

CONFINED DISPOSAL FACILITY, SITE 15G

**DUE DILIGENCE ASSESSMENT OF STATE AND FEDERALLY
LISTED SPECIES
LOGAN TOWNSHIP, GLOUCESTER COUNTY, AND
OLDMANS TOWNSHIP, SALEM COUNTY, NEW JERSEY**

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I. INTRODUCTION

AKRF has been contracted by PSEG Power LLC (PSEG) to provide environmental and regulatory services to support the development of a Confined Disposal Facility in Gloucester and Salem Counties, known as Site 15G. In the mid-twentieth century, Site 15G was a disposal facility for dredge spoils from the Delaware River. The site has most recently been used for agricultural purposes. PSEG is currently investigating the use of Site 15G as a repository for Delaware River dredge spoils. The property is currently owned by Sun Oil Company and is in the process of being transferred to PSEG. An additional 52 acre parcel of forested wetland, known as Block 4, Lots 1, 3, 5, and 12, located across Railroad Avenue from Site 15G, is also being transferred to PSEG (52 acre parcel).

This report provides an assessment of state or federally listed species that could be affected by development of the Site 15G project location as well as the 52-acre parcel.

II. SITE DESCRIPTION

Site 15G is partially located in Logan Township, Gloucester County and partially in Oldmans Township, Salem County, New Jersey. The subject property is bounded by U.S. Route 130 to the northwest, Oldmans Creek to the northeast, tidal marsh and an active rail line to the southeast, three residential properties along Railroad Avenue (County Road 602) to the southwest. Approximately 19 acres of Site 15G identified as Block 3105, Lot 1 consists of a historically filled meander of Oldmans Creek and is located in Logan Township. The remaining 354 acres is identified as Block 3, lots 2, 5, and 6 and is located in Oldmans Township. The property existed as tidal marsh associated with Oldmans Creek prior to historic United States Army Corps of Engineers dredge material filling activities. Following completion of these historic fill activities the site has been utilized for a variety of agricultural uses. Recent activity has been limited to routine vegetation maintenance not including agriculture.

Site 15G is predominantly open undeveloped land bordered by a series of containment berms constructed during the initial phases of dredge material filling activity by the Army Corps of Engineers. The site is crossed by two large drainage ditches that run north to south and convey stormwater surface runoff to a tide gate structure hydraulically connected to the offsite tidal marshes. The drainage ditches and perimeter containment berms are predominately vegetated and dominated by patches of common reed (*Phragmites australis*) with sporadic wild black cherry (*Prunus serotina*), eastern cottonwood (*Populus deltoides*), tree of heaven (*Ailanthus altissima*), sweetgum (*Liquidambar styraciflua*), and tulip poplars (*Liriodendron tulipifera*).

Adjacent to Site 15G is an approximately 52 acre parcel also included as part of this threatened and endangered species report. The 52 acre parcel is bounded by U.S. Route 130 to the northwest, Railroad Avenue (County Road 602) to the north, Porcupine Avenue to the south and open water the southeast. The parcel is identified as Block 4, Lots 1, 3, 5, and 12 is located entirely within Oldmans Township, Salem County. The parcel is currently undeveloped and includes the remnants of a former residence at the corner of Porcupine Avenue and U.S. Route 130 and a former service

station currently undergoing remedial activities at the corner of Railroad Avenue and U.S. Route 130.

The majority of the 52 acre parcel consists of forested freshwater wetland. The parcel is dominated by sweet gum, red maple (*Acer rubrum*), wild black cherry, sycamore (*Platanus occidentalis*), and white oak (*Quercus alba*). Portions of the site include dense stands of common reed as well. The interior of the parcel also includes open water areas and patches of emergent wetland.

III. LISTED SPECIES AND HABITAT ASSESSMENT

To assess the potential for state or federally listed threatened or endangered species on the site, consultations with the New Jersey Department of Environmental Protection (NJDEP) and the United States Fish and Wildlife Service (USFWS) were made in accordance with these agencies' protocols. Following these consultations, a field evaluation was conducted by a biologist with experience in conducting threatened and endangered species and their habitats in New Jersey.

IV. NJDEP CONSULTATION

The NJDEP was consulted by letter for information regarding listed species and habitats within the site's footprint, and within 1 mile of the site's boundaries (Letter from C. Torok - AKRF to NJDEP Office of Natural Lands Management, dated November 8, 2011). In its November 15, 2011 response, NJDEP indicated that searches of the Natural Heritage Database and the Landscape Project (Version 3 in the highlands region, Version 2.1 elsewhere) were conducted based on a representation of the boundaries of the project site in the NJDEP's Geographic Information System (GIS). Table 1 provides a species list and conservation status for listed species potentially occurring on the site.

Table 1 - Species potentially occurring on referenced site

Common Name	Scientific Name	Federal Status	State Status	G-rank	S-rank
Bald eagle foraging	<i>Haliaeetus leucocephalus</i>		E	G4	S1B,S1N
Great blue heron	<i>Ardea herodias</i>		SC/S	G5	S3B,S4N

The NJDEP also consulted the Natural Heritage Database and the Landscape Project habitat mapping for occurrences of any rare wildlife species or wildlife habitat within one mile of the site. Table 2 provides a species list and conservation status, and excludes any species/habitats listed in Table 1.

Table 2 - Additional species within one mile of referenced site.¹

Common Name	Scientific Name	Federal Status	State Status	G-rank	S-rank
Bald eagle	<i>Haliaeetus leucocephalus</i>		E	G4	S1B,S1N
Bobcat	<i>Lynx rufus</i>		E	G5	S1
Pied-billed grebe	<i>Podilymbus podiceps</i>		E/SC	G5	S1B,S3N
Shortnose sturgeon	<i>Acipenser brevirostrum</i>	LE	E	G3	S1

The NJDEP also consulted the Natural Heritage Database for occurrences of rare plant species or ecological communities. The Natural Heritage Database has a record for an occurrence of Bouquet mud-plantain (*Heteranthera multiflora*) that may be on or in the immediate vicinity of the site. The Natural Heritage Database indicates that this species was observed approximately 2 miles north of Pedricktown, and the last confirmed observation occurred in 1934.

V. USFWS CONSULTATION

Prior to 2008, the USFWS's procedure for identifying listed or potentially listed species at a particular site required formal consultation with the agency. At that time, the USFWS's New Jersey Field Office reviewed approximately 1,500 project proposals per year as Endangered Species Act (ESA) consultations or as other technical assistance. After 2008, and due to decreased USFWS staff resources, the USFWS has reduced this workload by eliminating individual review of proposed actions that will have no effect on listed species. USFWS concurrence with a "no effect" determination is no longer required under the ESA and is no longer provided by the USFWS's New Jersey Field Office. In light of this change, the USFWS no longer reviews proposed actions in New Jersey unless the Federal action agency or non-Federal project proponent has already determined that proposed activities may affect one or more federally listed species.

The USFWS's web site now provides information to assist both Federal and non-Federal project proponents in determining which actions may affect listed species, and provides further guidance regarding how to request consultation or technical assistance from the USFWS. In particular, before requesting ESA Section 7 consultation or technical assistance about a particular project and/or site, the USFWS now requires project sponsors to determine if federally listed species are likely to occur in the

¹ Status and rank codes used in the tables and lists are defined in *EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS*, which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes_2008.pdf.

proposed project area by reviewing the USFWS's New Jersey municipality list. To further refine the list of species potentially occurring on a project site, the USFWS has launched the first phase of its Information, Planning, and Conservation System (iPac). The iPac is a relatively new web-based service that provides information about sensitive resources within the specific footprint of proposed projects.

For Site 15G, both the municipality list and the iPac utility were consulted. The USFWS's municipality list indicates two species having the potential to occur on the site. In both Logan Township, Gloucester County and Oldmans Township, Salem County, the bog turtle (*Glyptemys muhlenbergii*) has the potential to occur in appropriate habitats. In addition, the federally threatened plant species sensitive joint vetch (*Aeschynomene virginica*) has occurred historically in both municipalities. The iPac utility for the project area also indicated the potential for these species to occur on or near the project site.

VI. SPECIES ACCOUNTS

A. Bald Eagle

The bald eagle was federally listed in 1967, and was classified as an endangered species in 1973.

With increasing numbers, bald eagle populations in the lower 48 States were re-classified from endangered to threatened in 1995, and federally delisted on August 9, 2007. The bald eagle continues to be protected under Federal laws including the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act, and remains a State-listed species under the New Jersey Endangered and Nongame Species Conservation Act. These Federal and State laws prohibit unauthorized take of bald eagles. For the continued protection of bald eagles, and to ensure compliance with Federal and State laws, the USFWS recommends managing bald eagles in accordance with the National Bald Eagle Management Guidelines and all applicable State regulations. The Service and its partners are monitoring the bald eagle for a 20 year period to ensure populations remain stable following delisting (USFWS 2011).

The bald eagle is the second largest bird of prey in North America, with a wingspan that can exceed 7 feet. The bald eagle is unmistakable in appearance, featuring a white head and tail that contrast with a dark body. Juvenile birds lack the white head and tail, and are mottled in appearance until their fifth year.

Bald eagles occur in New Jersey throughout the year. The breeding season in the state begins in late December to early January. During this period, mating pairs will work diligently to build or repair a nest. First-year nests can measure 2 feet high and 5 feet across, and eagles may use the same nest year to year, adding sticks and other nesting material, making the nest consecutively each year. By mid-February, most bald eagles in New Jersey have begun to lay their clutches of between one to three eggs. Young eagles fledge approximately 11 to 12 weeks after hatching. Adults continue to provide food to the juveniles for up to 3 months after they fledge. During this period, the fledglings begin to hunt for themselves.

Bald eagles prefer forested or open habitats with little human disturbance near large bodies of water, such as lakes, large rivers, reservoirs, and bays. Eagles may be attracted to such water bodies as they forage for food, and they frequently roost in dead or large, mature trees adjacent to the foraging waters. Eagles are opportunistic feeders and will eat carrion or live prey, primarily fish, but also small mammals, reptiles, and waterfowl. In the winter, bald eagles gather in large numbers near coasts and inland water bodies that tend to remain ice-free, allowing continuous access to fish and other prey.

B. Great Blue Heron

The great blue heron is a large wading bird in the heron family Ardeidae, common near the shores of open water and in wetlands over most of North and Central America as well as the West Indies and the Galápagos Islands. It is the largest North American heron, with a head-to-tail length of approximately 36 to 55 inches, a wingspan of 66 to 79 inches, a height of 45 to 54 inches. Notable features include slate grey to grey-blue flight feathers, reddish-brown upper legs, and a paired red-brown and black stripe along the flanks (Sibley 2003).

The great blue heron can be found in a range of habitats, including fresh and saltwater marshes, mangrove swamps, flooded meadows, lake edges, or shorelines; however, they always occur close to bodies of water. Feeding occurs during both the night and the day, but especially around dawn and dusk. The primary food items for great blue heron are small fish, although it is also known to opportunistically feed on a wide range of shrimp, crabs, aquatic insects, rodents, amphibians, reptiles, and small birds. Herons locate their food by sight and usually swallow it whole. They are generally solitary feeders, and forage while standing in water.

This species typically breeds in large colonies, nesting in trees close to lakes, rivers, bays, or wetlands. The size of these colonies may be large, ranging between 5 and 500 nests per colony, with an average of approximately 160 nests per colony. Great blue herons construct a bulky nest of sticks, and the female lays three to six pale blue eggs. Eggs are incubated for approximately 28 days and hatch asynchronously over a period of several days. The first chick to hatch usually becomes more experienced in food handling and aggressive interactions with siblings, and so often grows more quickly than the other chicks. Usually, only one brood is raised per year. As with many bird species, both parents feed the young at the nest by regurgitating partially digested food. Parent birds have been shown to consume up to four times as much food when they are feeding young chicks than when laying or incubating eggs. Predators of eggs and nestlings include turkey vultures, hawks, and raccoons (*Procyon lotor*), the latter of which is also potential predator of adults. Adult herons, due to their size, have few natural predators, but can be taken by bald eagles, golden eagles (*Aquila chrysaetos*), and, less frequently, red-tailed hawks (*Buteo jamaicensis*). When such predation on an adult or chick occurs at a breeding colony, the colony may be abandoned by the other birds, although this does not always occur.

C. Bobcat

The bobcat is a North American mammal of the cat family Felidae with twelve recognized subspecies. The bobcat ranges from southern Canada to northern Mexico, including most of the continental United States. The bobcat is a highly adaptable predator that inhabits wooded areas, as well as semi-desert, urban edge, forest edges, and swampland environments. It persists in much of its original range, and most populations are considered healthy (NJDEP 2011).

Bobcats have gray to brown coats, whiskered face, and black-tufted ears. In many ways, the bobcat resembles the other species of the mid-sized Lynx genus. It is smaller than the Canada lynx, which has an overlapping range, but is nevertheless roughly twice as large as a domestic cat. Bobcats have distinctive black bars on their forelegs and a black-tipped, stubby tail, from which its name is derived.

Although the bobcat prefers prey such as rabbits and hares, it may hunt anything from insects and small rodents to juvenile deer. Like most cats, the bobcat is territorial and largely solitary. Bobcats may use several methods to mark their territorial boundaries, such as claw marks and deposits of urine or feces. The bobcat typically breeds from winter into spring and has a gestation period of about two months.

The bobcat is crepuscular. It generally moves from about three hours before sunset until about midnight and then again from before dawn until three hours after sunrise. Each night it will roam from about 2 to 7 miles along an established, habitual route. Bobcat activities are confined to these well-defined territories, which may vary in size depending on bobcat gender and the distribution of prey. In its territory, bobcats can have numerous places of shelter: usually a main den and several auxiliary shelters on the outer extent of its range. These may include caves, hollow logs, brush piles, or rock ledges.

The bobcat may go for long periods without food, but can eat heavily when prey is abundant. During lean periods, it will often prey on larger animals that it can kill and return to feed on later. The bobcat hunts by stalking its prey and then ambushing it with a short chase or pounce. Its preference is for mammals about 1.5 to 12.5 pounds. Its main prey varies by region, and in the eastern United States it is the cottontail rabbit (*Sylvilagus floridanus*), although the bobcat is an opportunistic predator that will readily vary its prey selection.

Bobcats generally begin breeding by their second summer, though females may begin as early as their first year. A dominant male will travel with a female and mate with her several times, generally from February through March. The female raises the young alone. One to six kittens are usually born in April or May, after a roughly 60 to 70 days gestation period. There may be a second litter, with births occurring as late as September. The female typically gives birth in an enclosed den, usually a small cave or hollow log. Within three to five months, juvenile bobcats begin to travel with their mother. They will be hunting by themselves by fall of their first year and usually disperse shortly thereafter.

D. Pie-Billed Grebe

The Pied-billed grebe is a species of the grebe family of water birds. The pied-billed grebe is small, stocky, and short-necked. It is usually between 12 to 15 inches in length, and has a wingspan of about 18 to 24 inches. The pie-billed grebe is usually brown or gray in color. It has a short, blunt bill, which in summer is encircled by a broad black band. The sexes are monomorphic, meaning that males and females are indistinguishable based on external features (Sibley 2003).

The species is the most widespread of North American grebes, and may be found on open waters, including remote ponds, marshes, and slow-moving streams. It is usually the first grebe to arrive on northern inland waters in springtime, and the last to leave in autumn. It is rare on salt water. Pied-billed grebes are year-round residents throughout much of their range, although populations that breed in areas where their habitat freezes in winter may migrate to warmer regions.

Pied-billed grebes feed mainly on aquatic invertebrates, but may also eat small fish and amphibians. Pied-billed grebes have been known to eat their own feathers to prevent internal injury from the small bones of prey items. The pied-billed grebe breeds in south-central Canada, throughout the United States, Central America, the Caribbean, and temperate South America. It creates an open bowl type nest over the water on mats of floating vegetation, which are typically anchored to the bottom by the vegetative roots. When it leaves its nest to feed, it covers its eggs with vegetation.

E. Shortnose Sturgeon

The shortnose sturgeon is the smallest of the three sturgeon species that occur in eastern North America, having a maximum known total length of 4.7 feet and weight of 50.7 pounds. Growth rate and maximum size tend to vary with latitude, with the fastest growth occurring among southern populations. The maximum known age is 67 years for females, but males rarely exceed 30 years of age.

Shortnose sturgeon inhabit both rivers and estuaries, and occur in most major river systems along the eastern seaboard of the United States - including the Delaware River. It is an amphidromous species that spawns in the coastal rivers along the east coast of North America from the St. John River in Canada to the St. Johns River in Florida. It generally prefers the nearshore marine, estuarine, and riverine habitat of large river systems. Shortnose sturgeon are not known to undertake long distance, offshore migrations. They are benthic feeders - juveniles are believed to feed on benthic insects and crustaceans while adult shortnose sturgeon forage for mollusks and large crustaceans.

Males and females mature at the same length (17 to 22 inches, fork length) throughout their range. However, age of maturation varies from north to south due to a slower growth rate in the north. The approximate age of a female at first spawning is 11 years in the Hudson and Delaware Rivers. Generally, females spawn every three years, although males may spawn every year.

No estimate of the historical population size of shortnose sturgeon is available. While the shortnose sturgeon was rarely the target of a commercial fishery, it often was taken incidentally in the commercial fishery for Atlantic sturgeon (*Acipenser oxyrinchus*). In the 1950s, sturgeon fisheries declined on the east coast which resulted in a lack of records of shortnose sturgeon. This led the USFWS to conclude that the fish had been eliminated from the rivers in its historic range (except the Hudson River) and was in danger of extinction. The USFWS believed the population level of the shortnose sturgeon had declined because of pollution and overfishing, both directly and incidentally in shad gillnets.

Hastings et al. (1987) deemed the shortnose sturgeon population in the Delaware River during the early 1980's to be healthy and stable, and estimated that it comprised approximately 6,400 to 14,000 adult animals. This estimate was based on mark-recapture sampling focused on a limited portion of the river habitat available and may have actually underestimated the total population size (NMFS 1998). The historic spring and summer dissolved oxygen block that was present in the Philadelphia region of the Delaware River during most of twentieth century may have prevented shortnose sturgeon from utilizing the lower tidal freshwater and brackish water reaches of the Estuary, thereby largely restricting them to less than a 72 km (45 mi) river reach (Hastings et al. 1987, Kynard 1997).

Recent improvement in water quality may have resulted in renewed access of shortnose sturgeon to the lower Delaware River, with a resulting increase in abundance (Kynard 1997). The early 1980's population estimate for the Delaware River (6,408-14,080) indicated a shortnose sturgeon population that was among the largest of the individual stocks (Kynard 1997) and comparable to that estimated for the nearby Hudson River (13,844) at about the same time (Dovel 1979). The Delaware Estuary population for shortnose sturgeon in 2002 was estimated at approximately 10,000 adults (NMFS 2002). In 2004, the Delaware Estuary population was estimated at 8,445 adult individuals (NMFS 2004)

F. Bouquet Mud-Plantain

Bouquet mud-plantain is a forb/herb of the genus *Heteranthera*. *Heteranthera* is a genus of aquatic plants in the water hyacinth family, Pontederiaceae, known generally as mud plantains. Species of this genus live in water or in saturated, wetland soils. They produce leaves on long petioles and some species may be cultivated for their attractive flowers. Leaves are of two distinct types - linear and submerged or orbicular and floating.

The leaves of the bouquet mud-plantain are of the orbicular type, and flowers are generally small and very pale violet or light blue. It occurs along river edges and in wetlands. It is annual, which means that it grows for only a single season. The bouquet mud-plantain's floral region comprises the 48 contiguous states, but is most common in the states of Arkansas, Delaware, Illinois, Louisiana, Maryland, Missouri, Mississippi, North Carolina, Nebraska, New Jersey, Oklahoma, Pennsylvania, Tennessee, Texas and Virginia.

G. Bog Turtle

The bog turtle was federally listed as a threatened species in 1997. At only about 4 inches long, the bog turtle is one of North America's smallest turtles. This species typically shows a bright yellow, orange, or red blotch on each side of the head. The nearly parallel sides of the upper carapace give bog turtles an oblong appearance when viewed from above. These small, semi-aquatic turtles consume a varied diet that may include insects, snails, worms, seeds, and carrion (NJDEP 2011).

Bog turtles usually occur in small, discrete populations, generally occupying open-canopy, herbaceous sedge meadows and fens bordered by wooded areas. These wetlands are usually a mosaic of micro-habitats that can include dry tussocks, saturated areas, and areas that are periodically flooded. Bog turtles depend upon this diversity of micro-habitats for foraging, nesting, basking, hibernating, and sheltering. These habitats are characterized by soft muddy bottoms, interspersed wet and dry tussocks, vegetation dominated by low grasses and sedges, and a low volume of standing or slow-moving water which often forms a network of shallow pools and rivulets. Bog turtles also prefer areas with ample sunlight, high evaporation rates, high humidity in the near-ground microclimate, and perennial saturation of portions of the ground.

Eggs are often laid in elevated areas, such as the tops of hummocks. Bog turtles generally retreat into more densely vegetated areas to hibernate from mid-September through mid-April.

H. Sensitive Joint-Vetch

Sensitive joint-vetch was federally listed as a threatened species in 1992. It is an annual member of the pea (legume) family. Sensitive joint-vetch can grow up to 6 feet tall. The species has yellow, pea-type flowers growing on clusters (racemes) on short, lateral branches. Germination takes place from late May to early June. Plants flower from July through September, and into October in some years.

Sensitive joint-vetch inhabits the intertidal zone of fresh to slightly salty (brackish) tidal river reaches, typically in areas where sediments accumulate and extensive marshes are formed. These tidal marshes are subjected to a cycle of twice-daily flooding that most plant species cannot tolerate. These habitats occur only along stretches of river near enough to the coast to be influenced by the tides, but far enough upstream that river water is fresh or only slightly brackish.

Bare or sparsely vegetated substrate seems to be a habitat requirement for sensitive joint-vetch, and it typically grows on river banks within 6 feet of mean low water. The plant can also occur on accreting point bars and in sparsely vegetated microhabitats of tidal marsh interiors, such as low swales and areas of muskrat (*Ondatra zibethicus*) eat-out. The species is typically found in areas where plant diversity is high and annual species are prevalent.

VII. FIELD OBSERVATIONS

A. Methods

Site 15G and the adjacent 52-acre site were surveyed by a biologist with experience in surveying listed species in New Jersey on December 1, 2011. This qualitative survey was conducted between the hours of 7:00 AM and 11:30 AM. The survey was conducted on foot within Site 15G beginning at the northernmost corner of the site and proceeding clockwise around the perimeter of the site along the established dirt access road. Periodic observations of the marshes to the east of the site were also made from the outer levee bank. Following this perimeter survey, the interior of the site, including ditches and associated wetland areas, was surveyed first by foot and then by vehicle. The 52-acre parcel was evaluated between the hours of 11:45 AM and 12:30 PM. All observed habitats were recorded, and all wildlife sightings, including secondary signs such as nests, scat, and tracks were documented. Bird calls were also noted in instances where the calls indicated a listed species.

B. Site 15G

The interior of the site was recently mowed, with monotypic cover crop stubble remaining. The perimeter of the site, including the levee, was dominated by various tree species, including red cedar (*Juniperus virginiana*), red maple (*Acer rubrum*), the invasive tree-of-heaven (*Ailanthus altissima*), and sweet-gum trees (*Liquidambar styraciflua*). Understory vegetation included green briar (*Smilax rotundifolia*) and chokeberry (*Aronia* spp.). Interior ditches and associated wetlands were dominated by *Phragmites australis*.

Upon the commencement of the survey of Site 15G, a northern harrier (*Circus cyaneus*) was observed foraging over the mown field along the northern perimeter of the site. This species is New Jersey state endangered (breeding), which means that breeding habitat is endangered. Along the perimeter access road, the tracks of white-tailed deer (*Odocoileus virginianus*), raccoon, and small canids were observed, the latter probably being red fox (*Vulpes vulpes*) based on size. In one relatively wet portion of the access road, the tracks of a large water bird were observed – these were probably of Canada or snow geese (*Branta canadensis* or *Chen caerulescens*, respectively). A single red-tailed hawk was observed roosting on a small sapling along the interior ditches, and this hawk later flew southward offsite. In the interior of the site, a non-native ring-necked pheasant (*Phasianus colchicus*) was flushed during the vehicle portion of the survey. Grey squirrels (*Sciurus carolinensis*) were abundant in the wooded perimeter of the site. No large raptor nests were observed in any of the on-site trees. No large raptor nests were observed on Site 15G, suggesting that no raptor nesting had occurred during the 2011 breeding season. Several black ducks (*Anas rubripes*) and mallards (*Anas platyrhynchos*) were observed in the open waters of the marsh to the east of the site.

Based on field observations, Site 15G may be suitable habitat for bald-eagle foraging; however, nearby marshes and the Delaware River are probably preferable foraging habitat for this species. The adjacent marshes are also more suitable foraging habitat for great blue herons, as Site 15G offers little if any open water for this species. Given the sparse nature of the woods and the surrounding land use, it is unlikely that Site 15G

is a great blue heron nesting area, although roosting may occur along the site's perimeter. Similarly, while pie-billed grebes may make use of the marsh to the east of the site, there is no pie-billed grebe habitat on Site 15G. Bobcat may make use of the site; however, the extent to which bobcats occur in this portion of New Jersey is not known, and the site appears to provide little in the way of hunting opportunities or shelter. Shortnose sturgeon occur in the deeper waters of the Delaware River, and would not be expected in either the adjacent marshes or interior ditches. Finally, no suitable habitat for bouquet mud-plantain, sensitive joint-vetch, or bog turtle occurs on Site 15G. The freshwater marshes to the east of the site could support the two plant species based on substrate, tide, and salinity regime; however, these marshes are dominated by the invasive *Phragmites australis*, which probably out-competes most native wetland plant species.

C. 52-Acre site

The 52-acre site is predominantly wooded freshwater wetland. Much of the forest floor consists of open, shallow water and saturated wetland areas, with numerous tussocks and exposed root balls of larger trees. The most common tree species included sweet gum, red maple, sycamore (*Platanus occidentalis*), and American holly (*Ilex opaca*), all of which are common to forested wetlands. White oaks (*Quercus alba*) also occur along the perimeter of the site. Understory vegetation included cat briar and chokeberry. Herbaceous species included crow's foot (*Cardamine concatenata*) in drier areas, with various sedges (*Scirpus* spp.) and rushes (*Juncus* spp.) occurring in wetland areas.

No wildlife species were observed in this site; however, numerous deer stands suggest that white tail deer are common. Given the heavily forested nature of the site, it is unlikely that the site represents valuable foraging habitat for bald eagles, pie-billed grebes, or great blue herons, and no shortnose sturgeon would be expected in the shallow waters of the site. Bobcat may make use of the site; however, the extent to which bobcats occur in this portion of New Jersey is not known, and the site appears to provide little in the way of hunting opportunities or shelter. The tussocky forest floor may be suitable habitat for bouquet mud-plantain and bog turtle; however, a formal survey for these species during the spring and summer would be required to determine if these species occur within the 52-acre site. Sensitive joint-vetch is not likely to occur in the 52-acre site due to the heavy tree canopy.

VIII. CONCLUSIONS

Based on observations of available habitats on Site 15G and the 52-acre site, it appears that the site may be suitable foraging habitat for bald eagle; however, more desirable foraging habitat occurs within close proximity to the site. Nesting does not appear to occur on site. Northern harrier also appears to make periodic use of the site as foraging habitat, although suitable nesting habitat does not occur. Bobcat could also occur on the sites; however, the occurrence of this species in the area is not known and shelter habitat is not available on either site. Great blue herons and pie-billed grebes may make use of adjacent tidal marshes; however, they are unlikely to occur on either site. Finally, bouquet mud-plantain, sensitive-joint vetch, and bog turtles would not occur on Site 15G, although the 52-acre site may be suitable habitat for both bouquet

mud-plantain and bog turtles. A more rigorous survey for these species on the 52-acre site would be warranted during the appropriate season if any activities are planned for the 52-acre site.

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ATTACHMENT A



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Parks and Forestry

Mail Code 501-04

ONLM - Natural Heritage Program

P.O. Box 420

Trenton, NJ 08625-0420

Tel. #609-984-1339

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CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

November 15, 2011

Christina Torok
AKRF, Inc.
307 Fellowship Road, Suite 214
Mount Laurel, NJ 08054

Re: PSEG Site Evaluation

Dear Ms. Torok:

Thank you for your data request regarding rare species information for the above referenced project site in Oldmans Township and Logan Township, Salem and Gloucester County.

Searches of the Natural Heritage Database and the Landscape Project (Version 3 in the highlands region, Version 2.1 elsewhere) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the topographic map(s) submitted with the Request for Data into our Geographic Information System. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Natural Heritage Database and the Landscape Project habitat mapping for occurrences of any rare wildlife species or wildlife habitat on the referenced site. Please see Table 1 for species list and conservation status.

Table 1 (on referenced site).

Common Name	Scientific Name	Federal Status	State Status	Grank	Srank
bald eagle foraging	<i>Haliaeetus leucocephalus</i>		E	G4	S1B,S1N
great blue heron	<i>Ardea herodias</i>		SC/S	G5	S3B,S4N

We have also checked the Natural Heritage Database and the Landscape Project habitat mapping for occurrences of any rare wildlife species or wildlife habitat within one mile of the referenced site. Please see Table 2 for species list and conservation status. This table excludes any species listed in Table 1.

Table 2 (additional species within one mile of referenced site).

Common Name	Scientific Name	Federal Status	State Status	Grank	Srank
bald eagle	<i>Haliaeetus leucocephalus</i>		E	G4	S1B,S1N
bobcat	<i>Lynx rufus</i>		E	G5	S1
pieb-billed grebe	<i>Podilymbus podiceps</i>		E/SC	G5	S1B,S3N
shortnose sturgeon	<i>Acipenser brevirostrum</i>	LE	E	G3	S1

For requests submitted as part of a Flood Hazard Area Control Act (FHACA) rule application, we report records for all rare plant species and ecological communities tracked by the Natural Heritage Program that may be on your project site. (In some borderline cases these records may be described as on or in the immediate vicinity of your project site.) A subset of these plant species are also covered by the FHACA rules when the records are located within one mile of the project site. One mile searches will only report occurrences for those plant species identified under the FHACA regulations as being critically dependent on the watercourse.

We have checked the Natural Heritage Database for occurrences of rare plant species or ecological communities. The Natural Heritage Database has a record for an occurrence of *Heteranthera multiflora* that may be on or in the immediate vicinity of the site. The attached list provides more information about this occurrence.

A list of rare plant species and ecological communities that have been documented from Salem and Gloucester County can be downloaded from <http://www.state.nj.us/dep/parksandforests/natural/heritage/countylist.html>. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes_2008.pdf.

If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive I-Map-NJ website at the following URL, <http://www.state.nj.us/dep/gis/depsplash.htm> or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292 9400.

PLEASE SEE 'CAUTIONS AND RESTRICTIONS ON NHP DATA', which can be downloaded from <http://www.state.nj.us/dep/parksandforests/natural/heritage/newcaution2008.pdf>.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Cartica", with a horizontal line extending to the right.

Robert J. Cartica
Administrator

c: NHP File No. 11-3907574-0303

November 15, 2011

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**On or in Immediate Vicinity of Project Site
Based on Search of Natural Heritage Database
Rare Plant Species and Ecological Communities Currently Recorded in
the New Jersey Natural Heritage Database**

Scientific Name	Common Name	Federal Status	State Status	Regional Status	G Rank	S Rank	Last Obs	Ident	Location
Vascular Plant <i>Heteranthera multiflora</i>	Bouquet Mud-plantain			HL	G4	S3	1934-11-07	Y	Two miles northwest of Pedricktown.

1 Records Selected