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Global Laser Enrichment
Docket Number 70-7016

MFN-09-719

ATTN: Document Control Desk
Andrea Kock, Chief
Environmental Review Branch
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental Management Programs
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

SUBJECT: GE-HITACHI GLOBAL LASER ENRICHMENT SUBMITTAL OF GLE ENVIRONMENTAL REPORT SUPPLEMENT 2 – REVISED ENTRANCE AND ROADWAY

Dear Ms. Kock,

GE-Hitachi Global Laser Enrichment (GLE) submitted its Environmental Report on January 31, 2009 to construct and operate a laser enrichment facility. Since the original ER was finalized, the location of the entrance and roadway into the Wilmington Site has been revise. GLE hereby submits the *GLE Environmental Report Supplement 2 – Revised Entrance and Roadway* to describe the environmental impacts of the change.

If you have any questions, or require additional information, please contact Julie Olivier of my staff at 910-819-4799, or at Julie.Olivier@ge.com; or myself at 910-819-1925 or at Alberte.Kennedy@ge.com.

Sincerely,

for AEK

Albert Kennedy
Environmental Health and Safety Manager, GLE

Enclosures:

1. Attachment 1 – GLE Environmental Report Supplement 2 – Revised Roadway and Entrance

NMSS01

cc: without enclosures:

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Global Laser Enrichment
Environmental Report Supplement 2

November 2009

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1. Introduction

On June 29, 2004, Global Laser Enrichment (GLE) submitted a license application to construct and operate a 6-million separative work unit laser enrichment facility in Wilmington, NC, to enrich uranium for subsequent use in commercial nuclear power reactors. In support of this application, an Environmental Report (henceforth referred to as the GLE ER, dated December 2008), was submitted to the Nuclear Regulatory Commission (NRC) on January 31, 2009, and analyzed the impacts of the Proposed GLE Facility on the environment. A supplement to the GLE ER (referred to as ER Supplement 1, dated July 2009) was submitted to NRC, and it focused on impacts associated with Early Construction. The GLE ER and ER Supplement 1 were prepared in accordance with the guidance in *NUREG-1748, Environmental Review Guidance for Licensing Actions Associated with NMSS (Nuclear Material Safety and Safeguards) Programs.*

This document, which is a Supplemental Environmental Report (or ER Supplement 2), is intended to evaluate the impacts from a revised entrance and roadway for the Proposed GLE Facility. ER Supplement 2 is organized in accordance with the guidance in NUREG-1748.

1.1 Background

After submitting the GLE ER, the North Carolina Department of Transportation (NC DOT) indicated that it prefers the entrance that is shown in Figure 1-1 rather than the entrance that is presented in the GLE ER (see Figure 1-3 in the GLE ER). Because the entrance shown in Figure 1-1 is outside of the original Study Area that was analyzed in the GLE ER, GLE performed surveys to include an impacts analysis described in Section 4, *Environmental Impacts*, of this document. The revised area surveyed is approximately 47 acres (19 hectares).

1.2 Areas Evaluated

For the purposes of evaluating the impacts for the original GLE ER, a portion of the Wilmington Site (on land already owned by General Electric Company [GE]) was designated as the GLE Study Area and was extensively evaluated. The current Study Area for the Proposed GLE Facility is shown in Figure 1-1, which includes the revised entrance and roadway. Minor adjustments in the size and configuration of the specific areas that have been evaluated have resulted from refinements of the layout of the Proposed GLE Facility since the original GLE ER was prepared, including updated land surveying for the entrance roads, and various options for consideration of utilities and ancillary features. The acreage reported for some these areas may therefore be slightly different than reported in previous documents. The acreage presented in this document is intended as the Study Area (and replaces the Study Area shown in the original GLE ER) for the purposes of obtaining an NRC license.

1.3 Purpose and Need

The revised facility entrance and roadway are necessary to satisfy the safety concerns that NC DOT had with the original entrance as depicted in the original GLE ER (it was too close to a blind curve on Castle Hayne Road).

1.4 Proposed Action

The location of the revised entrance and roadway is shown on Figure 1-1. The new entrance to the Wilmington Site from Castle Hayne Road is an extension of the existing northern-most entrance (commonly referred to as the North Entrance). There will be turn lanes added to Castle

Hayne Road from both directions to help alleviate traffic buildup during periods of heavier traffic entering and exiting the Wilmington Site (i.e., during shift changes or during the heaviest period of construction for the Proposed GLE Facility). The NC DOT has also indicated that it intends to install a traffic light at the new entrance to increase safe driving conditions. The new on-site roadway from the entrance of the Wilmington Site to the Proposed GLE Facility takes advantage of existing roadways and allows GLE to easily transport enriched uranium hexafluoride (UF_6) product cylinders from the Proposed GLE Facility to the existing fuel fabrication facility. Shifting the roadway from the location presented in the original GLE ER to the one shown in Figure 1-1 also allows for a utility corridor to be placed along the road, thereby consolidating the amount of land-disturbing activities necessary to connect existing site utilities to the Proposed GLE Facility.

1.5 Applicable Regulatory Consultations and Authorizations

The following regulatory consultations and authorizations apply to the revised entrance and roadway. Required permits would be obtained prior to beginning work on the revised entrance and roadway, as appropriate.

1.5.1 U.S. Army Corps of Engineers

Section 404 of the Clean Water Act (CWA) authorizes the U.S. Army Corps of Engineers (USACE) to issue permits for the discharge of dredged or fill material into Waters of the United States. Before an activity occurs, applicable permits must be obtained and any compensatory mitigation must be determined.

1.5.2 North Carolina Division of Water Quality—Water Quality Certification

The U.S. Environmental Protection Agency (EPA) has delegated authority to the State of North Carolina to issue a CWA 401 Water Quality Certification for projects. A 401 Water Quality Certification is verification by the State that the project will not degrade State Waters or violate water quality standards. A 401 Water Quality Certification is required before the USACE can issue a CWA Section 404 permit.

1.5.3 Occupational Health and Safety Administration

Construction must adhere to the Occupational Health and Safety Administration's (OSHA's) general industrial safety standards.

1.5.4 North Carolina Division of Water Quality—National Pollution Discharge Elimination System Individual Permit for Industrial Stormwater

In compliance with Section 402 of the CWA, a permit is required for the discharge of stormwater runoff from industrial or commercial facilities into the Waters of the United States. All new and existing point-source industrial stormwater discharges associated with industrial activity require a National Pollution Discharge Elimination System (NPDES) Individual Permit for Industrial Stormwater.

1.5.5 North Carolina Division of Water Quality—NPDES Individual Permit for Construction Stormwater

Prior to commencement of any construction activities, an authorization for construction is required. The issuance of an NPDES permit for construction activities is tied to submission of an Erosion and Sedimentation Control Plan to the North Carolina Division of Land Resources. The conditions of the NPDES Individual Permit for Construction Stormwater include adherence to the Erosion and Sedimentation Control Plan, regular inspection of Best Management Practices

(BMP) and outfalls, and regular maintenance of structures. An individual NPDES permit for stormwater discharge from construction activities would be required before GLE Facility construction activities, including construction of the revised entrance and roadway, could begin. Development of a Stormwater Pollution Prevention Plan and filing a Notice of Intent with EPA at least 2 days prior to the commencement of construction activities is necessary.

1.5.6 North Carolina Division of Land Resources—Erosion and Sedimentation Control Plan

An Erosion and Sedimentation Control Plan must be prepared, submitted, and approved prior to the commencement of any land-disturbing activity that affects 1 or more acres (.4 or more hectares). A land-disturbing activity results in a change in the natural cover or topography that may cause or contribute to sedimentation. This plan is tied to the NPDES Individual Permit for Construction Stormwater, and this program is administered by the New Hanover County Soil and Erosion Control Department.

1.5.7 North Carolina Department of Transportation

The NC DOT requires a driveway permit for the revised entrance to the Wilmington Site from Castle Hayne Road.

1.5.8 New Hanover County Planning Department—New Hanover County Tree Removal Permit

The removal of any regulated tree from public or private property requires a tree removal permit from the County Zoning Administrator. The New Hanover County Tree Removal Permit is required before any clearing, grading, or other authorizations may be issued, including issuance of soil and sedimentation control permits and building permits (New Hanover County Code; Article VI-10, Section 67-9, *Tree Removal* [7/01]).

1.5.9 New Hanover County Planning Department—New Hanover County Noise Ordinance

New Hanover County enforces a Noise Ordinance (New Hanover County Municipal Code, Article III).

1.5.10 New Hanover County Engineering Department—New Hanover County Permit for a Land-Disturbing Activity

All development within New Hanover County is subject to the New Hanover County Erosion and Sedimentation Control Ordinance issued pursuant to the North Carolina Sedimentation Pollution Control Act of 1973. A New Hanover County Permit for a Land-Disturbing Activity, which includes submittal of an Erosion and Sedimentation Control Plan, would be required prior to the commencement of any land-disturbing activity that affects 1 or more acres (0.4 or more hectares).

1.5.11 New Hanover County Engineering Department—New Hanover County Stormwater Permit

New Hanover County adopted a Stormwater Ordinance in September 2000 (New Hanover County Code; Chapter 23, *Environment*; Article VII, *Stormwater Management*). New Hanover County's policy is that all land to be developed within its unincorporated areas shall have sufficient stormwater-management controls to provide adequate protection of life, property, and natural resources. At a minimum, regulated activities must include sufficient management of

post-development runoff from the 2-year, 10- year, and 25-year frequency storms, so that the discharge rates of post-development stormwater runoff do not exceed the pre-developed rates.

2. Alternatives

This section describes the two alternatives to the revised entrance and roadway.

2.1 Description of the Alternatives

Two alternatives to constructing the revised entrance and roadway, which are described in more detail in the following sections, include the following:

1. Cancel the GLE project and do not construct a new entrance and roadway to the Wilmington Site (the No Action Alternative), or
2. Construct the revised entrance and roadway as shown in Figure 1-1 (the Proposed Action).

2.1.1 No Action Alternative

Under the No Action Alternative, the GLE project would be cancelled, and the entrances and roadways on the Wilmington Site would remain as currently constructed. Current levels and/or projections of land development, transportation, terrain, groundwater, and surface water availability and quality would remain the same. There would be no additional impacts to the ecology, floodplains, wetlands, historical and cultural resources, public and occupational health, waste management, environmental justice, and visual/scenic conditions. Under the No Action Alternative, the region would not benefit from the expected positive impacts of the construction and operation of the Proposed GLE Facility on local employment, income, and tax revenues.

2.1.2 Proposed Action

The Proposed Action is to construct a new entrance and roadway as part of the activities during Early Construction for the Proposed GLE Facility.

Required permits would be obtained prior to the start of Early Construction, pre-operational baseline environmental samples would be collected, and geotechnical investigations would be conducted prior to the construction of roadways and water retention systems.

As described in detail in the GLE ER, the new entrance and roadway would be built on land already owned by GE and would be consistent with the Wilmington Site's current I-2 (Heavy Industrial) zoning classification. Construction of the main access roadway to the Proposed GLE Facility would likely be one of the initial phases of Early Construction. During this phase, the currently unpaved (approximately 29-acre or 12-hectare) roadway segment would be tied into the currently paved (approximately 18-acre or7-hectare) roadway as shown in Figure 1-1. The environmental impacts associated with this approximately 47-acre (19-hectare) portion of the GLE Study Area have been analyzed, and the results are included in Section 4, *Environmental Impacts*.

There are many anticipated advantages of this revised entrance and roadway over the previously evaluated entrance described in the GLE ER. For example, the revised entrance and roadway

- Provide a safer traffic entrance into the Proposed GLE Facility.

- Avoid the construction of a new stream crossing to the Unnamed Tributary #1 to Prince George Creek, modifications to a Jurisdictional Channel, and the potential impacts associated with a new crossing.
- Avoid potential impacts to three previously identified wetlands (i.e., WB, WC, and WD shown in Figures 4.4-5, 4.4-6, and 4.4-7, respectively, in the GLE ER).
- Increase the buffer to a nearby subdivision and reduce some of the noise from road construction and subsequent entrance traffic.
- Take advantage of existing roadbeds, to the extent possible, thereby lessening the amount of potential impacts associated with clearing for new roadbeds.
- Include the utility lines thereby lessening the potential impacts associated with clearing for utilities elsewhere on the Wilmington Site.

3. Description of Affected Area

The affected area remains consistent with what is described in the GLE ER and ER Supplement 1. The following paragraphs summarize the information.

The existing Wilmington Site shown in Figure 1-1 is situated on a 1,621-acre (656 hectare) tract located west of N.C. Highway 133, which is also known as Castle Hayne Road and, previously, U.S. Highway 117 (US 117). The Wilmington Site spans between latitudes (North) 34° 19' 4.0" and 34° 20' 28.9" and between longitudes (West) 77° 58' 16.4" and 77° 55' 19.8", and it is approximately 6 miles north of the City of Wilmington in New Hanover County, NC. For the purposes of this document, the phrase "Wilmington Site" is used to denote the 1,621-acre area.

The existing Wilmington Site operations include the Global Nuclear Fuels–America (GNF-A) Fuel Manufacturing Operation (FMO) facility, the Fuel Components Operation (FCO) facility, the Wilmington Field Services Center (WFSC), and the GE Aircraft Engines/Services Components Operation (AE/SCO) facility. The FMO facility receives enriched uranium hexafluoride (UF_6), converts it into uranium dioxide (UO_2) powder, presses this powder into fuel pellets, loads the pellets into fuel bundles, and ships the bundles to commercial nuclear power plants. The FCO facility fabricates non-radioactive components for nuclear fuel operations. The WFSC provides service and repair to reactor components and is further described in a letter to NRC dated June 8, 2009. The AE/SCO facility fabricates aircraft engine components.

The Proposed GLE Facility would be located on the approximately 100-acre (40 hectare) area shown in Figure 1-1 (note that area is actually 117 acres [47 hectares], but to remain consistent with the terminology in the original GLE ER, this area is referred to as approximately 100 acres). The GLE Commercial Facility includes the Operations Building (to be constructed once the NRC license is received), which is where the enrichment processing systems and enrichment processing support systems would be contained; several administrative and support buildings; a parking lot; retention basins; UF_6 cylinder pads; and connecting roadways. A cleared security buffer would surround the entire GLE Commercial Facility and define both the Restricted Area and the Protected Area of the facility.

Related GLE facilities to be constructed outside of the approximately 100-acre area boundary would include access roadways, the stormwater wet detention basin, guard stations and the clearing of the narrow tracts that may be required to install power lines by the electric company (Progress Energy).

4. Environmental Impacts

Many of the environmental impacts that were concluded in the GLE ER or ER Supplement 1 remain unchanged as a result of the revised entrance and roadway to the Proposed GLE Facility. The following sections focus on those environmental impacts associated with the revised entrance and roadway to the Proposed GLE Facility.

4.1 Land Use

Construction of the revised entrance and roadway on the Wilmington Site from N.C. Highway 133 (Castle Hayne Road) to the Proposed GLE Facility would include improvement and extension of the existing North Entrance and an existing on-site service road. As part of this road construction, clearing and grading of some additional forested land at the Wilmington Site would be necessary. This on-site access road would be approximately 1.6 miles in length, with a right-of-way width up to 200 feet, depending on the final road design. The land use associated with the revised entrance and roadway to the Proposed GLE Facility would be consistent with the current land use, which includes an entrance to the GE property from N.C. Highway 133. The land-use impacts associated specifically with the revised entrance and roadway would be SMALL.

No new activities would occur on roads or on other public or private land parcels; therefore, the land-use impacts resulting from revised entrance and roadway are consistent with the conclusions reached in the GLE ER and ER Supplement 1 and would be SMALL.

4.2 Transportation

The transportation impacts that were described in ER Supplement 1 remain unchanged. The projection of up to 200 average daily trips (ADT) during construction of the revised entrance and roadway being added to the current ADT levels for the segments of N.C. Highway 133 (Castle Hayne Road) in the immediate vicinity of the interchange with Interstate 140 (I-140) might impact the traffic flow on the road. Therefore, the local transportation impacts associated with the revised entrance and roadway would be SMALL to MODERATE.

4.3 Geology and Soils

The site preparation and construction of the revised entrance and roadway would require clearing and grading of approximately 47 acres (19 hectares). In addition to land cleared and graded for the rest of the Proposed Action, a total of approximately 226 acres (91 hectares) would be cleared or graded on the Wilmington Site.

The shallow geological conditions would not create significant impacts on site preparation and construction of the revised entrance and roadway, and any anticipated impacts would be mitigated through engineering controls recommended in the geotechnical investigation and therefore would be SMALL.

Construction of the revised entrance and roadway may require excavation of shallow soils in some areas and backfilling, compaction, grading, and paving. The volumes of soils that would be impacted depend on the final design and layout and recommendations of the geotechnical investigation. Any shallow soils disturbed or moved during construction would either be re-used within the GLE construction site or stockpiled for potential use in other areas of the Wilmington Site. The impacts of the revised entrance and roadway related to soils would be SMALL.

The geology and soils impacts that were described in the GLE ER and ER Supplement 1 remain unchanged.

4.4 Water Resources

4.4.1 Groundwater

The groundwater impacts that were described in the GLE ER and ER Supplement 1 remain unchanged.

4.4.2 Surface Water

The revised entrance and roadway to the Proposed GLE Facility is anticipated to require a 60-foot–wide corridor, which would contain the paved roadway, subsurface utilities, and a pedestrian sidewalk. The Study Area for the revised road corridor contains 1,456 feet (444 meters) of stream channel (Unnamed Tributary #1 to Prince George Creek) and 721 feet (220 meters) of Jurisdictional Channel (Effluent Channel, Jurisdictional Channels #1, #2, #3, and #4) (see Figure 4-1).

The revised entrance and roadway would be constructed during the Early Construction phase. The Proposed Action would modify the existing stream crossing of Unnamed Tributary #1 to Prince George Creek. It is anticipated that physical impacts to the streambed and banks would be less than the entire 1,456 feet (444 meters) of stream channel identified within the Study Area (Table 4-1) through avoidance and minimization of impacts during site design. A maximum of 60 feet (18 meters) of this stream (in addition to the 64 feet for the existing crossing) would be impacted. The Proposed Action would also modify the existing crossing of Jurisdictional Channel #1 (approximately 17 feet [5 meters]). A maximum of 60 feet (18 meters) of Jurisdictional Channel #1 would be impacted because most of the impacts would occur within the existing road crossing.

The revised entrance and roadway would cross the Effluent Channel (see Figure 4-1) at two separate crossings and could potentially impact approximately 120 feet (37 meters) of the Effluent Channel as a result of two 60-feet (18-meter) road crossings. The eastern Effluent Channel crossing would result in a maximum of 60 feet (18 meters) of physical impacts to the bed and bank of the channel to accommodate a 60-feet (18-meter) road corridor. To minimize the impact to the Effluent Channel from the eastern crossing, the proposed crossing would be constructed perpendicular to the Effluent Channel. The western Effluent Channel crossing would modify an existing road crossing of the Effluent Channel (approximately 94 feet [29 meters]). A maximum of 60 feet (18 meters) of the Effluent Channel would be impacted because most of the impacts would occur within the existing road crossing. Construction of these stream and channel crossings would have a temporary impact on bank stability and channel capacity; however, precautions would be taken to minimize the intensity and duration of impacts.

Temporary and permanent impacts cannot be determined until final site design is complete; however, anticipated impacts to the Unnamed Tributary #1 to Prince George Creek, Jurisdictional Channel #1, and the Effluent Channel during Construction, Operation, and Decommissioning phases would be SMALL due to the implementation of mitigation practices and BMPs (for more information on mitigation practices, please refer to Section 5, *Mitigation Measures*).

Applicable permits (i.e., CWA Section 404 permit and 401 Water Quality Certification) cannot be obtained until final site design is complete and mitigation measures for impacts are approved.

The CWA also exerts jurisdiction over Relatively Permanent Waters (RPW) as defined in the *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States* dated December 2, 2008 (EPA and USACE, 2008). This jurisdiction defines RPW as "non-navigable tributaries that typically (e.g., except due to drought) flow year-round or waters that have a continuous flow at least seasonally (e.g., typically 3 months)." Therefore, both natural and man-made linear surface water features that contain water for 3 consecutive months are jurisdictional under the CWA. There would not be impacts to navigation, industrial transport, commercial fishing, or recreational uses; therefore, these impacts can be described as SMALL.

The impacts to water quality of surface waters would be similar to those provided in the GLE ER for the Unnamed Tributary #1 to Prince George Creek as the stream crossing was move slightly upstream; however, by modifying an existing crossing, the impacts to habitat and wildlife would be reduced. The revised entrance and roadway would impact the Effluent Channel; however, State water quality standards do not apply to the Effluent Channel because it used is used for industrial runoff. Runoff during the Early Construction, Construction, and Operation phases would be treated in compliance with the Sediment and Erosion Control Plan and applicable NPDES permits. Early Construction, Construction, Operations, and Decommissioning phases should not cause water quality in receiving streams to exceed State water quality standards; therefore, impacts to the quality of receiving waters from the Proposed Action would be SMALL.

The revised Study Area would not significantly change the quantity of runoff from the Wilmington Site as assessed in the GLE ER; therefore, the impacts of receiving waters from changes in surface water runoff would be SMALL.

4.4.3 Floodplains

The revised entrance and roadway would not directly impact a floodplain. Indirect impacts from increased runoff to downstream floodplain boundaries from the revised entrance and roadway would not significantly alter the results determined in the GLE ER. Therefore, impacts to floodplains would be SMALL as stated in the GLE ER.

4.4.4 Wetlands

Field surveys were conducted between September 1 through 30, 2009, to delineate wetlands within areas of the revised Study Area for the revised entrance and roadway not previously surveyed. Wetlands were delineated using USACE's three-parameter approach (i.e., vegetation, hydrology, and soils), as defined in USACE's *Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* (October 2008). The wetland boundary points were marked in the field using flagging tape. These flagged points were located by professional land surveyors, and the area for each wetland was calculated. A representative from USACE's Wilmington Regulatory Field Office verified these wetland boundaries on October 21, 2009. Wetlands (and streams) were plotted on a Wilmington Site parcel map and certified by the professional land surveyor for the jurisdictional determination. Once the jurisdictional determination is issued by USACE, it will be valid to 5 years from that date (the letter will be submitted upon receipt of the determination).

As shown in Figure 4-1, the revised entrance and roadway would cross Unnamed Tributary #1 to Prince George Creek, two Jurisdictional Channels (i.e., Jurisdictional Channel #1 and the Effluent Channel), one jurisdictional wetland (i.e., Wetland WD), and one isolated wetland (i.e., Isolated Wetland WA). Also within the corridor for the revised entrance and roadway, there are

two Jurisdictional Wetlands (i.e., Wetland WF and WG) and three Jurisdictional Channels (i.e., Jurisdictional Channels #2, #3, and #4). The Main Portion of the GLE Study Area does not contain any wetlands.

Wetland WD is a riparian wetland that abuts Unnamed Tributary #1 to Prince George Creek. Approximately 0.002 acres (0.0008 hectares) of this wetland is located within the Study Area (Figure 4-1). This wetland continues along the western side of this Unnamed Tributary north of the Study Area. Wetland WD is located within the Alluvial Forest biotic community identified in Section 3.5, *Ecological Resources*, of the GLE ER and is dominated by red maple (*Acer rubrum*) with loblolly pine (*Pinus taeda*) scattered throughout the canopy. Muscadine (*Vitis rotundifolia*), switchgrass, shallow sedge (*Carex lurida*), and Japanese stilt grass (*Microstegium vimineum*) are present in the vine and understory layers, respectively. Wetland WD has a North Carolina Division of Water Quality (NC DWQ) wetland rating score of 58, reflecting its bank stabilization, pollutant-removal functions, and wildlife and aquatic life habitat. This wetland provides storage of flood water from the Unnamed Tributary #1. The soils of this wetland are organic-covered silt grains with sand inclusions to a depth of 16 inches (41 cm).

Wetland WF is a depressional, herbaceous wetland that that is located upstream of Unnamed Tributary #1 to Prince George Creek. Approximately 0.03 acres (0.012 hectares) of this wetland is located within the Study Area (Figure 4-1). Wetland WF receives runoff from the existing GE-Hitachi stormwater management system and provides additional water quality treatment prior to discharging into Unnamed Tributary #1 to Prince George Creek. The hydrology of Wetland WF is provided by discharge from the on-site stormwater management system. This wetland was inundated at the time of the site surveys, and watermarks on vegetation suggest that Wetland WF is at least semi-permanently inundated. Wetland WF has an NC DWQ wetland rating score of 49, reflecting pollutant-removal functions. The soils of this wetland are organic-covered silt grains with sand inclusions to 18 inches (46 centimeters).

Wetland WG is a linear riparian wetland that is connected to Jurisdictional Channel #2. Approximately 0.02 acres (0.08 hectares) of this wetland is located within the Study Area. The canopy within this wetland is dominated by blackgum (*Nyssa sylvatica*), red maple (*Acer rubrum*), and sweetgum (*Liquidambar styraciflua*). Black willow (*Salix nigra*), red maple (*Acer rubrum*), blackberry (*Rubus* spp.), and false nettle (*Boehmeria cylindrical*) are present in the understory and groundcover layers, respectively. Wetland WG received an NC DWQ rating score of 43, reflecting its pollutant-removal functions. The soils of this wetland are organic-covered silt grains in excess of 14 inches (36 centimeters).

The total area of the three Jurisdictional Wetlands located within the revised entrance and roadway of the Study Area is 0.052 acres (0.021 hectares) and 0.06 acres (0.02 hectares) from Isolated Wetland WA (Table 4-2). Because the revised roadway would only require a corridor of 60 feet (18 meters,) it is anticipated all Jurisdictional Wetlands would be avoided; however, Isolated Wetland WA may be impacted. Therefore, direct impact to wetlands on the Wilmington Site by the Proposed Action would be SMALL. Final impacts would be determined before applicable permits would be obtained. Chapter 5, *Mitigation Measures*, of the GLE ER discusses the methods that could be used to avoid and minimize these impacts. Impacts to Unnamed Tributary #1 to Prince George Creek, the Effluent Channel, and Jurisdictional Channel #1 are discussed in Section 4.4.2, *Surface Water*.

It is anticipated that any indirect impacts to on-site and off-site wetlands as a result of the Proposed Action would be minimal. The proposed road crossings of Unnamed Tributary #1 to Prince George Creek, the Effluent Channel, and Jurisdictional Channel #1 would use culverts to

maintain downstream flow, thereby preventing indirect impacts to downstream wetlands and waters. Indirect impacts to wetlands on and surrounding the Wilmington Site could be mitigated by the methods described in Chapter 5, *Mitigation Measures*, of the GLE ER. Indirect impacts to wetlands would be SMALL.

Federal and State permits would be obtained before any land-disturbing activities for the preparation or construction of the Proposed GLE Facility, roadways, or supporting infrastructure. To obtain the necessary permits, a detailed construction design would be used to determine the type and extent of direct impacts to wetlands. The USACE and NC DWQ would determine if mitigation would be required for these impacts.

4.4.5 Water Use

The impacts from water use that were described in the GLE ER and ER Supplement 1 remain unchanged.

4.5 Ecology

4.5.1 Impacts to Vegetation Communities and Wildlife

Table 4-3 provides a summary of the biotic communities to be impacted from the Proposed Action, including the revised entrance and roadway, the Proposed GLE Facility, utility corridors, and other support structures. The total loss of existing habitat would be approximately 176 acres (71 hectares). The loss of habitat and noise from the clearing and construction activities would displace local wildlife populations to nearby habitat in the western portion of the Wilmington Site and off the Site. Human encounters with some wildlife could increase due to disruption of travel corridors and loss of habitat. No direct impacts to rare or unique habitats or commercially or recreationally valuable species are expected to result from the Early Construction, Construction, Operation, or Decommissioning phases. Overall, wildlife populations on the Wilmington Site would be altered, but the existence of these species would not be destabilized; therefore, direct and indirect impacts to wildlife would be MODERATE.

The majority of the vegetation that would be disturbed is currently classified as Pine Plantation or Pine Forest that was planted or regenerated after clear-cutting activities in the early 1990s. Loblolly pine (*Pinus taeda*) is the dominant tree species. These communities are managed for timber production. The revised entrance and roadway would now take advantage of existing roadbeds, to the extent possible, thereby decreasing the amount of vegetation clearing and habitat loss and fragmentation that would have been associated with the prior entrance road location. The removal of forested biotic communities would noticeably alter the amount of available habitat, but would not destabilize the existence of these communities. Therefore, direct and indirect impacts to existing biotic communities would be MODERATE.

4.5.2 Impacts to Rare Species

The revised entrance and roadway would not change the potential impact to rare species from those stated in the GLE ER. However, the potential for suitable habitat for the red-cockaded woodpecker (RCW; *Picoides borealis*) has increased due to thinning of forested areas on the Wilmington Site. In 2009, GE–Wilmington Facilities implemented a Forestry Management Plan to reduce hazardous fire potential, increase stand yields, and improve wildlife habitat. As a result of these activities, surveys would be conducted to determine the presence of suitable RCW foraging habitat. If a suitable foraging habitat is located within the GLE Study Area, then additional surveys would be conducted to locate potential cavity trees. Surveys would be

conducted in consultation with the United States Fish and Wildlife Service (USFWS) and in accordance with the USFWS's RCW Survey Protocol to evaluate the potential RCW impact.

4.6 Air Quality

Site preparation activities associated with the construction of revised entrance and roadway would create temporary localized fugitive dust emissions. Carbon monoxide, nitrogen oxides, particulate matter, sulfur dioxide, and volatile organic compound emissions would be released from on-site heavy construction equipment and from automobiles and trucks travelling on the revised entrance and roadway and subsequently to and from the GLE construction site.

Updated ambient air modeling is currently underway in response to NRC's specific Request for Additional Information (RAI) dated October 7, 2009. The forthcoming air modeling results will provide an update of the fugitive dust and other air emissions dispersed into the atmosphere as a result of construction activities, including the impacts associated with the revised entrance and roadway.

Although all of the information is not currently available, the total distance of the access road to the Proposed GLE Facility has not changed appreciably from that evaluated in the GLE ER. Air quality impacts associated from the revised entrance and roadway are anticipated to be SMALL and will be confirmed in the response to the air quality RAI (to be submitted to NRC by November 25, 2009).

4.7 Noise

The revised entrance and roadway is, on average, approximately 1,000 feet further south of the northern property line from that described in the GLE ER and allows a greater tree buffer. The sound model was recently updated in response to an RAI (GLE submittal dated November 5, 2009), and the revised entrance and roadway was evaluated. Figure 4-2 shows the average daytime sound levels during road construction, and Figure 4-3 shows the day–night average sound levels during road construction along the revised entrance and roadway.

The result is that the noise-level impacts during the Road Construction phase of the project are now projected to be SMALL for most of the adjacent Wooden Shoe subdivision and SMALL to MODERATE for the closest residences (see sound measurement location M in Figures 4-2 and 4-3). At locations further offsite, the noise impacts associated with the construction of the revised entrance and roadway to the Proposed GLE Facility would be SMALL. Sound levels along the revised entrance and roadway during the Construction and Operational phases of the Proposed GLE Facility would be less than that shown in Figures 4-2 and 4-3, and noise impacts would be SMALL.

4.8 Historic and Cultural Resources

A detailed survey of the revised entrance and roadway documented one new archaeological site (31NH804**) shown in Figure 4-4. Archaeological site 31NH804** is a historic-age site dating from the late-nineteenth to mid-twentieth century. This site consists of a low-density subsurface scatter of artifacts, including metal and glass fragments, brick, wire, and unidentified nails. Artifacts were mainly recovered from the disturbed upper soil zone. The archaeological site, which covers approximately 850 square meters, likely represents the remains of an agricultural building.

Archaeological site 31NH804** was assessed for significance according to the criteria established in 36 *Code of Federal Regulations* (CFR) Part 60, National Register of Historic Places (NHRP), and 36 CFR Part 800, Protection of Historic Properties. The evaluation of a prehistoric or historic archaeological site for inclusion in the NRHP rests largely on its research potential, that is, its ability to contribute important information through preservation and/or additional study (Criterion D).

The NRHP criteria for evaluation are stated as follows:

> "The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and;
>
> - Criterion A: Properties that are associated with events that have made a significant contribution to broad patterns of our history;
> - Criterion B: Properties that are associated with the lives of persons significant in our past;
> - Criterion C: Properties that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; and
> - Criterion D: Properties that have yielded, or may be likely to yield, important information in prehistory or history."

Although many archaeological sites are recommended as eligible for the NRHP under Criterion D, this criterion is not fully defined relative to the assessment for significance. To clarify the issue of site importance, the following attribute evaluations may be used to add a measure of specificity in assessing site significance and NRHP eligibility:

- Site Integrity—Does the site contain intact cultural deposits or is it disturbed?
- Preservation—Does the site contain material suited to in-depth analysis and/or absolute dating, such as preserved features, botanical and/or faunal remains, or human skeletal remains?
- Uniqueness—Is the information contained in the site redundant in comparison to that available from similar sites, or do the remains provide a unique or insightful perspective on research concerns of regional importance?
- Relevance to Current and Future Research—Would additional work at this site contribute to our knowledge of the past? Would preservation of the site protect valuable information for future studies? Although this category is partly a summary of the previously mentioned considerations, it also recognizes that a site may provide valuable information regardless of its integrity, preservation, or uniqueness.

Based on the lack of structural remains, the relatively low density of artifacts recovered, and the apparently disturbed context of the artifacts, archaeological site 31NH804** does not meet NRHP criteria for significance. This site lacks integrity and preservation. Because this site does not have the potential to yield significant new information pertaining to the history of the area, it is not considered eligible for listing in the NRHP. The Proposed Action would not adversely

impact archaeological site 31NH804**, and the historical and cultural resource impacts would be SMALL.

GLE's archaeological contractor submitted a report detailing the results of the intensive archaeological survey of the revised entrance and roadway to the North Carolina State Historic Preservation Office (NC SHPO) with a recommendation that the project will not adversely impact any significant cultural resources. It is anticipated that NC SHPO will concur with this recommendation.

4.9 Visual and Scenic Impacts

The revised entrance to the Wilmington Site would be designed to blend-in with the current entrance to the Site. In addition, a greater buffer of vegetation would result from placement of the revised road further south of the northern property line (on average, approximately 1,000 feet further south).

No other visual/scenic resource impacts are expected to result from the revised entrance and roadway to the Proposed GLE Facility and the overall visual/scenic impacts would be SMALL.

4.10 Socioeconomics

The revised entrance and roadway would not change the socioeconomic impacts that were concluded in the GLE ER or ER Supplement 1.

4.11 Environmental Justice

The revised entrance and roadway would not change the environmental justice impacts that were concluded in the GLE ER or ER Supplement 1.

4.12 Public and Occupational Health

The revised entrance and roadway would not change the public and occupational health impacts that were concluded in the GLE ER or ER Supplement 1.

4.13 Waste Management

The revised entrance and roadway would not change the waste management impacts that were concluded in the GLE ER or ER Supplement 1.

5. Mitigation Measures

The mitigative measures described in Chapter 5, *Mitigation Measures*, of the GLE ER would be implemented, where practical, for the various life cycles of the Proposed GLE Facility and are not fully repeated herein. Examples of some of the key mitigative measures that pertain specifically to revised entrance and roadway are outlined below. These mitigative measures would be implemented when resource impacts cannot be avoided and in accordance with proper construction BMPs.

5.1 Measures to Minimize Soil and Sediment Erosion

- Minimizing the construction footprint to the extent possible
- Creating engineering design plans that minimize soil disturbance during construction activities

- Using soils from on-site borrow pits, if such additional soil is necessary for construction purposes, that are accessible via existing roadbeds to minimize disturbance to other areas of the Wilmington Site outside of the GLE Study Area
- Managing construction activities so that only designated areas within the GLE Study Area are disturbed and so that no heavy equipment or construction operations are allowed to affect areas outside of the GLE Study Area unless specifically designated, such as potential use of existing on-site borrow areas
- Using adequate containment methods during excavation and/or similar operations
- Using site-stabilization practices (i.e., placing crushed stone on top of disturbed soil in areas of concentrated runoff)
- Using silt berms, dikes, and sediment fences
- Stabilizing drainage culverts and ditches by lining surface with rock aggregate/rip-rap to reduce flow velocity and prohibit scouring
- Re-using and/or appropriately placing excavated materials to decrease exposed soil piles
- Placing gravel construction pads at the entrances/exits of construction acres.

5.2 Measures to Minimize Sediment and Accidental Releases to Receiving Waters

- Limiting cut/fill slopes to a horizontal-vertical ratio of 3:1 or less
- Using silt fencing and covering of soil stockpiles to prevent sediment runoff
- Suspending general construction activities during storms and impending precipitation
- Constructing stream crossings (i.e., installation of culverts) following at least 48 hours of dry weather
- Diverting stream flow during any stream crossing construction to minimize excavation in flowing water
- Maintaining construction equipment so that equipment is in good repair and without visible leaks of oil, greases, or hydraulic fluids
- Restoring disturbed areas to original surface elevations, where possible.

5.3 Measures to Minimize Wetland Impacts

- Constructing access roads perpendicular to wetlands to minimize the area impacted
- Limiting cut/fill slopes to a horizontal-vertical ratio of 3:1 or less
- Avoiding temporary storage of materials in wetlands during construction
- Maintaining the hydrological connectivity of the wetlands to surface waters
- Placing fencing/barriers and using signs around wetland areas
- Using silt fencing and covering soil stockpiles to prevent sediment runoff
- Restoring disturbed areas to original surface elevations
- Re-vegetating disturbed areas with native plant species.

5.4 Measures to Minimize Impacts to Ecological Resources

- Minimizing the construction footprint to the extent possible and limiting habitat disruption
- Performing surveys of trees greater than 24 inches (61 centimeters) in diameter before beginning GLE Facility site preparation and construction activities. The impacts to each tree would be mitigated by the planting of one 24-inch (61-centimeter) diameter tree, two 12-inch (30.5-centimeter) diameter trees, or three 8-inch (20.3-centimeter) diameter trees elsewhere on the Wilmington Site
- Restricting site preparation and the harvesting of trees to periods when the ground is dry
- If trenches are necessary during construction, ensuring that trenches are closed overnight; trenches that are left open overnight would have escape ramps
- Sodding, seeding, and/or landscaping of disturbed areas of the Proposed GLE Facility in accordance with the Sediment and Erosion Control Plan
- Installing animal-friendly fencing so that wildlife cannot be injured by or become entangled in the fence

5.5 Measures to Mitigate Fugitive Dust Emissions

- Watering the Proposed GLE Facility site and unpaved roads to reduce dust
- Removing dirt from truck tires by driving over a gravel pad prior to leaving the Proposed GLE Facility site or unpaved access road to avoid spreading sediments on paved roads
- Covering trucks carrying soil and debris to reduce dust emissions from the back of trucks driving on roadways
- Paving access road and parking lots as soon as practicable.

5.6 Measures to Minimize Noise Impacts

- Prohibiting the use of heavy truck and earth-moving equipment after twilight and during early morning hours
- Keeping noise-suppression systems on construction vehicles in proper operation
- Equipping construction equipment with the manufacturer's noise-control devices and maintaining these devices in effective operating condition
- When possible, using quiet equipment or methods to minimize noise emissions during the activity
- For equipment with internal combustion engines, operating equipment at the lowest operating speed to minimize noise emissions, when possible and practical
- Closing engine-housing doors during operation of the equipment to reduce noise emissions from the engine
- Avoiding equipment engine idling
- Using quieter, less-tonal devices that comply with all applicable safety restrictions (e.g., OSHA standards) on back-up alarms for construction equipment.

5.7 Measures Implemented as a Result of the Proposed Action

Some of the mitigative measures previously indicated in the GLE ER would now be implemented as a result of the Proposed Action (i.e., changing the location of the entrance and

roadway to the Proposed GLE Facility by altering the access route for product cylinders from GLE to FMO). These mitigative measures include

- Revising on-site routes to avoid wetlands and archaeological features
- Using existing service road routes and utility right-of-ways at the Wilmington Site to the fullest extent practicable for the Proposed GLE Facility to minimize the need for clearing additional wooded areas and additional wetlands crossings at the Wilmington Site
- To the fullest width practicable, maintaining the existing tree buffer along the northeast Wilmington Site boundary to limit visibility of the Proposed GLE Facility structures and access road traffic from off-site viewpoints in nearby residential neighborhoods, which also reduces construction noise impacts.

6. Environmental Monitoring

Environmental monitoring would be the same as stated in the GLE ER and ER Supplement 1.

7. Cost Benefit Analysis

The revised entrance and roadway to the Proposed GLE Facility would not change the cost benefit analysis that was concluded in the GLE ER or ER Supplement 1.

8. Summary of Environmental Impacts

The reasonably foreseeable environmental impacts from the Proposed Action (i.e., revised entrance and roadway) that cannot be avoided, and for which no practical means of mitigation are available to completely eliminate the impacts, are summarized in Table 8-1. As indicated in this table, most of the currently known or anticipated environmental impacts from the Proposed Action are considered to be SMALL.[1]

In general, the unavoidable residual adverse impacts from the Proposed Action after implementation of mitigation measures to control and minimize potential adverse impacts would be SMALL, with the exception of MODERATE impacts for transportation, ecological, and noise resources on a localized basis. On a regional basis, the impacts for these resources would also be SMALL. No LARGE adverse environmental impacts are identified for the Proposed Action for the remaining Construction, Operation, and Decommissioning phases.

Identification and description of the currently known environmental impacts for the Proposed Action are presented in Section 4 of ER Supplement 2. The mitigation measures that would be incorporated into the Proposed Action to control and minimize potential adverse impacts are summarized in Section 5, Mitigation Measures, of this ER Supplement 2 and described in detail for each resource category in Chapter 5, *Mitigation Measures*, of the GLE ER.

[1] Environmental impacts from an action that are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of an applicable environmental resource are assigned the significance level of SMALL. When the environmental impacts from an action are sufficient to alter noticeably, but not to destabilize, important attributes of a resource, a significance level of MODERATE is assigned. Environmental impacts that are clearly noticeable and are sufficient to destabilize important attributes of a resource are assigned the significance level of LARGE.

9. References

Global Laser Enrichment Environmental Report, GE-Hitachi Global Laser Enrichment LLC, Revision 0, December 2008.

Global Laser Enrichment Environmental Report, Environmental Report Supplement 1, GE-Hitachi Global Laser Enrichment LLC, July 2009.

Global Laser Enrichment Decommissioning Funding Plan, GE-Hitachi Global Laser Enrichment LLC, Revision 0, May 2009.

Global Laser Enrichment Letter to Andrea Kock, June 8, 2009, "GE-Hitachi Global Laser Enrichment Submittal of Additional Information Related to NRC Review of GLE Environmental Report."

EPA and USACE (U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers). Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision In Rapanos v. United States & Carabell v. United States. December 2, 2008.

USACE 1987. *Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1*. U.S. Army Corps of Engineer Waterways Experimental Station, Vicksburg, MS.

10. List of Preparers

This ER Supplement was prepared by Julie Olivier (GLE) and Joseph Alexander and Kim Matthews (RTI International). Other contributions were made by the GLE/RTI Team, specifically including technical input from the firms of Withers & Ravenel, ESI, and Acentech. Credentials of the GLE/RTI Team are provided in Chapter 10, *List of Preparers* of the GLE ER.

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Figures

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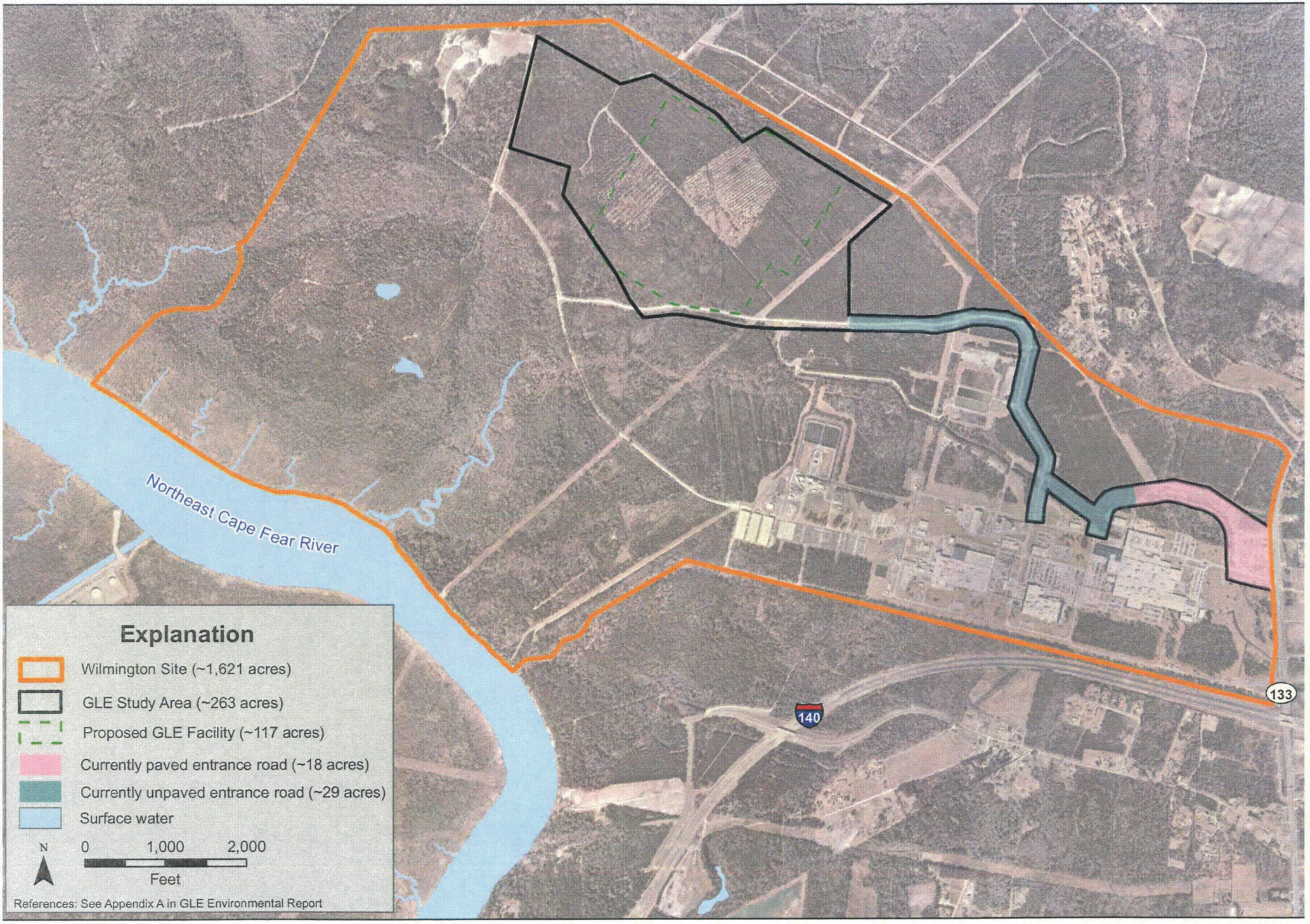

Figure 1-1. Location of revised entrance and roadway to the Proposed GLE Facility.

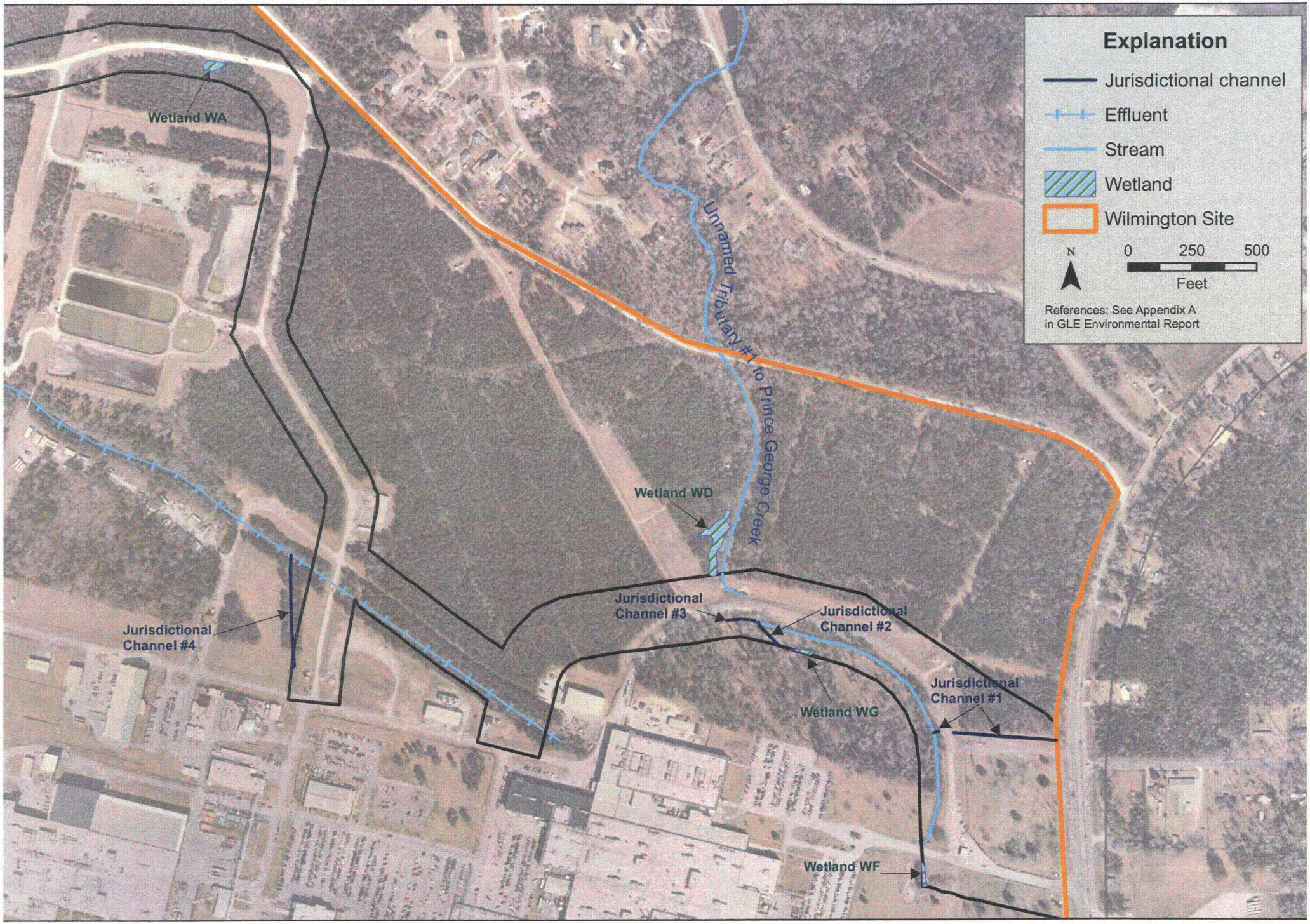

Figure 4-1. Surface waters and wetlands within the GLE Study Area.

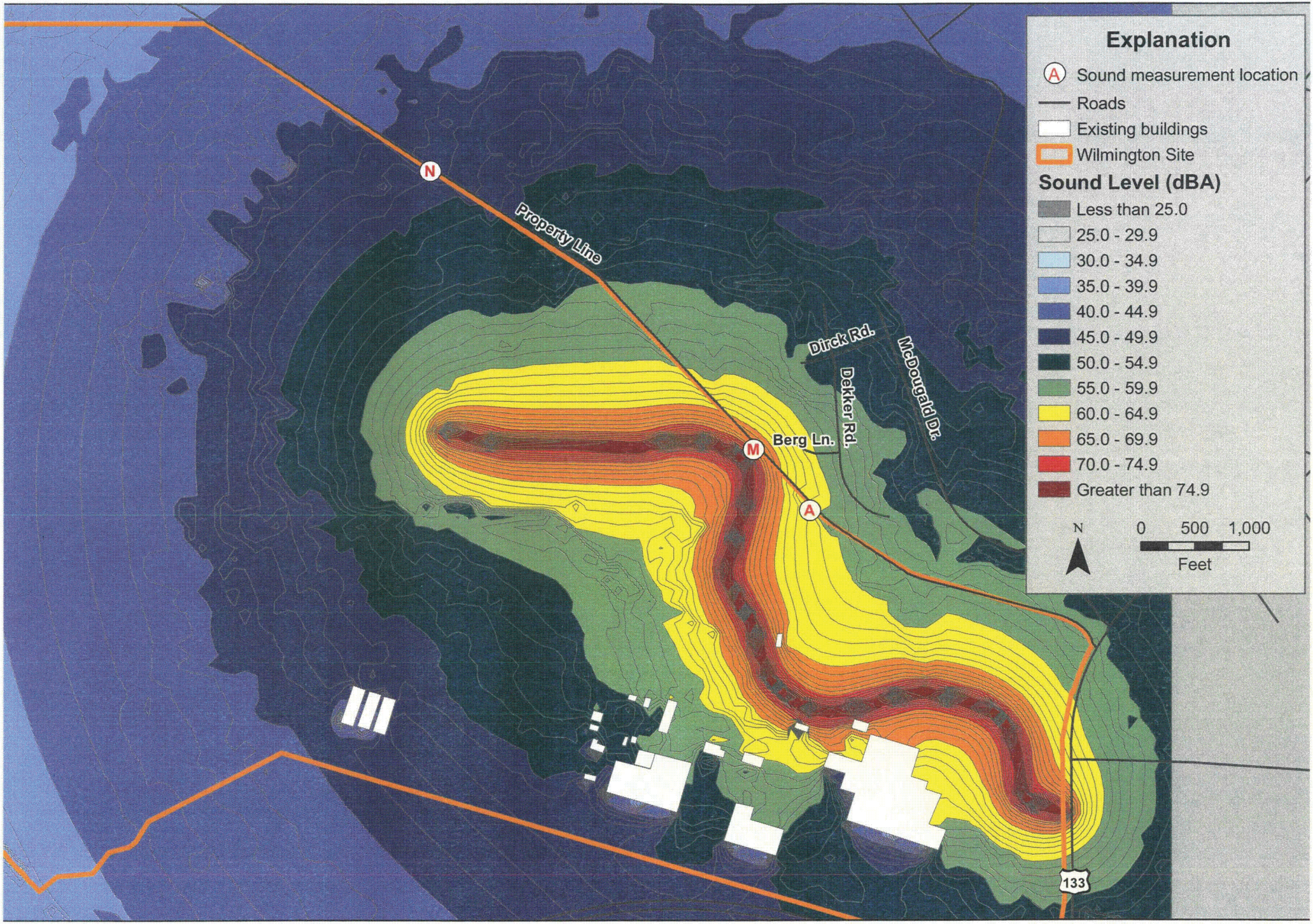

Figure 4-2. Estimated average daytime A-weighted sound levels during road construction.

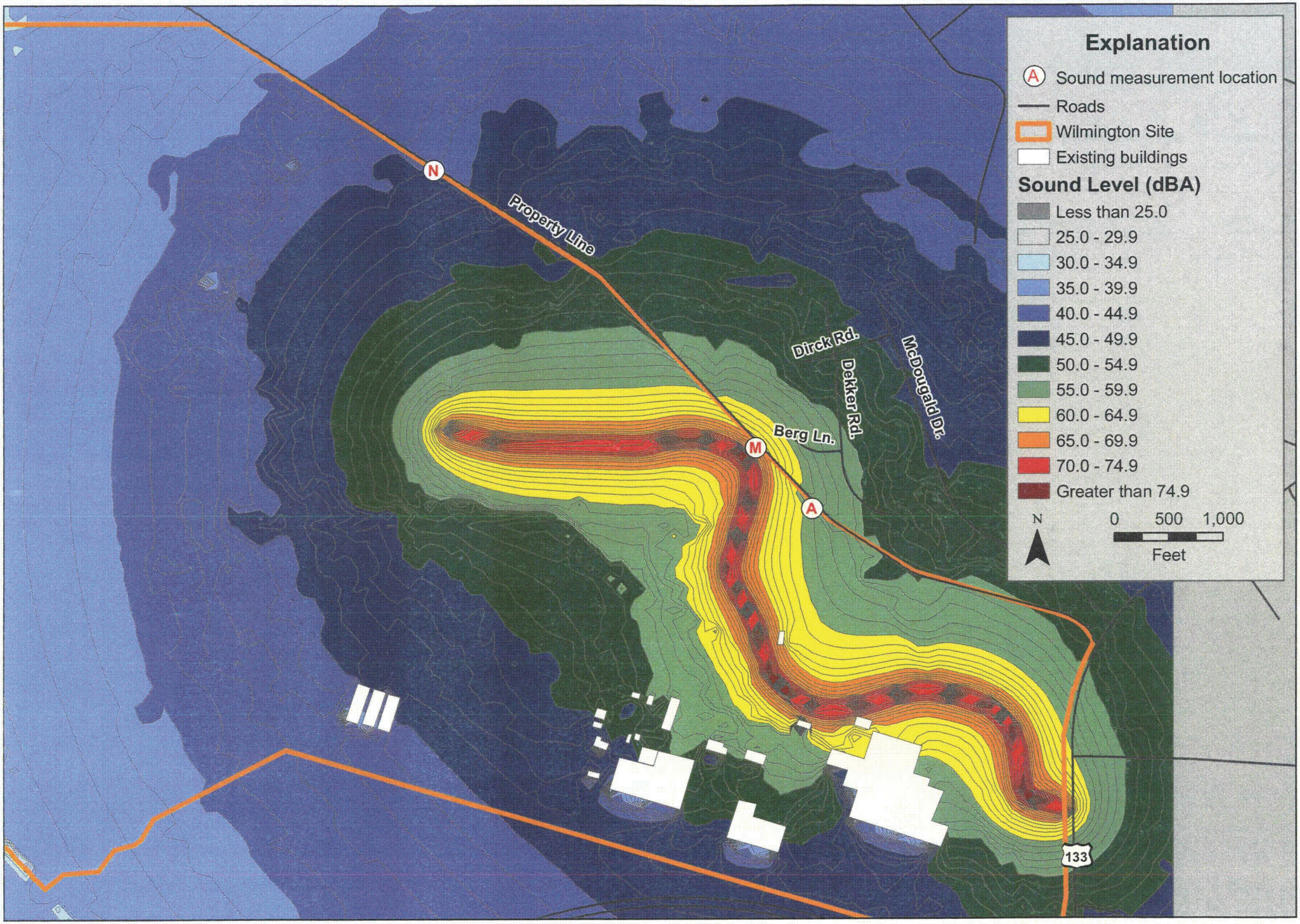

Figure 4-3. Estimated average day-night average sound levels during road construction.

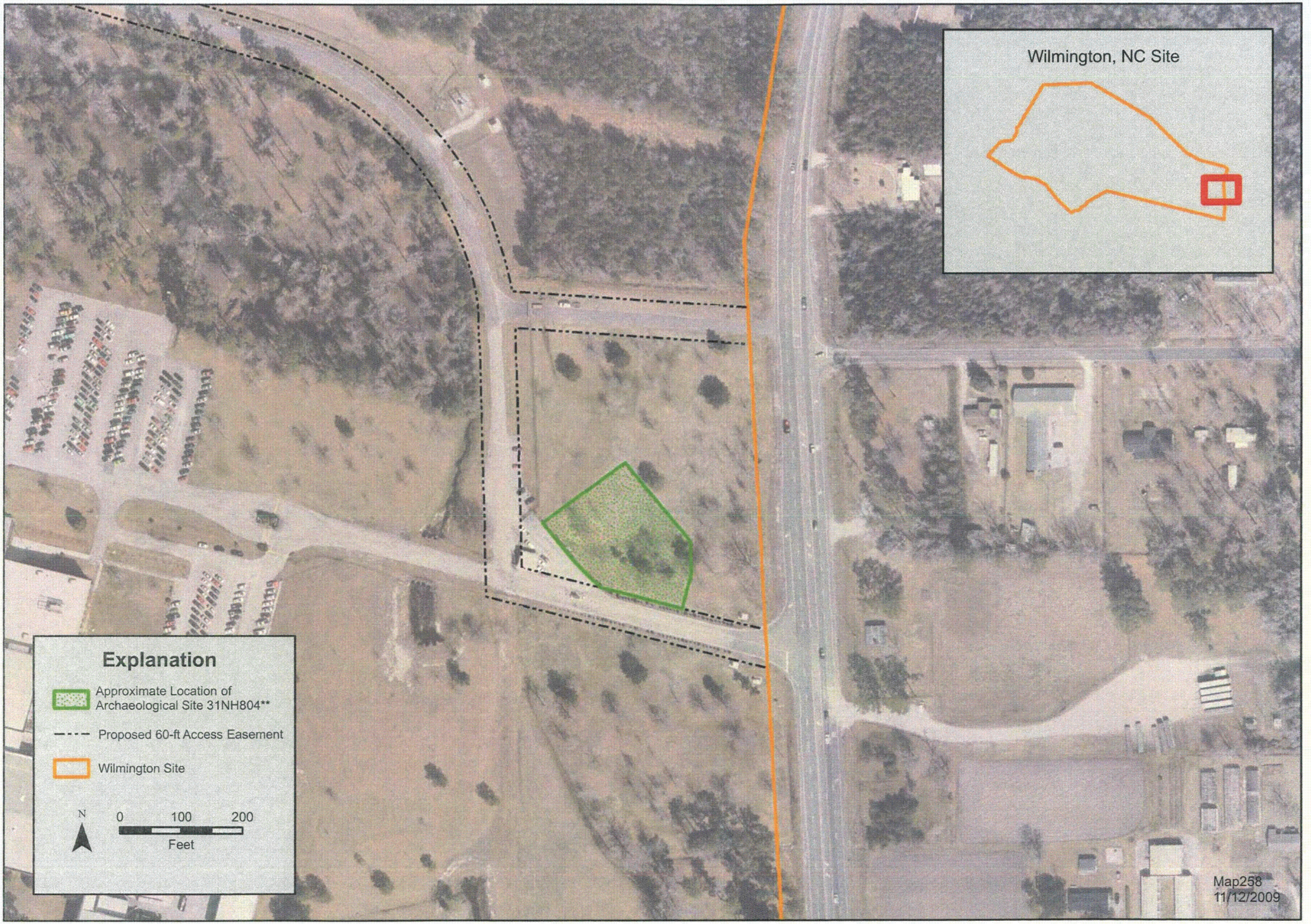

Figure 4-4. Approximate location of archaeological site 31NH804**

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Tables

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Table 4-1. Streams and Channels Potentially Impacted by the Proposed Action

Stream or Channel	Area within Study Area[a]		Length within Study Area[a]		USACE[b] Quality Assessment Score	NCDWQ[c] Stream Identification
	Acres	Hectares	Feet	Meters		
Unnamed Tributary #1 to Prince George Creek	1.10	0.45	1,456	444	66	Intermittent
Effluent Channel	1.38	0.56	990	302	N/A[d]	N/A[d]
Jurisdictional Channel #1[d]	0.15	0.06	399	122	N/A[d]	N/A[d]
Jurisdictional Channel #2[d]	0.05	0.02	127	39	N/A[d]	N/A[d]
Jurisdictional Channel #3[d]	0.10	0.04	125	38	N/A[d]	N/A[d]
Jurisdictional Channel #4[d]	0.11	0.04	70	21	N/A[d]	N/A[d]
Total[e]	2.89	1.17	3,167	966	N/A	N/A

N/A = Not Applicable

NCDWQ = North Carolina Division of Water Quality

USACE = United States Army Corps of Engineers

[a] The length of streams and channels located within the revised entrance and roadway are used to calculate potential impacts to surface waters until final stream/channel crossings are designed.

[b] USACE (2003)

[c] NCDENR (2005)

[d] USACE classified these waters as jurisdictional Relatively Permanent Waters (RPW) as defined in C*lean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States (December 02, 2008)*. This classification does not require a USACE Assessment score and NCDWQ Stream Identification.

[e] Maximum anticipated impact; final impacts will be revised once final stream/channel crossings are designed and before permit applications are submitted.

Table 4-2. Wetlands within the revised GLE Study Area

Wetland ID	Area within the GLE Study Area		Type	NCDWQ Score[a]
	Acres	Hectares		
WA	0.06	0.02	Isolated	6
WD	0.002	0.008	Riparian	6
WF	0.03	0.012	Herbaceous	49
WG	0.02	0.08	Riparian	43

[a] This rating system is designated to evaluate the value of wetlands as perceived by humans and was developed by NCDENR (1995). The score for each wetland was based on field observations.

Table 4-3. Biotic Community Impacts

Proposed Action[a]	Biotic Community	Area		Percent of that Community Impacted on Site
		Acres	Hectares	
Approximately 100-Acre Proposed GLE Facility (now ~117 acres)	Pine Forest	51	21	17%
	Pine Plantation	48	19	15%
	Pine-Hardwood Forest	16	7	7%
	Operations Area (includes roads)	2	1	N/A
Proposed North Access Road[b] (~55 acres)	Alluvial Forest	0.6	0.3	15%
	Canal Corridor	0.4	0.1	2%
	Pine-Hardwood Forest	4.4	1.8	2%
	Pine Forest	2.7	1.1	1%
	Pine Plantation	17.9	7.3	6%
	Pocosin/Bay Forest	2.3	1.0	5%
	Power Line Corridor	0.5	0.2	3%
	Swamp Forest	0.1	0.03	0%
	Operations Area	25.8	10.5	N/A
Proposed Utility Structures[c] (~29 acres)	Pine-Hardwood Forest	3	1	1%
	Pine Forest	5	2	2%
	Pine Plantation	12	5	3%
	Power Line Corridor	2	1	11%
	Operations Area	7	3	N/A
Proposed Fence (~23 acres)	Alluvial Forest	0.4	0.2	10%
	Canal Corridor	0.2	0.1	1%
	Longleaf Pine/Scrub	2	1	5%
	Pine-Hardwood Forest	4	2	2%
	Pine Forest	3	1	1%
	Pine Plantation	2	1	1%
	Pocosin/Bay Forest	1	0	2%
	Power Line Corridor	0.1	0.1	1%
	Swamp Forest	<0.1	<0.1	<1%
	Operations Areas	9	4	N/A

N/A - No impacts from converting existing operational areas to another operational area.

[a] The Proposed Action could result in clearing or altering of an additional 10 to 15 acres of forested areas. These specific locations and acreages cannot currently be determined; therefore, they are not included in this table. These additional impacts are anticipated to result from the Proposed Action creating isolated patches of forest between proposed utility structures that either would no longer have the same function as the existing habitat or otherwise would end up being cleared.

[b] Biotic Community impacts are listed for the entire 200-foot (61-meter) wide corridor. Exact impacts cannot be determined until final design of the road is complete. Therefore, the impacts are listed for the entire corridor width.

[c] Proposed utility structures, include access driveways, sanitary and process wastewater lift stations, clearings for utility lines, and a stormwater wet detention basin. The area to be impacted was increased by 1.5 acres for the fire suppression line from the impacts in Table 4.5-1 that was submitted to the NRC on November 5, 2009 in response to the RAIs.

Table 8-1. Reasonable Foreseeable Environmental Impacts from the Revised Entrance and Roadway

Resource Category	Environmental Impacts from the Proposed Action
Land Use (see **Section 4.1**)	The land use associated with the revised entrance and roadway to the Proposed GLE Facility would be consistent with the current land use which includes an entrance to the GE property from NC 133. The land use impacts associated specifically with the revised entrance and road would be **SMALL.**
Transportation (see **Section 4.2**)	The projection of up to 200 average daily trips (ADT) being added to the current AADT levels for the segments of NC 133 (Castle Hayne Road) in the immediate vicinity of the interchange with I-140 might impact the traffic flow on the road, therefore, the local transportation impacts for associated with the revised entrance and roadway would be **SMALL to MODERATE.**
Soils (see **Section 4.3**)	Impacts from the revised entrance and road on soils would be **SMALL.** Any shallow soils disturbed or moved during construction would either be re-used within the GLE construction site or stockpiled for potential use in other areas of the Wilmington Site. No off-site disposal of soil is expected.
Geology (see **Section 4.3**)	The shallow geological conditions would not create significant impacts on site preparation and construction of the revised entrance and roadway, and any anticipated impacts would be mitigated through engineering controls recommended in the geotechnical investigation and therefore would be **SMALL**.
Groundwater (see **Section 4.4.1**)	There would be no change in the reasonably foreseeable environmental impacts described in Table 2.2-1 of the GLE ER.[a] Impacts to groundwater from the revised entrance and road would be **SMALL** since the water needed for site preparation and construction would be provided by tanker truck from existing water sources. No water would be need for the operational and decommissioning phases. Therefore, there would be no anticipated impact to groundwater quality.
Surface Waters (see **Section 4.4.2**)	Modification of the existing stream crossing for the revised entrance and roadway would result in **SMALL** direct impacts on the stream channel (the Unnamed Tributary #1 to Prince George Creek) and other jurisdictional channels. The impacts to surface water quality from construction and operation of the entrance and roadway are anticipated to be **SMALL** due to the use of best management practices so that standards or limits would not be exceeded. Impacts to navigation, industrial transport, commercial fishing, or recreation uses would be **SMALL**.
Floodplain (see **Section 4.4.3**)	The revised entrance and road would occur outside of the floodplain boundaries. Indirect impacts from increased quantity of floodwater would be mitigated on Site through the use of best management practices. Therefore, impacts to the floodplain would be **SMALL**.

Resource Category	Environmental Impacts from the Proposed Action
Wetlands (see **Section 4.4.4**)	The main portion of the Proposed GLE Facility would not directly impact any wetlands. One isolated wetlands (wetland WA) may be removed if modifications are made to the existing access road. Other wetlands (wetlands WD, WG, and WF), present along the revised route would likely be avoided during the design of the roadway. Unavoidable temporary impacts to wetlands could result from site preparation and construction activities due to the removal of vegetation, temporary storage of construction materials, and potential sediment runoff. The resulting temporary impacts would be mitigated by restoring the disturbed wetlands areas to pre-existing conditions through the planting of vegetation and removal of excess sediment. Temporary and permanent impacts would be mitigated and any final impacts would be **SMALL**.
Water Use (see **Section 4.4.5**)	There would be no change in the reasonably foreseeable environmental impacts described in Table 2.2-1 of the GLE ER.[a] Water for construction activities would be provided by tanker truck from existing potable water sources. The water consumption would be bound by the water resource estimates provided in the GLE ER and impacts on water resources would be **SMALL.**
Ecological (see **Section 4.5**)	The revised entrance and roadway would now take advantage of existing roadbeds, to the extent possible, thereby decreasing the amount of vegetation clearing and habitat loss and fragmentation that would have been associated with the prior entrance road location. However, impacts from the Proposed GLE Facility area larger than assessed in the GLE ER. The Proposed Action would result in the loss or alteration of 176 acres of habitat on the Site. The removal of forested biotic communities would noticeably alter the composition of habitat and increase habitat fragmentation, but would not destabilize the existence of these communities. Therefore, direct and indirect impacts to existing biotic communities would be **MODERATE**. Construction activities would displace wildlife populations to nearby habitat in the western portion of the Wilmington Site. Human encounters with some wildlife could increase due to disruption of travel corridors and loss of habitat. No direct impacts to rare or unique habitats or commercially or recreationally valuable species would result from Early Construction. Overall, wildlife populations on the Wilmington Site would be altered, but the existence of these species would not be destabilized. Therefore, direct and indirect impacts to wildlife would be **MODERATE**.
Air Quality (see **Section 4.6**)	Updated ambient air modeling is currently underway in response to a specific Request for Additional Information (RAI). The forthcoming air modeling results will provide an update of the fugitive dust and other air emissions to the atmosphere associated with the construction activities, including the impacts associated with the revised entrance and roadway. Although all the information is not currently available, the total distance of the access road to the Proposed GLE Facility has not changed appreciably from that evaluated in the GLE ER. Air quality impacts associated from the revised entrance and roadway are anticipated to be **SMALL** and will be confirmed in the response to the air quality RAI.

Resource Category	Environmental Impacts from the Proposed Action
Noise (see **Section 4.7**)	The result of updated sound modeling shows that the noise level impacts during the road construction phase of the project are now projected to be **SMALL** for the most of the adjacent Wooden Shoe subdivision and **SMALL** to **MODERATE** to the closest residences. At locations farther off-site, the noise impacts associated with the construction of the revised entrance and roadway to the Proposed GLE Facility would be **SMALL**.
Historical and Cultural (see **Section 4.8**)	A detailed survey of the revised entrance and roadway documented one new archaeological site (31NH804**). Based on the lack of structural remains, the relatively low density of artifacts recovered, and the apparently disturbed context of the artifacts, site 31NH804** does not meet NRHP criteria for significance. Because this site does not have the potential to yield significant new information pertaining to the history of the area, this site is not considered eligible for listing in the NRHP. The Proposed Action would not impact site 31NH804** and the historical and cultural resource impacts would be **SMALL**.
Visual/Scenic (see **Section 4.9**)	The revised entrance to the Wilmington Site would be designed to blend-in with the current north entrance to the Site. In addition, a greater buffer of vegetation would result from placement of the revised entrance and roadway further south of the northern property line (on average, approximately 1,000 ft further south). No other visual/scenic resource impacts are expected to result from the revised entrance and roadway and the overall visual/scenic impacts would be **SMALL**.
Socioeconomic (see **Section 4.10**)	There would be no change in the reasonably foreseeable environmental impacts described in Table 2.2-1 of the GLE ER.[a]
Environmental Justice (see **Section 4.11**)	There would be no change in the reasonably foreseeable environmental impacts described in Table 2.2-1 of the GLE ER.[a]
Public and Occupational Health (see **Section 4.12**)	There would be no change in the reasonably foreseeable environmental impacts described in Table 2.2-1 of the GLE ER.[a]
Water Management (see **Section 4.13**)	There would be no change in the reasonably foreseeable environmental impacts described in Table 2.2-1 of the GLE ER.[a]

[a] Table 2.1-1 of the ER describes the details of the reasonably foreseeable environmental impacts from the Proposed Action, including the various phases of the Proposed GLE Facility (Construction, Operation, and Decommissioning).