

National Environmental Policy Act Compliance Procedures for  
Federal Communications Commission Telecommunications Projects

by

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## **List of Applicable Abbreviations**

Advisory Council on Historic Preservation (ACHP)  
Area of Potential Effect (APE)  
Base Flood Elevation (BFE)  
Bureau of Land Management (BLM)  
Code of Federal Regulations (CFR)  
Environmental Assessment (EA)  
Environmental Impact Statement (EIS)  
Environmental Protection Agency (EPA)  
Federal Aviation Administration (FAA)  
Federal Communications Commission (FCC)  
Federal Emergency Management Agency (FEMA)  
Finding of No Significant Impact (FONSI)  
Flood Insurance Rate Map (FIRM)  
Geographic Information System (GIS)  
Georgia Historic Preservation Division (GA HPD or GA SHPO)  
Housing and Urban Development (HUD)  
Illinois Historic Architectural and Archaeology Resources Geographic Information System (HAARGIS)  
Illinois Historic Preservation Agency (IHPA or IL SHPO)  
Memorandum of Agreement (MOA)  
National Environmental Policy Act (NEPA)  
National Geodetic Vertical Datum (NGVD)  
National Historic Preservation Act (NHPA)  
Nationwide Programmatic Agreement (NPA)  
Nationwide Programmatic Agreement for the Collocation of Wireless Antennas (Collocation NPA)  
National Register of Historic Places (NRHP)  
National Wetland Inventory (NWI)  
Secretary of the Interior (SOI)  
State Historic Preservation Office (SHPO)  
Tower Construction Notification System (TCNS)  
Radio-Frequency (RF)  
United States Army Corps of Engineers (USACE)  
United States Fish and Wildlife Service (USFWS)  
United States Fish & Wildlife Service Information, Planning, and Conservation System (IPaC)  
University of Georgia's Natural Archaeological and Historic Resources Geographical Information System (NAHRGIS)

*General Overview of the National Environmental Policy Act (NEPA) and How NEPA Relates to FCC Telecommunications Projects*

This document outlines the Federal Communications Commission (FCC) best practices and procedures relating to 47 CFR Chapter 1, Subpart 1 – Procedures Implementing the National Environmental Policy Act (NEPA) of 1969, as amended, 42 U.S.C. 4321-4335 (47 CFR 1.1301-1.1319).

The NEPA, passed by Congress in 1969 and signed into law on January 1, 1970, established the landmark national environmental policy which, among other things, encourages environmental protection and informed decision-making for federal “undertakings.” An “undertaking”, as it pertains to NEPA, is defined as any action that is entirely or partly federally financed, assisted, conducted, regulated, or subject to federal approval (40 CFR 1508.18). The NEPA declares that the Federal government’s continuing policy is to create and maintain conditions under which people and nature can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations of Americans.

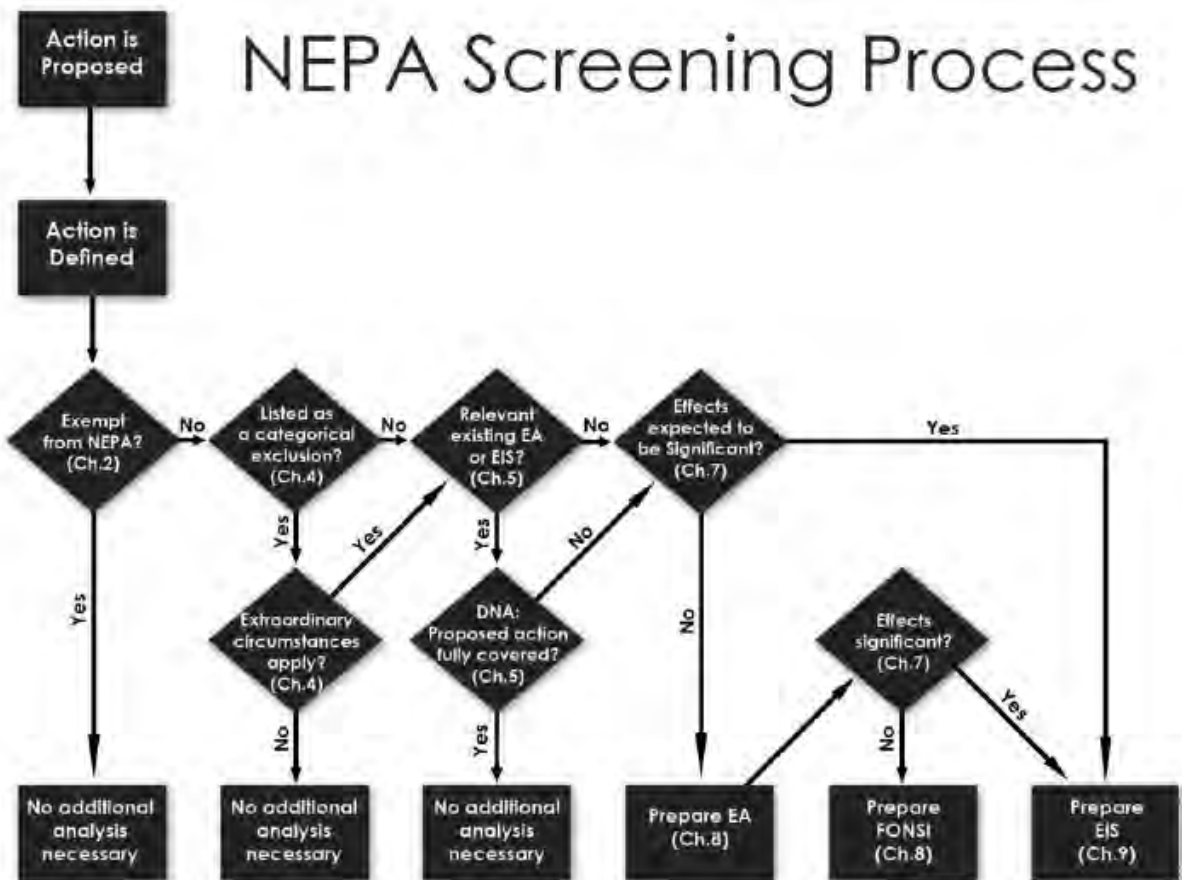
As described in the Bureau of Land Management (BLM) NEPA Handbook, categorical exclusions are categories of actions that Federal agencies have determined do not have a significant effect on the quality of human environment (individually or cumulatively) and for which, therefore, neither an Environmental Assessment (EA) nor an Environmental Impact Statement (EIS) is required (40 CFR 1508.4). The BLM NEPA Handbook does make the distinction that a categorical exclusion is a form of NEPA compliance without the analysis that occurs in an EA or EIS. A categorical exclusion is not an exemption from the NEPA process. The BLM NEPA Handbook encourages the NEPA reviewer to apply categorical exclusions, where appropriate, because they speed the NEPA compliance process without the need for an EA or EIS (40 CFR 1500(k)).

The NEPA process, as it relates to the FCC, has been largely delegated to private sector, FCC licensees, and other FCC applicants (AT&T, Verizon, Sprint, etc.). While the FCC remains primarily responsible for enforcement of NEPA on FCC undertakings, the FCC requires applicants to implement NEPA and to notify the FCC of all undertakings that may have a significant adverse effect. The FCC has established the regulations and guidelines for implementing the NEPA process for proposed telecommunications projects under 47 CFR Chapter 1, Subpart 1, 1.1301-1.1319.

In accordance with 47 CFR 1.1306, all FCC undertakings are categorically excluded from environmental processing with the exception of those that have the potential to affect the quality of the human environment, as outlined by 47 CFR 1.1307 (The exception categories outlined in 47 CFR 1.1307 are discussed later in this document). The applicant must consider all of the exemption categories described in 47 CFR 1.1307 for construction and installation activities associated with newly proposed telecommunications facilities. For collocation activities, which involve the mounting of antenna(s) on an existing building or tower, NEPA Screening and preparation are limited to those undertakings that would result in an adverse effect to Historic Properties or that would result in human exposure to radio-frequency radiation in excess of the applicable health and safety guidelines cited in 47 CFR 1.1307.

Figure 1.1 “NEPA Screening Process” is taken from the Bureau of Land Management – National Environmental Policy Act Handbook (H-1790-1) (BLM NEPA Handbook) and provides a visual representation of the NEPA Screening Process:

Figure 1.1 NEPA Screening Process



Source: Bureau of Land Management National Environmental Policy Act Handbook H-1790-1, Page 5

Most proposed telecommunications projects generally proceed through the following path:

1. Action is proposed.
2. Action is defined.
3. Exempt from NEPA? No.
4. Listed as a categorical exclusion? Yes.
5. Extraordinary circumstances apply? No.
6. No additional analysis necessary.

Other scenarios that lead to other pathways will be discussed later in this document through the use of several case studies as examples.

Actions for which an Environmental Assessment is Required

The FCC specifies certain actions in which the effects of an undertaking may significantly impact the environment. The applicant must determine if the proposed undertaking will involve any of the following (47 CFR 1.1307):

1. Will the facility be located in an officially designated wilderness area?
2. Will the facility be located in an officially designated wildlife preserve?
3. Will the facility affect federally listed, threatened or endangered species or designated critical habitat?
4. Is the facility likely to jeopardize the continued existence of any federally proposed endangered or threatened species or likely to result in the destruction or adverse modification of proposed critical habitats?
5. Will the facility affect districts, sites, buildings, structures, objects, or other cultural resources listed, or eligible for listing, in the National Register of Historic Places?
6. Will the facility affect Indian religious sites?
7. Will the facility be located in a 100-year floodplain?
8. Will the construction of the facility involve a significant change in surface features (e.g. wetland fill, deforestation, or water diversion)?
9. Will the antenna or tower and/or supporting structure be equipped with high intensity white lights and be located in or near a residential neighborhood, as defined by the applicable zoning law?
10. Will the proposed facility fall within the categories listed in Table 1 of Section 1.1307(b) and cause exposure of workers or general public to levels of radio-frequency radiation in excess of the limits in Section 1.1310?

If any of the above is applicable to the proposed undertaking, the applicant shall prepare an Environmental Assessment (EA) which specifies the environmental consequences of the proposal and the FCC shall review the document to determine if the proposal will or will not have a significant environmental effect.

Required Elements of Environmental Assessments (EAs)

Environmental Assessment documentation must include the following, as specified by 47 CFR 1.1311:

1. A description of the facilities, supporting structures, and appurtenances, and a description of the site and surrounding area uses. If high intensity white lighting is to be utilized within a residential area, the EA must address the impact the lighting will have upon residents.
2. A statement of the zoning classification of the site and record of any communications, proceedings, or determinations between the applicant and zoning, planning, environmental or other local, state or federal authorities on matters relating to environmental effect.

3. A statement on whether construction of the facilities has been a source of controversy on environmental grounds in the local community.
4. A discussion of environmental factors and other considerations that led the applicant to choose the particular site, as well as the nature and extent of any unavoidable adverse environmental effects, and any alternative designs or sites which have been or might reasonably be considered.
5. Any other information requested by the FCC.
6. If endangered or threatened species or their critical habitats may be affected, the applicant's analysis must utilize the best scientific and commercial data available.

The rules require that EA documentation be factual, concise, and deal specifically with the site feature which has special environmental significance. Applicants should also include any evidence of site approval obtained from local or other land use authorities.

#### Environmental Impact Statements (EISs)

The FCC has determined that there are no specific actions or undertakings that automatically require an EIS (47 CFR 1.1305). EIS documents are reserved for undertakings that would result in an unmitigated adverse effect (47 CFR 1.1314). These types of situations are unlikely due to the small size and the typical types of impacts that result from most FCC undertakings. Further guidance on EIS specifications and procedures is provided in 47 CFR 1.1314 through 1.1319.

#### Facilities for which No Preconstruction Authorization is Required

In accordance with 47 CFR 1.1312, for facilities for which no FCC authorization is required by the FCC's rules and regulations, the licensee or applicant shall initially ascertain whether the proposed facility may have a significant impact as defined in 47 CFR 1.1307, or is categorically excluded from environmental processing under 47 CFR 1.1306.

If a facility that does not require pre-construction FCC authorization or a facility that is categorically excluded may have a significant environmental impact, an EA will be submitted by the licensee or applicant and ruled on by the FCC. Environmental processing, if invoked, shall be completed prior to initiation of the construction of the facility.

If a facility is categorically excluded from environmental processing, the licensee or applicant may proceed with construction and operation of the facility in accordance with the applicable licensing rules and procedures.

#### Components of Proposed Telecommunications Projects

The licensee or applicant uses a search ring to satisfy radio-frequency (RF) requirements for the service provider in order to find a location for a newly proposed facility. Once a suitable parcel of land is found, the licensee or applicant negotiates with private land owners to discuss the possibility of constructing a cell tower on their property. Local governments (generally the planning and development department) are notified of the proposed undertaking.

The licensee or applicant designs the tower according to the needs of the service provider and the local zoning regulations and ordinances. The local zoning ordinances may restrict certain components of the proposed facility such as tower height, tower type, compound size, easement width and length, etc.

Typically the telecommunication facility designs consist of a proposed lease area in which a fenced compound will be installed. Facilities generally measure anywhere from 10,000 square-feet to 3,600 square-feet. The ground surfaces within the fenced compounds is generally gravel-covered and may include equipment shelters, equipment cabinets, generators, etc.

The construction designs can also include a proposed access easement that originates from a public right-of-way or road. Utility easements that allow for underground or overhead power, fiber, telecommunications lines are also commonly included in the construction plans. Utility easement can also be incorporated alongside the access easement.

The proposed towers themselves can be varying designs and heights. Examples of tower type include monopoles, self-supporting lattices, guyed-type towers, monopines, etc. Common heights for telecommunications towers range from 50ft-425ft.

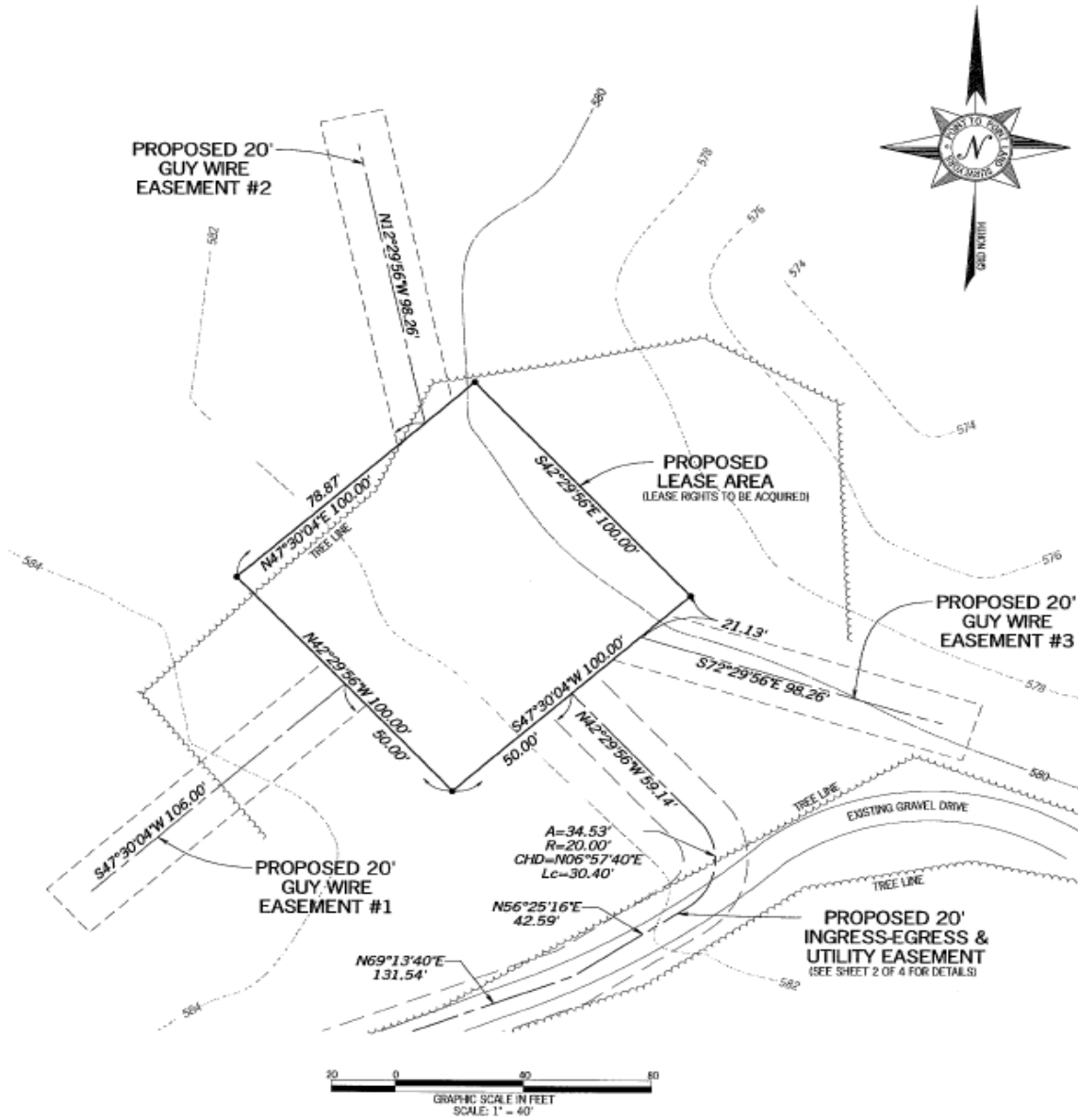
For those facilities that are proposed collocations (where antennas are mounted to either an existing building or installed on an existing cell tower), coaxial cable line routes and proposed equipment installation areas are shown on the construction plans.



Case Study 1: Guyed-Type Telecommunications Facility (Gray, Jones County, Georgia) - Typical NEPA Screening Process

Below are the construction plans for a proposed guyed-type telecommunications facility in Gray, Jones County, Georgia.

**Figure 2: Case Study 1 Proposed Construction Drawings**



Source: Point to Point Land Surveyors Easement Survey dated July 13, 2011

We will use this proposed facility to demonstrate how the typical telecommunications facility proceeds through the NEPA screening process. Throughout the NEPA screening process, we will refer back to 47 CFR 1.1307, which defines the actions which have been determined to have a significant environmental impact.

As indicated in Figure 2, the proposed project area includes an approximate 100-foot by 100-foot lease area, three approximately 106-foot long by 20-foot wide guy-wire easements, and a proposed access/utility easement that mostly follows an existing dirt/gravel drive. The tower structure itself was proposed to be 195-feet (199-foot overall height including appurtenances).

47 CFR 1.1307(a)(1) and (2): The NEPA reviewer must document that the proposed facility is not located within an officially designated wilderness area or officially designated wildlife preserve. This may be accomplished by reviewing ownership records, the appropriate USGS Quadrangle Map, and the nationalatlas.gov GIS mapper (Federal Lands and Wilderness Preservation System layers).

**Figure 3: USGS Topographic Map Demonstrating that the Case Study 1 Site Location is not within an Officially Designated Wilderness Area or Wildlife Preserve**



Source: USGS Topographic Map, 7.5 Minute Series, Gray, GA (1964, photorevised 1984).

47 CFR 1.1307(a)(3): The United States Fish and Wildlife Service (USFWS) is responsible, as the lead federal agency, for evaluating and listing species for federal protection. The USFWS provides both informal and formal consultation to the FCC and its non-federal representatives under Section 7 of the Endangered Species Act. Federally protected species include species that are listed as threatened or

endangered, designated critical habitats, as well as proposed threatened or endangered species and designated critical habitats.

In many cases, the qualified biologist or ecologist will request technical assistance from the USFWS by way of informal consultation under Section 7 of the Endangered Species Act. However, consultation with the USFWS is not a requirement of the FCC rules. Therefore, in some cases (developed areas such as parking lots, building rooftops, maintained lawns or landscaped areas, etc.), the applicant or applicant's qualified biologist or ecologist will make a "No Effect" determination independent of consultation with the USFWS, and may reserve consultation with the USFWS for instances where there may be an effect where the qualified biologist or ecologist or the applicant wishes to involve the USFWS.

If technical assistance is requested and/or consultation with the USFWS is pursued, the qualified biologist or ecologist reviews the most current USFWS County List of Protected Species for the county in which the site is located (Case Study 1 is located in Jones County, GA as shown in Table 1 below), the USFWS Information, Planning and Conservation (IPaC) System, the Critical Habitat Mapper, and any state specific lists (such as the Natural Heritage Database Program).

**Table 1: USFWS Jones County, GA Protected Species List**

<b>Group</b>	<b>Name</b>	<b>Federal Status</b>
Birds	Red-cockaded woodpecker ( <i>Picoides borealis</i> )	Endangered
Clams	Altamaha Spinymussel ( <i>Elliptio spinosa</i> )	Endangered
Flowering Plants	Fringed campion ( <i>Silene polypetala</i> )	Endangered
Flowering Plants	Michaux's sumac ( <i>Rhus michauxii</i> )	Endangered
Flowering Plants	Relict trillium ( <i>Trillium reliquum</i> )	Endangered

Source: USFWS County List of Protected Species for Jones County, GA (<http://www.fws.gov/endangered/>)

As proposed telecommunications facility projects typically do not occur in or within close proximity to waters or wetlands, direct effects to aquatic species are generally not a concern for these undertakings. However, erosion and sediment control measures are recommended to be implemented as needed and as required by the State in order to minimize the potential for sediment runoff.

Based on a site visit performed at the location of Case Study 1, the site appeared to be a recently cleared wooded area occupied by early successional vegetation. The vegetative communities in the surrounding area generally consisted of a mixture of hardwoods and pines. The site was located in the Piedmont Physiographic Province of Georgia, which is characterized by igneous and metamorphic rocks such as gneisses, schists, and granites. Soils in the project area consisted of very deep, well drained, moderately permeable soils that formed in materials weathered from dark colored rocks high in ferromagnesian materials.

This habitat description was compared to the habitats typical of the federally protected species in Jones County, GA (Table 1 above). Based on this comparison, it was determined that no suitable habitat was present for any of those species listed. The findings were submitted to the USFWS - North Georgia

Office in a request for technical assistance. The USFWS later responded in a letter concurring with the determination and stated that the protected species were not likely to occur on the project site and impact to migratory birds would be minimal.

In some cases, the USFWS may respond requesting that a species survey be conducted at the site or request that information regarding a specific threatened or endangered species (brochures, fact sheets, etc.) be provided to construction personal. In these cases, the applicant is obligated to fulfill these requests. However, due to the relatively small impact area of proposed telecommunications projects, it is unlikely that an EA or an EIS would be required.

47 CFR 1.1307(a)(4): In addition to the NEPA requirement, Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to take into account the effects of certain undertakings on historic properties (those resources listed or eligible for listing on the National Register of Historic Places). In order to determine whether a proposed undertaking may affect historic properties, applicants must follow the procedures set forth by the Advisory Council on Historic Preservation, 36 CFR Part 800, as modified and supplemented by the *Nationwide Programmatic Agreement for the Collocation of Wireless Antennas* (Collocation NPA) (47 CFR Chapter 1, Subpart 1, Appendix B) and the *Nationwide Programmatic Agreement (NPA) Regarding the Section 106 National Historic Preservation Act Review Process* (47 CFR Chapter 1, Subpart 1, Appendix C). These documents detail specific procedures relating to compliance for FCC undertakings.

Some sites are excluded from Section 106 Review by the State Historic Preservation Office (SHPO) as specified in Appendix C to Part 1 of the NPA in Section III, and have been determined unlikely to have significant impact on Historic Properties. Undertakings excluded from Section 106 Review include tower enhancements, tower replacements, temporary communications towers, facilities that qualify for the "Industrial Park Exclusion", those facilities that qualify for the "Power Line Exclusion," and construction of a facility in any area previously designated by the SHPO as having limited potential to affect Historic Properties.

NEPA processing of collocation undertakings is limited to historical (47 CFR 1.1307(a)(4)) and RF compliance (47 CFR 1.1307(b)) categories and, in certain cases, tribal consultation. A further explanation of these procedures is included later in this document under Case Study 2.

In order to fulfill satisfactory compliance in this category, the applicant must identify and evaluate historic properties within the area of potential effect (APE) for visual and direct effects. As defined by the NPA, the APE for visual effects is the geographic area in which the undertaking has the potential to introduce visual elements that diminish or alter the setting of a historic property that makes it eligible for listing on the NRHP. Typically the APE for visual effects, as set forth in 47 CFR Chapter 1, Subpart 1, Appendix C, Section VI.D(1) is:

1. ½ mile for towers 200 feet or less in overall height
2. ¾ mile for towers more than 200 feet but no more than 400 feet in overall height
3. 1 ½ miles for towers more than 400 feet in overall height

In certain cases, the applicant or the SHPO may determine that an alternative visual APE is necessary or appropriate (See Case Study 2). The APE for direct effects is limited to the area of potential ground

disturbance and any property, or any portion thereof, which will be physically altered or destroyed by the undertaking. This area typically includes the physical footprint of the tower site, proposed access easements, proposed utility easements, and guy-wire easements, if applicable. Therefore, any areas subject to ground disturbance as a direct or indirect result of tower construction are considered part of the APE for direct effects.

In order to determine if any Historic Properties are present within either APE, one must conduct a search of the following five record sets:

1. Properties listed on the National Register of Historic Places (NRHP)
2. Properties formally determined eligible for listing by the Keeper of the NRHP
3. Properties that the SHPO certifies are in the process of being nominated to the NRHP
4. Properties previously determined eligible as part of a consensus determination of eligibility between the SHPO and a federal agency or local government representing the Department of Housing and Urban Development (HUD)
5. Properties listed in the SHPO Inventory that the SHPO has previously evaluated and found to meet the NRHP criteria and that are identified accordingly in the SHPO inventory.

In order to identify Historic Properties located within the APE for direct effects, the applicant must consider research of the five NPA-mandated record sets (indicated above). In addition, the applicant must also retain a Secretary of the Interior (SOI) qualified archaeologist to identify any above and below ground archaeological Historic Properties located within the APE for direct effects. This generally requires that an Archaeological Field Survey be conducted at the site that satisfies the requirements of the local SHPO. Any archaeological resources discovered as a result of the Archaeological Field Survey must be evaluated for their NRHP-eligibility.

After the applicant identifies all historic resources located within both APEs, a determination of NRHP eligibility for identified historic resources is required. After the NRHP eligibility determination, a determination of whether the proposed undertaking will have any effect on Historic Properties must be made. Consideration to factors including topography, vegetation, known presence of Historic Properties, and existing land use must be given.

In accordance with 47 CFR Chapter 1, Subpart 1, Appendix C, Section VI.D.3.3, an undertaking will have a visual adverse effect on a Historic Property if the visual effect from the facility will noticeably diminish the integrity of one or more of the characteristics qualifying the property for inclusion in or eligibility for the NRHP. Construction of a facility will not cause a visual adverse effect except where visual setting or visual elements are character-defining features of eligibility of a historic property located within the APE.

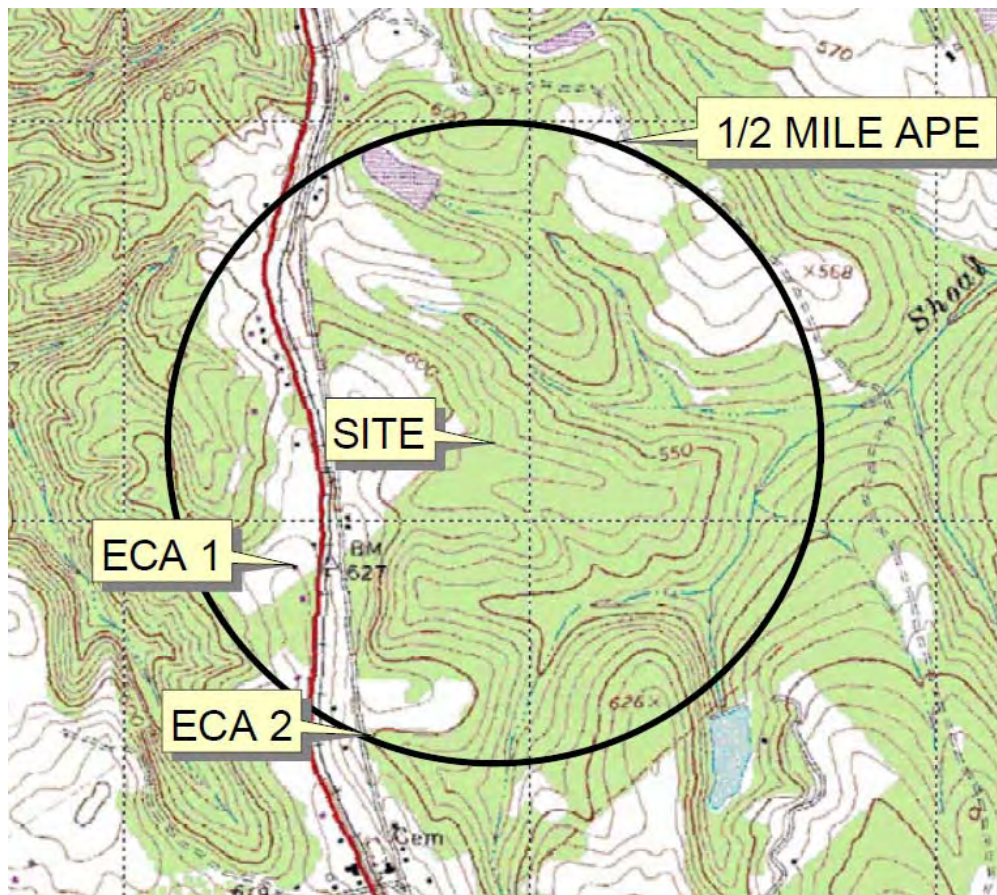
The above referenced regulation also applies to adverse direct effects for above-ground archaeological features located within the APE for direct effects. For below ground features located within the APE for direct effects (archaeological sites), an adverse effect typically constitutes physical disturbance of a site that is eligible for inclusion in the NRHP.

After submission of a Section 106 Review document to the local SHPO for review, the SHPO is obligated to respond within 30 days of receiving the package. If the SHPO does not respond within 30 days, the

applicant is allowed to assume that the SHPO has declined to comment on the proposed undertaking. This is not to be confused with a concurrence statement by the SHPO. The SHPO is allowed to make three determinations for the proposed undertaking: No Effect, No Adverse Effect, Adverse Effect. When a “No Effect” determination is made, the SHPO process is then complete and the applicant may proceed. When a “No Adverse Effect” determination is made by the SHPO, the SHPO has determined that the proposed undertaking will have some impact regarding historic properties; however they have allowed the project to proceed as proposed. The SHPO process in this case is also complete and the applicant may proceed. When an “Adverse Effect” determination is made, this means that the SHPO has determined that the proposed undertaking will result in an adverse impact to a historic property (within either APE). At this point the applicant must either alter the proposed undertaking in agreement with the SHPO in order to avoid the potential impact, enter into a mitigation process with the SHPO in order to change the “Adverse Effect” determination, or settle on conditions agreed upon by the applicant and the SHPO that would allow the proposed undertaking to continue. An example outlining the process of mitigating an “Adverse Effect” determination is discussed in Case Study 4 later in this document.

Because Case Study 1 was located in Jones County, GA, initial research to determine the presence of historic resources within both APEs was conducted at the Georgia Historic Preservation Division (GA SHPO or GA HPD) in Atlanta, GA. Since the proposed tower was to be 199-feet (overall height including appurtenances) the APE for visual effects was ½-mile. Based on a review of the NRHP, the GA SHPO survey files, a review of the University of Georgia’s Natural Archaeological and Historic Resources Geographical Information System (NAHRGIS), the GA SHPO Centennial Farms Files, and the ID Site files, it was determined that two historic resources were present within the ½-mile APE for visual effects as indicated by ECA 1 and ECA 2 (See Figure 4).

**Figure 4: Area of Potential Effect for Case Study 1 and the Locations of the Two Historic Resources**



Source: USGS Topographic Quadrangle Map, 7.5 Minute Series, Gray, GA (1964, photorevised 1984).

It was determined that ECA 1 was potentially eligible for listing on the NRHP. However, due to distance and intervening vegetation, it was determined that the proposed facility would not be visible from ECA 1. Therefore, the proposed undertaking would have no effect on ECA 1. Although the files at GA SHPO indicated the presence of ECA 2 within the APE for visual effects, this historic resources was no longer present at its plotted location during our site visit. Therefore, it was determined that the proposed undertaking would have no effect on ECA 2.

An Archaeological Field Survey was conducted within the APE for direct effects for Case Study 1. Background research was conducted using the Georgia Archaeological Site File, which is the official repository for information about known archaeological sites from all periods within the state of Georgia. The background research of these files indicated that no previously recorded archaeological sites or surveys were located within a  $\frac{3}{4}$ -mile background research radius of the proposed tower location. Shovel test pits were dug within the proposed lease area and within the undisturbed portion of the proposed access easement. No archaeological cultural artifacts were uncovered. Therefore, based on these findings, it was determined that the proposed undertaking would have no effect on historic properties within the APE for visual effect.

Based on the Section 106 Review documentation, prepared in accordance with the NPA, it was determined by the applicant that Case Study 1 would have no effect on any historic properties and it was recommended that a finding of “No Effect” be issued for the proposed undertaking. The Section 106 Review documentation was submitted to the GA SHPO and they responded, via email, indicating that they would allow their 30-day review period to lapse without response. Therefore, according to Section VII.B.2 of the NPA, it was concluded that the proposed undertaking would have no effect on any historic properties.

47 CFR 1.1307(a)(5): In accordance with 47 CFR Chapter 1, Subpart 1, Appendix C, Section IV, the FCC recognizes its responsibility to carry out consultation with any Indian tribe or Native Hawaiian Organization that attached religious and cultural significance to a historic property if the property may be affected by an FCC undertaking. The FCC has designated the Tower Construction Notification System (TCNS) in order to streamline this consultation process. Although initial notification through TCNS is a good start, dozens of tribes who wish to consult on proposed tower projects have established specific guidelines for successful consultation. Consultation preferences, as specified by each interested tribe, typically consists of:

1. Establishing a 30-day response limit and/or expressing no interest unless archaeological properties or human remains are uncovered during tower construction, or
2. Requesting to review either the entire Section 106 Review or certain portions of the Section 106 Review documentation, usually the Archaeological Field Survey. These Tribes typically request a review fee and provide written documentation of their concurrence, or
3. Reviewing the project based upon initial details submitted into TCNS and providing written documentation of concurrence.

For Case Study 1, eleven federally recognized tribes that may attach religious and cultural significance to Historic Properties within the area of the proposed undertaking were identified through the TCNS system. Through various emails, mail, phone calls, and established agreements with the interested tribes, clearance regarding Case Study 1 was received from all tribes.

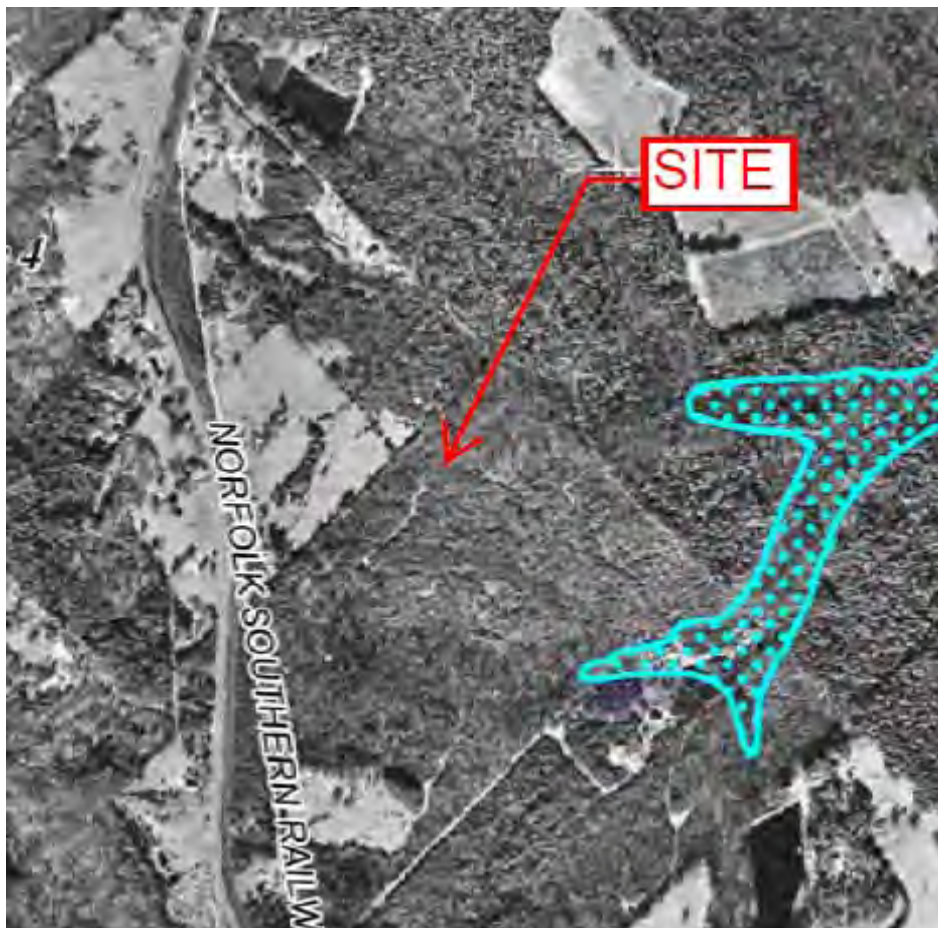
47 CFR 1.1307(a)(6): The FCC rules require a determination as to whether a facility would be located within a flood plain. This determination is made using the applicable Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel. As they relate to FCC rules, federal floodplains generally include only areas of the 100-year flood plain that are mapped as Special-Flood Hazard Areas. These areas are typically shaded on the FEMA FIRM Map Panels.

If a proposed facility would be located in a federal floodplain, the applicant must consider the effect of the facility on the floodplain. Filing of an EA is required for all facilities located within a federal floodplain. This includes any access easements, utility easements, compound areas, and/or guyed-wire easements, if applicable. See Case Study 4 regarding further explanation for an undertaking located within a 100-Year floodplain.



For Case Study 1, the appropriate FEMA FIRM panel was reviewed and it indicated that the proposed undertaking would not be located within a Special-Flood Hazard Area of the 100-Year Flood Plain (See Figure 5 below).

**Figure 5: FEMA FIRM Panel Indicating that Case Study 1 is Located Outside the Special Flood Hazard Area of the 100-Year Floodplain**



Source: FEMA FIRM Panel 13169C0175D, dated May 4, 2009.

47 CFR 1.1307(a)(7): The FCC rules require a determination as to whether facility construction will involve significant change in surface features (e.g. wetland fill, deforestation or water diversion).

Typically, communication tower sites are too small to result in significant deforestation. Water diversion and/or fill in waters or wetlands may include such minor impacts as installation of a culvert, road grading or fill, or trench and back fill for utilities in areas that may have only seasonal flow.

The determination as to whether wetlands or waters would be impacted cannot be made solely using National Wetland Inventory (NWI) maps (See Figure 6), topographic maps, or soil maps. While these are useful tools in making such determinations, the determination can only be made by a qualified wetland scientist and ultimately confirmed by a U.S. Army Corps of Engineers (USACE) official. For wetlands and waters, 47 CFR 1.307(a)(7) applies only to *Waters of the United States*. However, the applicant, with

the assistance of a qualified wetland scientist, should determine whether state waters exist, or if there are state or local buffers on federal non-federal waters. This typically would require that a wetland/waters determination/delineation be conducted at the proposed undertaking location.

An in depth explanation of what is required to identify a federal wetland/water and an example of the necessary steps to achieve compliance for a site located in federal wetlands/waters, can be seen in Case Study 5. However, generally, for the USACE to have jurisdiction over wetlands, certain wetland characteristics must be present.

Based on a site visit to the location of Case Study 1, it was determined that no wetland indicators, such as ponded water, hydric vegetation, or hydric soil conditions were noted within the boundaries of the project area. Additionally, as indicated in Figure 6 below, the NWI map did not show the project area as mapped within an identified wetland area.

**Figure 6: National Wetland Inventory Map Indicating the Location of Case Study 1 Relative to Identified Wetland Areas**



Source: National Wetland Inventory Map, printed May 15, 2012.

47 CFR 1.1307(a)(8) and (9): High intensity white lights are required by FAA for aviation avoidance marking on towers over 499 feet above ground level. With exception of towers in flight paths and in mountainous terrain, towers less than 499 feet are not equipped with high intensity white lights. The

applicant typically provides the NEPA reviewer with information confirming that high intensity white lights would not be deployed in conjunction with the proposed undertaking.

The RF-compliance category applies to FCC licensees and not antenna structure owner. Antenna structures (towers) do not emit radio-frequency radiation. FCC licensees transmitting from antennas mounted on antenna structures are required to comply with radio-frequency exposure standards. For RF exposure assessment, it is common for the NEPA reviewer to solely rely on the project RF Engineers employed by the applicant.

Case Study 2: Building Collocation of Antennas (Chicago, Cook County, Illinois) - Typical Collocation NEPA Screening Process

As previously discussed, NEPA processing of collocation undertakings are limited to historical (47 CFR 1.1307(a)) and RF compliance (47 CFR 1.1307(b)) categories, and in certain cases, tribal consultation. The FCC has somewhat streamlined the process by which collocations may be reviewed for Section 106 purposes in order to encourage applicants to collocate on existing towers and structures rather than construct new antenna towers, thus reducing the potential effect that may result from the construction of new facilities. As a side note, it is typical for the NEPA reviewer to rely solely on the applicant's RF Engineers for compliance under the RF category.

The collocation agreement consists of three principal sections: Section III which addresses towers constructed prior to the date of the Collocation NPA (March 16, 2001), Section IV which addresses towers constructed after March 16, 2001, and Section V which address collocations on all non-tower structures (e.g. power line structures, buildings, water tanks, utility poles, etc.). These sections within the Collocation NPA outline criteria that must be met by the proposed undertaking in order for it to be excluded from the Section 106 Review process.

In order to be excluded from Section 106 Review, the collocation cannot result in a "substantial increase in size." A substantial increase in size is defined in the Collocation NPA as:

1. Mounting of a proposed antenna on a tower that would increase the existing height of the tower by more than 10%, or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty feet, whichever is greater, except that the mounting of the proposed antenna may exceed the size limits specified if necessary to avoid interference with existing antennas.
2. The mounting of a proposed antenna involving the installation of more than the standard number of new equipment cabinets for the technology involved, not to exceed four, or more than one new equipment shelter.
3. The mounting of a proposed antenna that would involve adding an appurtenance to the body of the tower that would protrude from the edge of the tower by more than twenty feet, or more than the width of the tower structure at the level of the appurtenance, whichever is greater, except that the mounting of the proposed antenna may exceed the size limits specified if necessary to shelter the antenna from inclement weather or to connect the antenna to the tower via cable.
4. The mounting of a proposed antenna involving excavation outside the current tower site, defined as the current boundaries of the leased or owned property surrounding the tower, and any access or utility easements currently related to the site.

The proposed collocation must be evaluated under the criteria listed above in order to determine if the undertaking will result in a substantial increase in size. The next step for determining exclusion from Section 106 Review is to how the supporting structure should be characterized under the provisions outlined in the Collocation NPA: A pre March 16, 2001 tower, a post March 16, 2001 tower, or a building/non-tower structure. Depending on how the supporting structure is characterized, certain criteria must be met in order to be exempt from the Section 106 Review process.

For towers reaching their final height on or before March 16, 2001, proposed collocations are excluded from Section 106 Review unless:

1. The mounting of the antenna will result in a substantial increase in size, or
2. The tower has been determined by the FCC to have an effect on one or more Historic Properties, unless such effect has been found to be not adverse through a no adverse effect finding, or if the adverse effect finding has been resolved through a Conditional No Adverse Effect determination, a Memorandum of Agreement (MOA), a programmatic agreement, or otherwise, or
3. The tower is subject to pending environmental review or related proceeding before the FCC involving compliance with Section 106 of the National Historic Preservation Act (NHPA), or
4. The collocation licensee or tower owner has received written or electronic notification that the FCC is in receipt of a complaint from a member of the public, a SHPO or the Advisory Council, that the collocation has an Adverse Effect on Historic Properties. These claims must be in writing and supported by substantial evidence that the collocation compromises the integrity of a Historic Property in such a way as to compromise its eligibility for the NRHP.

For towers reaching their final height after March 16, 2001, proposed collocations are excluded from Section 106 Review unless:

1. The Section 106 Review process for the tower and any associated environmental reviews required by the FCC has not been completed, or
2. The mounting of the proposed antenna will result in a substantial increase in size, or
3. The tower has been determined by the FCC to have an effect on one or more Historic Properties, unless such effect has been found to be not adverse through a No Adverse Effect finding, or if the adverse effect finding has been resolved through a Conditional No Adverse Effect determination, a MOA, a programmatic agreement, or otherwise, or
4. The collocation licensee or tower owner has received written or electronic notification that the FCC is in receipt of a complaint from a member of the public, a SHPO or the Advisory Council, that the collocation has an Adverse Effect on Historic Properties. These claims must be in writing and supported by substantial evidence that the collocation compromises the integrity of a Historic Property in such a way as to compromise its eligibility for the NRHP.

An antenna may be mounted on a building or non-tower structure (a structure built with the sole or primary purpose other than that of supporting FCC-licensed antennas and their associated facilities) without being subject to Section 106 Review unless:

1. The building or structure is over 45 years old, or
2. The building or structure is inside the boundary of a Historic District, or if the antenna is visible from ground level of the Historic District, the building or structure is within 250 feet of the boundary of a Historic District, or

3. The building or structure is a National Historic Landmark, or listed in or eligible for listing in the NRHP based upon a review by the licensee, tower company, or applicant, or
4. The collocation licensee or tower owner has received written or electronic notification that the FCC is in receipt of a complaint from a member of the public, a SHPO or the Advisory Council, that the collocation has an adverse effect on Historic Properties. These claims must be in writing and supported by substantial evidence that the collocation compromises the integrity of a Historic Property in such a way as to compromise its eligibility for the NRHP.

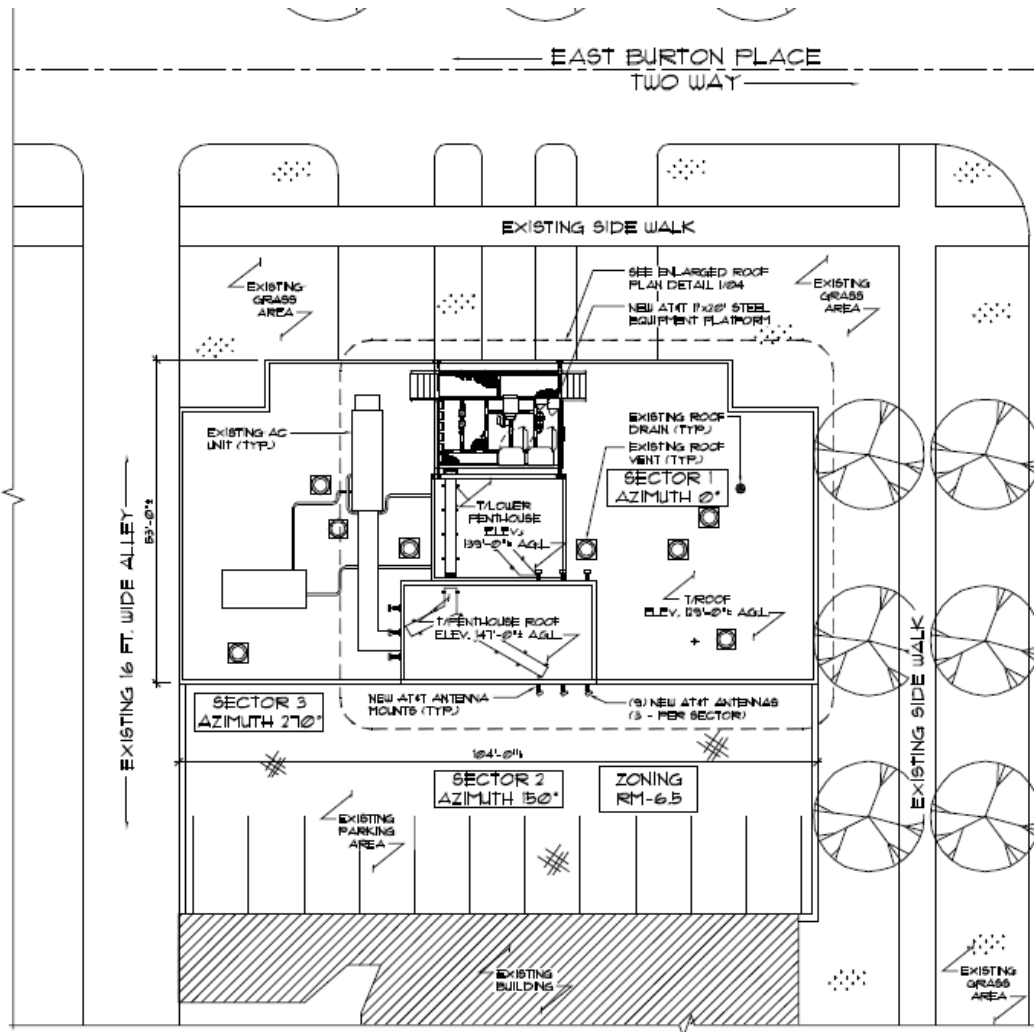
If any of the above listed criteria (depending on the characterization of the support structure) apply to the proposed undertaking, then the normal Section 106 Review process outlined in Case Study 1 applies.

Below are figures depicting the site plan on the rooftop and the elevation drawings of a typical collocation of antennas on a building in Chicago, Cook County, Illinois. We will use this proposed undertaking (Case Study 2) to demonstrate how a proposed collocation proceeds through the NEPA screening process.

In Case Study 2, the applicant proposed to collocate nine antennas on three sectors (three antennas per sector) using slider bracket mounts at a centerline height of 144 feet above ground level on the northern, western, and southern walls of an existing upper rooftop penthouse. Additionally, the applicant proposed to install an 11-foot by 20-foot steel equipment platform located on the rooftop of the existing building to support associated equipment.

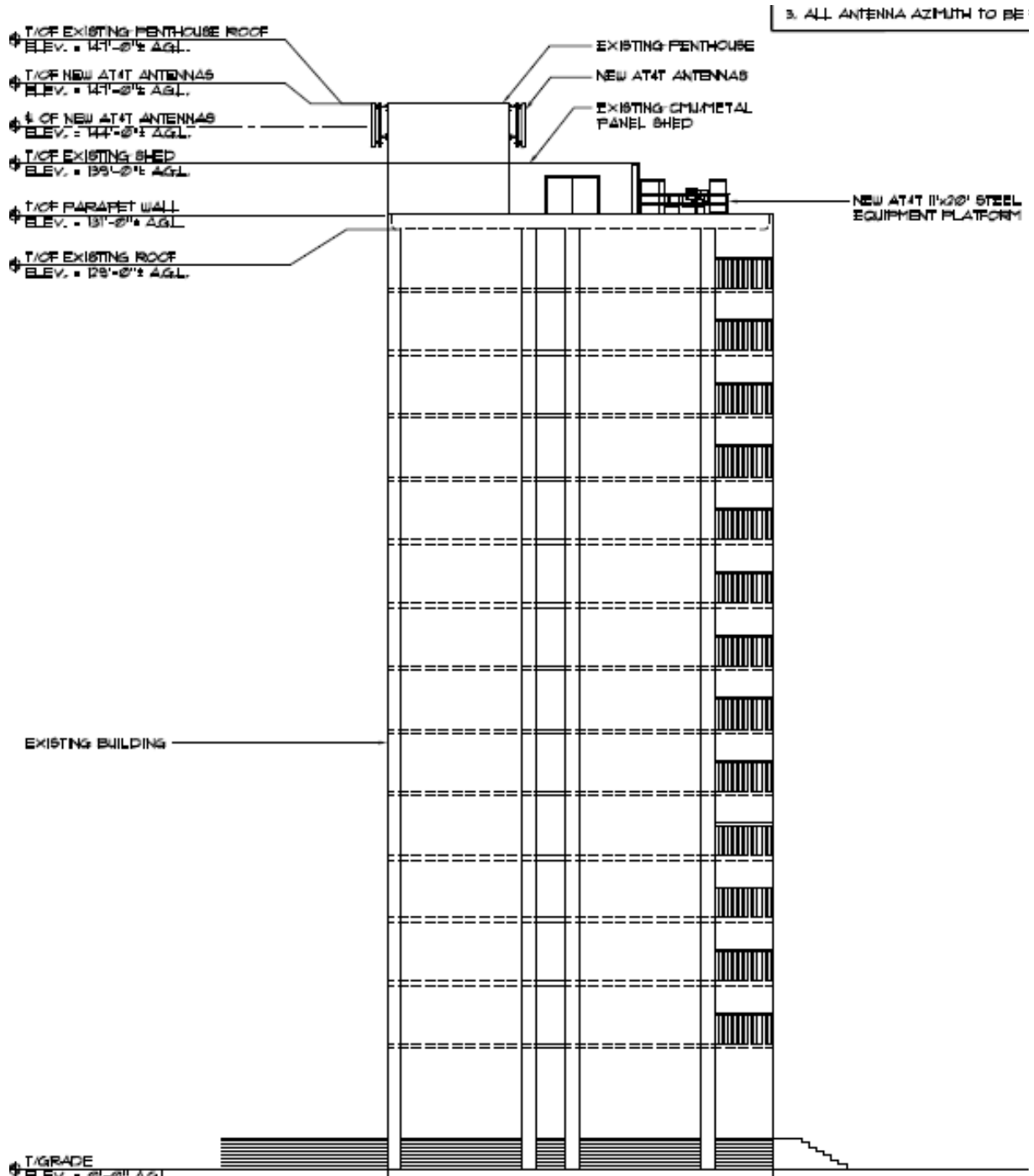
As previously mentioned, it is important to note the proposed routes of any associated utility lines. For Case Study 2, the electrical cable was to be routed through a proposed penetration point on the northern wall of the lower mechanical penthouse. Additional associated coaxial cables were also proposed to be routed horizontally over the rooftop (gravity mounted) and then vertically, down the western facade of the building, until reaching a proposed penetration point at the basement level of the building. At this point, the coaxial cables were to be attached to the ceiling of the basement and routed to their respective telecommunications, fiber, and grounding connection locations. As shown in Figure 9 below, the telecommunications and fiber connection were to be routed through to the existing telecommunications room on the basement level of the building and connected to an existing telco net-pop. The grounding connection was to be routed through to the existing water main located on the basement level of the building. No soil excavation would be required.

**Figure 7: Rooftop Site Plan Showing Proposed Equipment Platform and Antenna Installation Areas on Rooftop of a Building in Chicago, Cook County, Illinois (Case Study 2)**



Source: Fullerton Engineering Consultants, Inc. Survey dated February 28, 2012

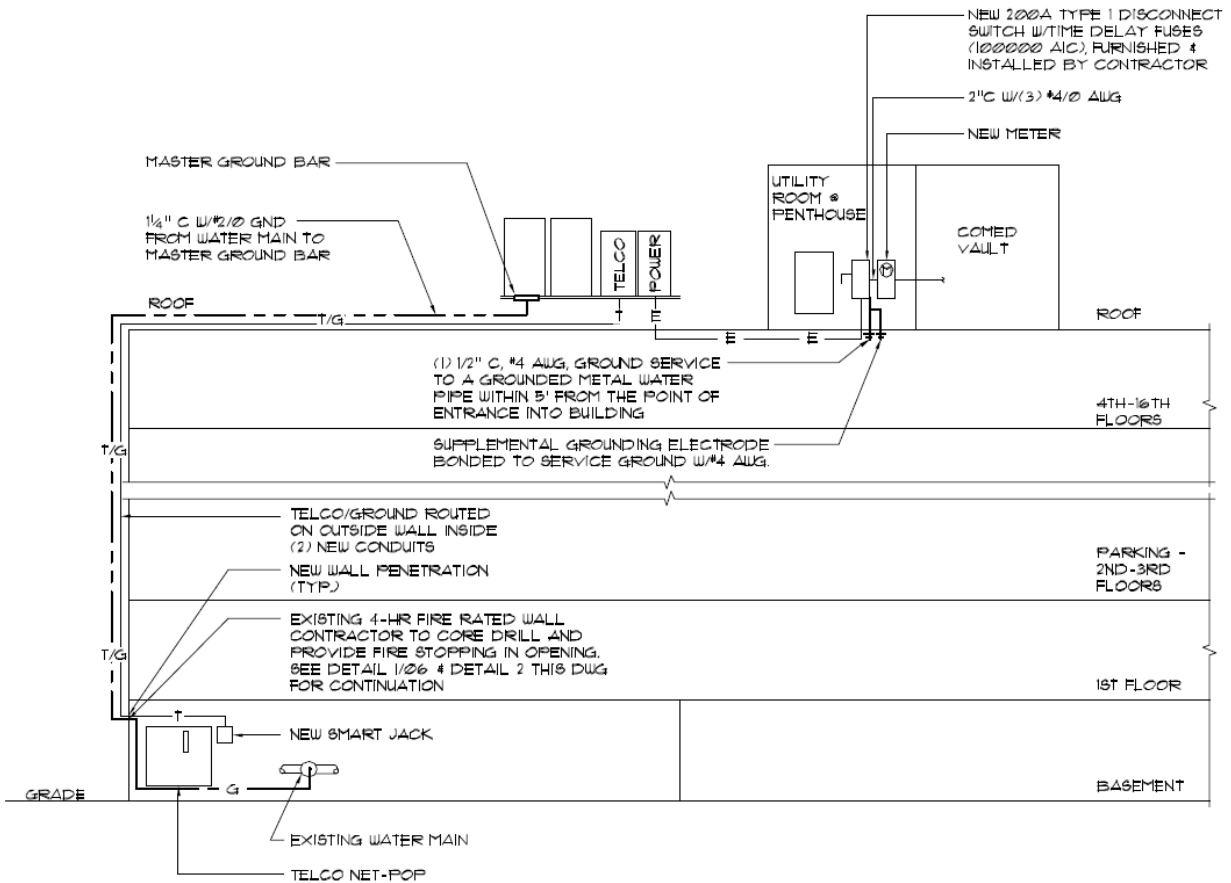
**Figure 8: Site Elevation Drawing of a Proposed Collocation of Antennas on the Rooftop of a Building in Chicago, Cook County, Illinois (Case Study 2)**



Source: Fullerton Engineering Consultants, Inc. Survey dated February 28, 2012



**Figure 9: Riser Diagram Showing the Proposed Equipment Platform Location on Rooftop and Proposed Coaxial Cable Routes and Connection Points (Case Study 2)**



Source: Fullerton Engineering Consultants, Inc. Survey dated February 28, 2012

Because the supporting structure for the proposed undertaking would be classified as a building/non-tower structure, we must evaluate the proposed undertaking under the applicable criteria to determine if Case Study 2 would be exempt from Section 106 Review. Specifically (as outlined in Section V.A.1-4 of the Collocation NPA):

1. *The building or structure is over 45 years old, or*

Based on interviews conducted with the building owner and applicable tax records, the building was constructed in 1973. Therefore, the building is not over 45 years old.

2. *The building or structure is inside the boundary of a Historic District, or if the antenna is visible from ground level of the Historic District, the building or structure is within 250 feet of the boundary of a Historic District, or*

Because the proposed collocation would occur at an overall height of 147 feet above ground level (and less than 200 feet) the applicable APE for visual effects is a ½ mile. According to the National Register of Historic Places (NRHP) database, the City of Chicago on-line zoning database, the Chicago Landmarks

online listing database, and the Illinois Historic Architectural and Archaeology Resources Geographic Information System (HAARGIS), several historic resources were identified within the ½ mile APE for visual effects (See Figure 10 below). Additionally the collocation building was found to be located within the *Golden Coast Historic District* (ECA Resource 1 outlined in green). In accordance with FCC guidelines and the stipulations contained within the NPA, Section 106 Review is required for the proposed undertaking. The other Historic Properties identified area as follows: ECA Resource 2 - the Albert F. Madlener House, ECA Resource 3 - the Charnely James House, ECA Resource 4 - the Lincoln Park Historic District.

**Figure 10: Identified Historic Districts and Properties within the Area of Potential Effects for Visual Effects for Case Study 2**



Source: USGS Topographic Quadrangle Maps, 7.5 Minute Series, Chicago Loop, IL (1997).

3. *The building or structure is a National Historic Landmark, or listed in or eligible for listing in the NRHP based upon a review by the licensee, tower company, or applicant, or*

Based on information reviewed on the Chicago Landmarks Commission website, the collocation building was "too recent for significant architectural or historic evaluation." Therefore, because the collocation building was not individually eligible for listing on the NRHP and was also not a contributing resource to the *Golden Coast Historic District*, it was determined that the proposed undertaking would have no direct effect on the collocation building.

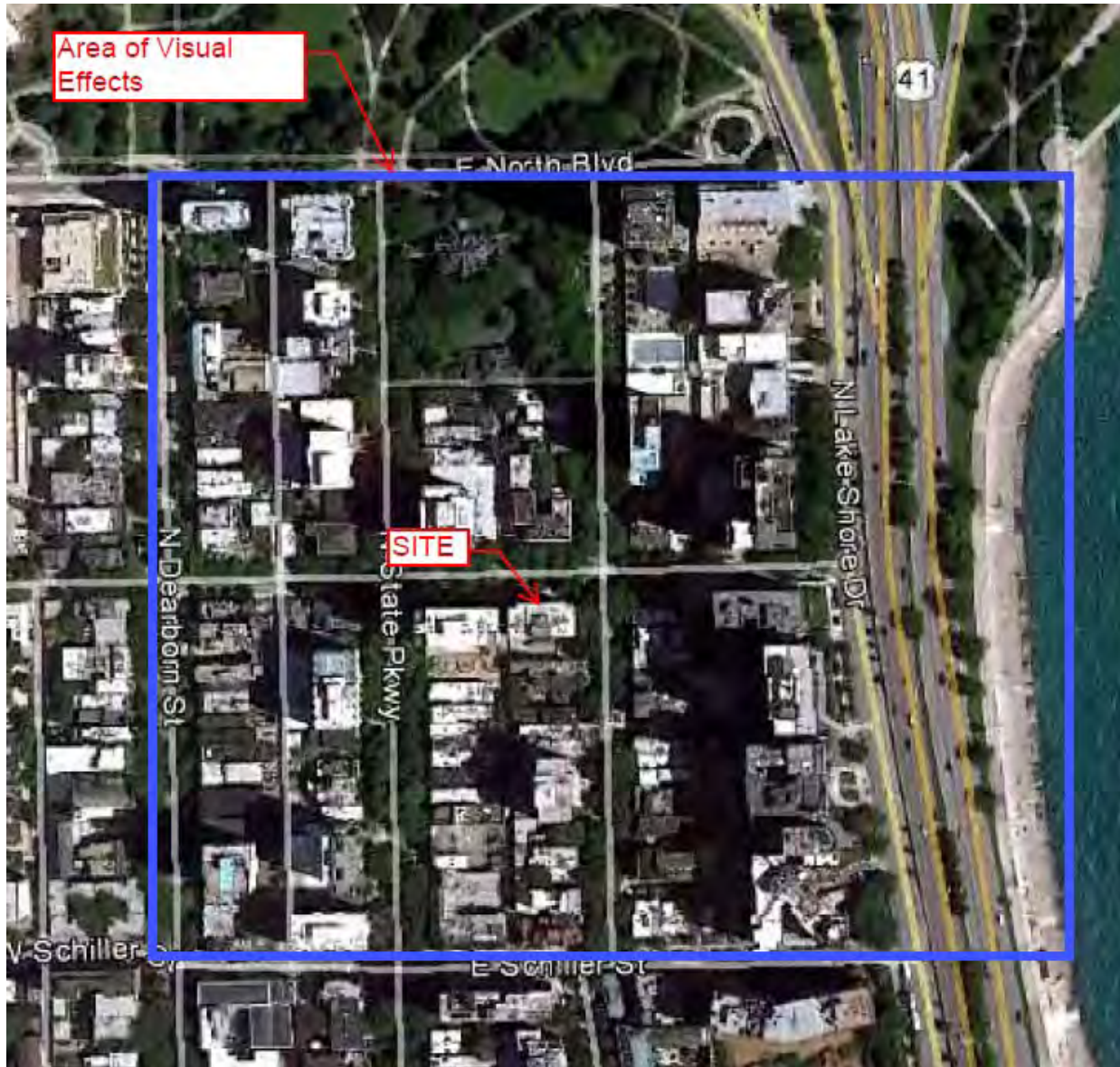
4. *The collocation licensee or tower owner has received written or electronic notification that the FCC is in receipt of a complaint from a member of the public, a SHPO or the Advisory Council, that the collocation has an adverse effect on Historic Properties. These claims must be in writing and supported by substantial evidence that the collocation compromises the integrity of a Historic Property in such a way as to compromise its eligibility for the NRHP.*

Based on interviews with the building owner and the applicant, it was determined that no formal complaints relative to Historic Properties had been filed.

The Section 106 Review was prepared for the proposed undertaking because of its location within the *Golden Coast Historic District*. The majority of the identified Historic Properties were located within the NRHP-listed Historic District or in the designated Chicago Landmark Historic District. Therefore, unless a previously identified Historic Property was *not* located within a designated Historic District, it was determined that it was adequate to assess the Historic District as a whole rather than a large number of individually identified historic resources.

There were a large number of tall surrounding structures within the area impeding visibility of the collocation building rooftop and proposed antenna installation areas. Therefore, it was determined that the APE for visual effects should be redefined as being limited to the areas immediately surrounding the building on which the proposed collocation would occur. Therefore, the alternative APE was defined to extend approximately two blocks from the subject site in all directions or until the building on which the collocation would occur. Note that the redefinition of the APE for visual effects is allowed by NPA; however it is advisable to consult with the local SHPO prior to altering the APE for visual effects. The alternative APE for visual effects is shown in Figure 11 below:

**Figure 11: Alternative Area of Potential Effects for Visual Effects for Case Study 2**



Source: Google Earth Aerial Photograph (2010).

Representative locations within the identified Historic Districts, from the identified Historic Properties, and within the alternative APE, were chosen from which to evaluate the effect of the proposed collocation on the surrounding area. Based on the representative view back photographs taken from these chosen locations, it was determined that the proposed antenna and associated equipment installation activities would have a minimal visual effect due to the scale, design, coloration of the equipment and antennas, and the presence of other antennas and modern infrastructure impeding the view of the collocation building. An Archaeological Field Survey was not conducted for the proposed undertaking, as the collocation activities would not result in any ground disturbance. Additionally, because the collocation building was determined ineligible for listing on the NRHP, there would be no direct effect as a result of

the proposed building penetrations for the installation of coaxial cables throughout the interior and exterior of the building and the equipment platform on the rooftop.

A recommendation of No Effect for the proposed undertaking was submitted to the Illinois Historic Preservation Agency (IL SHPO or IHPA). The Section 106 Review documentation was submitted to the IL SHPO and they responded, via letter, concurring with the determination that the project, as proposed, would have no adverse effect to Historic Properties, provided that the following conditions are met:

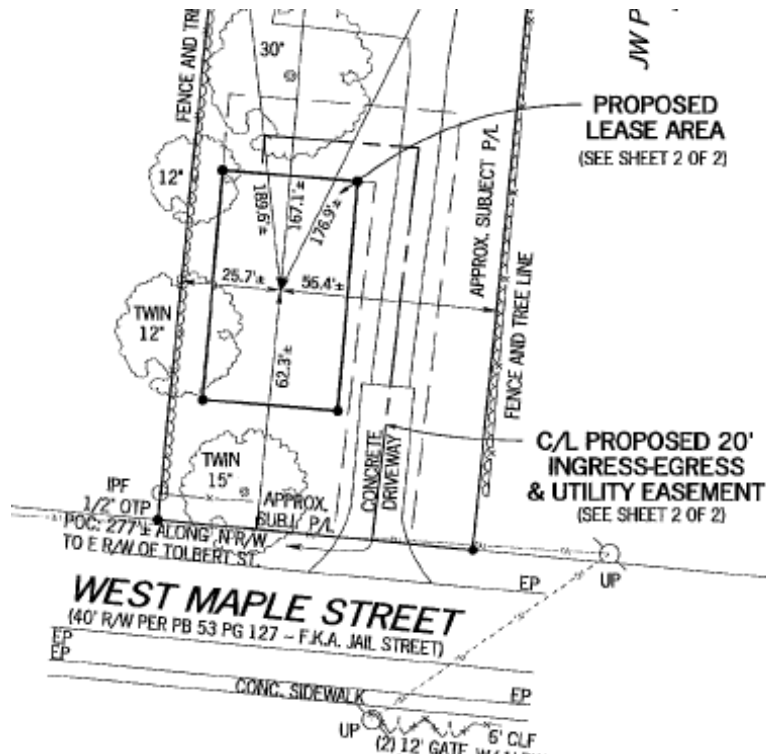
1. Antennae are painted to match the penthouse
2. Color photographs are submitted to IL SHPO after work has been performed.

Based on this response from the IL SHPO, and as long as the applicant adhered to the conditions listed above, compliance under the historical category was achieved.

*Case Study 3: Monopole Telecommunications Facility (Cumming, Forsyth County, Georgia) - "Adverse Effect" Determination by the State Historic Preservation Office Requiring Preparation of an EA*

Below (in Figure 12) are the construction plans for a proposed 146-foot monopole telecommunications structure (150-foot overall height including appurtenances) within a proposed 60-foot by 35-foot lease area. The lease area would be accessible via an approximate 140-foot by 20-foot access/utility easement.

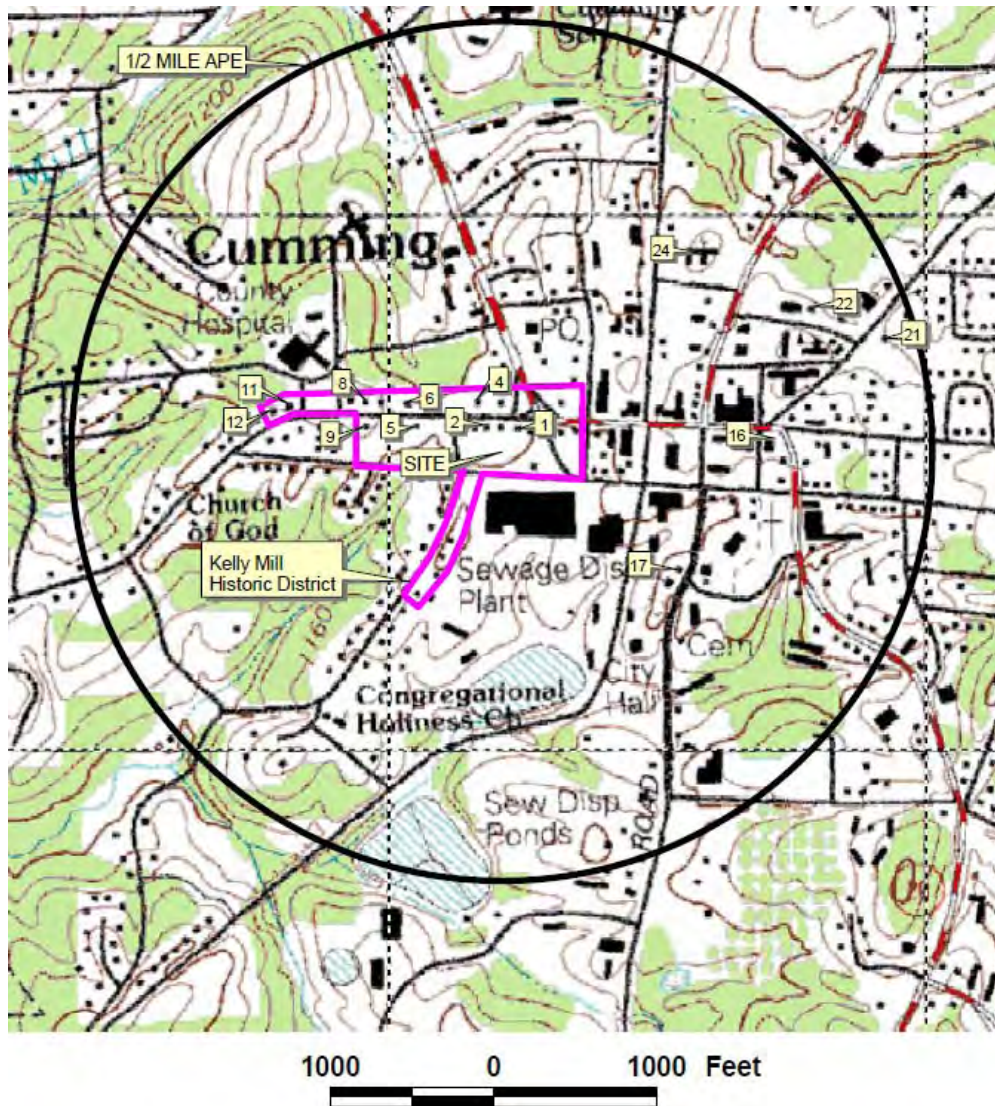
**Figure 12: Case Study 3 Proposed Construction Drawings**



Source: Point to Point Land Surveyors Easement Survey dated February 23, 2011.

Because Case Study 3 was located in Forsyth County, GA, initial research to determine the presence of historic resources within both APEs was conducted at the Georgia Historic Preservation Division (GA SHPO or GA HPD) in Atlanta, GA. Since the proposed tower was to be 150-foot (overall height including appurtenances) the APE for visual effects was ½-mile. Review of the NRHP, the GA SHPO survey files, a review of the University of Georgia’s Natural Archaeological and Historic Resources Geographical Information System (NAHRGIS), the GA SHPO Centennial Farms Files, and the ID Site files determined that twenty-four historic resources (many located in the Kelly Mill Historic District) were identified as being present within the ½-mile APE for visual effects as indicated in Figure 13.

**Figure 13: Identified Historic Resource Locations within the Area of Potential Effect for Visual Effects for Case Study 3**



Source: USGS Topographic Quadrangle Map, 7.5 Minute Series, Cumming, GA (1992).

After review of the Section 106 Review documentation for the proposed undertaking, the Georgia State Historic Preservation Office (GA SHPO) determined that the proposed undertaking would have an Adverse Effect on the NRHP-eligible Kelly Mill Historic District.

In accordance with the NPA, several actions must be taken when an Adverse Effect for a proposed telecommunications project is issued by a SHPO:

1. The applicant and the SHPO are encouraged to explore measures by which the adverse effect can be avoided and a conditional no adverse effect determination can be made. If the applicant and the SHPO mutually agree upon conditions that will result in a no adverse effect determination, the

applicant must notify the SHPO in writing that it will comply with the conditions of the no adverse effect determination.

2. The applicant shall submit to the SHPO a plan designed to avoid, minimize, or mitigate the adverse effect.
3. The applicant must provide the FCC with a copy of the Submission Packet, the mitigation plan, and the entire record to both the ACHP and the FCC. The Advisory Council on Historic Preservation (ACHP) will notify the applicant and the FCC if it intends to participate in the MOA process.
4. If the adverse effect will be upon a National Historic Landmark, the FCC will request participation in adverse effect resolution by both the ACHP and the Secretary of the Interior.
5. If an MOA is necessary, it will be negotiated between the applicant, the SHPO, and consulting parties. The MOA will be sent to the FCC for review and execution.
6. If all parties cannot agree upon mitigation measures, the matter shall be submitted to the FCC which will then coordinate additional actions in accordance with the ACHP's rules.

For Case Study 3, the applicant provided documentation to GA SHPO showing that a number of possible candidate sites were evaluated and considered for acquisition to meet the carrier's RF coverage objective. The document provided evidence that the applicant considered factors (such as RF coverage objectives, existing land use considerations, environmentally sensitive sites, and the willingness of individual land owners to enter into a contract for sale or lease of a suitable parcel of real estate) for construction of the subject facility and that based on these considerations, the subject property for Case Study 3 was selected as the preferred alternative.

In addition to the alternative location analysis and documentation, an informal proposal for a potential mitigation strategy was also submitted to the GA SHPO in preparation for a Memorandum of Agreement (MOA) to mitigate the adverse effect of the proposed undertaking. In exchange for a "Conditional No Adverse Effect", the applicant proposed to conduct an architectural survey of the *Kelly Mill Historic District*, which would include the following scopes of work:

1. The completion of a windshield survey of the *Kelly Mill Historic District* to determine exact boundaries for the architectural survey area.
2. The completion of an intensive architectural field survey of the *Kelly Mill Historic District* within the boundaries established by the windshield survey.
3. The completion of survey forms for all historic resources within the *Kelly Mill Historic District* that are determined to be 45 years old or older in the Georgia Natural, Archaeological, and Historic Resources Geographical Information System (GNAHRGIS).
4. The completion of a brief report (approximately 15 pages in length) that includes a developmental history of the *Kelly Mill Historic District*, an architectural analysis of surviving historic resources within the determined boundaries of the *Kelly Mill Historic District*, a National Register of Historic Places eligibility assessment of the historic resources within the *Kelly Mill*



*Historic District* boundaries, and an inventory spreadsheet documenting the findings of the architectural survey. A draft of this report shall be submitted to GA SHPO for review and acceptance.

5. Upon acceptance by the GA SHPO, one copy of the architectural survey report and GNAHRGIS forms shall be submitted to GA SHPO and a second copy to the Forsyth County Public Library in Cumming, GA for their records.

The GA SHPO agreed that the above scopes of work would satisfactorily mitigate the adverse effect of the proposed undertaking. Subsequently, the Section 106 Review documentation and entire project record were submitted to the FCC Wireless Telecommunications Bureau and to the ACHP. The ACHP declined to participate in the development of a MOA (which is typical of mitigation efforts for proposed telecommunications facilities). Following consultation between the applicant, the FCC, and the GA SHPO, a final MOA was executed with signatures from each party. According to Section VII.D of the NPA, it was determined that the stipulations included in the MOA were appropriate in order to address the adverse effects associated with the proposed undertaking and that upon completion of the terms of the MOA, the Section 106 Review process would be completed. Further, the parties signing the MOA had agreed that these measures would constitute full, complete, and adequate mitigation measures under that National Historic Preservation Act and the implementing regulations of the Advisory Council and the FCC.

According to the FCC rules, an Environmental Assessment must be prepared for facilities that would have an adverse effect on Historic Properties listed or eligible for listing on the NRHP. With the exception of an adverse impact to Historic Properties, no other evidence was found that adverse environmental impacts or effect, as defined in 47 CFR 1.1301-1.1319 would result from the construction of the proposed tower facility. Therefore, an EA was compiled to address the adverse impact to Historic Properties that included the requirements as specified by 47 CFR 1.1311.

After submission of an EA to the FCC, the FCC is allowed 45 days to review and comment. For Case Study 3, the FCC issued a Finding of No Significant Impact (FONSI) letter stating that the proposed undertaking would not have a significant impact on the quality of the human environment.

Referring back to Figure 1.1, the NEPA Screening Process for Case Study 3 was completed as follows:

1. Action is proposed.
2. Action is defined.
3. Exempt from NEPA? No.
4. Listed as a categorical exclusion? No (Due to adverse effect determination by GA SHPO).
5. Relevant existing EA or EIS? No.
6. Effects expected to be significant? No
7. Prepare EA

Case Study 4: Guyed-Type Telecommunications Facility (Coden, Mobile County, Alabama) - Construction of a Facility in a Special Flood Hazard Area of the 100-Year Floodplain

As previously discussed, if a proposed facility would be located in a federal floodplain, the applicant must consider the effect of the facility on the floodplain. Filing of an EA is required for all facilities located within a federal floodplain.

As defined by FEMA, flood zones are geographic areas that FEMA has defined according to varying levels of flood risk. These zones are depicted on a community's Flood Insurance Rate Map (FIRM) or Flood Hazard Boundary. Each zone reflects the severity or type of flooding in the area.

Table 2 below provides descriptions of flood zones identified on FEMA FIRM Panels.

**Table 2: FEMA FIRM Flood Zone Descriptions**

### Moderate to Low Risk Areas

**In communities that participate in the NFIP, flood insurance is available to all property owners and renters in these zones:**

ZONE	DESCRIPTION
<b>B and X (shaded)</b>	Area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods. Are also used to designate base floodplains of lesser hazards, such as areas protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile.
<b>C and X (unshaded)</b>	Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level.

### High Risk Areas

**In communities that participate in the NFIP, mandatory flood insurance purchase requirements apply to all of these zones:**

ZONE	DESCRIPTION
<b>A</b>	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.
<b>AE</b>	The base floodplain where base flood elevations are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.
<b>A1-30</b>	These are known as numbered A Zones (e.g., A7 or A14). This is the base floodplain where the FIRM shows a BFE (old format).

<b>AH</b>	Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
<b>AO</b>	River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
<b>AR</b>	Areas with a temporarily increased flood risk due to the building or restoration of a flood control system (such as a levee or a dam). Mandatory flood insurance purchase requirements will apply, but rates will not exceed the rates for unnumbered A zones if the structure is built or restored in compliance with Zone AR floodplain management regulations.
<b>A99</b>	Areas with a 1% annual chance of flooding that will be protected by a Federal flood control system where construction has reached specified legal requirements. No depths or base flood elevations are shown within these zones.

### High Risk - Coastal Areas

In communities that participate in the NFIP, mandatory flood insurance purchase requirements apply to all of these zones:

<b>ZONE</b>	<b>DESCRIPTION</b>
<b>V</b>	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. No base flood elevations are shown within these zones.
<b>VE, V1 - 30</b>	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.

### Undetermined Risk Areas

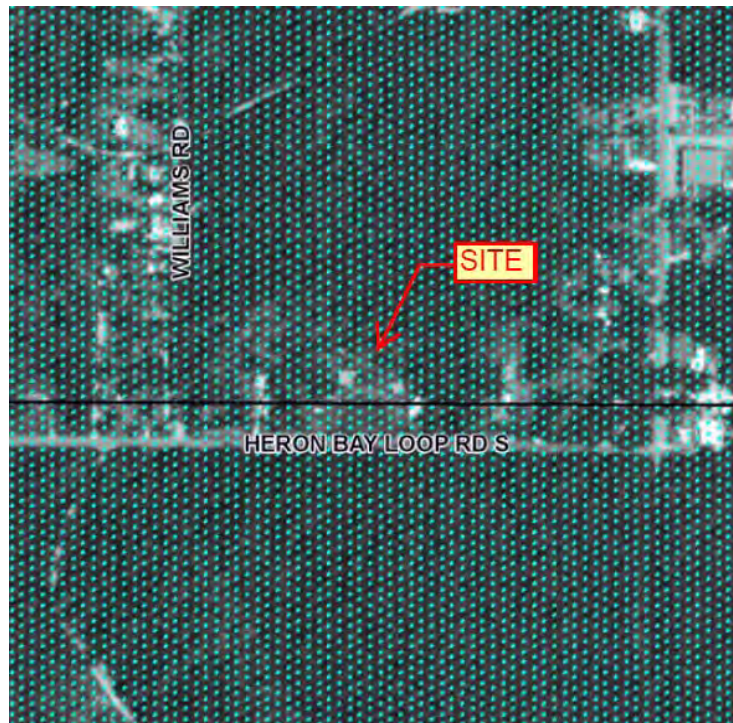
<b>ZONE</b>	<b>DESCRIPTION</b>
<b>D</b>	Areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted. Flood insurance rates are commensurate with the uncertainty of the flood risk.

Source: <https://msc.fema.gov/webapp/wcs/stores/servlet/info?storeId=10001&catalogId=10001&langId=-1&content=floodZones&title=FEMA%20Flood%20Zone%20Designations>

According to the appropriate FEMA FIRM Panel, the proposed facility for Case Study 4 was located in a Special Flood Hazard Area of the 100-Year Flood Plain. Specifically, the subject site was located in

Zone AE, areas within the base floodplain where base flood elevations (BFE) have been determined. As indicated in Figure 14 below, the BFE at the subject site is 10 feet (NGVD 1988) above mean sea level.

**Figure 14: FEMA FIRM Panel Indicating that Case Study 4 is Located within the Special Flood Hazard Area of the 100-Year Floodplain**

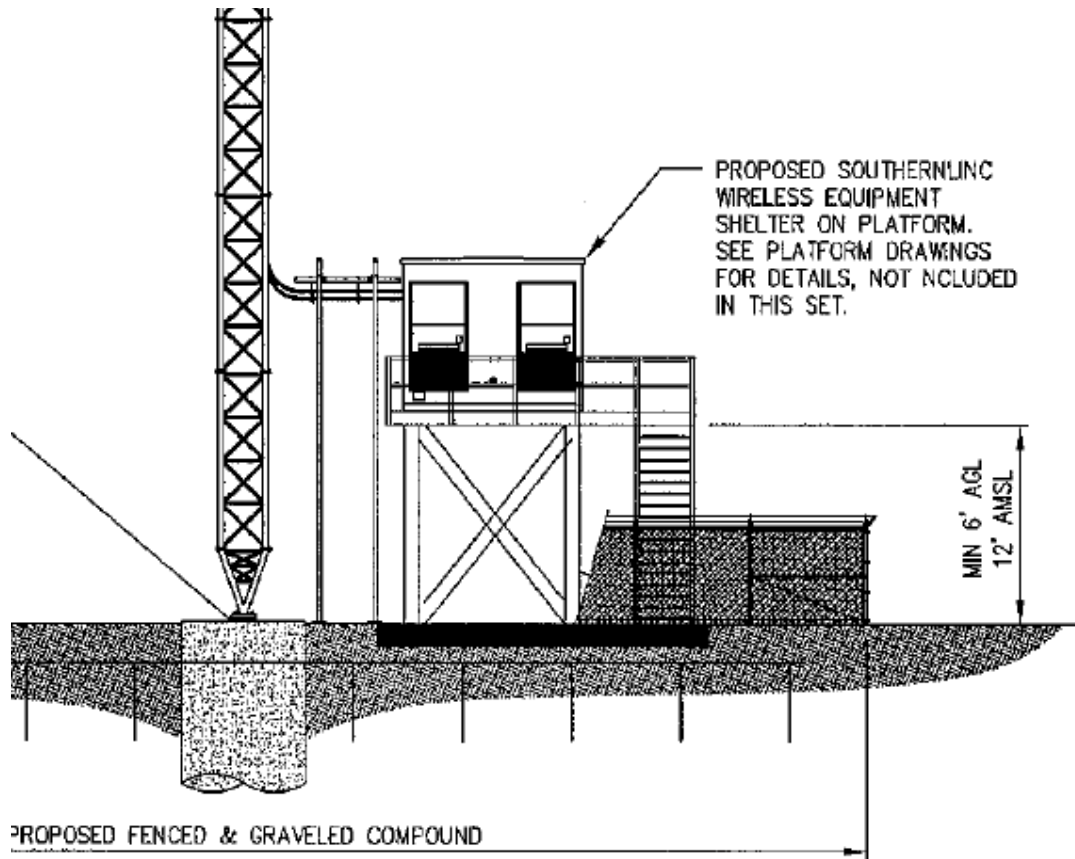


Source: FEMA FIRM Panel 01097C0882K, dated March 17, 2010.

The FCC requires that finished floor elevation of all buildings within a telecommunications facility be constructed at least one (1) foot above the BFE. Local jurisdictions may also have additional requirements that are stricter than the federal requirement of one (1) foot above BFE. It is advisable to consult with the local jurisdiction in these cases. For Case Study 4, Mobile County, Alabama requires that the elevation of equipment buildings within the proposed compound be constructed at least two (2) feet above BFE. Therefore, after taking into account both the FCC and Mobile County, Alabama requirements, this translated to a finish floor elevation of 12 feet (NGVD 1988) above mean sea level or higher.

With the exception of the subject site being located within a Special Flood Hazard Area of the 100-Year Floodplain, no other evidence was found that adverse environmental impacts or effect, as defined in 47 CFR 1.1301-1.1319 would result from the construction of the proposed tower facility. Therefore, an EA was compiled to address construction of the facility in the floodzone that included the requirements as specified by 47 CFR 1.1311. Construction drawings indicating that the finished floor elevations for the buildings within the compound were included in the EA document (See Figure 15 below).

**Figure 15: Case Study 4 Proposed Construction Drawings Showing Finished Floor Elevations at 12 Feet Above Mean Sea Level**



Source: Point to Point Land Surveyors Easement Survey dated March 14, 2013.

The FCC was allowed 45 days to review and comment on the EA. For Case Study 4, the FCC issued a Finding of No Significant Impact (FONSI) letter stating that the proposed undertaking would not have a significant impact on the quality of the human environment.

Case Study 5: Monopole Telecommunications Facility (Savannah, Chatham County, Georgia) - Construction within an identified wetland area resulted in consultation with the US Army Corps of Engineers

The FCC rules require a determination as to whether facility construction will involve significant change in surface features (e.g. wetland fill, deforestation or water diversion). Should it be determined that the facility would cause adverse impacts to surface features, federal regulations require that an EA be prepared and filed with the FCC addressing the proposed impacts.

In order to protect valuable aquatic ecosystems, Congress jointly charged the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE) with the responsibility of enforcing the provisions of Section 404 of the Clean Water Act, which regulate the placement of dredge or fill materials into the jurisdictional waters of the United States, including wetlands. Title 33, Part 323 of the Code of Federal Regulations, 33 *CFR* § 323, contains permit conditions for placement of dredge and fill material into jurisdictional waters of the United States, including wetlands.

At the federal level, according to 40 *CFR* 230.3(s), the term waters of the United States include:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
  - (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or;
  - (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or;
  - (iii) Which are used or could be used for industrial purposes by industries in interstate commerce;
- All impoundments of waters otherwise defined as waters of the United States under this definition;
- Tributaries of waters identified in the four preceding bullet points;
- The territorial sea;
- Wetlands adjacent to waters.

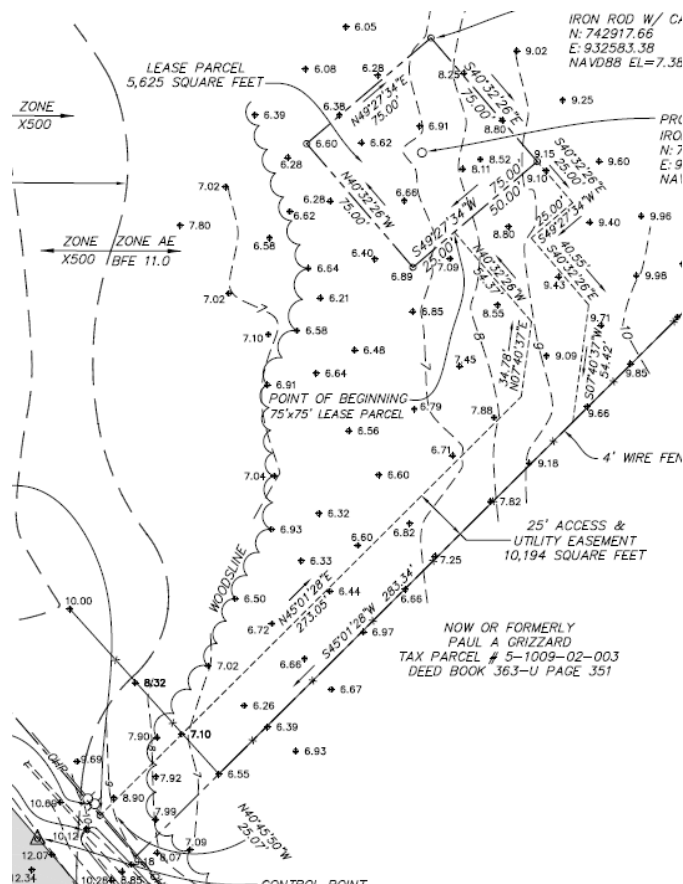
33 *CFR* § 328 defines wetlands as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that do support, a prevalence of vegetation adapted for life in saturated soil conditions.

In practice, areas are classified as jurisdictional wetlands only if suitable soil, vegetation, and hydrological conditions are met. These conditions are that hydrology in an area be sufficient to result in

hydric soil conditions, and that these hydric soils support vegetative species which occur more frequently in anaerobic soils than in aerobic soils. Detailed guidance for performing wetland determinations is provided in the *U.S. Army Corps of Engineers Wetlands Delineation Manual, 1987* and the *U.S. Army Corps of Engineers Wetlands Delineation Manual, 1987*, and the *Regional Supplements to the Corps of Engineers Wetland Delineation Manual (Version 2.0)*. The applicable regional supplement is dependent upon the location of interest.

Below (in Figure 16) are the initial construction plans for a proposed 180-foot monopole telecommunications structure (184-feet overall height including appurtenances) within a proposed 100-foot by 100-foot lease area. The lease area would be accessible via an approximate 400-foot by 25-foot access/utility easement.

**Figure 16: Case Study 5 Proposed Construction Drawings**



Source: Brewer Land Surveying Survey dated February 21, 2012.

According to background research conducted before the initial site visit, it was discovered that the NWI map indicated that the project area was mapped as a wetland (See Figure 17 below).

**Figure 17: National Wetland Inventory Map Indicating the Location of Case Study 5 Relative to Identified Wetland Areas**



Source: National Wetland Inventory Map, printed April 2, 2012.

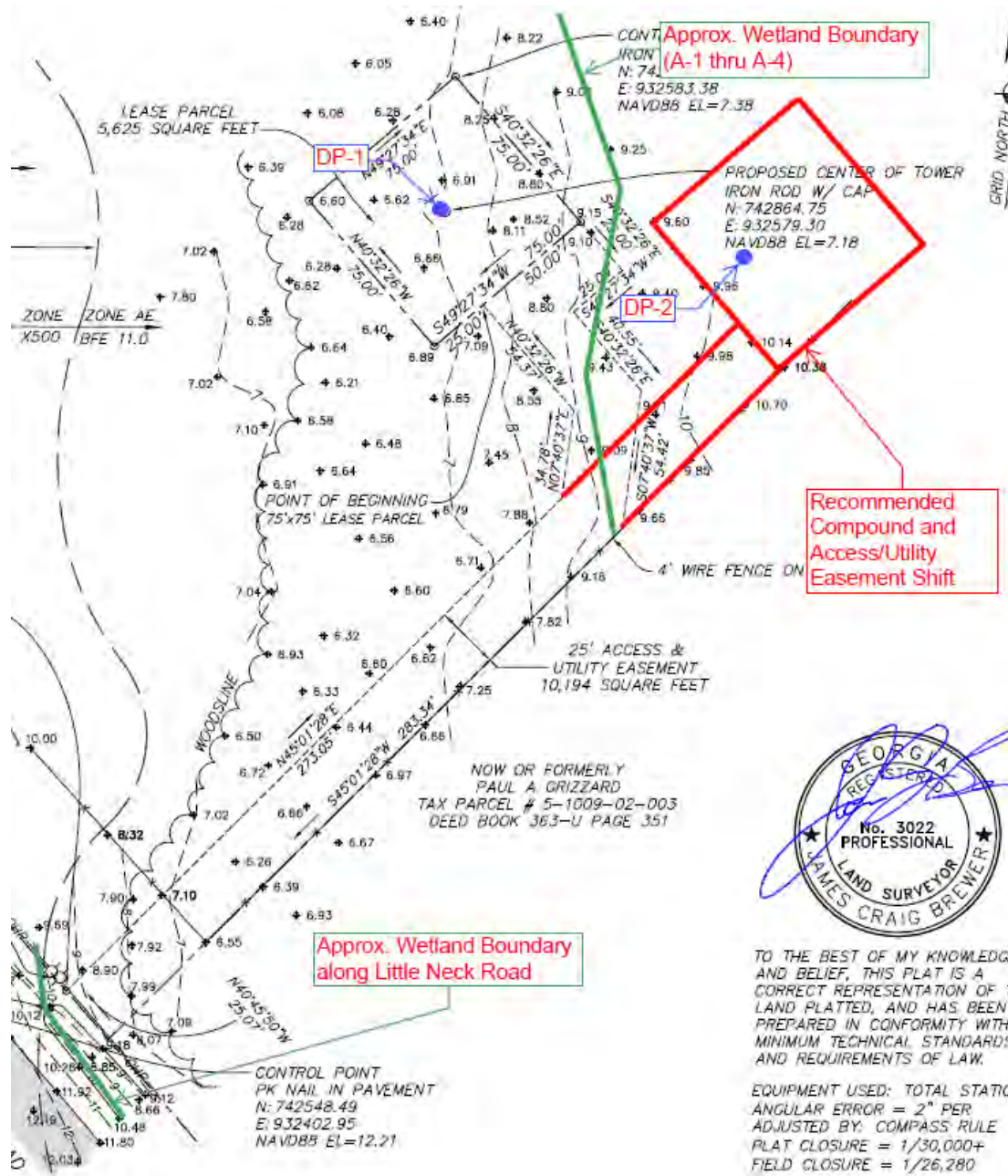
In addition, some wetland indicators such as evidence of hydric soils and hydrophytic vegetation were observed within the lease area and proposed access/utility easement. Based on these findings, the applicant elected to perform a wetlands and waters determination/delineation at the project area to identify wetlands/waters within and adjacent to the site impact areas in accordance with USACE guidance.

Based on the information collected during the site inspections, the entire proposed lease area and a majority of the access/utility easement appeared to be located within jurisdictional wetlands. Based on observations of the surrounding parent tract, it appeared that if the proposed lease area was shifted approximately 100-125 feet to the east, potential wetland impacts could be minimized (See Figure 18). Because of the location of the identified wetland area, the proposed access/utility easement would still impact the existing wetland, however shifting the proposed lease area to the east, along the fence line, would reduce impacts to the identified wetland area. It was further advised, that if the applicant wished to move forward with development on this tract, the identified wetland boundaries should be surveyed by a



State of Georgia licensed land surveyor and that a US Army Corps of Engineers Jurisdictional Determination should be obtained.

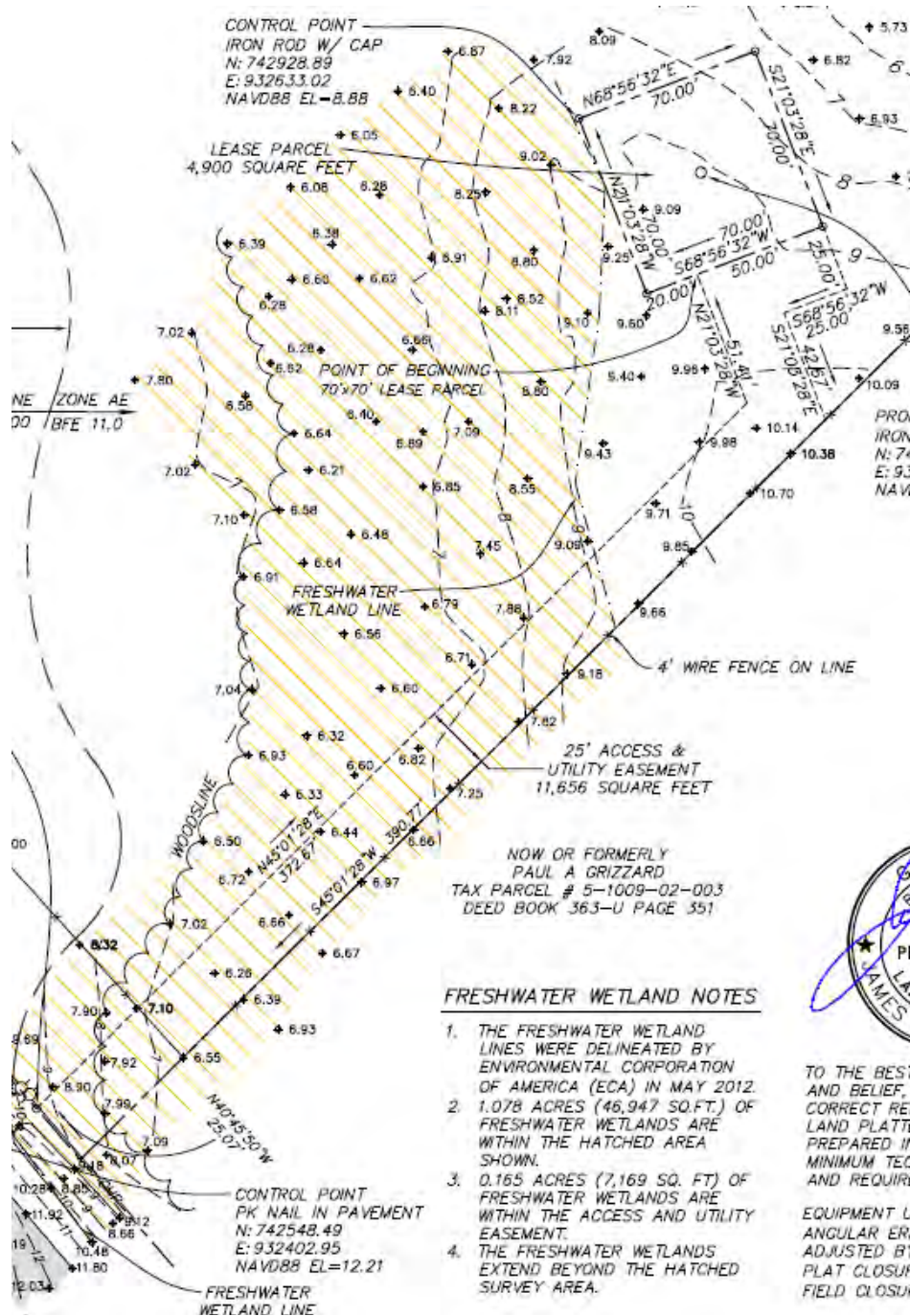
**Figure 18: Case Study 5 Proposed Construction Plans with Recommended Impact Area Adjustments**



Source: Brewer Land Surveying Survey dated February 21, 2012.

The applicant subsequently altered the impact area of the proposed undertaking as shown in Figure 19 below:

**Figure 19: Case Study 5 Proposed Construction Plans Minimizing Impacts to Identified Wetland Areas**



Source: Brewer Land Surveying Survey dated May 29, 2012.

Following the wetlands determination/delineation the proposed tower location (shifted to the upland area to the east of the previous tower location), lease area size (reduced to 75-foot by 75-foot), and access/utility easement (extended into upland area to the east of previous tower location) were altered to minimize impacts to identified wetland areas. Further, although the access/utility easement is shown as

being 25-feet wide, the applicant specified that only a 10-foot wide gravel drive is proposed within the access/utility easement. Additionally, the applicant confirmed that overhead utility lines and only two utility poles are planned to be installed within the proposed access/utility easement. Also, only hand clearing would be conducted in the wetland portions of the overhead utility corridor.

Due to the alternations to the initially proposed undertaking, it was determined that only 0.096 acres of forested wetland area would be permanently impacted. Based on the area of proposed wetland impacts (less than 1/10 acre) and the fact that impacts to wetland were unavoidable in order to construct the proposed project, no formal compensatory mitigation was necessary. Additionally, based on the extent of the proposed impacts and the nature of the proposed undertaking, it was recommended that the project would meet the criteria for authorization under the Nationwide Permit 39.

These recommendations and altered project plans were submitted to the USACE - Savannah District in a request for a preliminary jurisdictional determination to confirm the boundaries of the identified wetland areas at the project site. The USACE responded in a letter concurring that although the proposed undertaking would result in impacts to proposed wetland areas, no formal compensatory mitigation was necessary and confirmed the identified wetland boundaries.

An EA was compiled to address construction of the facility in the wetland areas that included the requirements as specified by 47 CFR 1.1311. The FCC was allowed 45 days to review and comment on the EA. For Case Study 5, the FCC issued a Finding of No Significant Impact (FONSI) letter stating that the proposed undertaking would not have a significant impact on the quality of the human environment.