Bethel First Energy	Collocation	X	X			X	Tower is less than 100' AGL and completely incapable of handling the county's antenna load.
Hill Road Towers	Collocation	X	X			X	These towers are located in the same general vicinity of the proposed new tower but are less than 100' AGL and completely incapable of handling the county's antenna load.
American (Applebee)	Collocation		X				This was considered a high viability site until contact with the owner indicated that the majority of the capacity of the tower was already under contract they could not offer us the space required for deployment.
Bethel DCNR	Raw Land			X			This site could have been constructed with very similar propagation to the proposed site and would have had significantly less impact as it could have been built at less than 200' (unlighted). However, the site would have required an access easement from National Park Service and a lease from PA Department of Conservation and Natural Resources. Preliminary meetings with these agencies revealed a complete unwillingness to discuss this and it was during these meetings that we were actually steered to consider the vicinity of the location at which we are currently proposing building.
Complete Elimination	N/A	X					Comprehensive propagation analysis has been provided within the County's April, 2012 filing.

* Inadequate in terms of structural capacity, vertical real estate, and/or ground space

DISCUSSION

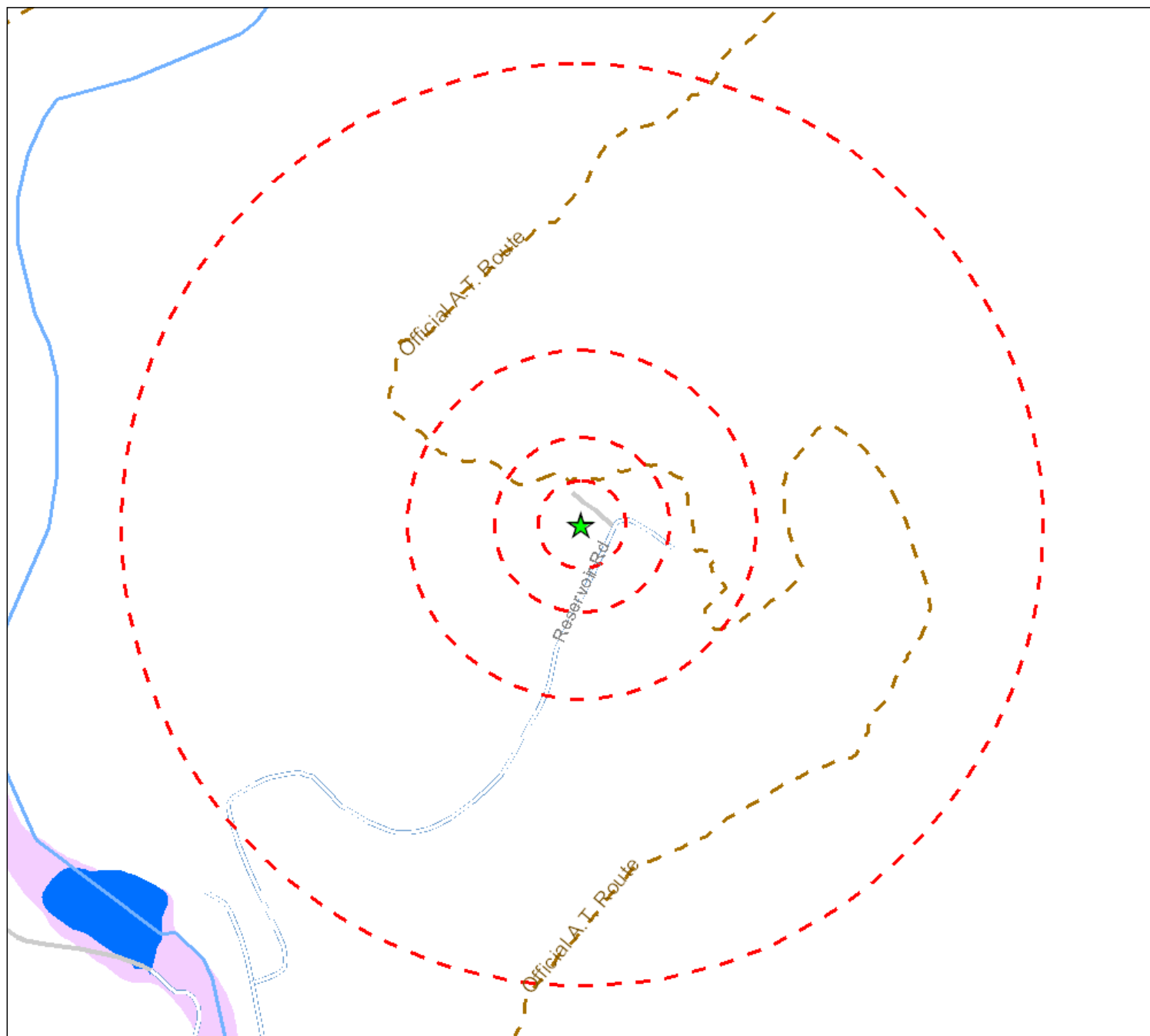
The only alternate that produced an outcome worthy of the expense of formal modeling was the Port Clinton – Commonwealth alternate for the proposed Albany site. This alternate offers some highly desirable coverage in areas that remain without coverage in the proposed system design. For this reason, this collocation site is still under review for inclusion into the system IN ADDITION to the proposed Albany site as a low profile fill site with directional antennas mounted well below the heavily occupied tower top that will permit us to maintain required propagation interference contours as established by Region 28 and surrounding Planning Regions. However, as indicated by the provided mapping, the coverage anticipated from Port Clinton is not an appropriate SUBSTITUTE for the proposed Albany site.



APPENDIX B – PORT CLINTON TOWER TOP



APPENDIX D
RESOURCE MAPS



Legend

- ★ Project Site Site Buffer at 250', 500', 1000' and 1/2 mile

See associated legend for additional map symbology

Source: See associated map legend

Land and Historic Resources Map

/Albany

Reservoir Road

Albany Township, PA 19526

PN: 61113978



0 500 1000 feet

National Datalayers Legend*



National Register Historic Site



National Register Historic District

Source: NPS National Register of Historic Places, updated July 2008



National Park Service Trail

Source: U.S. National Parks Service. Various dates.
NR/GIS WebSite, U.S. Dept. of the Interior, NPS, Wash., D.C.
<http://science.nature.nps.gov/nrdata/index.cfm>



National Scenic Parkway



National Wild and Scenic River



Federally Owned Land

Source: National Atlas of the U.S., Reston, VA, 12/05,
National Wilderness Preservation System
Federal Land Features of the U.S.
-Parkways and Scenic Rivers
-Federal Lands of the United States
-National Wilderness Areas



FWS Critical Habitat

Source: U.S. Fish and Wildlife Service. Various dates.
FWS Critical Habitat for Threatened & Endangered Species website.
U.S. Dept. of the Interior, FWS, Wash, D.C.
<http://crithab.fws.gov/>

National Wilderness Areas by Agency



BLM



FS



FWS



NPS

*Includes data obtained from federal agencies developed to be consistent throughout the US.

National Wetlands Inventory



Stream or Creek



Freshwater Forested/Shrub Wetland



Freshwater Emergent Wetland



Estuarine & Marine Wetland



Unconsolidated Shore



Freshwater Lake, Pond, or River



Estuarine & Marine Deepwater



Open Water

Source: U.S. Fish and Wildlife Service. Various dates.
National Wetlands Inventory website.
U.S. Dept. of the Interior, FWS, Wash, D.C.
<http://www.fws.gov/nwi/>

FEMA Q3 Flood Zone



500-year inundation area.



100-year inundation area.



100-year inundation area with velocity hazard.



Area not included on any FIRM publication.



Undetermined but possible flood hazard area.



Floodway area, including watercourse extent.

No Flood Data No Flood Data Available

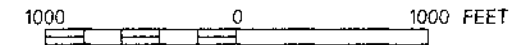
Source: FEMA

Land Based and Historic Resources Legend

Township of Albany
421046



APPROXIMATE SCALE



VALLEY RIM TRAIL

Project Site

TOWNSHIP OF ALBANY
TOWNSHIP OF GREENWICH

TOWNSHIP OF GREENWICH
TOWNSHIP OF WINDSOR

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP
BERKS COUNTY,
PENNSYLVANIA
(ALL JURISDICTIONS)

PANEL 160 OF 678

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ALBANY TOWNSHIP OF	421046	0180	E
GREENWICH TOWNSHIP OF	421047	0180	E
LENHARTSVILLE BOROUGH OF	421048	0180	E
WINDSOR TOWNSHIP OF	421125	0180	E

Notes to User: The MAP NUMBER shown above should be used when placing map orders. The COMMUNITY NUMBER shown above should be used on insurance applications for the subject community.

MAP NUMBER
42011C0160 E

EFFECTIVE DATE:
DECEMBER 5, 1997



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Flood Zone Determinations

SFHA Within 250 feet of multiple flood zones?

Out No

Map Number

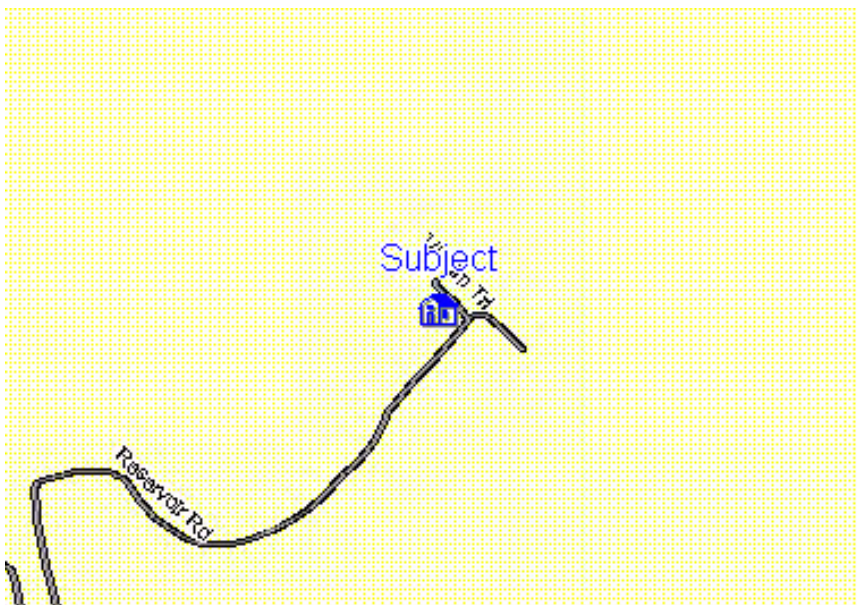
42011C0160E

Community	Community_Name	Zone	Panel	Panel_Dte	COBRA
421046	ALBANY, TOWNSHIP OF	X	0160E	19971205	COBRA_OUT

FIPS CensusTract

42011 0139.00

Copyright 2000, First American Flood Data Services. All rights reserved.



FloodMap Legend

Flood Zones

- Areas inundated by 500-year flooding
- Areas outside of the 100- and 500-year floodplains
- Areas inundated by 100-year flooding
- Areas inundated by 100-year flooding with velocity hazard
- Floodway areas
- Floodway areas with velocity hazard
- Areas of undetermined but possible flood hazards
- Areas not mapped on any published FIRIM

Copyright 2005, CDS Business Mapping. All rights reserved.

Alquist Priolo Fault Zones

- Area Defined as an Earthquake Hazard



U.S. Fish and Wildlife Service

National Wetlands Inventory

National Wetland Inventory Map

Nov 11, 2011



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

- Herbaceous
- Forested/Shrub

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

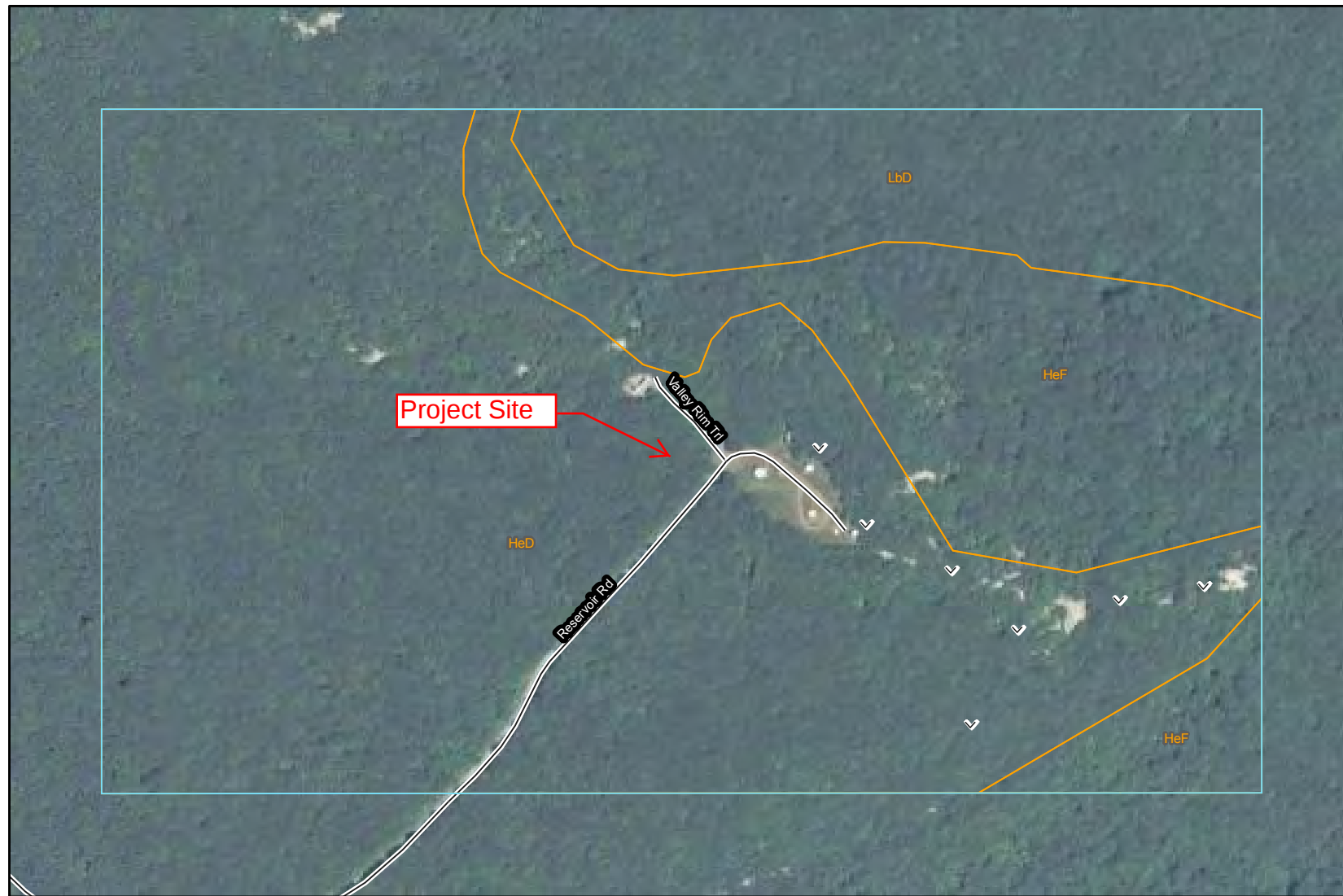
User Remarks:

75° 56' 25"

75° 55' 37"

40° 36' 0"

40° 36' 1"



40° 35' 36"

40° 35' 36"

75° 56' 24"

75° 55' 37"



Map Scale: 1:5,370 if printed on A size (8.5" x 11") sheet.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Units

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot



Very Stony Spot



Wet Spot



Other

Special Line Features



Gully



Short Steep Slope



Other

Political Features



Cities

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

MAP INFORMATION

Map Scale: 1:5,370 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>

Coordinate System: UTM Zone 18N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Berks County, Pennsylvania

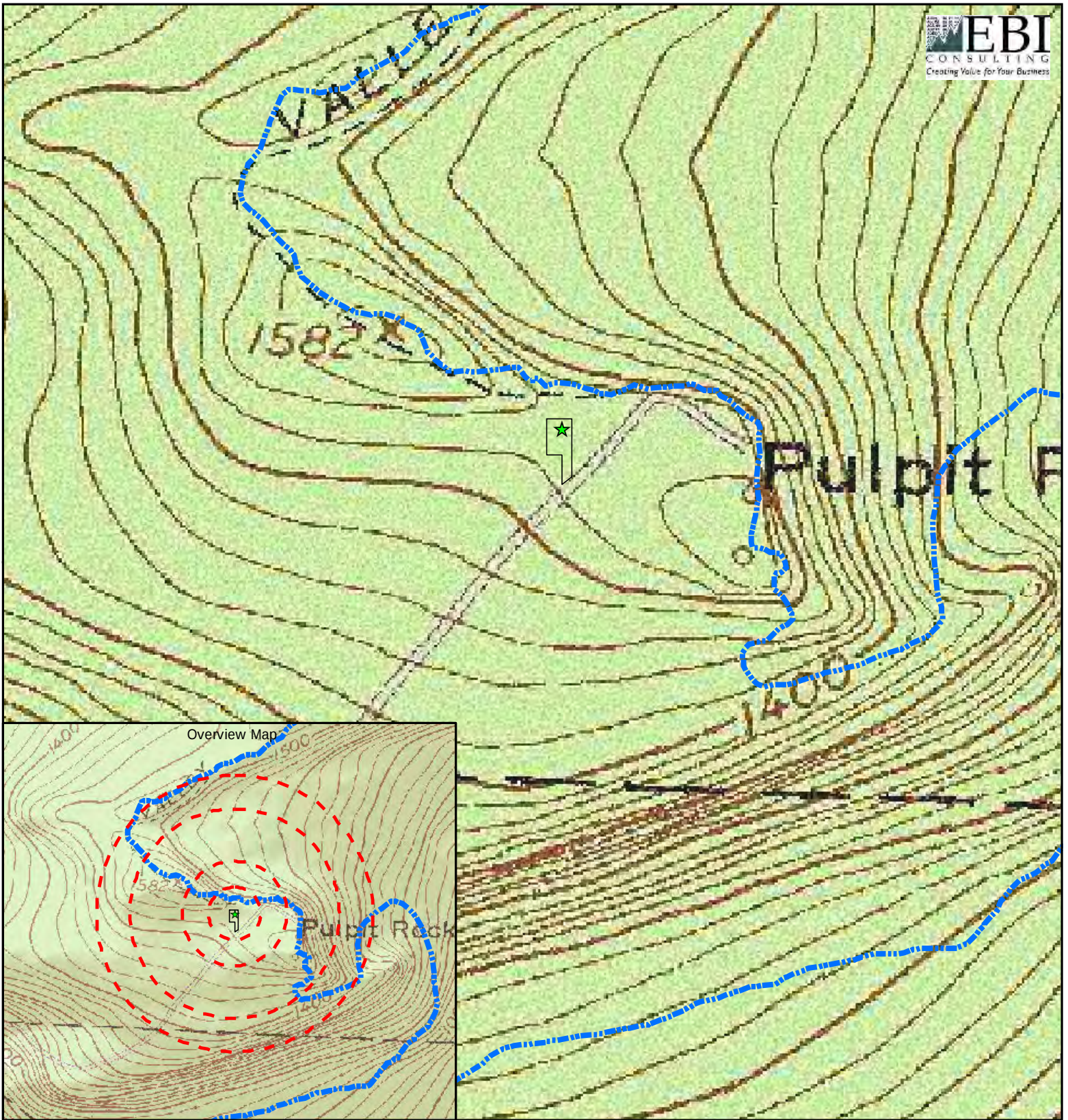
Survey Area Data: Version 8, Jul 28, 2008

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Berks County, Pennsylvania (PA011)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
HeD	Hazleton very channery loam, 8 to 25 percent slopes, extremely stony	90.0	64.7%
HeF	Hazleton very channery loam, 25 to 60 percent slopes, extremely stony	29.1	20.9%
LbD	Laidig very gravelly loam, 8 to 25 percent slopes, extremely stony	20.0	14.4%
Totals for Area of Interest		139.2	100.0%



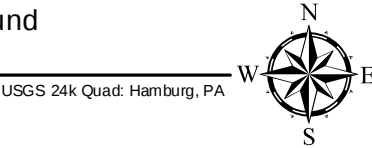
Source: Selected data from USGS, NPS and EBI.

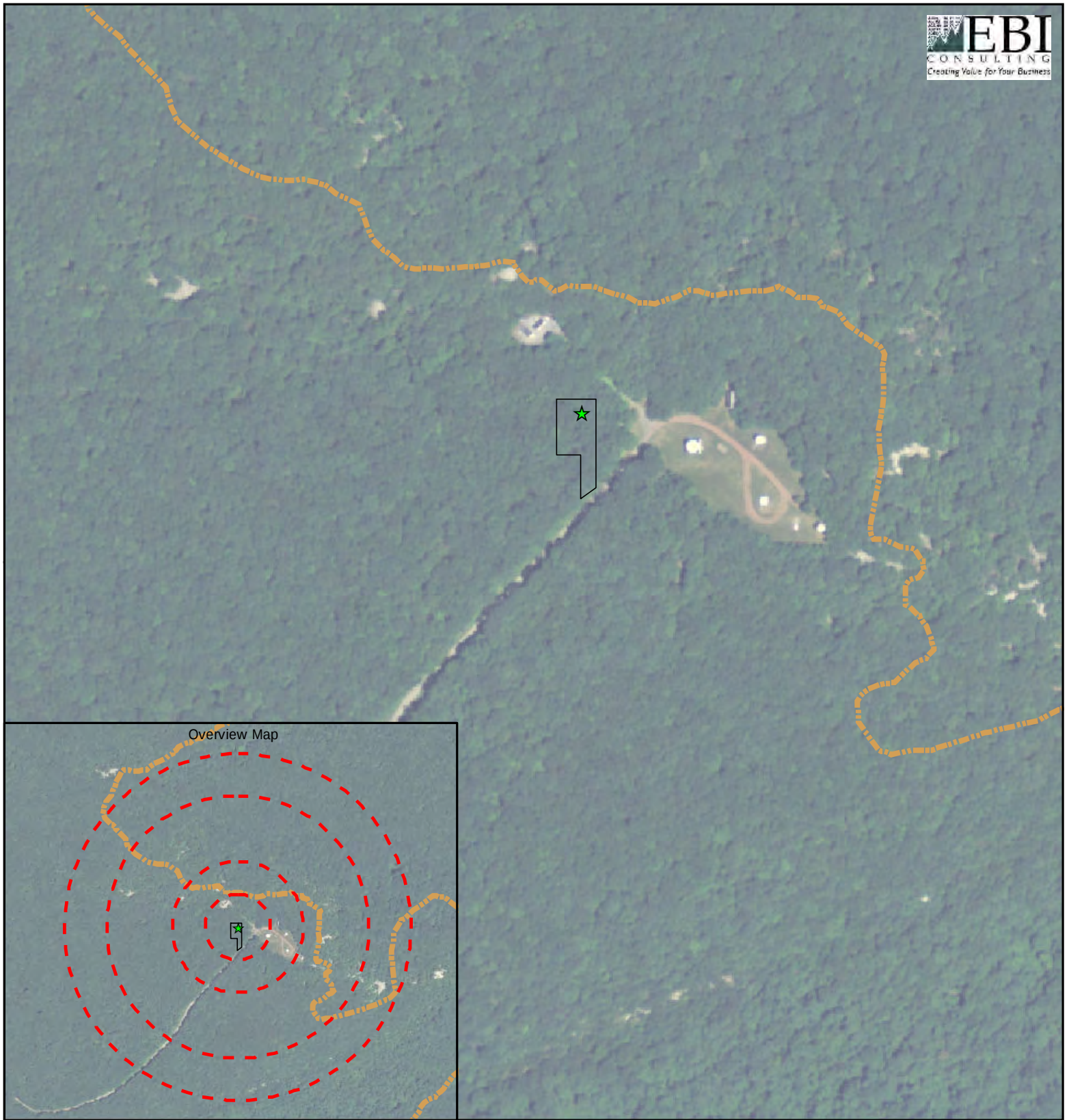
Legend

- ★ Project Site
- 250', 500', 1000' & 1/4 Mile Radius
- Appalachian Trail
- Access & Compound

Appalachian Trail Resource Map

Albany
Reservoir Road
Albany Township, PA 19526





Source: Selected data from USGS,
NPS and EBI.

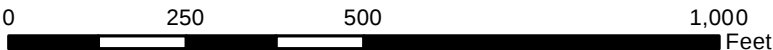
Legend

- | | |
|---|---------------------|
| ★ Project Site | — Appalachian Trail |
| (---) 250', 500', 1000' & 1/4 Mile Radius | □ Access & Compound |

Appalachian Trail Resource Map

Albany
Reservoir Road
Albany Township, PA 19526

USGS 24k Quad: Hamburg, PA



APPENDIX E
PROTECTED SPECIES REVIEW

1. PROJECT INFORMATION

Project Name: **Albany PA PNDI Map**

Date of review: **10/27/2011 4:30:14 PM**

Project Category: **Communication, Cell or communication tower (include access roads in project area), new tower**

Project Area: **N/A**

County: **Berks** Township/Municipality: **Albany**

Quadrangle Name: **HAMBURG** ~ ZIP Code: **19529**

Decimal Degrees: **40.596879 N, -75.933830 W**

Degrees Minutes Seconds: **40° 35' 48.8" N, -75° 56' 1.8" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

RESPONSE TO QUESTION(S) ASKED

Q1: Aquatic habitat (stream, river, lake, pond, etc.) is located on or adjacent to the subject property and project activities (including discharge) may occur within 300 feet of these habitats

Your answer is: **2. No**

Q2: Accurately describe what is known about wetland presence in the project area or on the land parcel.

"Project" includes all features of the project (including buildings, roads, utility lines, outfall and intake structures, wells, stormwater retention/detention basins, parking lots, driveways, lawns, etc.), as well as all associated impacts (e.g., temporary staging areas, work areas, temporary road crossings, areas subject to grading or clearing, etc.). Include all areas that will be permanently or temporarily affected -- either directly or indirectly -- by any type of disturbance (e.g., land clearing, grading, tree removal, flooding, etc.). Land parcel = the lot(s) on which some type of project(s) or activity(s) are proposed to occur .

Your answer is: **2. The project area (or land parcel) has not been investigated by someone qualified to identify and delineate wetlands, or it is currently unknown if the project or project activities will affect wetlands.**

Q3: Will the entire project occur within an existing building, parking lot, driveway, road, street, or maintained (periodically mowed) lawn?

Your answer is: **2. No**

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for one year** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send

project information to this agency for review (see WHAT TO SEND).

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)

Scientific Name: Erosional remnant

Common Name: Erosional Remnant

Current Status: Special Concern Resource*

Proposed Status: Special Concern Resource*

PA Fish and Boat Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name: Sensitive Species**

Common Name:

Current Status: Threatened

Proposed Status: Special Concern Species*

Scientific Name: Sensitive Species**

Common Name:

Current Status: Special Concern Species*

Proposed Status: Special Concern Species*

U.S. Fish and Wildlife Service

RESPONSE: No impacts to federally listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of *Minimum Materials to be submitted:*

- ☐ **SIGNED** copy of this Project Environmental Review Receipt
- ☐ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
- ☐ Project location information (name of USGS Quadrangle, Township/Municipality, and County)
- ☐ USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.

- ☐ A basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
- ☐ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
- ☐ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams
- ☐ The DEP permit(s) required for this project

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt, a completed PNDI form and a USGS 7.5 minute quadrangle map with the project boundaries delineated on the map. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <http://www.naturalheritage.state.pa.us>.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA.
17105-8552
Fax: (717) 772-0271

U.S. Fish and Wildlife Service

Endangered Species Section
315 South Allen Street, Suite 322, State College, PA.
16801-4851
NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax: (717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: Kristin Trovei
Company/Business Name: EBI Consulting
Address: 5 Warren Place
City, State, Zip: Port Jervis, NY 12771
Phone: (845) 313-3020 Fax: (781) 272-1450
Email: Ktrovei@ebiconsulting.com

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

Kristin Trovei 11-8-11
applicant/project proponent signature date

BUREAU OF FORESTRY**March 9, 2011****PNDI Number: 20111027323542**

Lee Brewer
EBI Consulting
21 B Street
Burlington, MA 01803
Email: LBrewer@EBIconsulting.com (hard copy will NOT follow)

Re: Albany Township Cell Tower
Albany Township, Berks County, PA

Dear Mr. Brewer,

Thank you for the submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number **20111027323542** for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources of concern under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

No Impact Anticipated

PNDI records indicated a geologic feature located in the vicinity of the project. However, based on the information you submitted concerning the nature of the project, the immediate location, and our detailed resource information, DCNR has determined that no impact is likely. Please see the attached letter from DCNR Bureau of Topographic and Geologic Survey. No further coordination with our agency is needed for this project.

This response represents the most up-to-date summary of the PNDI data files and is valid for one (1) year from the date of this letter. An absence of recorded information does not necessarily imply actual conditions on-site. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map).

This finding applies to impacts to DCNR only. To complete your review of state and federally-listed threatened and endangered species and species of special concern, please be sure the U.S. Fish and Wildlife Service, PA Game Commission, and the Pennsylvania Fish and Boat Commission have been contacted regarding this project as directed by the online PNDI ER Tool found at www.naturalheritage.state.pa.us. If you have any questions or concerns you may contact me at 717.787.7067 or c-boyer@pa.gov.

Sincerely,



Emilee C. Boyer
Environmental Review Specialist FOR Chris Firestone, Plant Program Manager
Department of Conservation and Natural Resources
Bureau of Forestry, Pennsylvania Natural Heritage Program

Enclosure

conserve**sustain****enjoy**

P.O. Box 8552, Harrisburg, PA 17015-8552 • 717-787-3444 (fax) • 717-772-0271

**3240 Schoolhouse Road
Middletown, PA 17057
March 9, 2012**

Bureau of Topographic and Geologic Survey

717-702-2037
FAX: 717-702-2065

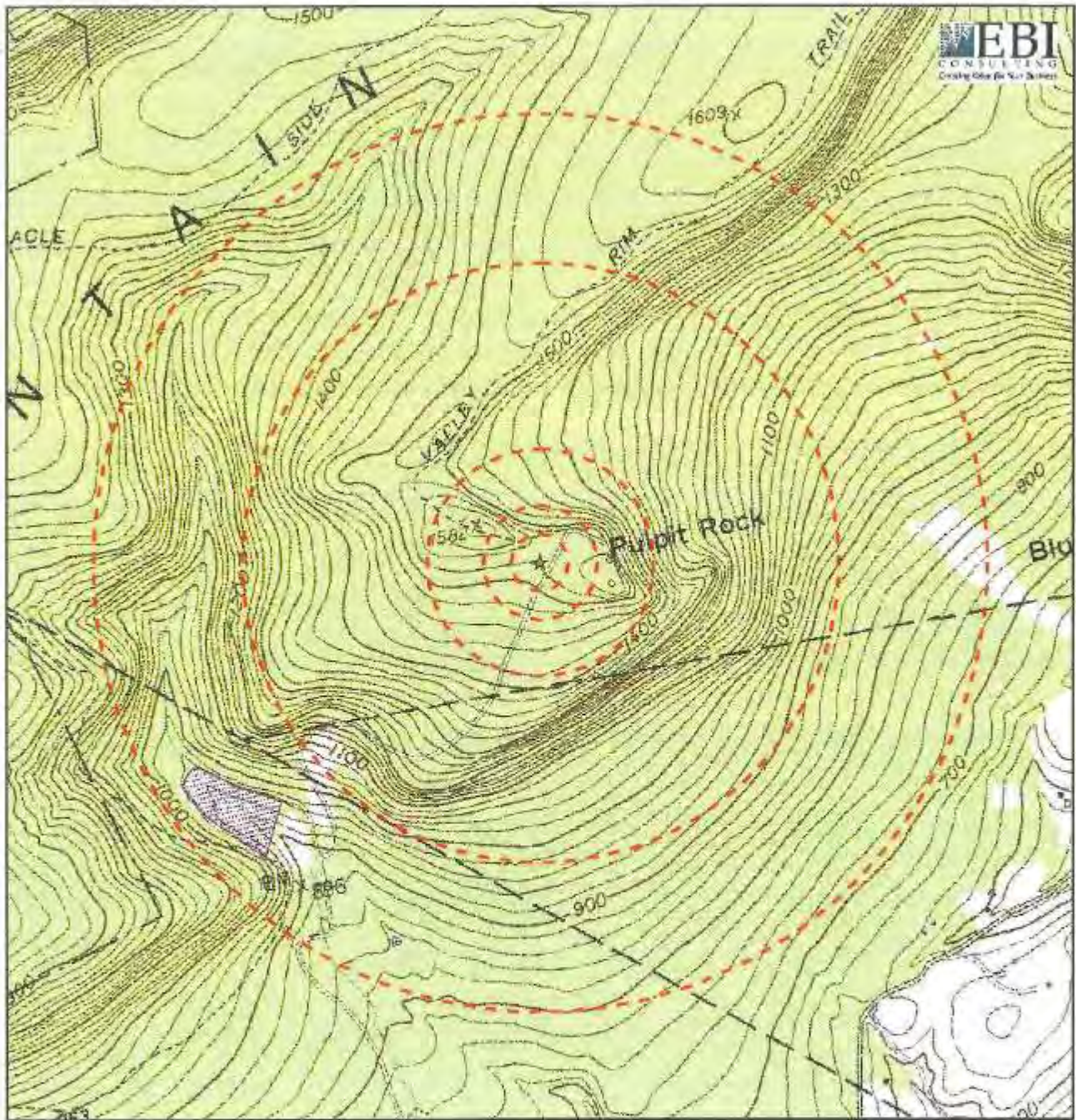
Ms. Kristen Trovei
EBI Consulting
5 Warren Place
Port Jervis, N.Y.12771

Dear Ms. Trovei:

In regards to your letter of November 30, 2011, requesting a PNDI assessment for a site in Albany Township, Berks County, PA the "erosional remnants" referred to at this site are geologic features related to "Pulpit Rock", an outcrop of hard resistant quartzite (Silurian age, Tuscarora formation) resembling a pulpit has been exposed by the erosion of a tight fold in Blue Mountain. Pulpit Rock is not only a significant outcropping of geologic rock type but also has a high geoheritage value as a view shed platform. It is our opinion that the construction of a tower located at a site shown on the attached map will not significantly impact the quality of the scenic view of Spitzenberg Hill to the east, or the view of the Pinnacle to the north. If construction is limited to the west of the access road as shown on the project site map (attached below) and the forest tree cover is allowed to remain to the east of the access road, it should not affect the geoheritage value of Pulpit Rock.

Sincerely,

James R. Shaulis,
Senior Geologic Scientist, P.G.
Geologic Mapping Division



Legend

- ★ Project Site
- Site Radius at 250', 500', 1000', 1/2 & 3/4 mile

Source: Selected data from USGS and EBI.

USGS 24K Quad: Hamburg, PA 1980

Figure 2 - Topographic Map

**ALBANY
RESERVOIR ROAD
ALBANY, PA 19526**

PA 011739/01



0 500 1,000 2,000 Feet

November 30, 2011

Pennsylvania Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street
P.O. Box 8552
Harrisburg, PA 17105-8552

Subject: Request for Species and Habitat Review
Albany
Reservoir Road, Albany Township, Berks County, Pennsylvania 19526
EBI Project #61113978

To Whom It May Concern:

EBI CONSULTING (EBI) is preparing an environmental review on behalf of *The County of Berks* for the project noted above (herein, the Subject Property) as part of its permit process and regulatory review by the Federal Communications Commission (FCC). The review is focused on compliance with the Section 7 of the Endangered Species Act and environmental concerns specified by the FCC in 47 CFR 1.1307.

EBI would like to inquire if you would be interested in commenting on this proposed project. Please refer to the attached Project Summary Form and proposed project plans for complete details regarding this proposed project.

Enclosed please find copies of a street map as well as a section of the representative USGS topographic map that have the location of the proposed telecommunications installation highlighted. Additionally, a signed copy of the PNDI receipt, photographs of the areas proposed to be occupied by *The County of Berks* and vicinity properties, U.S. Fish and Wildlife Service National Wetlands Inventory Map, and United States Department of Agriculture's Web Soil Survey of Berks County are attached to this letter.

In addition, it is EBI's opinion that no documented or potential wetlands are located at or within a 300-foot radius of the proposed tower based upon the following facts:

- No hydrophytic vegetation was observed at the tower site. Additionally, no surface water was observed at the proposed tower site.
- According to the Fish and Wildlife Service National Wetlands Inventory (NWI) information, no mapped wetlands are located at or within close proximity to the proposed tower site.
- According to the United States Department of Agriculture's Web Soil Survey of Berks County, Pennsylvania, soils in the area of the Project Site are part of the Hazleton very channery loam, 8 to 25 percent slopes, extremely stony association. This association consists of moderately deep, moderately sloping, well drained, loamy soils weathered from sandstone. These soils do not meet the characteristics of hydric soils necessary to support wetland vegetation.

The area proposed to be occupied by *The County of Berks* consists of an undeveloped wooded area. The proposed construction plans call for the minor removal of mature trees. According to the proposed construction plans and onsite observations, surface water body diversion will not occur.

We would appreciate your assistance on determining if the proposed project will have an impact on any listed and/or proposed threatened or endangered species or designated and/or proposed critical habitats. On behalf of *The County of Berks, Pennsylvania*, I would appreciate your comments on this proposed telecommunications installation in a letter directed to my attention at the address noted above.

Sincerely,



Kristin A. Trovei

Project Scientist

Phone: (845) 313-3020

ktrovei@ebiconsulting.com

Appendix A – Project Summary Form

Appendix B – Figures, Drawings, and Maps

Appendix C – Photographs

NOTE:

**The Attachments of this Document Have Been Removed to Minimize/Avoid Duplication of
Attachments Already Included Elsewhere in Environmental Assessment Appendices**

From: (800) 872-4004
ebi
EBI Consulting
21 B Street

Burlington, MA 01803



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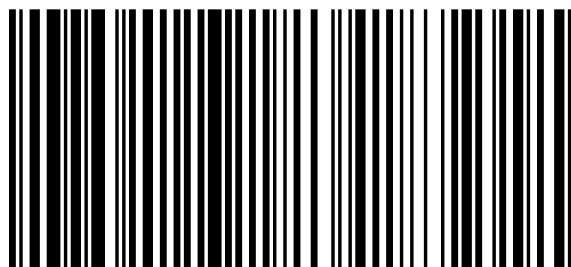
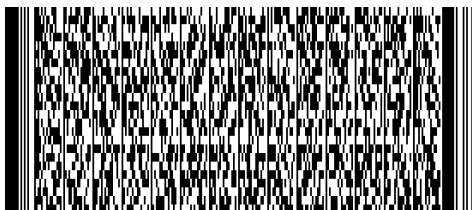
Ship Date: 30NOV11
ActWgt: 1.0 LB
CAD: 100863325/WSX12250

Invoice #
Reference # 61113978
PO #
Dept #
Ship ID

SHIP TO: 1

**Bureau of Forestry, Ecological Serv
Pennsylvania Department of Conserva**

**400 Market Street
PO BOX 8552
Harrisburg, PA 17105**



(9612019) 0020378 15096858

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Pennsylvania Fish & Boat Commission



**Division of Environmental Services
Natural Diversity Section**
450 Robinson Lane
Bellefonte, PA 16823-9620
(814) 359-5237 Fax: (814) 359-5175

December 27, 2011

IN REPLY REFER TO
SIR# 37718

KRISTIN TROVEI
EBI CONSULTING
21 B STREET
BURLINGTON, ME 01803

**RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 20111027323542
ALBANY CELL TOWER SITE
ALBANY Township, BERKS County, Pennsylvania**

Dear Ms. TROVEI:

I have reviewed the map accompanying your recent correspondence, which concerns the above-referenced project. Based on records maintained in the Pennsylvania Natural Diversity Inventory (PNDI) database and Pennsylvania Fish & Boat Commission (PFBC) files, the **timber rattlesnake (*Crotalus horridus*, PA candidate)** is known from the vicinity of the proposed project site. Timber rattlesnakes occur in the forested, mountainous regions of the Commonwealth. They prefer forested areas to forage for small mammals (e.g., mice and chipmunks) and southerly-facing slopes for hibernating and other thermoregulatory activities. The timber rattlesnake is threatened by habitat loss/alteration, wanton killing, and poaching.

There have been observations of timber rattlesnakes in the vicinity of the project area, but based on our review of the information you sent as well as mapping overlays, **we do not anticipate any direct adverse impacts to the timber rattlesnake from the proposed project.** However, the project areas could be used as foraging habitat for timber rattlesnakes and this warrants some concern about rattlesnake-human conflicts. Although the nature of the timber rattlesnake is rather docile, it can be dangerous if cornered or handled. Therefore, the workers should be mindful of the presence of the snakes in the area. Rattlesnakes are attracted to open, rocky, log-strewn areas for basking and forested areas with thick deciduous leaf litter that tend to support high populations of rodents. We recommend that the workers responsible for implementing this project be advised that timber rattlesnakes may be encountered and that avoidance is the best means of minimizing risks to personal safety. These workers should also be advised that the timber rattlesnake is a state protected species and is not to be harmed. Killing of timber rattlesnakes without a proper permit is prohibited by the Commission pursuant to Chapter 79.6, subsection 2102 (b) of the Fishing and Boating Regulations. If any timber rattlesnakes are observed on-site, please notify this office.

Note that this office performed no field inspection of the project area. Consequently, comments in this letter are not meant to address other issues or concerns that might arise concerning matters under Pennsylvania Fish and Boat Commission jurisdiction or that of other authorities. If you have any questions regarding this response, please contact Kathy Gipe at 814 359 5186 and **refer to the SIR**

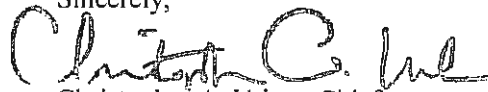
Our Mission:

www.fish.state.pa.us

To protect, conserve and enhance the Commonwealth's aquatic resources and provide fishing and boating opportunities.

number at the top of this letter. Thank you for your cooperation and attention to this matter of endangered species conservation and habitat protection.

Sincerely,

A handwritten signature in black ink, appearing to read "Christopher A. Urban". The signature is stylized with a large initial "C" and a prominent "U".

Christopher A. Urban, Chief
Natural Diversity Section

CAU/KDG/mr

November 30, 2011

Pennsylvania Fish and Boat Commission (PAFBC)
Division of Environmental Services
450 Robinson Lane
Bellefonte, PA 16823

Subject: Request for Species and Habitat Review
Albany
Reservoir Road, Albany Township, Berks County, Pennsylvania 19526
EBI Project #61113978

To Whom It May Concern:

EBI CONSULTING (EBI) is preparing an environmental review on behalf of *The County of Berks* for the project noted above (herein, the Subject Property) as part of its permit process and regulatory review by the Federal Communications Commission (FCC). The review is focused on compliance with the Section 7 of the Endangered Species Act and environmental concerns specified by the FCC in 47 CFR 1.1307.

EBI would like to inquire if you would be interested in commenting on this proposed project. Please refer to the attached Project Summary Form and proposed project plans for complete details regarding this proposed project.

Enclosed please find copies of a street map as well as a section of the representative USGS topographic map that have the location of the proposed telecommunications installation highlighted. Additionally, a signed copy of the PNDI receipt, photographs of the areas proposed to be occupied by *The County of Berks* and vicinity properties, U.S. Fish and Wildlife Service National Wetlands Inventory Map, and United States Department of Agriculture's Web Soil Survey of Berks County are attached to this letter.

In addition, it is EBI's opinion that no documented or potential wetlands are located at or within a 300-foot radius of the proposed tower based upon the following facts:

- No hydrophytic vegetation was observed at the tower site. Additionally, no surface water was observed at the proposed tower site.
- According to the Fish and Wildlife Service National Wetlands Inventory (NWI) information, no mapped wetlands are located at or within close proximity to the proposed tower site.
- According to the United States Department of Agriculture's Web Soil Survey of Berks County, Pennsylvania, soils in the area of the Project Site are part of the Hazleton very channery loam, 8 to 25 percent slopes, extremely stony association. This association consists of moderately deep, moderately sloping, well drained, loamy soils weathered from sandstone. These soils do not meet the characteristics of hydric soils necessary to support wetland vegetation.

The area proposed to be occupied by *The County of Berks* consists of an undeveloped wooded area. The proposed construction plans call for the minor removal of mature trees. According to the proposed construction plans and onsite observations, surface water body diversion will not occur.

We would appreciate your assistance on determining if the proposed project will have an impact on any listed and/or proposed threatened or endangered species or designated and/or proposed critical habitats. On behalf of

The County of Berks, I would appreciate your comments on this proposed telecommunications installation in a letter directed to my attention at the address noted above.

Sincerely,

A handwritten signature in cursive script, appearing to read "Kristin A. Trovei".

Kristin A. Trovei

Project Scientist

Phone: (845) 313-3020

ktrovei@ebiconsulting.com

Appendix A – Fish and Boat Commission Species Impact Review (SIR) Form

Appendix B – Project Summary Form

Appendix C – Figures, Drawings, and Maps

Appendix D – Photographs

COMMONWEALTH OF PENNSYLVANIA
FISH AND BOAT COMMISSION
NATURAL DIVERSITY SECTION
SPECIES IMPACT REVIEW (SIR) REQUEST FORM

- A. This form provides the site information necessary to perform a computer database search for species of special concern listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, the Pennsylvania Fish and Boat Code or the Wildlife Code.
- B. Use only *one form* for each proposed project or location. Complete the information below and mail form to:

Natural Diversity Section
Division of Environmental Services
PA Fish and Boat Commission
450 Robinson Lane
Bellefonte, PA 16823

- C. This form, a cover letter including a project narrative, and accompanying maps should be sent to the above address for environmental reviews that *only* concern *reptiles, amphibians, fishes and aquatic invertebrates*. Reviews for other natural resources must be submitted to other appropriate agencies.
- D. The absence of recorded information from our databases and files does not necessarily imply actual conditions on site. Future field investigations could alter this determination. The information contained in our files is routinely updated. A review is valid for one year.
- E. *Please send us only one (1) copy of your request* – either by fax or by mail – not both. Mail is preferred to improve legibility of maps. Facsimile submission will not improve our response turn-around time.
- F. *Allow 30 days for completion of the review from the date of PFBC receipt*. Large projects and workload may extend this review timeframe.
- G. *In any future correspondence with us following your receipt of the SIR response, please refer to the assigned SIR number at the top left of our cover letter.*
- H. **FORMS THAT ARE NOT COMPLETED IN FULL WILL NOT BE REVIEWED.**

PLEASE PRINT OR TYPE: If available, provide the potential conflict PNDI Search Number: 2011077323542

PFBC response should be sent to:

Company/Agency: EBI Consulting Form Preparer: Kristin Travel

Address: 5 Warren Place, Port Jervis, NY 12771 Phone (8:00 AM to 4:00 PM): 845-313-3020

Project Description: Berks County proposes to install 199' self support telecommunications tower and equipment within proposed 95' by 60' fenced compound

Indicate if the project is: Transportation ☐ or Non-transportation ☒ (check one)

Will the proposed project encroach directly or indirectly (e.g., runoff) upon wetlands or waterways? Circle one for each:

Wetlands: Yes ☒ No ☐ Unknown ☐ Waterways: Yes ☒ No ☐ Unknown ☐

County: Berks Township/Municipality: Albany

Name of the United States Geological Survey (U.S.G.S.) 7.5 Minute Quadrangle Map where project is located: Hamburg Project size (in acres): 0.16 (estimate)

Attach an 8.5" by 11" photocopy (DO NOT REDUCE) of the section of the U.S.G.S. Quadrangle Map which identifies the project location. On this map, indicate the location of the project center (if linear, depict both ends) and outline the approximate boundaries of the project area.

Specify latitude/longitude of the project center.

Latitude: 40° 1' 35.1" N

Indicate latitude/longitude in degrees-minutes-seconds format only.

Longitude: 75° 1' 56.1" W

Three steps are needed to convert from decimal degrees to degrees-minutes-seconds: (1) Degrees will be the whole number. (2)

To get minutes, multiply the decimal degree portion by 60. (3) Multiply the decimal minute portion by 60 to get seconds.

Example: (Latitude) $40.93748 = 40^{\circ}$; $0.93748 \times 60 = 56.2488' = 56'$; $0.2488 \times 60 = 14.928 = 15'' = 40^{\circ}56'15'' N$

(Longitude) $75.94740 = 75^{\circ}$; $0.94740 \times 60 = 56.844' = 56'$; $0.844 \times 60 = 50.64 = 51'' = 75^{\circ}56'51'' W$

FOR PFBC USE ONLY

SIR#	Quad Name	Data Source	Search Result-Potential Species Conflict	Action

NOTE:

**The Attachments of this Document Have Been Removed to Minimize/Avoid Duplication of
Attachments Already Included Elsewhere in Environmental Assessment Appendices**

From: (800) 872-4004
ebi
EBI Consulting
21 B Street

Burlington, MA 01803

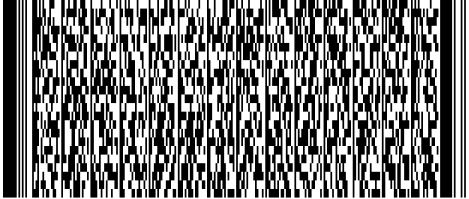


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SHIP TO: 1
Division of Environmental Services
PA Fish and Boat Commission

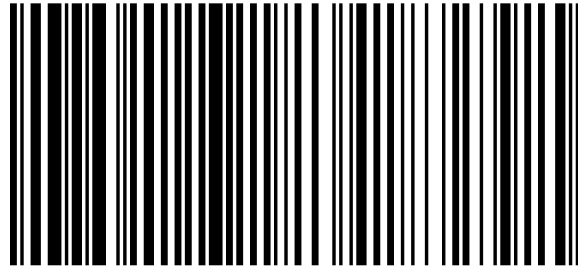
450 Robinson Lane

Bellefonte, PA 16823



Ship Date: 30NOV11
ActWgt: 1.0 LB
CAD: 100863325/WSX12250

Invoice #
Reference # 61113978
PO #
Dept #
Ship ID



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United States Department of the Interior



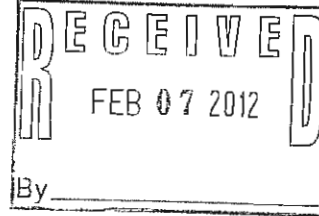
FISH AND WILDLIFE SERVICE

Pennsylvania Field Office
315 South Allen Street, Suite 322
State College, Pennsylvania 16801-4850

February 6, 2012

Kristin Trovei
21 B Street
Burlington, MA 01803

RE: USFWS Project #2012-0248



Dear Ms. Trovei:

This responds to your letter of December 9, 2011, requesting information about federally listed and proposed endangered and threatened species in the vicinity of a proposed Public Safety Radio System (E-911) communication tower (Albany) located on Reservoir Road, Albany Township, Berks County, Pennsylvania. The following comments are provided pursuant to the Fish and Wildlife Coordination Act (48 Stat. 401, 16 U.S.C. 661 *et seq.*), the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*), the Migratory Bird Treaty Act (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755, as amended) and the Bald and Golden Eagle Protection Act (54 Stat. 250, as amended; 16 U.S.C. 668-668d).

Federally Listed and Proposed Species

Except for occasional transient species, no federally listed or proposed threatened or endangered species under our jurisdiction are known to occur within the project impact area. Therefore, neither a biological assessment nor further consultation under the Endangered Species Act, are required with the Fish and Wildlife Service (Service). This determination is valid for two years from the date of this letter. If the proposed project has not been fully implemented prior to this, an additional review by this office will be necessary. Should project plans change, or if additional information on listed or proposed species becomes available, this determination may be reconsidered. A compilation of certain federal status species in Pennsylvania is enclosed for your information.

Assessment of Risks to Migratory Birds including Bald and Golden Eagles

The Service is the principal Federal agency charged with protecting and enhancing populations and habitat of migratory bird species. The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. While the MBTA has no provision for authorizing incidental take, the Service recognizes that some birds

may be killed even if all reasonable measures to avoid take are implemented. Unless the take is authorized, it is not possible to absolve individuals, companies or agencies from liability (even if they implement avian mortality avoidance or similar conservation measures). However, the Office of Law Enforcement focuses enforcement action on those individuals, companies, or agencies that take migratory birds with disregard for their actions and the law.

In addition to the MBTA, bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (Eagle Act), which prohibits killing; selling; or otherwise harming eagles, their nests, or their eggs. The Eagle Act also includes provisions not included in the MBTA, including the protection of unoccupied nests and a definition of take that prohibits disturbing eagles. The Service recommends that applicants carefully evaluate their proposed project in light of the *National Bald Eagle Management Guidelines* to determine whether or not eagles might be disturbed as a direct or indirect result of the project. These guidelines as well as additional eagle information are available at <http://www.fws.gov/migratorybirds/BaldEagle.htm>

The siting and construction of new towers creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. The primary factors that affect the magnitude of the risk to birds posed by a particular tower are the height of the structure above the surrounding landscape; whether the structure is lighted, and if so, the type of lighting employed; the use of guy wires; the location of the tower; and the weather patterns in the area of the tower site. Communication towers are estimated to kill 4-5 million birds per year. Most massive bird kills occur as the birds become attracted to and confused by clouds that are illuminated by tall lighted structures. To minimize such losses, we recommend the following measures be implemented to protect migratory birds from collisions with towers:

1. Any company/licensee proposing to site a new communications tower is strongly encouraged to co-locate the communications equipment on an existing communication tower or related structure (e.g., church steeple, billboard mount, monopole, or building mount). Depending on tower load factors, from 6-10 providers may co-locate on an existing tower.
2. If co-location is not feasible, providers are strongly encouraged to construct towers less than 200 feet above ground level, using construction techniques which do not require guy wires (e.g., use a monopole). Such towers should be unlighted. If at all possible, new towers should be located within existing "antenna farms," preferably in areas not used by migratory birds or listed species. Avoid siting towers in or near (within 3-5 miles) of wetlands, other known bird concentration areas (e.g., IBAs, refuges), or in critical habitat of threatened or endangered species known to be affected by towers. Review local meteorological conditions, and avoid siting towers in areas with an especially high incidence of fog, mist, and low ceilings.
3. If taller (>200 feet above ground level) towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the Federal Aviation Administration should be used. Wherever possible, non-flashing lights should not be used. (See Gehring J., P. Kerlinger, A.M. Manville II. 2009. *Communication towers, lights, and birds: successful methods of reducing the frequency of avian collisions. Ecological Applications: Vol. 19, No. 2, pp. 505-514*).

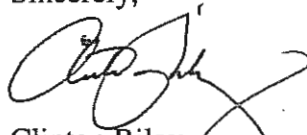
4. Towers which must use guy wires for support should have daytime visual markers on the wires to minimize collisions by these diurnally moving species, especially if constructed in known raptor or waterbird concentration areas. (*See Avian Power Line Interaction Committee. 2006. Suggested practices for avian protection on power lines: the state of the art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C. and Sacramento, CA.*)
5. Towers should be constructed so as to limit or minimize habitat loss within the tower "footprint." Road access and fencing should be minimized to reduce or prevent habitat fragmentation and disturbance, and to reduce above-ground obstacles to birds in flight. However, a larger tower footprint is preferable to the use of guy wires in construction.
6. Where disturbance is necessary, clear natural or semi-natural habitats (e.g., forests, woodlots, reverting fields, shrubby areas) and perform maintenance activities (e.g., mowing) between September 1 and March 31, which is outside the nesting season for most native bird species. Without undertaking specific analysis of breeding species and their respective nesting seasons on the project site, implementation of this seasonal restriction will avoid take of most breeding birds, their nests, and their young (i.e., eggs, hatchlings, fledglings).
7. New towers should be designed structurally and electrically to accommodate the applicant's antennas and comparable antennas for at least two additional users (minimum of three users required for each tower structure), in order to reduce the number of towers needed in the future, unless this design would require the addition of lights or guy wires to an otherwise unlighted and/or unguyed tower.
8. Security lighting for on-ground facilities and equipment should be down-shielded to keep light within the boundaries of the site.
9. If a tower is constructed, and if requested, Service personnel should be allowed access to the site after construction is complete to conduct both large (e.g., crane, swan, and goose) and small dead-bird searches, to place net catchments below the towers, and to place radar, Global Positioning System, infrared, thermal imagery, or acoustical monitoring equipment as necessary to assess and verify bird migrations and habitat use.
10. Towers no longer in use or determined to be obsolete should be removed within 12 months of cessation of use.

Additional information on this subject can be obtained by visiting the Service's migratory bird website at <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>.

To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.

Please contact Bonnie Dershem of my staff at 814-234-4090 if you have any questions or require further assistance.

Sincerely,

A handwritten signature in black ink, appearing to read 'Clinton Riley', with a large, stylized flourish extending from the end of the signature.

Clinton Riley
Field Office Supervisor

Enclosure

Federally Listed, Proposed, and Candidate Species in Pennsylvania
(revised January 18, 2012)

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status¹</u>	<u>Distribution (Counties and/or Watersheds)</u>
MAMMALS			
Indiana bat	<i>Myotis sodalis</i>	E	<u>Hibernacula</u> : Armstrong, Beaver, Blair, Centre, Fayette, Huntingdon, Lawrence, Luzerne, Mifflin and Somerset Co. <u>Maternity Colonies & Male Sites</u> : Adams, Armstrong, Bedford, Berks, Blair, Greene, Pike, Washington, and York Counties. Potential winter habitat state-wide in caves or abandoned mines. Potential summer habitat state-wide in forests or wooded areas.
BIRDS			
Piping plover	<i>Charadrius melodus</i>	E	Designated critical habitat on Presque Isle (Erie Co.). Migratory. No nesting in PA since 1950s, but recent colonization attempts at Presque Isle
REPTILES			
Bog turtle	<i>Clemmys (Glyptemys) muhlenbergii</i>	T	Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York Co. <i>Historically found in Crawford, Mercer and Philadelphia Co.</i>
Eastern massasauga rattlesnake	<i>Sistrurus catenatus catenatus</i>	C	Butler, Crawford, Mercer and Venango Co. <i>Historically found in Allegheny and Lawrence Co.</i>
MUSSELS			
Clubshell	<i>Pleurobema clava</i>	E	Allegheny River (Armstrong, Clarion, Forest, Venango, Warren); Conneaut Outlet (Crawford); Conneauttee Creek (Crawford); French Creek (Crawford, Erie, Mercer, Venango); LeBoeuf Creek (Erie); Muddy Creek (Crawford); Shenango River (Mercer) <i>Has not been found recently in 13 streams of historical occurrence in Butler, Beaver, Fayette, Greene, Indiana, Lawrence, and Westmoreland Co.</i>
Dwarf wedgemussel	<i>Alasmodonta heterodon</i>	E	Delaware River (Monroe, Northampton, Pike, Wayne Co.). <i>Has not been found recently in streams of historical occurrence in the Delaware River watershed (Bucks, Carbon, Chester, Philadelphia) or Susquehanna River watershed (Lancaster)</i>
Northern riffleshell	<i>Epioblasma torulosa rangiana</i>	E	Allegheny River (Armstrong, Clarion, Forest, Venango, Warren); Conewango Creek (Warren); French Creek (Crawford, Erie, Mercer, Venango); LeBoeuf Creek (Erie); Muddy Creek (Crawford) <i>Has not been found recently in streams of historical occurrence, including Shenango River (Lawrence)</i>

December 9, 2011

U.S. Fish & Wildlife Service
Endangered Species Section
315 South Allen Street, Suite 322
State College, Pennsylvania 16801-4851

Subject: Request for Section 7 Review
Albany
Reservoir Road, Albany Township, Berks County, Pennsylvania 19526
Latitude & Longitude: N 40° 35' 48.8" and W 75° 56' 1.6"
EBI Project #61113978

To Whom It May Concern:

EBI CONSULTING (EBI) is preparing an environmental review on behalf of *The County of Berks* for a proposed Public Safety Radio System (E-911) for the county. EBI is conducting this review in accordance with the protocols set forth within the Federal Communications Commission's (FCC) rules for implementing the National Environmental Policy Act (NEPA; 47 CFR 1.1307). As a part of this review, and in accordance with Section 7 of the Endangered Species Act, EBI would like to invite the United States Fish and Wildlife Service (USFWS) to comment on the proposed project.

The Subject Property is located near the terminus of Reservoir Road in Albany, Berks County, Pennsylvania in an undeveloped wooded area. As of the date of this letter, *The County of Berks* is proposing to construct a 195-foot (199 feet with appurtenances) self-supporting lattice tower as part of their E911 project. The tower, as well as an associated 12-foot by 36-foot equipment shelter, propane tanks, and emergency generator will be located within a proposed 95-foot by 60-foot chain link fenced compound. Power conduits will be routed underground approximately 200 feet from an existing utility pole located on the access road, to the proposed equipment lease area. Access to the site will be gained via an approximately 100-foot long, 12-foot wide access drive, which will be improved north from the existing access drive.

Additionally, EBI completed an online review using the Pennsylvania Natural Diversity Index (PNDI) system. Results of the online review identified "No Known Impact" with respect to resources under the jurisdiction of the USFWS (please find the PNDI receipt attached).

Enclosed please also find copies of a street map as well as a section of the representative USGS topographic map that have the location of the proposed telecommunications installation highlighted. Also attached are photographs of the proposed project site and vicinity properties, the National Wetlands Inventory Map, and the United States Department of Agriculture's Web Soil Survey of Berks County are attached to this letter.

The area proposed to be occupied by *The County of Berks* consists of an undeveloped wooded area. The proposed construction plans call for the minor removal of mature trees. According to the proposed construction plans and onsite observations, surface water body diversion will not occur.

Additionally, it is EBI's opinion that no documented or potential wetlands are located at or within a 300-foot radius of the proposed tower based upon the following facts:

- No hydrophytic vegetation was observed at the tower site. Additionally, no surface water was observed at the proposed tower site.
- According to the Fish and Wildlife Service National Wetlands Inventory (NWI) information, no mapped wetlands are located at or within close proximity to the proposed tower site.
- According to the United States Department of Agriculture's Web Soil Survey of Berks County, Pennsylvania, soils in the area of the Project Site are part of the Hazleton very channery loam, 8 to 25 percent slopes, extremely stony association. This association consists of moderately deep, moderately sloping, well drained, loamy soils weathered from sandstone. These soils do not meet the characteristics of hydric soils necessary to support wetland vegetation.

Further, based on the proposed tower design (i.e. 199 feet; self-support lattice tower; no guyed-wires), the proposed tower facility meets all or most of the USFWS's recommended guidelines for tower design and citing set forth in the 'Service Guidelines on the Siting, Construction, Operation, and Decommissioning of Communications Towers,' dated September 14, 2000. As such, it is the opinion of EBI Consulting that the proposed facility is unlikely to represent a significant adverse effect on migratory birds.

We would appreciate your comments with respect to proposed project and its impacts on listed and/or proposed threatened or endangered species or designated and/or proposed critical habitats. On behalf of *The County of Berks*, I would appreciate your comments on this proposed telecommunications installation in a letter directed to my attention at the address noted above.

Sincerely,



Kristin A. Trovei
Project Scientist
Phone: (845) 313-3020
ktrovei@ebiconsulting.com

Appendix A – Project Summary Form
Appendix B – Figures, Drawings, and Maps
Appendix C – Photographs

NOTE:

**The Attachments of this Document Have Been Removed to Minimize/Avoid Duplication of
Attachments Already Included Elsewhere in Environmental Assessment Appendices**

From: (800) 872-4004
ebi
EBI Consulting
21 B Street

Burlington, MA 01803

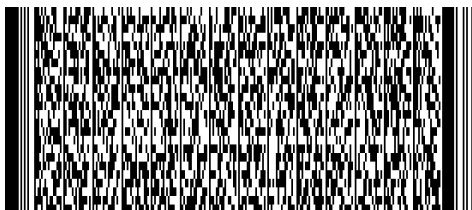


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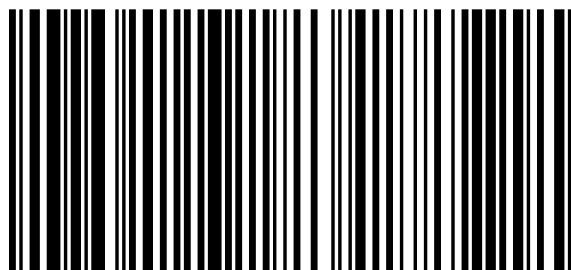
**Endangered Species Section
U.S. Fish & Wildlife Service**

**315 South Allen Street
Suite 322
State College, PA 16801**



Ship Date: 09DEC11
ActWgt: 1.0 LB
CAD: 100863325/WSX12250

Invoice #
Reference # USFW Letters
PO #
Dept #
Ship ID



(9612019) 0020378 15100753

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Prepaid

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1. PROJECT INFORMATION

Project Name: **Albany**

Date of review: **11/15/2012 4:54:52 PM**

Project Category: **Communication, Cell or communication tower (include access roads in project area), new tower**

Project Area: **N/A**

County: **Berks** Township/Municipality: **Albany**

Quadrangle Name: **HAMBURG** ~ ZIP Code: **19529**

Decimal Degrees: **40.596888 N, -75.933777 W**

Degrees Minutes Seconds: **40° 35' 48.8" N, -75° 56' 1.6" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

RESPONSE TO QUESTION(S) ASKED

Q1: Aquatic habitat (stream, river, lake, pond, etc.) is located on or adjacent to the subject property and project activities (including discharge) may occur within 300 feet of these habitats

Your answer is: **2. No**

Q2: Accurately describe what is known about wetland presence in the project area or on the land parcel.

"Project" includes all features of the project (including buildings, roads, utility lines, outfall and intake structures, wells, stormwater retention/detention basins, parking lots, driveways, lawns, etc.), as well as all associated impacts (e.g., temporary staging areas, work areas, temporary road crossings, areas subject to grading or clearing, etc.). Include all areas that will be permanently or temporarily affected -- either directly or indirectly -- by any type of disturbance (e.g., land clearing, grading, tree removal, flooding, etc.). Land parcel = the lot(s) on which some type of project(s) or activity(s) are proposed to occur .

Your answer is: **2. The project area (or land parcel) has not been investigated by someone qualified to identify and delineate wetlands, or it is currently unknown if the project or project activities will affect wetlands.**

Q3: Will the entire project occur within an existing building, parking lot, driveway, road, street, or maintained (periodically mowed) lawn?

Your answer is: **2. No**

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send

project information to this agency for review (see WHAT TO SEND).

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)

Scientific Name: Erosional remnant

Common Name: Erosional Remnant

Current Status: Special Concern Resource*

Proposed Status: Special Concern Resource*

PA Fish and Boat Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name: Sensitive Species**

Common Name:

Current Status: Threatened

Proposed Status: Special Concern Species*

Scientific Name: Sensitive Species**

Common Name:

Current Status: Special Concern Species*

Proposed Status: Special Concern Species*

U.S. Fish and Wildlife Service

RESPONSE: No impacts to federally listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of Minimum Materials to be submitted:

- ☐ **SIGNED** copy of this Project Environmental Review Receipt
- ☐ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
- ☐ Project location information (name of USGS Quadrangle, Township/Municipality, and County)
- ☐ USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.

- ☐ A basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
- ☐ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
- ☐ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <http://www.naturalheritage.state.pa.us>.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA.
17105-8552
Fax: (717) 772-0271

U.S. Fish and Wildlife Service

Endangered Species Section
315 South Allen Street, Suite 322, State College, PA.
16801-4851
NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission

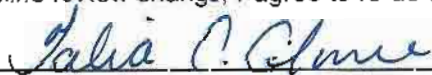
Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax: (717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: Talia C. Gilmore
Company/Business Name: EBI Consulting
Address: 6876 Susquehanna Trail South
City, State, Zip: York, PA 17403
Phone: (717) 428-0401 ext. 1218
Fax: (717) 428-0403
Email: tgilmore@ebiconsulting.com

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.



applicant/project proponent signature

11/29/12

date



pennsylvania
DEPARTMENT OF CONSERVATION
AND NATURAL RESOURCES

BUREAU OF FORESTRY**Date: December 20, 2012****PNDI Number: 20121115380273**

Talia C. Gilmore, Project Scientist
EBI Consulting
6876 Susquehanna Trail South
York, PA 17403
Fax: 717-428-0403 (hard copy will not follow)

Re: Update – Albany Tower
County: Berks Township: Albany

Dear Ms. Gilmore,

Thank you for the submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number 20121115380273 for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources of concern under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

No Impact Anticipated

PNDI records indicate species or resources of concern are located in the vicinity of the project. However, based on the information you submitted concerning the nature of the project, the immediate location, and our detailed resource information, DCNR has determined that no impact is likely. No further coordination with our agency is needed for this project.

This response represents the most up-to-date review of the PNDI data files and is valid for two years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. For PNDI project updates, please see the PNHP website at www.naturalheritage.state.pa.us for guidance. As a reminder, this finding applies to potential impacts under DCNR's jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth's other resource agencies for environmental review. Should you have any questions or concerns, please don't hesitate to contact me at 717-772-0263 or c-shockey@pa.gov.

Sincerely,

Richard L. Shockey, Environmental Review Specialist
Pennsylvania Natural Heritage Program
DCNR Bureau of Forestry, Ecological Services Section

Rebecca H. Bowen, Section Chief
Pennsylvania Natural Heritage Program
DCNR Bureau of Forestry, Ecological Services Section

conserve**sustain****enjoy**

P.O. Box 8552, Harrisburg, PA 17015-8552 717-787-3444 (fax) 717-772-0271

December 11, 2012

Pennsylvania Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street
P.O. Box 8552
Harrisburg, PA 17105-8552

Subject: Request for Species and Habitat Review
PNDI # 20121115380273 (previously PNDI #20111027323542)
Albany
Reservoir Road, Albany Township, Berks County, Pennsylvania 19526
Latitude & Longitude: 40° 35' 48.8" N, 75° 56' 1.6" W
EBI Project #61113978

To Whom It May Concern:

EBI CONSULTING (EBI) is preparing an environmental review on behalf of *The County of Berks* for a proposed Public Safety Radio System (E-911) for the county. EBI is conducting this review in accordance with the protocols set forth within the Federal Communications Commission's (FCC) rules for implementing the National Environmental Policy Act (NEPA; 47 CFR 1.1307). As a part of this review, EBI would like to invite the PA Department of Conservation and Natural Resources (DCNR) to comment on the proposed project.

EBI previously submitted information to your office for review of the proposed project under PNDI #20111027323542 in which we received a "no impact anticipated" response dated March 9, 2012. This response is valid for one year. Please note that construction of the proposed installation has not yet started. As such, EBI has resubmitted the proposed project under PNDI #20121115380273, which indicated a potential impact under your agency's jurisdiction. It should also be noted that there are no changes to the proposed installation plans.

The County of Berks is proposing to construct a 195-foot (199 feet with appurtenances) self-supporting lattice tower. The tower, as well as associated 12-foot by 36-foot equipment shelter, propane tanks and emergency generator will be located within a proposed 95-foot by 60-foot chain link fenced compound. Power will be routed underground southwest, north, and then west from an existing utility pole to equipment in the lease area. Access to the site will be gained via improving a 12-foot wide access drive, which will be routed north from the existing access drive.

Enclosed please find a signed copy of the new PNDI receipt and the previous DCNR response. Additionally, a street map as well as a section of the representative USGS topographic map that have the location of the proposed telecommunications installation highlighted, photographs of the areas proposed to be occupied by *The County of Berks* and vicinity properties, U.S. Fish and Wildlife Service National Wetlands Inventory Map, and United States Department of Agriculture's Web Soil Survey of Berks County are attached to this letter.

In addition, it is EBI's opinion that no documented or potential wetlands are located at or within a 300-foot radius of the proposed tower based upon the following facts:

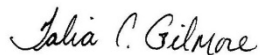
- No hydrophytes were observed at the tower site. Additionally, no surface water was observed at the proposed tower site.
- According to the Fish and Wildlife Service National Wetlands Inventory (NWI) information, no mapped wetlands are located at or within close proximity to the proposed tower site.

- According to the United States Department of Agriculture's Web Soil Survey of Berks County, Pennsylvania, soils in the area of the Project Site are part of the Hazleton very channery loam, 8 to 25 percent slopes, extremely stony association. This association consists of moderately deep, moderately sloping, well drained, loamy soils weathered from sandstone. These soils do not meet the characteristics of hydric soils necessary to support wetland vegetation.

The area proposed to be occupied by *The County of Berks* consists of an undeveloped wooded area. The proposed construction plans call for the minor removal of mature trees. According to the proposed construction plans and onsite observations, surface water body diversion will not occur.

We would appreciate your assistance on determining if the proposed project will have an impact on any listed and/or proposed threatened or endangered species or designated and/or proposed critical habitats. On behalf of *The County of Berks*, I would appreciate your comments on this proposed telecommunications installation in a letter directed to my attention at the address noted above.

Sincerely,



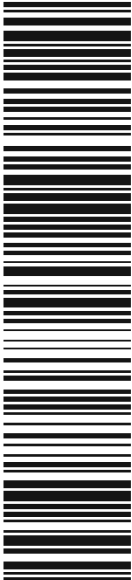
Ms. Talia C. Gilmore
Project Scientist
Tel: 717-428-0401 ext. 1218
tgilmore@ebiconsulting.com

Attachments

NOTE:

**The Attachments of this Document Have Been Removed to Minimize/Avoid Duplication of
Attachments Already Included Elsewhere in Environmental Assessment Appendices**

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NATIONAL BALD EAGLE MANAGEMENT GUIDELINES

U.S. Fish and Wildlife Service

May 2007

TABLE OF CONTENTS

INTRODUCTION	1
LEGAL PROTECTIONS FOR THE BALD EAGLE	2
The Bald and Golden Eagle Protection Act.....	2
The Migratory Bird Treaty Act	3
State laws and regulations	3
Where do bald eagles nest?	4
When do bald eagles nest?	5
Chronology of typical reproductive activities of bald eagles in the United States.....	6
How many chicks do bald eagles raise?	7
What do bald eagles eat?.....	7
The impact of human activity on nesting bald eagles.....	7
The impact of human activity on foraging and roosting bald eagles	8
RECOMMENDATIONS FOR AVOIDING DISTURBANCE AT NEST SITES.....	9
Existing Uses	10
ACTIVITY-SPECIFIC GUIDELINES.....	10
Alternate nests.....	11
Temporary Impacts	11
RECOMMENDATIONS FOR AVOIDING DISTURBANCE AT FORAGING AREAS AND COMMUNAL ROOST SITES.....	14
ADDITIONAL RECOMMENDATIONS TO BENEFIT BALD EAGLES.....	15
CONTACTS.....	16
GLOSSARY	17
RELATED LITERATURE.....	19

INTRODUCTION

The bald eagle (*Haliaeetus leucocephalus*) is protected by the Bald and Golden Eagle Protection Act (Eagle Act) and the Migratory Bird Treaty Act (MBTA). The MBTA and the Eagle Act protect bald eagles from a variety of harmful actions and impacts. The U.S. Fish and Wildlife Service (Service) developed these National Bald Eagle Management Guidelines to advise landowners, land managers, and others who share public and private lands with bald eagles when and under what circumstances the protective provisions of the Eagle Act may apply to their activities. A variety of human activities can potentially interfere with bald eagles, affecting their ability to forage, nest, roost, breed, or raise young. The Guidelines are intended to help people minimize such impacts to bald eagles, particularly where they may constitute "disturbance," which is prohibited by the Eagle Act.

The Guidelines are intended to:

- (1) Publicize the provisions of the Eagle Act that continue to protect bald eagles, in order to reduce the possibility that people will violate the law,
- (2) Advise landowners, land managers and the general public of the potential for various human activities to disturb bald eagles, and
- (3) Encourage additional nonbinding land management practices that benefit bald eagles (see Additional Recommendations section).

While the Guidelines include general recommendations for land management practices that will benefit bald eagles, the document is intended primarily as a tool for landowners and planners who seek information and recommendations regarding how to avoid disturbing bald eagles. Many States and some tribal entities have developed state-specific management plans, regulations, and/or guidance for landowners and land managers to protect and enhance bald eagle habitat, and we encourage the continued development and use of these planning tools to benefit bald eagles.

Adherence to the Guidelines herein will benefit individuals, agencies, organizations, and companies by helping them avoid violations of the law. However, the Guidelines themselves are not law. Rather, they are recommendations based on several decades of behavioral observations, science, and conservation measures to avoid or minimize adverse impacts to bald eagles.

The U.S. Fish and Wildlife Service strongly encourages adherence to these guidelines to ensure that bald and golden eagle populations will continue to be sustained. The Service realizes there may be impacts to some birds even if all reasonable measures are taken to avoid such impacts. Although it is not possible to absolve individuals and entities from liability under the Eagle Act or the MBTA, the Service exercises enforcement discretion to focus on those individuals, companies, or agencies that take migratory birds without regard for the consequences of their actions and the law, especially when conservation measures, such as these Guidelines, are available, but have not been implemented. The Service will prioritize its enforcement efforts to focus on those individuals or entities who take bald eagles or their parts, eggs, or nests without implementing appropriate measures recommended by the Guidelines.

The Service intends to pursue the development of regulations that would authorize, under limited circumstances, the use of permits if “take” of an eagle is anticipated but unavoidable. Additionally, if the bald eagle is delisted, the Service intends to provide a regulatory mechanism to honor existing (take) authorizations under the Endangered Species Act (ESA).

During the interim period until the Service completes a rulemaking for permits under the Eagle Act, the Service does not intend to refer for prosecution the incidental “take” of any bald eagle under the MBTA or Eagle Act, if such take is in full compliance with the terms and conditions of an incidental take statement issued to the action agency or applicant under the authority of section 7(b)(4) of the ESA or a permit issued under the authority of section 10(a)(1)(B) of the ESA.

The Guidelines are applicable throughout the United States, including Alaska. The primary purpose of these Guidelines is to provide information that will minimize or prevent violations only of *Federal* laws governing bald eagles. In addition to Federal laws, many states and some smaller jurisdictions and tribes have additional laws and regulations protecting bald eagles. In some cases those laws and regulations may be more protective (restrictive) than these Federal guidelines. If you are planning activities that may affect bald eagles, we therefore recommend that you contact both your nearest U.S. Fish and Wildlife Service Field Office (see the contact information on p.16) and your state wildlife agency for assistance.

LEGAL PROTECTIONS FOR THE BALD EAGLE

The Bald and Golden Eagle Protection Act

The Eagle Act (16 U.S.C. 668-668c), enacted in 1940, and amended several times since then, prohibits anyone, without a permit issued by the Secretary of the Interior, from “taking” bald eagles, including their parts, nests, or eggs. The Act provides criminal and civil penalties for persons who “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof.” The Act defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” “Disturb” means:

“Disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle’s return, such alterations agitate or bother an eagle to a degree that injures an eagle or substantially interferes with normal breeding, feeding, or sheltering habits and causes, or is likely to cause, a loss of productivity or nest abandonment.

A violation of the Act can result in a criminal fine of \$100,000 (\$200,000 for organizations), imprisonment for one year, or both, for a first offense. Penalties increase substantially for additional offenses, and a second violation of this Act is a felony.

The Migratory Bird Treaty Act

The MBTA (16 U.S.C. 703-712), prohibits the taking of any migratory bird or any part, nest, or egg, except as permitted by regulation. The MBTA was enacted in 1918; a 1972 agreement supplementing one of the bilateral treaties underlying the MBTA had the effect of expanding the scope of the Act to cover bald eagles and other raptors. Implementing regulations define “take” under the MBTA as “pursue, hunt, shoot, wound, kill, trap, capture, possess, or collect.”

Copies of the Eagle Act and the MBTA are available at: <http://permits.fws.gov/ltr/ltr.shtml>.

State laws and regulations

Most states have their own regulations and/or guidelines for bald eagle management. Some states may continue to list the bald eagle as endangered, threatened, or of special concern. If you plan activities that may affect bald eagles, we urge you to familiarize yourself with the regulations and/or guidelines that apply to bald eagles in your state. Your adherence to the Guidelines herein does not ensure that you are in compliance with state laws and regulations because state regulations can be more specific and/or restrictive than these Guidelines.

NATURAL HISTORY OF THE BALD EAGLE

Bald eagles are a North American species that historically occurred throughout the contiguous United States and Alaska. After severely declining in the lower 48 States between the 1870s and the 1970s, bald eagles have rebounded and re-established breeding territories in each of the lower 48 states. The largest North American breeding populations are in Alaska and Canada, but there are also significant bald eagle populations in Florida, the Pacific Northwest, the Greater Yellowstone area, the Great Lakes states, and the Chesapeake Bay region. Bald eagle distribution varies seasonally. Bald eagles that nest in southern latitudes frequently move northward in late spring and early summer, often summering as far north as Canada. Most eagles that breed at northern latitudes migrate southward during winter, or to coastal areas where waters remain unfrozen. Migrants frequently concentrate in large numbers at sites where food is abundant and they often roost together communally. In some cases, concentration areas are used year-round: in summer by southern eagles and in winter by northern eagles.

Juvenile bald eagles have mottled brown and white plumage, gradually acquiring their dark brown body and distinctive white head and tail as they mature. Bald eagles generally attain adult plumage by 5 years of age. Most are capable of breeding at 4 or 5 years of age, but in healthy populations they may not start breeding until much older. Bald eagles may live 15 to 25 years in the wild. Adults weigh 8 to 14 pounds (occasionally reaching 16 pounds in Alaska) and have wingspans of 5 to 8 feet. Those in the northern range are larger than those in the south, and females are larger than males.

Where do bald eagles nest?

Breeding bald eagles occupy “territories,” areas they will typically defend against intrusion by other eagles. In addition to the active nest, a territory may include one or more alternate nests (nests built or maintained by the eagles but not used for nesting in a given year). The Eagle Act prohibits removal or destruction of both active and alternate bald eagle nests. Bald eagles exhibit high nest site fidelity and nesting territories are often used year after year. Some territories are known to have been used continually for over half a century.

Bald eagles generally nest near coastlines, rivers, large lakes or streams that support an adequate food supply. They often nest in mature or old-growth trees; snags (dead trees); cliffs; rock promontories; rarely on the ground; and with increasing frequency on human-made structures such as power poles and communication towers. In forested areas, bald eagles often select the tallest trees with limbs strong enough to support a nest that can weigh more than 1,000 pounds. Nest sites typically include at least one perch with a clear view of the water where the eagles usually forage. Shoreline trees or snags located in reservoirs provide the visibility and accessibility needed to locate aquatic prey. Eagle nests are constructed with large sticks, and may be lined with moss, grass, plant stalks, lichens, seaweed, or sod. Nests are usually about 4-6 feet in diameter and 3 feet deep, although larger nests exist.



Copyright *Birds of North America*, 2000

The range of breeding bald eagles in 2000 (shaded areas). This map shows only the larger concentrations of nests; eagles have continued to expand into additional nesting territories in many states. The dotted line represents the bald eagle's wintering range.

When do bald eagles nest?

Nesting activity begins several months before egg-laying. Egg-laying dates vary throughout the U.S., ranging from October in Florida, to late April or even early May in the northern United States. Incubation typically lasts 33-35 days, but can be as long as 40 days. Eaglets make their first unsteady flights about 10 to 12 weeks after hatching, and fledge (leave their nests) within a few days after that first flight. However, young birds usually remain in the vicinity of the nest for several weeks after fledging because they are almost completely dependent on their parents for food until they disperse from the nesting territory approximately 6 weeks later.

The bald eagle breeding season tends to be longer in the southern U.S., and re-nesting following an unsuccessful first nesting attempt is more common there as well. The following table shows the timing of bald eagle breeding seasons in different regions of the country. The table represents the range of time within which the majority of nesting activities occur in each region and does not apply to any specific nesting pair. Because the timing of nesting activities may vary within a given region, you should contact the nearest U.S. Fish and Wildlife Service Field Office (see page 16) and/or your state wildlife conservation agency for more specific information on nesting chronology in your area.

Chronology of typical reproductive activities of bald eagles in the United States.

Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.
SOUTHEASTERN U.S. (FL, GA, SC, NC, AL, MS, LA, TN, KY, AR, eastern 2 of TX)											
Nest Building											
		Egg Laying/Incubation									
			Hatching/Rearing Young								
					Fledging Young						
CHESAPEAKE BAY REGION (NC, VA, MD, DE, southern 2 of NJ, eastern 2 of PA, panhandle of WV)											
		Nest Building									
				Egg Laying/Incubation							
					Hatching/Rearing Young						
								Fledging Young			
NORTHERN U.S. (ME, NH, MA, RI, CT, NY, northern 2 of NJ, western 2 of PA, OH, WV exc. panhandle, IN, IL, MI, WI, MN, IA, MO, ND, SD, NB, KS, CO, UT)											
			Nest Building								
					Egg Laying/Incubation						
						Hatching/Rearing Young					
								Fledging Young			
PACIFIC REGION (WA, OR, CA, ID, MT, WY, NV)											
				Nest Building							
					Egg Laying/Incubation						
						Hatching/Rearing Young					
								Fledging Young			
SOUTHWESTERN U.S. (AZ, NM, OK panhandle, western 2 of TX)											
		Nest Building									
				Egg Laying/Incubation							
					Hatching/Rearing Young						
							Fledging Young				
ALASKA											
					Nest Building						
							Egg Laying/Incubation				
								Hatching/Rearing Young			
Ing Young											Fledg-
Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.

How many chicks do bald eagles raise?

The number of eagle eggs laid will vary from 1-3, with 1-2 eggs being the most common. Only one eagle egg is laid per day, although not always on successive days. Hatching of young occurs on different days with the result that chicks in the same nest are sometimes of unequal size. The overall national fledging rate is approximately one chick per nest, annually, which results in a healthy expanding population.

What do bald eagles eat?

Bald eagles are opportunistic feeders. Fish comprise much of their diet, but they also eat waterfowl, shorebirds/colonial waterbirds, small mammals, turtles, and carrion. Because they are visual hunters, eagles typically locate their prey from a conspicuous perch, or soaring flight, then swoop down and strike. Wintering bald eagles often congregate in large numbers along streams to feed on spawning salmon or other fish species, and often gather in large numbers in areas below reservoirs, especially hydropower dams, where fish are abundant. Wintering eagles also take birds from rafts of ducks at reservoirs and rivers, and congregate on melting ice shelves to scavenge dead fish from the current or the soft melting ice. Bald eagles will also feed on carcasses along roads, in landfills, and at feedlots.

During the breeding season, adults carry prey to the nest to feed the young. Adults feed their chicks by tearing off pieces of food and holding them to the beaks of the eaglets. After fledging, immature eagles are slow to develop hunting skills, and must learn to locate reliable food sources and master feeding techniques. Young eagles will congregate together, often feeding upon easily acquired food such as carrion and fish found in abundance at the mouths of streams and shallow bays and at landfills.

The impact of human activity on nesting bald eagles

During the breeding season, bald eagles are sensitive to a variety of human activities. However, not all bald eagle pairs react to human activities in the same way. Some pairs nest successfully just dozens of yards from human activity, while others abandon nest sites in response to activities much farther away. This variability may be related to a number of factors, including visibility, duration, noise levels, extent of the area affected by the activity, prior experiences with humans, and tolerance of the individual nesting pair. The relative sensitivity of bald eagles during various stages of the breeding season is outlined in the following table.

Nesting Bald Eagle Sensitivity to Human Activities

Phase	Activity	Sensitivity to Human Activity	Comments
I	Courtship and Nest Building	Most sensitive period; likely to respond negatively	Most critical time period. Disturbance is manifested in nest abandonment. Bald eagles in newly established territories are more prone to abandon nest sites.
II	Egg laying	Very sensitive period	Human activity of even limited duration may cause nest desertion and abandonment of territory for the breeding season.
III	Incubation and early nestling period (up to 4 weeks)	Very sensitive period	Adults are less likely to abandon the nest near and after hatching. However, flushed adults leave eggs and young unattended; eggs are susceptible to cooling, loss of moisture, overheating, and predation; young are vulnerable to elements.
IV	Nestling period, 4 to 8 weeks	Moderately sensitive period	Likelihood of nest abandonment and vulnerability of the nestlings to elements somewhat decreases. However, nestlings may miss feedings, affecting their survival.
V	Nestlings 8 weeks through fledging	Very sensitive period	Gaining flight capability, nestlings 8 weeks and older may flush from the nest prematurely due to disruption and die.

If agitated by human activities, eagles may inadequately construct or repair their nest, may expend energy defending the nest rather than tending to their young, or may abandon the nest altogether. Activities that cause prolonged absences of adults from their nests can jeopardize eggs or young. Depending on weather conditions, eggs may overheat or cool too much and fail to hatch. Unattended eggs and nestlings are subject to predation. Young nestlings are particularly vulnerable because they rely on their parents to provide warmth or shade, without which they may die as a result of hypothermia or heat stress. If food delivery schedules are interrupted, the young may not develop healthy plumage, which can affect their survival. In addition, adults startled while incubating or brooding young may damage eggs or injure their young as they abruptly leave the nest. Older nestlings no longer require constant attention from the adults, but they may be startled by loud or intrusive human activities and prematurely jump from the nest before they are able to fly or care for themselves. Once fledged, juveniles range up to ¼ mile from the nest site, often to a site with minimal human activity. During this period, until about six weeks after departure from the nest, the juveniles still depend on the adults to feed them.

The impact of human activity on foraging and roosting bald eagles

Disruption, destruction, or obstruction of roosting and foraging areas can also negatively affect bald eagles. Disruptive activities in or near eagle foraging areas can interfere with feeding, reducing chances of survival. Interference with feeding can also result in reduced productivity (number of young successfully fledged). Migrating and wintering bald eagles often congregate at specific sites for purposes of feeding and sheltering. Bald eagles rely on established roost sites because of their proximity to sufficient food sources. Roost sites are usually in mature trees where the eagles are somewhat sheltered from the wind and weather. Human activities near or within communal roost sites may prevent eagles

from feeding or taking shelter, especially if there are not other undisturbed and productive feeding and roosting sites available. Activities that permanently alter communal roost sites and important foraging areas can altogether eliminate the elements that are essential for feeding and sheltering eagles.

Where a human activity agitates or bothers roosting or foraging bald eagles to the degree that causes injury or substantially interferes with breeding, feeding, or sheltering behavior and causes, or is likely to cause, a loss of productivity or nest abandonment, the conduct of the activity constitutes a violation of the Eagle Act's prohibition against disturbing eagles. The circumstances that might result in such an outcome are difficult to predict without detailed site-specific information. If your activities may disturb roosting or foraging bald eagles, you should contact your local Fish and Wildlife Service Field Office (see page 16) for advice and recommendations for how to avoid such disturbance.

RECOMMENDATIONS FOR AVOIDING DISTURBANCE AT NEST SITES

In developing these Guidelines, we relied on existing state and regional bald eagle guidelines, scientific literature on bald eagle disturbance, and recommendations of state and Federal biologists who monitor the impacts of human activity on eagles. Despite these resources, uncertainties remain regarding the effects of many activities on eagles and how eagles in different situations may or may not respond to certain human activities. The Service recognizes this uncertainty and views the collection of better biological data on the response of eagles to disturbance as a high priority. To the extent that resources allow, the Service will continue to collect data on responses of bald eagles to human activities conducted according to the recommendations within these Guidelines to ensure that adequate protection from disturbance is being afforded, and to identify circumstances where the Guidelines might be modified. These data will be used to make future adjustments to the Guidelines.

To avoid disturbing nesting bald eagles, we recommend (1) keeping a distance between the activity and the nest (distance buffers), (2) maintaining preferably forested (or natural) areas between the activity and around nest trees (landscape buffers), and (3) avoiding certain activities during the breeding season. The buffer areas serve to minimize visual and auditory impacts associated with human activities near nest sites. Ideally, buffers would be large enough to protect existing nest trees and provide for alternative or replacement nest trees.

The size and shape of effective buffers vary depending on the topography and other ecological characteristics surrounding the nest site. In open areas where there are little or no forested or topographical buffers, such as in many western states, distance alone must serve as the buffer. Consequently, in open areas, the distance between the activity and the nest may need to be larger than the distances recommended under Categories A and B of these guidelines (pg. 12) if no landscape buffers are present. The height of the nest above the ground may also ameliorate effects of human activities; eagles at higher nests may be less prone to disturbance.

In addition to the physical features of the landscape and nest site, the appropriate size for the distance buffer may vary according to the historical tolerances of eagles to human activities in particular localities, and may also depend on the location of the nest in relation

to feeding and roosting areas used by the eagles. Increased competition for nest sites may lead bald eagles to nest closer to human activity (and other eagles).

Seasonal restrictions can prevent the potential impacts of many shorter-term, obtrusive activities that do not entail landscape alterations (e.g. fireworks, outdoor concerts). In proximity to the nest, these kinds of activities should be conducted only outside the breeding season. For activities that entail both short-term, obtrusive characteristics and more permanent impacts (e.g., building construction), we recommend a combination of both approaches: retaining a landscape buffer *and* observing seasonal restrictions.

For assistance in determining the appropriate size and configuration of buffers or the timing of activities in the vicinity of a bald eagle nest, we encourage you to contact the nearest U.S. Fish and Wildlife Service Field Office (see page 16).

Existing Uses

Eagles are unlikely to be disturbed by routine use of roads, homes, and other facilities where such use pre-dates the eagles' successful nesting activity in a given area. Therefore, in most cases *ongoing* existing uses may proceed with the same intensity with little risk of disturbing bald eagles. However, some *intermittent, occasional, or irregular* uses that pre-date eagle nesting in an area may disturb bald eagles. For example: a pair of eagles may begin nesting in an area and subsequently be disturbed by activities associated with an annual outdoor flea market, even though the flea market has been held annually at the same location. In such situations, human activity should be adjusted or relocated to minimize potential impacts on the nesting pair.

ACTIVITY-SPECIFIC GUIDELINES

The following section provides the Service's management recommendations for avoiding bald eagle disturbance as a result of new or intermittent activities proposed in the vicinity of bald eagle nests. Activities are separated into 8 categories (A – H) based on the nature and magnitude of impacts to bald eagles that usually result from the type of activity. Activities with similar or comparable impacts are grouped together.

In most cases, impacts will vary based on the visibility of the activity from the eagle nest and the degree to which similar activities are already occurring in proximity to the nest site. Visibility is a factor because, in general, eagles are more prone to disturbance when an activity occurs in full view. For this reason, we recommend that people locate activities farther from the nest structure in areas with open vistas, in contrast to areas where the view is shielded by rolling topography, trees, or other screening factors. The recommendations also take into account the existence of similar activities in the area because the continued presence of nesting bald eagles in the vicinity of the existing activities indicates that the eagles in that area can tolerate a greater degree of human activity than we can generally expect from eagles in areas that experience fewer human impacts. To illustrate how these factors affect the likelihood of disturbing eagles, we have incorporated the recommendations for some activities into a table (categories A and B).

First, determine which category your activity falls into (between categories A – H). If the activity you plan to undertake is not specifically addressed in these guidelines, follow the recommendations for the most similar activity represented.

If your activity is under A or B, our recommendations are in table form. The vertical axis shows the degree of visibility of the activity from the nest. The horizontal axis (header row) represents the degree to which similar activities are ongoing in the vicinity of the nest. Locate the row that best describes how visible your activity will be from the eagle nest. Then, choose the column that best describes the degree to which similar activities are ongoing in the vicinity of the eagle nest. The box where the column and row come together contains our management recommendations for how far you should locate your activity from the nest to avoid disturbing the eagles. The numerical distances shown in the tables are the closest the activity should be conducted relative to the nest. In some cases we have included additional recommendations (other than recommended *distance* from the nest) you should follow to help ensure that your activity will not disturb the eagles.

Alternate nests

For activities that entail permanent landscape alterations that may result in bald eagle disturbance, these recommendations apply to both active and alternate bald eagle nests. Disturbance becomes an issue with regard to alternate nests if eagles return for breeding purposes and react to land use changes that occurred while the nest was inactive. The likelihood that an alternate nest will again become active decreases the longer it goes unused. If you plan activities in the vicinity of an alternate bald eagle nest and have information to show that the nest has not been active during the preceding 5 breeding seasons, the recommendations provided in these guidelines for avoiding disturbance around the nest site may no longer be warranted. The nest itself remains protected by other provisions of the Eagle Act, however, and may not be destroyed.

If special circumstances exist that make it unlikely an inactive nest will be reused before 5 years of disuse have passed, and you believe that the probability of reuse is low enough to warrant disregarding the recommendations for avoiding disturbance, you should be prepared to provide all the reasons for your conclusion, including information regarding past use of the nest site. Without sufficient documentation, you should continue to follow these guidelines when conducting activities around the nest site. If we are able to determine that it is unlikely the nest will be reused, we may advise you that the recommendations provided in these guidelines for avoiding disturbance are no longer necessary around that nest site.

This guidance is intended to minimize disturbance, as defined by Federal regulation. In addition to Federal laws, most states and some tribes and smaller jurisdictions have additional laws and regulations protecting bald eagles. In some cases those laws and regulations may be more protective (restrictive) than these Federal guidelines.

Temporary Impacts

For activities that have temporary impacts, such as the use of loud machinery, fireworks displays, or summer boating activities, we recommend seasonal restrictions. These types of activities can generally be carried out outside of the breeding season without causing disturbance. The recommended restrictions for these types of activities can be lifted for alternate nests within a particular territory, including nests that were attended during the current breeding season but not used to raise young, after eggs laid in another nest within the territory have hatched (depending on the distance between the alternate nest and the active nest).

In general, activities should be kept as far away from nest trees as possible; loud and disruptive activities should be conducted when eagles are not nesting; and activity between the nest and the nearest foraging area should be minimized. If the activity you plan to undertake is not specifically addressed in these guidelines, follow the recommendations for the most similar activity addressed, or contact your local U.S. Fish and Wildlife Service Field Office for additional guidance.

If you believe that special circumstances apply to your situation that increase or diminish the likelihood of bald eagle disturbance, or if it is not possible to adhere to the guidelines, you should contact your local Service Field Office for further guidance.

Category A:

Building construction, 1 or 2 story, with project footprint of ½ acre or less.
Construction of roads, trails, canals, power lines, and other linear utilities.
Agriculture and aquaculture – new or expanded operations.
Alteration of shorelines or wetlands.
Installation of docks or moorings.
Water impoundment.

Category B:

Building construction, 3 or more stories.
Building construction, 1 or 2 story, with project footprint of more than ½ acre.
Installation or expansion of marinas with a capacity of 6 or more boats.
Mining and associated activities.
Oil and natural gas drilling and refining and associated activities.

	<i>If there is no similar activity within 1 mile of the nest</i>	<i>If there is similar activity closer than 1 mile from the nest</i>
<i>If the activity will be visible from the nest</i>	660 feet. Landscape buffers are recommended.	660 feet, or as close as existing tolerated activity of similar scope. Landscape buffers are recommended.
<i>If the activity will not be visible from the nest</i>	Category A: 330 feet. Clearing, external construction, and landscaping between 330 feet and 660 feet should be done outside breeding season. Category B: 660 feet.	330 feet, or as close as existing tolerated activity of similar scope. Clearing, external construction and landscaping within 660 feet should be done outside breeding season.

The numerical distances shown in the table are the closest the activity should be conducted relative to the nest.

Category C. Timber Operations and Forestry Practices

- Avoid clear cutting or removal of overstory trees within 330 feet of the nest at any time.
- Avoid timber harvesting operations, including road construction and chain saw and yarding operations, during the breeding season within 660 feet of the nest. The distance may be decreased to 330 feet around alternate nests within a particular territory, including nests that were attended during the current breeding season but not used to raise young, after eggs laid in another nest within the territory have hatched.
- Selective thinning and other silviculture management practices designed to conserve or enhance habitat, including prescribed burning close to the nest tree, should be undertaken outside the breeding season. Precautions such as raking leaves and woody debris from around the nest tree should be taken to prevent crown fire or fire climbing the nest tree. If it is determined that a burn during the breeding season would be beneficial, then, to ensure that no take or disturbance will occur, these activities should be conducted only when neither adult eagles nor young are present at the nest tree (i.e., at the beginning of, or end of, the breeding season, either before the particular nest is active or after the young have fledged from that nest). Appropriate Federal and state biologists should be consulted before any prescribed burning is conducted during the breeding season.
- Avoid construction of log transfer facilities and in-water log storage areas within 330 feet of the nest.

Category D. Off-road vehicle use (including snowmobiles). No buffer is necessary around nest sites outside the breeding season. During the breeding season, do not operate off-road vehicles within 330 feet of the nest. In open areas, where there is increased visibility and exposure to noise, this distance should be extended to 660 feet.

Category E. Motorized Watercraft use (including jet skis/personal watercraft). No buffer is necessary around nest sites outside the breeding season. During the breeding season, within 330 feet of the nest, (1) do not operate jet skis (personal watercraft), and (2) avoid concentrations of noisy vessels (e.g., commercial fishing boats and tour boats), except where eagles have demonstrated tolerance for such activity. Other motorized boat traffic passing within 330 feet of the nest should attempt to minimize trips and avoid stopping in the area where feasible, particularly where eagles are unaccustomed to boat traffic. Buffers for airboats should be larger than 330 feet due to the increased noise they generate, combined with their speed, maneuverability, and visibility.

Category F. Non-motorized recreation and human entry (e.g., hiking, camping, fishing, hunting, birdwatching, kayaking, canoeing). No buffer is necessary around nest sites outside the breeding season. If the activity will be visible or highly audible from the nest, maintain a 330-foot buffer during the breeding season, particularly where eagles are unaccustomed to such activity.

Category G. Helicopters and fixed-wing aircraft.

Except for authorized biologists trained in survey techniques, avoid operating aircraft within 1,000 feet of the nest during the breeding season, except where eagles have demonstrated tolerance for such activity.

Category H. Blasting and other loud, intermittent noises.

Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area. This recommendation applies to the use of fireworks classified by the Federal Department of Transportation as Class B explosives, which includes the larger fireworks that are intended for licensed public display.

RECOMMENDATIONS FOR AVOIDING DISTURBANCE AT FORAGING AREAS AND COMMUNAL ROOST SITES

1. Minimize potentially disruptive activities and development in the eagles' direct flight path between their nest and roost sites and important foraging areas.
2. Locate long-term and permanent water-dependent facilities, such as boat ramps and marinas, away from important eagle foraging areas.
3. Avoid recreational and commercial boating and fishing near critical eagle foraging areas during peak feeding times (usually early to mid-morning and late afternoon), except where eagles have demonstrated tolerance to such activity.
4. Do not use explosives within ½ mile (or within 1 mile in open areas) of communal roosts when eagles are congregating, without prior coordination with the U.S. Fish and Wildlife Service and your state wildlife agency.
5. Locate aircraft corridors no closer than 1,000 feet vertical or horizontal distance from communal roost sites.

ADDITIONAL RECOMMENDATIONS TO BENEFIT BALD EAGLES

The following are additional management practices that landowners and planners can exercise for added benefit to bald eagles.

1. Protect and preserve potential roost and nest sites by retaining mature trees and old growth stands, particularly within ½ mile from water.
2. Where nests are blown from trees during storms or are otherwise destroyed by the elements, continue to protect the site in the absence of the nest for up to three (3) complete breeding seasons. Many eagles will rebuild the nest and reoccupy the site.
3. To avoid collisions, site wind turbines, communication towers, and high voltage transmission power lines away from nests, foraging areas, and communal roost sites.
4. Employ industry-accepted best management practices to prevent birds from colliding with or being electrocuted by utility lines, towers, and poles. If possible, bury utility lines in important eagle areas.
5. Where bald eagles are likely to nest in human-made structures (e.g., cell phone towers) and such use could impede operation or maintenance of the structures or jeopardize the safety of the eagles, equip the structures with either (1) devices engineered to discourage bald eagles from building nests, or (2) nesting platforms that will safely accommodate bald eagle nests without interfering with structure performance.
6. Immediately cover carcasses of euthanized animals at landfills to protect eagles from being poisoned.
7. Do not intentionally feed bald eagles. Artificially feeding bald eagles can disrupt their essential behavioral patterns and put them at increased risk from power lines, collision with windows and cars, and other mortality factors.
8. Use pesticides, herbicides, fertilizers, and other chemicals only in accordance with Federal and state laws.
9. Monitor and minimize dispersal of contaminants associated with hazardous waste sites (legal or illegal), permitted releases, and runoff from agricultural areas, especially within watersheds where eagles have shown poor reproduction or where bioaccumulating contaminants have been documented. These factors present a risk of contamination to eagles and their food sources.

CONTACTS

The following U.S. Fish and Wildlife Service Field Offices provide technical assistance on bald eagle management:

<u>Alabama</u>	Daphne	(251) 441-5181	<u>New Hampshire</u>	Concord	(603) 223-2541
<u>Alaska</u>	Anchorage	(907) 271-2888	<u>New Jersey</u>	Pleasantville	(609) 646-9310
	Fairbanks	(907) 456-0203	<u>New Mexico</u>	Albuquerque	(505) 346-2525
	Juneau	(907) 780-1160	<u>New York</u>	Cortland	(607) 753-9334
<u>Arizona</u>	Phoenix	(602) 242-0210		Long Island	(631) 776-1401
<u>Arkansas</u>	Conway	(501) 513-4470	<u>North Carolina</u>	Raleigh	(919) 856-4520
<u>California</u>	Arcata	(707) 822-7201		Asheville	(828) 258-3939
	Barstow	(760) 255-8852	<u>North Dakota</u>	Bismarck	(701) 250-4481
	Carlsbad	(760) 431-9440	<u>Ohio</u>	Reynoldsburg	(614) 469-6923
	Red Bluff	(530) 527-3043	<u>Oklahoma</u>	Tulsa	(918) 581-7458
	Sacramento	(916) 414-6000	<u>Oregon</u>	Bend	(541) 383-7146
	Stockton	(209) 946-6400		Klamath Falls	(541) 885-8481
	Ventura	(805) 644-1766		La Grande	(541) 962-8584
	Yreka	(530) 842-5763		Newport	(541) 867-4558
<u>Colorado</u>	Lakewood	(303) 275-2370		Portland	(503) 231-6179
	Grand Junction	(970) 243-2778		Roseburg	(541) 957-3474
<u>Connecticut</u>	(See New Hampshire)		<u>Pennsylvania</u>	State College	(814) 234-4090
<u>Delaware</u>	(See Maryland)		<u>Rhode Island</u>	(See New Hampshire)	
<u>Florida</u>	Panama City	(850) 769-0552	<u>South Carolina</u>	Charleston	(843) 727-4707
	Vero Beach	(772) 562-3909	<u>South Dakota</u>	Pierre	(605) 224-8693
	Jacksonville	(904) 232-2580	<u>Tennessee</u>	Cookeville	(931) 528-6481
<u>Georgia</u>	Athens	(706) 613-9493	<u>Texas</u>	Clear Lake	(281) 286-8282
	Brunswick	(912) 265-9336	<u>Utah</u>	West Valley City	(801) 975-3330
	Columbus	(706) 544-6428	<u>Vermont</u>	(See New Hampshire)	
<u>Idaho</u>	Boise	(208) 378-5243	<u>Virginia</u>	Gloucester	(804) 693-6694
	Chubbuck	(208) 237-6975	<u>Washington</u>	Lacey	(306) 753-9440
<u>Illinois/Iowa</u>	Rock Island	(309) 757-5800		Spokane	(509) 891-6839
<u>Indiana</u>	Bloomington	(812) 334-4261		Wenatchee	(509) 665-3508
<u>Kansas</u>	Manhattan	(785) 539-3474	<u>West Virginia</u>	Elkins	(304) 636-6586
<u>Kentucky</u>	Frankfort	(502) 695-0468	<u>Wisconsin</u>	New Franken	(920) 866-1725
<u>Louisiana</u>	Lafayette	(337) 291-3100	<u>Wyoming</u>	Cheyenne	(307) 772-2374
<u>Maine</u>	Old Town	(207) 827-5938		Cody	(307) 578-5939
<u>Maryland</u>	Annapolis	(410) 573-4573			
<u>Massachusetts</u>	(See New Hampshire)				
<u>Michigan</u>	East Lansing	(517) 351-2555			
<u>Minnesota</u>	Bloomington	(612) 725-3548			
<u>Mississippi</u>	Jackson	(601) 965-4900			
<u>Missouri</u>	Columbia	(573) 234-2132			
<u>Montana</u>	Helena	(405) 449-5225			
<u>Nebraska</u>	Grand Island	(308) 382-6468			
<u>Nevada</u>	Las Vegas	(702) 515-5230			
	Reno	(775) 861-6300			

National Office
 U.S. Fish and Wildlife Service
 Division of Migratory Bird Management
 4401 North Fairfax Drive, MBSP-4107
 Arlington, VA 22203-1610
 (703) 358-1714
<http://www.fws.gov/migratorybirds>

State Agencies

To contact a state wildlife agency, visit the Association of Fish & Wildlife Agencies' website at http://www.fishwildlife.org/where_us.html

GLOSSARY

The definitions below apply to these National Bald Eagle Management Guidelines:

Communal roost sites – Areas where bald eagles gather and perch overnight – and sometimes during the day in the event of inclement weather. Communal roost sites are usually in large trees (live or dead) that are relatively sheltered from wind and are generally in close proximity to foraging areas. These roosts may also serve a social purpose for pair bond formation and communication among eagles. Many roost sites are used year after year.

Disturb – To agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

In addition to immediate impacts, this definition also covers impacts that result from human-caused alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that injures an eagle or substantially interferes with normal breeding, feeding, or sheltering habits and causes, or is likely to cause, a loss of productivity or nest abandonment.

Fledge – To leave the nest and begin flying. For bald eagles, this normally occurs at 10-12 weeks of age.

Fledgling – A juvenile bald eagle that has taken the first flight from the nest but is not yet independent.

Foraging area – An area where eagles feed, typically near open water such as rivers, lakes, reservoirs, and bays where fish and waterfowl are abundant, or in areas with little or no water (i.e., rangelands, barren land, tundra, suburban areas, etc.) where other prey species (e.g., rabbit, rodents) or carrion (such as at landfills) are abundant.

Landscape buffer – A natural or human-made landscape feature that screens eagles from human activity (e.g., strip of trees, hill, cliff, berm, sound wall).

Nest – A structure built, maintained, or used by bald eagles for the purpose of reproduction. An **active** nest is a nest that is attended (built, maintained or used) by a pair of bald eagles during a given breeding season, whether or not eggs are laid. An **alternate** nest is a nest that is not used for breeding by eagles during a given breeding season.

Nest abandonment – Nest abandonment occurs when adult eagles desert or stop attending a nest and do not subsequently return and successfully raise young in that nest for the duration of a breeding season. Nest abandonment can be caused by altering habitat near a nest, even if the alteration occurs prior to the breeding season. Whether the eagles migrate during the non-breeding season, or remain in the area throughout the non-breeding season, nest abandonment can occur at any point between the time the eagles return to the nesting site for the breeding season and the time when all progeny from the breeding season have

dispersed.

Project footprint – The area of land (and water) that will be permanently altered for a development project, including access roads.

Similar scope – In the vicinity of a bald eagle nest, an existing activity is of similar scope to a new activity where the types of impacts to bald eagles are similar in nature, and the impacts of the existing activity are of the same or greater magnitude than the impacts of the potential new activity. Examples: (1) An existing single-story home 200 feet from a nest is similar in scope to an additional single-story home 200 feet from the nest; (2) An existing multi-story, multi-family dwelling 150 feet from a nest has impacts of a greater magnitude than a potential new single-family home 200 feet from the nest; (3) One existing single-family home 200 feet from the nest has impacts of a lesser magnitude than three single-family homes 200 feet from the nest; (4) an existing single-family home 200 feet from a communal roost has impacts of a lesser magnitude than a single-family home 300 feet from the roost but 40 feet from the eagles' foraging area. The existing activities in examples (1) and (2) are of similar scope, while the existing activities in example (3) and (4) are not.

Vegetative buffer – An area surrounding a bald eagle nest that is wholly or largely covered by forest, vegetation, or other natural ecological characteristics, and separates the nest from human activities.

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United States Department of Interior
Fish and Wildlife Service
Washington, DC 20240

September 14, 2000

To: Regional Directors

From: Director /s/ Jamie Rappaport Clark

Subject: Service Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers

Construction of communications towers (including radio, television, cellular, and microwave) in the United States has been growing at an exponential rate, increasing at an estimated 6 percent to 8 percent annually. According to the Federal Communication Commission's *2000 Antenna Structure Registry*, the number of lighted towers greater than 199 feet above ground level (AGL) currently number over 45,000 and the total number of towers over 74,000. Non-compliance with the registry program is estimated at 24 percent to 38 percent, bringing the total to 92,000 to 102,000. By 2003, all television stations must be digital, adding potentially 1,000 new towers exceeding 1,000 feet AGL.

The construction of new towers creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. Communications towers are estimated to kill 4-5 million birds per year, which violates the spirit and the intent of the Migratory Bird Treaty Act and the Code of Federal Regulations at Part 50 designed to implement the MBTA. Some of the species affected are also protected under the Endangered Species Act and Bald and Golden Eagle Act.

Service personnel may become involved in the review of proposed tower sitings and/or in the evaluation of tower impacts on migratory birds through National Environmental Policy Act review; specifically, Sections 1501.6, opportunity to be a cooperating agency, and 1503.4, duty to comment on federally-licensed activities for agencies with jurisdiction by law, in this case the MBTA, or because of special expertise. Also, the National Wildlife Refuge System Improvement Act requires that any activity on Refuge lands be determined as compatible with the Refuge system mission and the Refuge purpose(s). In addition, the Service is required by the ESA to assist other Federal agencies in ensuring that any action they authorize, implement, or fund will not jeopardize the continued existence of any Federally endangered or threatened species.

A Communication Tower Working Group composed of government agencies, industry, academic researchers and NGO's has been formed to develop and implement a research protocol to determine the best ways to construct and operate towers to prevent bird strikes. Until the research study is completed, or until research efforts uncover significant new mitigation measures, all Service personnel involved in the review of proposed tower sitings and/or the evaluation of the impacts of towers on migratory birds should use the attached interim guidelines when making recommendations to all companies, license applicants, or licensees proposing new tower sitings. These guidelines were developed by Service personnel from research conducted in several eastern, midwestern, and southern states, and have been refined through Regional review. They are based on the best information available at this time, and are the most prudent and effective measures for avoiding bird strikes at towers. We believe that they will provide significant protection for migratory birds pending completion of the Working Group's recommendations. As new information becomes available, the guidelines will be updated accordingly.

Implementation of these guidelines by the communications industry is voluntary, and our recommendations must be balanced with Federal Aviation Administration requirements and local

community concerns where necessary. Field offices have discretion in the use of these guidelines on a case by case basis, and may also have additional recommendations to add which are specific to their geographic area.

Also attached is a [Tower Site Evaluation Form](#) which may prove useful in evaluating proposed towers and in streamlining the evaluation process. Copies may be provided to consultants or tower companies who regularly submit requests for consultation, as well as to those who submit individual requests that do not contain sufficient information to allow adequate evaluation. This form is for discretionary use, and may be modified as necessary.

The Migratory Bird Treaty Act (16 U.S.C. 703-712) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. While the Act has no provision for allowing unauthorized take, it must be recognized that some birds may be killed at structures such as communications towers even if all reasonable measures to avoid it are implemented. The Service's Division of Law Enforcement carries out its mission to protect migratory birds not only through investigations and enforcement, but also through fostering relationships with individuals and industries that proactively seek to eliminate their impacts on migratory birds. While it is not possible under the Act to absolve individuals or companies from liability if they follow these recommended guidelines, the Division of Law Enforcement and Department of Justice have used enforcement and prosecutorial discretion in the past regarding individuals or companies who have made good faith efforts to avoid the take of migratory birds.

Please ensure that all field personnel involved in review of FCC licensed communications tower proposals receive copies of this memorandum. Questions regarding this issue should be directed to Dr. Benjamin Tuggle, Chief, Division of Habitat Conservation, at (703)358-2161, or Jon Andrew, Chief, Division of Migratory Bird Management, at (703)358-1714. These guidelines will be incorporated in a Director's Order and placed in the Fish and Wildlife Service Manual at a future date.

Service Interim Guidelines For Recommendations On

Communications Tower Siting, Construction, Operation, and Decommissioning

1. Any company/applicant/licensee proposing to construct a new communications tower should be strongly encouraged to collocate the communications equipment on an existing communication tower or other structure (*e.g.*, billboard, water tower, or building mount). Depending on tower load factors, from 6 to 10 providers may collocate on an existing tower.
2. If collocation is not feasible and a new tower or towers are to be constructed, communications service providers should be strongly encouraged to construct towers no more than 199 feet above ground level (AGL), using construction techniques which do not require guy wires (*e.g.*, use a lattice structure, monopole, etc.). Such towers should be unlighted if Federal Aviation Administration regulations permit.
3. If constructing multiple towers, providers should consider the cumulative impacts of all of those towers to migratory birds and threatened and endangered species as well as the impacts of each individual tower.
4. If at all possible, new towers should be sited within existing "antenna farms" (clusters of towers). Towers should not be sited in or near wetlands, other known bird concentration areas (*e.g.*, state or

Federal refuges, staging areas, rookeries), in known migratory or daily movement flyways, or in habitat of threatened or endangered species. Towers should not be sited in areas with a high incidence of fog, mist, and low ceilings.

5. If taller (>199 feet AGL) towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA should be used. Unless otherwise required by the FAA, only white (preferable) or red strobe lights should be used at night, and these should be the minimum number, minimum intensity, and minimum number of flashes per minute (longest duration between flashes) allowable by the FAA. The use of solid red or pulsating red warning lights at night should be avoided. Current research indicates that solid or pulsating (beacon) red lights attract night-migrating birds at a much higher rate than white strobe lights. Red strobe lights have not yet been studied.
6. Tower designs using guy wires for support which are proposed to be located in known raptor or waterbird concentration areas or daily movement routes, or in major diurnal migratory bird movement routes or stopover sites, should have daytime visual markers on the wires to prevent collisions by these diurnally moving species. (For guidance on markers, see *Avian Power Line Interaction Committee (APLIC). 1994. Mitigating Bird Collisions with Power Lines: The State of the Art in 1994. Edison Electric Institute, Washington, D.C., 78 pp*, and *Avian Power Line Interaction Committee (APLIC). 1996. Suggested Practices for Raptor Protection on Power Lines. Edison Electric Institute/Raptor Research Foundation, Washington, D.C., 128 pp*. Copies can be obtained via the Internet at <http://www.eei.org/resources/pubcat/enviro/>, or by calling 1-800/334-5453).
7. Towers and appendant facilities should be sited, designed and constructed so as to avoid or minimize habitat loss within and adjacent to the tower "footprint". However, a larger tower footprint is preferable to the use of guy wires in construction. Road access and fencing should be minimized to reduce or prevent habitat fragmentation and disturbance, and to reduce above ground obstacles to birds in flight.
8. If significant numbers of breeding, feeding, or roosting birds are known to habitually use the proposed tower construction area, relocation to an alternate site should be recommended. If this is not an option, seasonal restrictions on construction may be advisable in order to avoid disturbance during periods of high bird activity.
9. In order to reduce the number of towers needed in the future, providers should be encouraged to design new towers structurally and electrically to accommodate the applicant/licensee's antennas and comparable antennas for at least two additional users (minimum of three users for each tower structure), unless this design would require the addition of lights or guy wires to an otherwise unlighted and/or unguyed tower.
10. Security lighting for on-ground facilities and equipment should be down-shielded to keep light within the boundaries of the site.
11. If a tower is constructed or proposed for construction, Service personnel or researchers from the Communication Tower Working Group should be allowed access to the site to evaluate bird use, conduct dead-bird searches, to place net catchments below the towers but above the ground, and to place radar, Global Positioning System, infrared, thermal imagery, and acoustical monitoring equipment as necessary to assess and verify bird movements and to gain information on the impacts of various tower sizes, configurations, and lighting systems.

12. Towers no longer in use or determined to be obsolete should be removed within 12 months of cessation of use.

In order to obtain information on the extent to which these guidelines are being implemented, and to identify any recurring problems with their implementation which may necessitate modifications, letters provided in response to requests for evaluation of proposed towers should contain the following request:

“In order to obtain information on the usefulness of these guidelines in preventing bird strikes, and to identify any recurring problems with their implementation which may necessitate modifications, please advise us of the final location and specifications of the proposed tower, and which of the measures recommended for the protection of migratory birds were implemented. If any of the recommended measures can not be implemented, please explain why they were not feasible.”

Return to [Home Page](#)