United States Department of the Interior

FISH AND WILDLIFE SERVICE
1875 Century Boulevard
Atlanta, Georgia 30345

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In Reply Refer To:
FWS/R4/DH NRDAR

JAN 31 2014

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Memorandum

To: Field Supervisor, Louisiana Ecological Services Office

From: Deputy Deepwater Horizon, Department of the Interior Natural Resource Damage Assessment and Restoration (NRDAR), Case Manager Deborah L McCl.

Subject: Informal Consultation Request for the Proposed Louisiana Marine Fisheries Enhancement Research & Science Center (LA MFERSC)

As you are no doubt aware, on or about April 20, 2010, the mobile offshore drilling unit *Deepwater Horizon* experienced an explosion, leading to a fire and its subsequent sinking in the Gulf of Mexico (the Gulf). These events resulted in the discharge of millions of barrels of oil into the Gulf over a period of 87 days. In addition, various response actions were undertaken in an attempt to minimize impacts from spilled oil. These events are hereafter collectively referred to as the Oil Spill.

The Department of the Interior (DOI), acting through the U.S. Fish and Wildlife Service (the Service) and other Bureaus, is a designated natural resource trustee agency authorized by the Oil Pollution Act of 1990 (OPA) and other applicable federal laws to assess and assert a natural resource damages claim for this Oil Spill. DOI is only one of several Trustees, including agencies of the state of Louisiana, so authorized. Consistent with their federal and state authorities, the Trustees are investigating the resource injuries and losses that occurred as a result of the Oil Spill and have initiated restoration planning to identify the actions that will be needed or appropriate to restore injured resources and to make the public whole for the injuries and losses that occurred. This process is known as a Natural Resource Damage Assessment (NRDA).

On April 20, 2011, DOI, the National Oceanic and Atmospheric Administration and the Trustees for the five Gulf states affected by the Oil Spill entered into an agreement with BP, a responsible party for the Oil Spill, under which BP agreed to provide $1 billion for early restoration projects in the Gulf to address injuries to natural resources caused by the Oil Spill. The subject project is being evaluated by the Trustees as a potential early restoration project. The early restoration project has been proposed in a draft early restoration plan that was released for public comment and review on December 6, 2013. If the Trustees select the project after consideration of public comment and a stipulated agreement is reached with BP, the early restoration project will be implemented by the state of Louisiana. DOI, acting through the Service, will be a co-Trustee for the project, if it is selected and implemented. The above facts lead us to the conclusion that consultation and conference under Section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C.

1531 *et seq.*), is required for the proposed project and we wish to engage in such consultation. Accordingly, we have reviewed the proposed LA MFERSC, for potential impacts to listed, candidate, and proposed species and designated and proposed critical habitats in accordance with Section 7 of the ESA. We determined the proposed project may affect, but is not likely to adversely affect, piping plover and red knot (if listed) and have provided our analysis in the attached Biological Evaluation. We have also reviewed the proposed project for impacts to bald eagles and migratory birds in accordance with the Bald and Golden Eagle Protection Act (BGEPA) of 1940 (16 U.S.C. 668-668c) and the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703–712), respectively. Consultation will be initiated with National Marine Fisheries Service, if necessary, for species where ESA regulatory authority is shared and in regards to Marine Mammal Protection Act (MMPA) of 1972, as amended (16 U.S.C. 1461 *et seq.*).

We request your review of and concurrence with the attached intra-Service Section 7 Biological Evaluation form describing the proposed project, potential effects, conservation measures and justifications for our determinations. If you have questions or concerns regarding this request for consultation, please contact Holly Herod, Fish and Wildlife Biologist, at 404-679-7089 or holly_herod@fws.gov.

Attachment

SOUTHEAST REGION
INTRA-SERVICE SECTION 7
BIOLOGICAL EVALUATION FORM

Originating Person: Holly Herod; prepared by representatives from the State of Louisiana Natural Resource Trustees
Telephone Number: Holly Herod 404-679-7089; Charles Armbruster 225-925-6066
E-Mail: holly_herod@fws.gov; CArmbruster@losco.state.la.us
Date: January 13, 2014

PROJECT NAME (Grant Title/Number): Louisiana Marine Fisheries Enhancement Research & Science Center (LA MFERSC)

I. Service Program:

_X_ NRDAR
___ Ecological Services
___ Federal Aid
___ Clean Vessel Act
___ Coastal Wetlands
___ Endangered Species Section 6
___ Partners for Fish and Wildlife
___ Sport Fish Restoration
___ Wildlife Restoration
___ Fisheries
___ Migratory Birds
___ Refuges/Wildlife

II. State/Agency: Louisiana Department of Wildlife and Fisheries (LDWF)

III. Station Name: DOI Deepwater Horizon Case Management Team, USFWS Southeast Regional Office, Atlanta, Georgia 30345

IV. Location (attach map): See figures in text.

A. Ecoregion Number and Name: Southeast Region

Calcasieu Parish Facility

The proposed Calcasieu Parish facility is located in the Northern Humid Gulf Coast Prairies of the Western Gulf Coast Plains, Ecoregion 34a. Quaternary-age deltaic sands, silts, clays, and gravel underlie much of the Northern Humid Gulf Coastal Prairies on this gently sloping coastal plain. The original vegetation was mostly tall grass grasslands with gallery forests along streams. Little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), yellow Indiangrass (*Sorghastrum nutans*), brownseed paspalum (*Paspalum plicatulum*), and switchgrass (*Panicum virgatum*) were dominant grasses, in a mixture with numerous other herbaceous species across these prairies. Almost all of the coastal prairies

have been converted to cropland, pasture, crawfish aquaculture, or urban land uses. Some loblolly pines (*Pinus taeda*), and historically "islands" of longleaf pine (*Pinus palustris*), occur in the northern part of the region in the transition to Ecoregion 35. Soils in the Louisiana portion of the Northern Humid Gulf Coast Prairies are mostly poorly or somewhat poorly drained Alfisols with silt loam or silty clay loam texture, while some Vertisols and Mollisols also occur. Mima mounds of loamy sand were prevalent across the prairie terrace, providing micro-habitat variation (Daigle et al, 2006).

Plaquemines Parish Facility

The proposed Plaquemines Parish facility is located in the Deltaic Coastal Marshes and Barrier Islands of the Mississippi Alluvial Plain, Ecoregion 73o. Brackish and saline marshes dominate the Deltaic Coastal Marshes and Barrier Islands ecoregion. The region supports vegetation tolerant of brackish or saline water including saltmarsh cordgrass (*Spartina alterniflora*), marshhay cordgrass (*Spartina patens*), black needlerush (*Juncus roemerianus*), and coastal saltgrass (*Distichlis spicata*). Black mangrove (*Avicennia germinans*) occurs in a few areas, and some live oak (*Quercus virginiana*) is found on Grand Isle and along old natural levees. Extensive organic deposits lie mainly below sea level in permanently flooded settings resulting in the development of mucky surfaced Histosols. Sediments of silts, clays, and peats contain large amounts of methane, oil, and hydrogen sulfide gas. Inorganic sediments found within the ecoregion are soft and have high water contents. They will shrink dramatically upon draining. The wetlands and marshes act as a buffer to help moderate flooding and tidal inundation during storm events. Lack of sediment input, delta erosion, land subsidence, and rising sea levels threaten the region (Daigle et al, 2006).

B. County and State:

Calcasieu Parish Facility

The proposed Calcasieu Parish facility is located in Calcasieu Parish in the State of Louisiana.

Plaquemines Parish Facility

The proposed Plaquemines Parish facility is located in Plaquemines Parish in the State of Louisiana.

C. Section, township, and range (or latitude and longitude):

Calcasieu Parish Facility

This proposed facility is located in Sections 16 and 21, T11S, R9W. The latitude/longitude of the tract is 30.097313° N, 93.288029°W (NAD83). (Fig. 1)

Plaquemines Parish Facility

The proposed facility is located in Section 14, Transect 17S, Range 26E. The latitude/longitude of this proposed facility is 29.579955°N, 89.820681°W (NAD83). (Fig. 4)

D. Distance (miles) and direction to nearest town:

Calcasieu Parish Facility

The Calcasieu Parish facility is located approximately 11 miles southwest of Lake Charles, Louisiana.

Plaquemines Parish Facility

The Plaquemines Parish facility is located approximately 2 miles northwest of West Pointe à la Hache, Louisiana.

V. Description of Proposed Action and Habitats in the Project Area (attach additional pages as needed):

The Center would include development of two sites in Louisiana – one in Calcasieu Parish, the primary location for the Center, and one in Plaquemines Parish, a satellite facility – that would support the State of Louisiana's ongoing management of its saltwater sport fishery. The proposed facilities would support research, hatchery production of sport fish and baitfish, and public education and outreach. The proposed project would provide state-of-the art facilities for collaboration with stakeholders and for rearing fish for research projects.

Calcasieu Parish Facility

The proposed Calcasieu Parish facility site is located on a 320.5-acre privately-owned tract of land north northeast of Lake Calcasieu and south of Lake Charles, near the Calcasieu River. The proposed facility site would occupy a small portion of the full tract (Figure 1). LDWF would negotiate an appropriate long-term land use arrangement with the landowner as part of the final project design and permitting process. The tract is transected from north to south by Big Lake Road and from west to east by Joe Ledoux Road. An unnamed tributary to the Calcasieu River and the Gulf Intracoastal Waterway (GIWW) crosses the northern end of the tract from west to east.

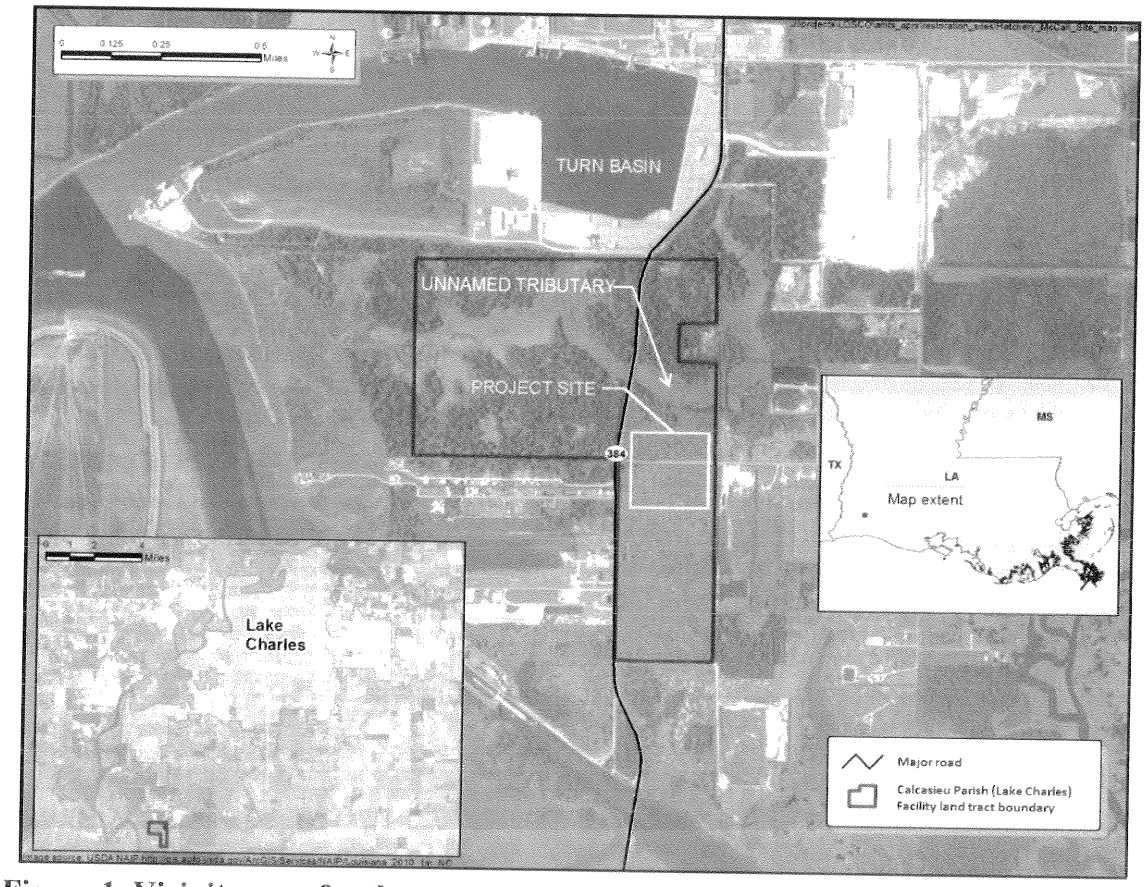

Figure 1. Vicinity map for the proposed Calcasieu Parish facility. The area labeled as "project site" encompasses where the buildings and ponds are expected to be situated.

The primary function of the proposed Calcasieu Parish Facility would be for research on, production of, and education about marine sport fish species including spotted seatrout (*Cynoscion nebulosus*), red drum (*Sciaenops ocellatus*), and southern flounder (*Paralichthys lethostigma*). The proposed facility would require construction of a multi-purpose building and pond complex to be used for marine fisheries research and production as well as public education and outreach (Figure 2). The building would house multiple components including a visitor center, support space for staff and collaborating researchers, and a hatchery complex. The indoor hatchery components would employ the use of modern recirculating aquaculture systems technology to provide the required controlled systems needed for year round production capability. The pond complex would consist of a lined saltwater storage reservoir, three lined multi-purpose rearing ponds, and two lined effluent treatment ponds, as well as a youth fishing pond to the west of the multi-purpose building. To support these systems, the facility would require construction of a water supply system, including: 1) an intake and pump station that would pump water from the Turn Basin (Figure 1), an offshoot of the Calcasieu shipping canal; 2) buried pipelines for water intake and effluent; and 3) an outfall structure for release of treated effluent, currently proposed for the unnamed tributary (Figure 1).

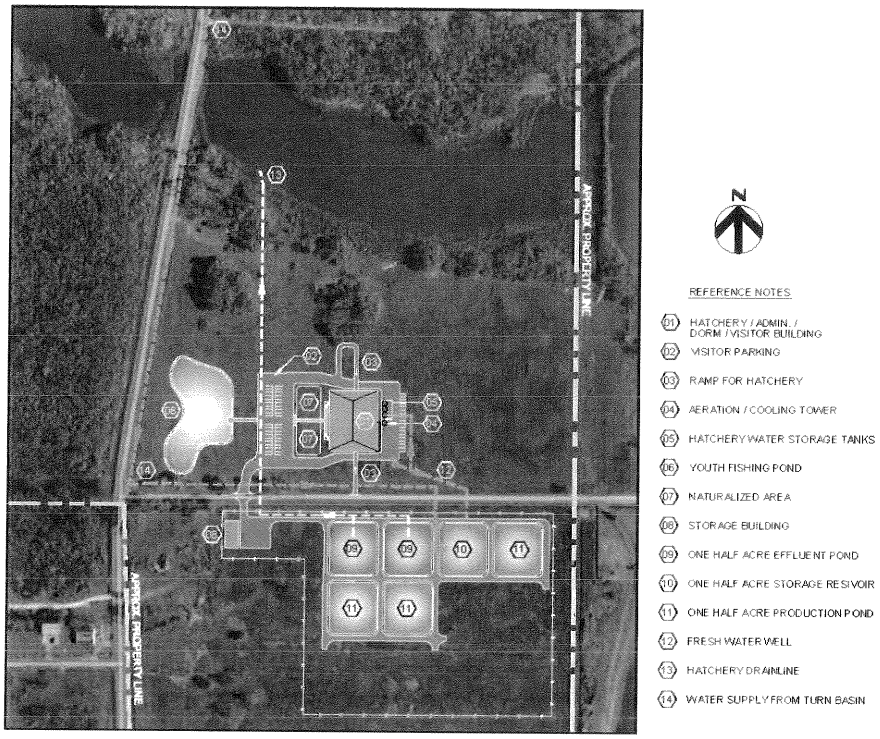

Figure 2. Proposed site plan for the Calcasieu Parish facility

As currently proposed, the multi-purpose building would contain a hatchery, visitor center, dormitory, administrative and staff offices, meeting rooms, crew support areas, two laboratories, covered access corridor, maintenance shop, and equipment storage rooms (Figure 3). The building is envisaged to be approximately 26,347 ft^2 and to include covered porches and six exterior stair systems for ingress and egress. The hatchery portion of the building would be located immediately adjacent to the administrative and staff offices and crew support areas. Access to the hatchery production area would be accommodated by a 12-foot wide internal drive aisle with entry and exit ramps used to facilitate vehicle transport of fish and equipment to the elevated building. The visitor center is proposed as a 2,430 ft^2 dedicated space for public education on marine fisheries and restoration programs. This area would likely include a reception area, educational exhibits, display aquaria, marine animal touch-tank, and visitor restrooms. The building would be designed as a concrete, pier-supported structure located above base flood elevation as required by the Federal Emergency Management Agency (FEMA) and engineered to meet hurricane wind design standards. The building would be equipped with emergency systems to help protect staff and continue operations during severe weather events.

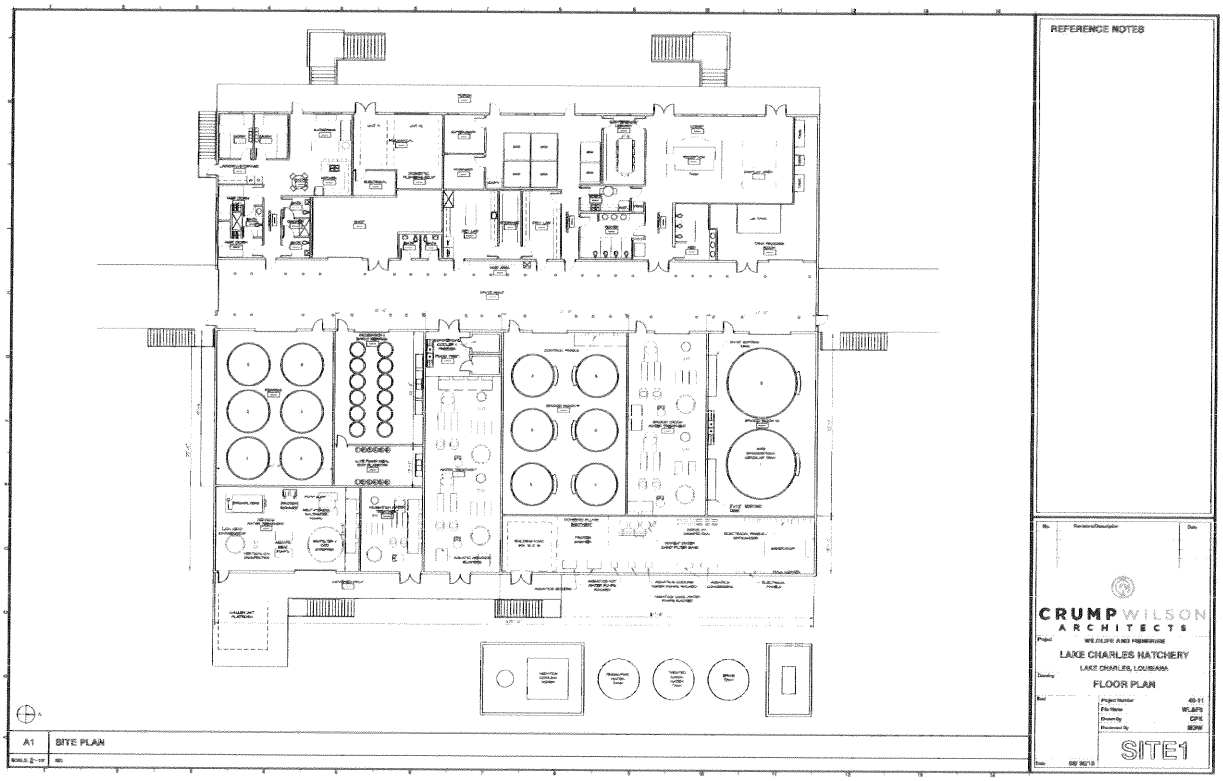

Figure 3. Proposed floor plan for Calcasieu Parish multi-purpose building.

The proposed facility would also include a pond complex (Figure 2). Each pond, except the visitor fishing pond, would cover approximately 0.5-acre. The ponds would be constructed using compacted earthen dikes and synthetic pond liners to control seepage and improve pond fish rearing operations. Ponds would be equipped with concrete outlet structures and fish harvest basins (kettles), and would employ plastic piping for supply and drainage. An approximately 1-acre visitor fishing pond is also proposed.

Grading and Ground Disturbance

The proposed facility, including the buildings, pond complex, and youth fishing pond, would be built on approximately 12 acres east of Big Lake Road. The excavation or placement of structures within or on soils would require a geotechnical evaluation to determine design and construction methodology. At a minimum, this evaluation would apply to ponds, buildings, pipelines, intake structures, and access roads. Further details are provided below.

Buildings:

Multi-Purpose Building: Construction of the multi-purpose building (and associated parking areas) would impact approximately 4 acres and include clearing and grading of undeveloped land. The landscaping of the Multi-Purpose Building is an uncertain construction detail at this time. Landscaping will likely include native plants or other non-invasive horticultural species.

Storage Building: A pre-engineered storage building (3,200 ft^2) would be located near the production ponds. Construction of the building would require clearing and grading of undeveloped land.

Emergency Backups: In the event of a storm, the facility would have a backup generator(s) with the capacity to run the administrative area and hatchery until normal utilities could be restored. The emergency generator(s) would be sized to handle the entire energy load for the site and are anticipated to be powered from natural gas, accessing a nearby natural gas main line. Automatic transfer switches would be installed at the hatchery building to automatically transfer the load to the generator in the event of power outage. Liquid oxygen systems would also be used to oxygenate fish systems in the event of power outages.

Ponds:

Fish Production Ponds: Construction disturbances for the rearing ponds would include clearing and grading of undeveloped land for pond complex construction. There would be a total of three fish production ponds, each approximately 0.5-acre in size. The pond depths would slope from 3 to 6 feet deep. The ponds would be constructed using compacted earthen dikes and an impermeable membrane such as an EPDM rubber pond liner for seepage control and improved pond fish rearing performance. Excavation of 2 to 4 feet of soil would be anticipated pending results of the geotechnical evaluation. The ponds would require an under-drain system to discharge groundwater and gases away from the bottom of the ponds. Fill material for construction would be obtained from existing borrow areas, either on site or immediately adjacent to the site. Water supply would be provided for each pond, which would require excavation, trenching and backfilling to install pipelines. The pond water supply system would include a fully-looped piping system to provide deep end and shallow end water delivery. Isolation valves and system drains would also be provided within the water supply piping system for ease of maintenance. Each pond would be equipped with a concrete interior "U-shaped" fish harvest kettle, concrete outlet structure, and a concrete kettle access stairway. The pond drainage would also require pipeline excavation, trenching and backfilling.

Youth Fishing Pond: The youth fishing pond would require excavation of approximately one acre and the installation of compacted levees. The stock species, water supply, and design concepts for this pond would be developed following preliminary design.

Water Supply System:

Intake and Pump Station: As proposed, the building and ponds at the Calcasieu Parish facility would receive water from the Turn Basin, approximately 0.5 mile north of the site (Figure 1). The Turn Basin is an offshoot of the Calcasieu shipping canal located outside of the coastal zone. Water would flow by gravity from the Turn Basin through an intake screen into a concrete sump adjacent to the Turn Basin. Pumps within the sump would provide canal water to the building and ponds. The pump station would include a multiple submersible or line shaft turbine pump system using variable frequency drive controlled motors. The proposed pump station capacity

would be designed to accommodate pond filling and pond operation and to service the requirements of the building. Total water flow requirements would be anticipated to vary throughout the year based on seasonal production. The estimated flow rate would range between 500 and 1,000 gallons per minute (gpm). All buried pipe would be installed using an open trench method.

Well: Two new wells would be drilled to accommodate fish production and facility needs. A 300 gpm well would be drilled (depth unknown at this time) to serve as a production well. The well water would be used to adjust salinity of culture water, to treat marine fish parasites, and for general facility operations. In addition, a domestic well would be drilled to meet potable water needs for the facility (depth and flow-rate unknown at this time). Regional groundwater yields reflecting State and Parish well records would be used to develop these wells. Actual depths would be determined based upon well driller data and associated testing.

Pipeline: The water supply pipeline would be a buried, 10-inch pipeline that would extend between the pump station and the building, the saltwater supply pond, and the production ponds. The ponds and building would also receive water from the new production process well located on the facility grounds. All buried pipe would be installed using an open trench method.

Saltwater Reservoir Pond: This 0.5–acre pond would be used for water storage, solar warming, and rapid pond filling. The reservoir would be lined with an impervious membrane for erosion control, seepage containment, and water quality maintenance. The pond would also function as a backup water supply when pumping station is non-operational (pump service, power outage).

Water Storage Tanks: Three insulated fiberglass tanks would be located adjacent to the visitor/hatchery building to store water for use in the re-circulating aquaculture systems and water supply systems. The three 15,000 gallon tanks would hold: 1) fresh water (available also for fire safety), 2) treated Turn Basin water, and 3) manufactured brine water for salinity adjustments.

Effluent System:

Effluent Ponds: Two ponds would be constructed for treatment of fish-production effluent from the building and rearing ponds. These ponds would be approximately 0.5-acres and would be constructed using the same methods used for the production ponds. These ponds would incorporate drainage structures that are used to dry the ponds for sediment removal. The two ponds would alternate in usage to facilitate sediment removal. To remove excess nutrients from discharge water, the final design process will determine the appropriateness of using multi-trophic integrated aquaculture in conjunction with the effluent ponds, or potentially with adjacent constructed wetlands. It should be noted that domestic sewage would be disposed of in a sanitary sewer system, if available, or in an approved septic system to be designed onsite.

Discharge Pipeline: Discharge from the effluent ponds would flow via buried 24-inch pipe to an unnamed tributary of the GIWW approximately 1,000 feet to the north. All buried pipe would be installed using an open trench method.

General Sitework:

Site Drainage: Existing site drainage would be evaluated to determine capacity during storm events. Additional drainage and grading would be required where construction activities occur. Existing culverts and ditches would be upsized to accommodate the site as needed. All drainage from impervious areas would be treated as appropriate. Site-specific drainage calculations would be evaluated during the design process to accommodate local and state standards.

Roads and Parking: Road construction would involve an additional 130 feet of paved two-lane road and 130 feet of additional paved single-lane road. Pedestrian sidewalks around the building and parking lot would be constructed, as appropriate. The pond complex would include construction of an additional 150 feet of paved two-lane road and about 3,300 feet of 12-foot wide aggregate road around the pond perimeters.

Mobilization, Staging and Stockpiling

Temporary staging areas for materials, supplies, equipment, and a contractor office trailer would be located within the proposed site boundary. Base aggregate, asphalt, concrete, pipe, building components, earthen pond fill material, liners, and all building equipment would be delivered to the site. Construction access to the facility would be from Joe Ledoux Road. Construction crews would include a general contractor and subcontractors for earthwork, building construction (plumbing, HVAC, electrical), pond lining, and other specialty trades. Estimated crew sizes would range between 10 and more than 50 persons depending on the type of work and the stage of project construction.

Plaquemines Parish Facility

A satellite facility would be located in Plaquemines Parish, northwest of West Pointe à la Hache (Figure 4). The site was formerly a Louisiana State University Agricultural Center Coastal Area Research Station (LSU AgCenter) used for research on citrus and coastal plant propagation (Figure 4). The property is bordered to the east by the Mississippi River, to the north by private property, to the west by Belle Chasse Highway (LA 23), and to the south by private property. Plaquemines Parish currently owns the property. The latitude/longitude is 29.579955°N, -89.820681°W (NAD83).

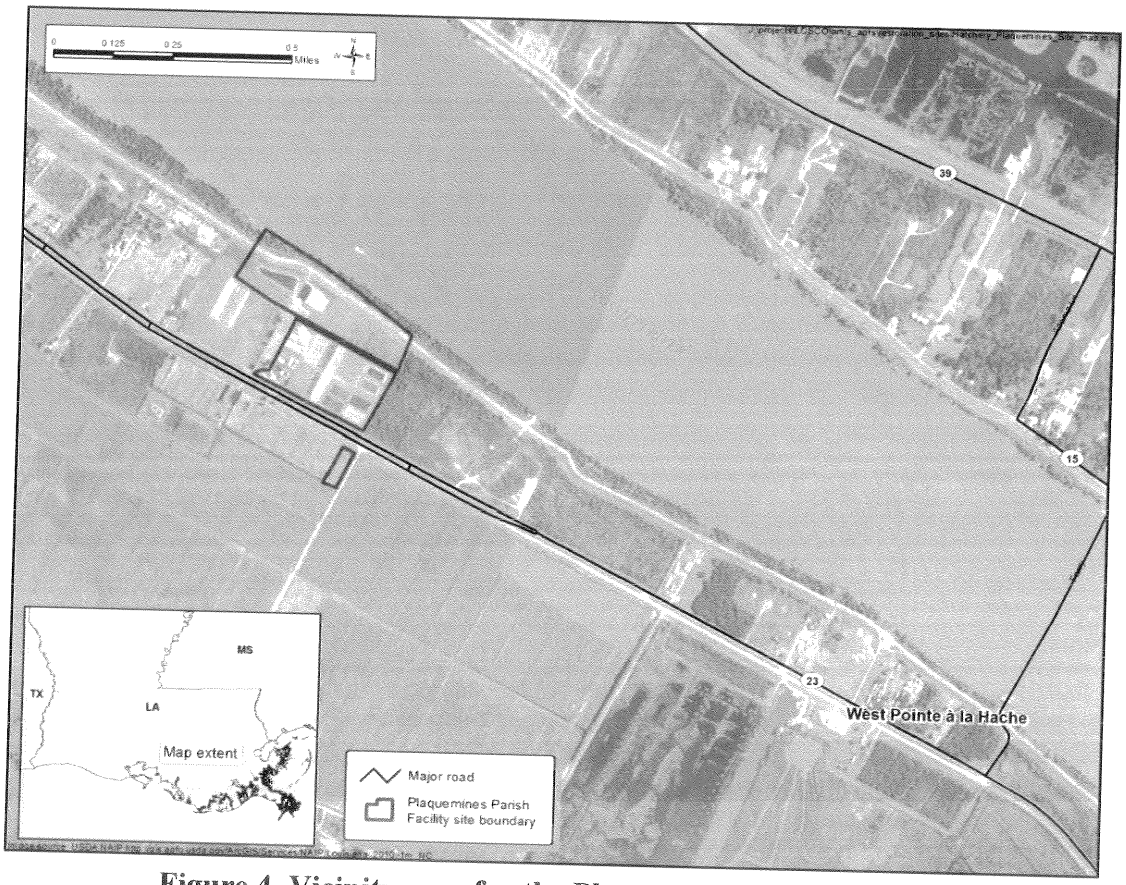

Figure 4. Vicinity map for the Plaquemines Parish facility

The primary function of the facility would be for marine baitfish research. The species of fish proposed are the Gulf killifish (*Fundulus grandis*) and the Atlantic croaker (*Micropogonias undulatus*). The Plaquemines Parish facility site was severely damaged by Hurricane Isaac in 2012 and the majority of the existing pumps, water lines, buildings, greenhouses and storage facilities were damaged. At this facility, construction would include rehabilitation of existing ponds, pumping stations, water lines, and access roads, and the addition of a new elevated building (Figure 5).

As currently proposed, the constructed building would house a staff office, crew support and baitfish culture area with small-scale recirculating aquaculture systems to support research and demonstration of technology for marine baitfish husbandry. Existing onsite facilities that were previously used for plant propagation would be renovated or reconditioned, including a Mississippi River water intake structure and pumping station, infrastructure components (e.g., water pipelines, access roads), and ponds for research, effluent treatment, and water storage.

Project activities are proposed to occur in a "fastland" area[1] that is protected by levees. This location lies within the Louisiana Coastal Zone and is mapped within the 100-year floodplain. The site has been impacted by development, land modification, and recent hurricanes and has been primarily used for industrial, agricultural, and residential purposes. Currently, the site is used by Plaquemines Parish as a receiving location for processing piles of earthen material that will be distributed and graded across the site after it is dried. The existing ponds will not be affected by this work.

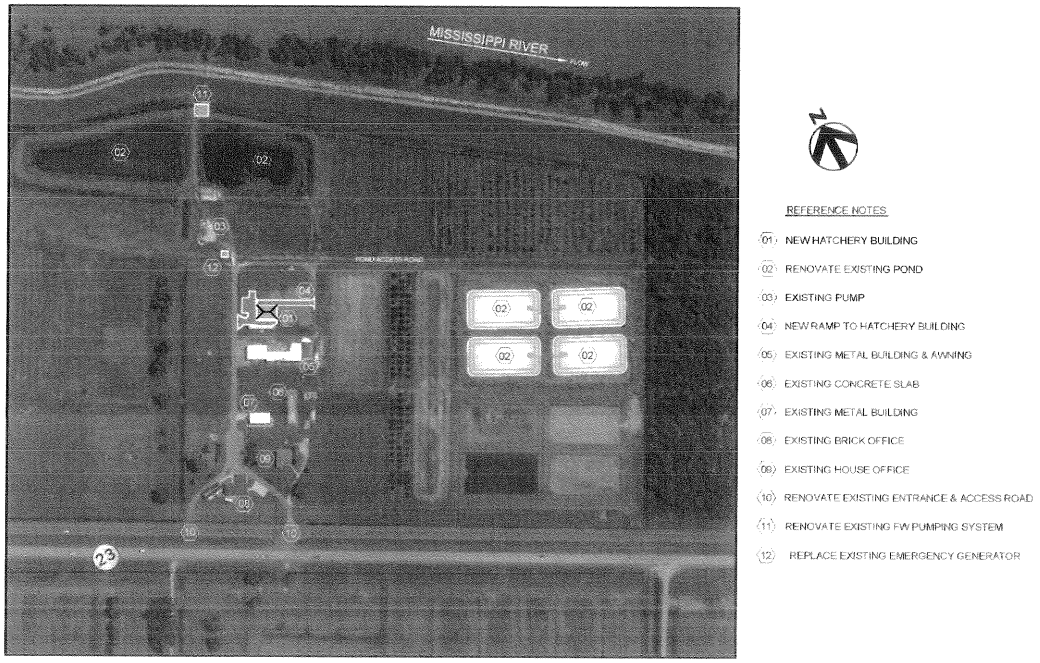

Figure 5. Site plan for the Plaquemines Parish facility

The proposed building would be a concrete, pier-supported structure located above the base flood elevation as required by the Federal Emergency Management Agency (FEMA), and designed to meet hurricane wind design standards (Figure 6). The building dimensions, as currently proposed, would be approximately 60 ft by 40 ft (2,400 ft^2) and of similar construction to the proposed Calcasieu Parish facility building described above. It would contain a staff office, crew support area, and a baitfish culture area. The building would be elevated approximately 12 feet above ground level with an access ramp for vehicles. The administrative portion of the new structure would consist of offices, a conference room, and crew support areas. Production areas would include space for tank systems, water processing, and storage and preparation.

1 According to the Louisiana Office of Coastal Management, "fastlands" are lands surrounded by publicly-owned, maintained, or otherwise validly existing levees or natural formations as of Jan. 1, 1979, or as may be lawfully constructed in the future, which prevent activities, not to include the pumping of water for drainage purposes, within the surrounded area from having direct and significant impacts on coastal waters." (http://dnr.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=420, Accessed Aug. 28, 2013).

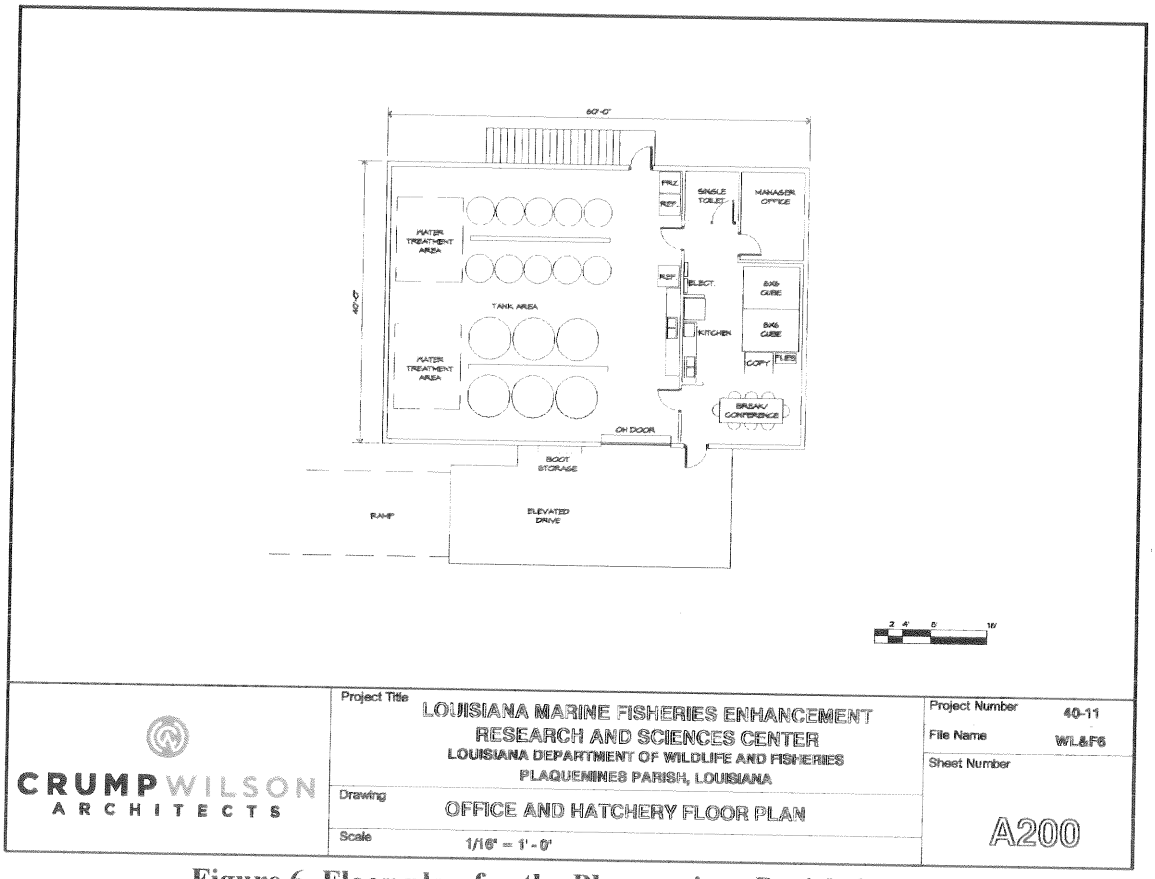

Figure 6. Floor plan for the Plaquemines Parish facility

Grading and Ground Disturbance

All proposed construction would be completed in areas previously affected by construction and operation of the LSU AgCenter. The suitability of the imported earthen material observed on-site as a base for construction would be assessed during the geotechnical investigation; removal or re-grading of this material would be carried out as necessary. Work would include renovation of existing infrastructure, as well as construction of new infrastructure. The following table summarizes the work anticipated at the site:

Existing – No Renovation	Existing – Renovation Required	New Construction
House Office	Ponds	Multi-Purpose Building
Metal Building with Awning	Freshwater Pump and Water Lines	Emergency Generator(s)
Concrete Slab	Site Utilities	Parking
Metal Building	Entrance & Access Roads	
Brick Office		

Multi-Purpose Building: The proposed building would be built on previously disturbed land within the tract described above. Construction of the building and parking lots would impact approximately 2 acres and would include re-grading of previously developed land.

Emergency Generator(s): The facility would have backup generator(s) with the capacity to run the administrative area and hatchery in the event of a storm, until normal utilities could be restored. Generators would be sized to handle the entire energy load for the site and are anticipated to be powered from natural gas, accessing a nearby natural gas main line. Automatic transfer switches would be installed at the hatchery building to automatically transfer the load to the generators in the event of power outage.

Parking: Site construction would include rehabilitation of existing roads to access the ponds. New or renovated parking would be added near the hatchery building and at the facility entrance.

Pond Renovation: Pond construction would include rehabilitation of the previous coastal plant propagation ponds and would include re-grading, compaction and installation of water supply and water control structures. Renovated ponds would be used for water storage, effluent treatment, and research on integrated multi-trophic aquaculture for freshwater and low-salinity production of baitfish and coastal plants.

Pump and Water Line Renovation: Site construction would include restoration of the existing Mississippi River water pumping system and related piping systems to support the proposed baitfish program. The existing pump system draws water from an existing intake structure in the Mississippi River and discharges into holding ponds; water is then pumped from the holding ponds to the rest of the site.

Site Utility Renovation: Construction at the facility would also require rehabilitation of existing utility systems for electrical, communications, and domestic water and wastewater treatment and connections to public utility providers.

Mobilization, Staging and Stockpiling

Temporary staging areas for material, supplies, equipment, and a contractor office trailer would be located within the proposed facility. Base aggregate, concrete, pipe, building components, and

all building equipment would be delivered to the site. Construction access to the facility would be from Highway 23 (LA 23). Construction crews would include a general contractor and subcontractors for earthwork, building construction (plumbing, HVAC, electrical), and other specialty trades. Estimated crew sizes would range from 5 to 20 persons depending on the type of work and the stage of project construction.

Both Facilities

Construction Schedule

The estimated time for final design, any final permitting, and contractor selection needs is 18 months after procurement of funding. Construction duration (which includes construction and start-up) is estimated to be an additional 16 to 24 months for the Calcasieu Parish site and 14 to 18 months for the Plaquemines Parish site. Work is anticipated to be conducted between 7 a.m. and 4 p.m., Monday through Friday.

Ground-clearing construction activities, including tree and shrub removal, would be conducted outside of the avian nesting season, March 15 to September 15, to the extent practicable, to avoid direct impacts to nesting birds, in accordance with the Migratory Bird Treaty Act. If the project schedule should require ground-clearing activities during this time, pre-construction nest surveys of areas to be cleared would be conducted by a qualified biologist. Active nests would be avoided until nest fate is determined by a qualified biologist.

Operations and Maintenance

Calcasieu Parish Facility

Marine fish production would include broodstock collection and maintenance, live food production, egg incubation and larval rearing, and both pond and indoor rearing systems. Wild captured red drum, spotted seatrout and southern flounder broodfish would be collected from Louisiana waters and quarantined to monitor fish health before use in the indoor controlled spawning systems. Broodstock would be induced to spawn with temperature and photoperiod manipulation using established protocols and technology. Fertilized eggs would be collected for hatching and resultant larval fish would be either be fed live foods in larval-rearing systems, or stocked in outdoor systems which provide a natural source of zooplankton for forage. Juvenile fish would be reared in a combination of tank and/or pond systems utilizing natural and artificial diets. Hatchery-produced fish would be tagged and/or marked prior to release to help inform fishery managers about the recruitment, survival, and population health of important recreational fish species and support management decisions.

Water from the source water supply systems would be micro-screened, UV disinfected, and sand filtered before use in the hatchery. Water salinity in the culture systems would be adjusted using artificial seawater brine systems. The hatchery would employ re-circulating aquaculture systems technology to reduce source water volume requirements and significantly reduce operating costs associated with large volume heating and chilling of water. The indoor hatchery systems would

be expected to operate using 95–99 percent re-circulation with water treatment. This technology would include operation of self-cleaning, biosecure, and environmentally-managed circular tanks that provide controlled indoor rearing systems to spawn and rear the targeted species. These circular tank systems would provide the capability to rear advanced larger size fish (referred to as "Phase 2" or "Phase 3") to meet precise size and timing requirements needed by LDWF research programs.

Ponds would be stocked and operated to facilitate multiple pond-rearing cycles per year. Fish production would be completed using established best management practices for marine fish production, and fish quality would be monitored and assessed using American Fisheries Society Bluebook Fish Health procedures.

Effluent water from the building and ponds requiring solids reduction would be treated in two lined, 0.5-acre settling ponds and then discharged to an unnamed tributary of the GIWW and the Calcasieu River. Treatment would be designed to meet applicable Louisiana Pollutant Discharge Elimination System (LPDES) discharge standards.

Plaquemines Parish Facility

The Plaquemines Parish facility would pump freshwater from the Mississippi River to holding ponds, from which water would be supplied for building and pond operations. Desired salinity levels would be achieved using synthetic sea salts mixtures. Flow would be variable, up to 1,000 gpm, and dependent upon seasonal production needs.

The facility operation would include the use of indoor, small-scale, bio-secure and environmentally controlled culture systems, using re-circulating aquaculture systems technology. The re-circulating aquaculture systems would be used to support research and demonstration of techniques to produce Gulf killifish and Atlantic croaker, which are important live baitfish for recreational sport fishing. The rehabilitation of existing ponds would be used for a combination of effluent treatment and research projects on integrated multi-trophic aquaculture for freshwater and low-salinity production of baitfish and coastal plants.

Habitats in the project areas are discussed in Section VI, Description of the Project Area, below.

VI. Description of the Project Area (attach additional pages as needed):

Calcasieu Parish Facility

The Calcasieu Parish facility project area (Figure 1) is located within the northern portion of the Western Gulf Coastal Plain ecoregion which is typically characterized by relatively flat coastal plain and grassland habitats. Inland from this region, the plains are older and mostly forest or savanna-type habitats. The vegetation in the vicinity of the project area transitions from tidal brackish marsh to a narrow-band of live oak riparian habitat and coastal prairie to the south.

The project site's history of cattle grazing, altered hydrology, fire suppression, and lack of brush management has resulted in the invasion of the coastal prairie by groundsel tree (*Baccharis halimifolia*) and Chinese tallow (*Triadica sebifera*), which have altered the natural vegetative

community. The upland areas found within the project area are dominated by goundsel tree, Chinese tallow, southern bayberry (*Myrica cerifera*), goldenrod (*Solidago* spp.), and bermudagrass (*Cynodon dactylon*).

Wetlands found within the project site primarily consist of a matrix of non-tidal depressional wetlands located north and south of Joe Ledoux Rd. A 2013 field delineation of the study area (approximately 87.67 acres within a 320.5 acre land tract) conducted by HDR Engineering, Inc. (HDR) identified a total of approximately 6.96 acres of wetlands. The non-tidal areas north of Joe Ledoux Road had a lower percentage of depressional wetlands than the southern side due in part to drainage towards the lower tidal areas. Vegetation observed in wetland depressions include cattail (*Typha spp.*), sand spikerush (*Eleocharis montevidensis*), roundhead rush (*Juncus validus*), buttonweed (*Diodia virginiana*), smartweed (*Polygonum hydropiperoides*), and creeping primrose-willow (*Ludwigia repens*). Due to previous grazing and alterations on the site, the encroachment and dominance by invasive shrub species has reduced the diversity of the wetland vegetation community, thus resulting in a diminished functional quality of the wetland depression matrix. Two ponds, totaling 0.24 acres, were also identified on the north and south sides of Joe Ledoux Rd. (Figure 7)

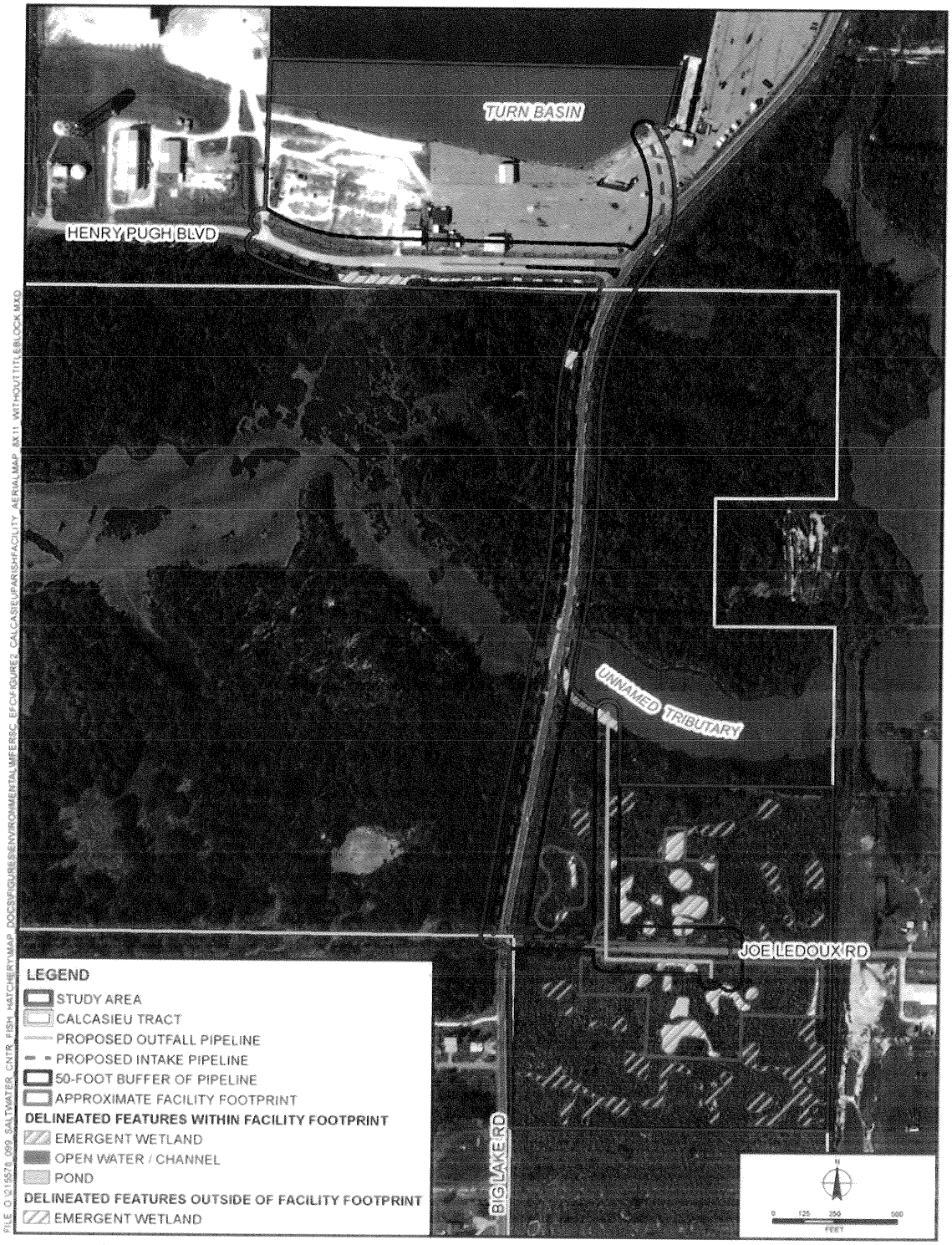

Figure 7. Calcasieu Parish facility preliminary wetland delineation based on 2013 field survey

Two open waters (channels) totaling 12.1 acres were also identified during field investigations. The first open water/channel is an unnamed tributary of the Calcasieu River, located within the

study area, which is a tidally influenced waterway and a receiving body of storm water runoff. The unnamed tributary is the proposed location for the outfall pipeline where the treated effluent will be discharged (Figure 7). Although the channel appears to be a natural land feature, it has been altered from its natural geomorphological character due to the Big Lake Road crossing and the construction of the Turn Basin, in addition to other land use disturbances upstream of the study area. Water flow within the channel was apparent, but slow. A narrow band of tidal brackish marsh dominated by smooth cordgrass (*Spartina alterniflora*) and black needlerush occurs along the unnamed tributary north of the proposed facility. The tidal marsh is bordered by a narrow band of riparian woods containing live oak and loblolly pines with an understory dominated by yaupon (*Ilex vomitoria*). Little shoreline erosion was observed during field investigations. During field investigations held on August 27th, 2013, no submerged aquatic vegetation was observed by HDR in the unnamed tributary at the potential locations for the intake structure, respectively. A desktop review of aerial imagery concluded that mud flats appear along the edges of the channel when the water level is low and during dry seasons (Figure 7).

The second open water/channel that lies within the study area was identified as the Turn Basin which connects to the Calcasieu River. It is located north of Henry Pugh Road and within the LNG Shipping Yard and is the proposed location of the intake pipeline. The proposed facility would obtain water for its operations from the Turn Basin and the treated effluent would be discharged to the unnamed tributary to the north of the proposed facility. Figure 7 illustrates a conceptual plan for the proposed intake and outfall pipeline locations. Field investigations revealed that the shoreline of the channel is lined with concrete matting and riprap and consists of few areas of natural vegetation. Little shoreline erosion of the Turn Basin shoreline within the study area was observed (Figure 7).

The proposed location of the intake pipeline would begin at the Turn Basin and follow Big Lake Road south along its right of way to the 0.5-acre storage reservoir south of Joe Ledoux Road (See Figure 2 item 10 in the legend). Although the exact location of the pipeline has yet to be determined, the construction corridor would be no wider than 50 ft and would stay within or as close to the road right-of-way (ROW) as possible to minimize disturbance to adjacent upland forested habitat. Upland areas along the Big Lake Road ROW are dominated by loblolly pine, yaupon, hackberry (*Celtis occidentalis*), and wax myrtle.

The field delineation also identified several excavated drainage ditches in the study area. The ditches occur along Henry Pugh Boulevard, Big Lake Road, and Joe Ledoux Road. These ditches appear to have been excavated in uplands for the purposes of stormwater flow away from transportation infrastructure. These drainage ditches appear to convey water directly to the unnamed tributary. The ditch running parallel to the south side of Henry Pugh Boulevard appears to hold some water based on the field investigation (Figure 7).

Plaquemines Parish Facility

The Plaquemines Parish facility site has been heavily impacted due to development, construction and operation of the LSU AgCenter; recent hurricanes; and deposition of earthen material at the site. Vegetation at the Plaquemines Parish facility consists primarily of bermudagrass, ruderal

vegetation, and other grasses and forbs typical of disturbed sites such as goldenrod and sumpweed (*Iva annua*). Vegetation including chinese tallow, groundsel tree, golden rod, bermudagrass, alligator weed (*Alternanthera philoxeroides*) and wild cow pea dominates the berms surrounding the production ponds. Due to the extensive, recent deposition of earthen material, most of the site is bare dirt with depressions where water has pooled.

The proposed project is within 1,500 ft of the channelized and highly altered Mississippi River shoreline. The Mississippi River and Tributary levee system bordering the river appears to be stabilizing the shoreline. Despite the site's proximity to the Mississippi River, no natural hydrologic connections between the River and the site were apparent, due to the constructed levee system.

Most of the constructed ponds were used for wetland plant propagation. However, since suspension of operations of the LSU AgCenter in 2011, pioneer wetland species that are characteristic of disturbed sites have invaded and dominate the fringes of the ponds. Vegetative conditions within the ponds can be characterized as having low structural diversity and few plant strata. The majority of the ponds are dominated by species such as wild cow pea, smartweed, pond flat-sedge (*Cyperus odoratus*), common duck weed (*Lemna minor*), and angle-stem primrose-willow (*Ludwigia leptocarpa*) which create a generally uniform mat of vegetation. The fringes contain species such as cattail and giant reed (*Phragmites australis*) which provide the only structural diversity.

During field investigations held in September of 2013, existing open water/ponds and wetland areas were observed within the Plaquemines Parish facility study area (approximately 40.34 acres of the land tract were studied). The open water/pond and wetland features observed are remnants of previously constructed ponds and wetlands which were used for research purposes at the LSU AgCenter that once operated on the property. No natural wetlands or aquatic features occur on the property. The wetlands present are characterized as freshwater emergent and have resulted from the cessation of constant artificial pumping of water inflows to the constructed ponds. Approximately 5.6 acres of emergent wetlands and approximately 2.3 acres of ponds were delineated within the study area (Figure 8) based on the field investigations.

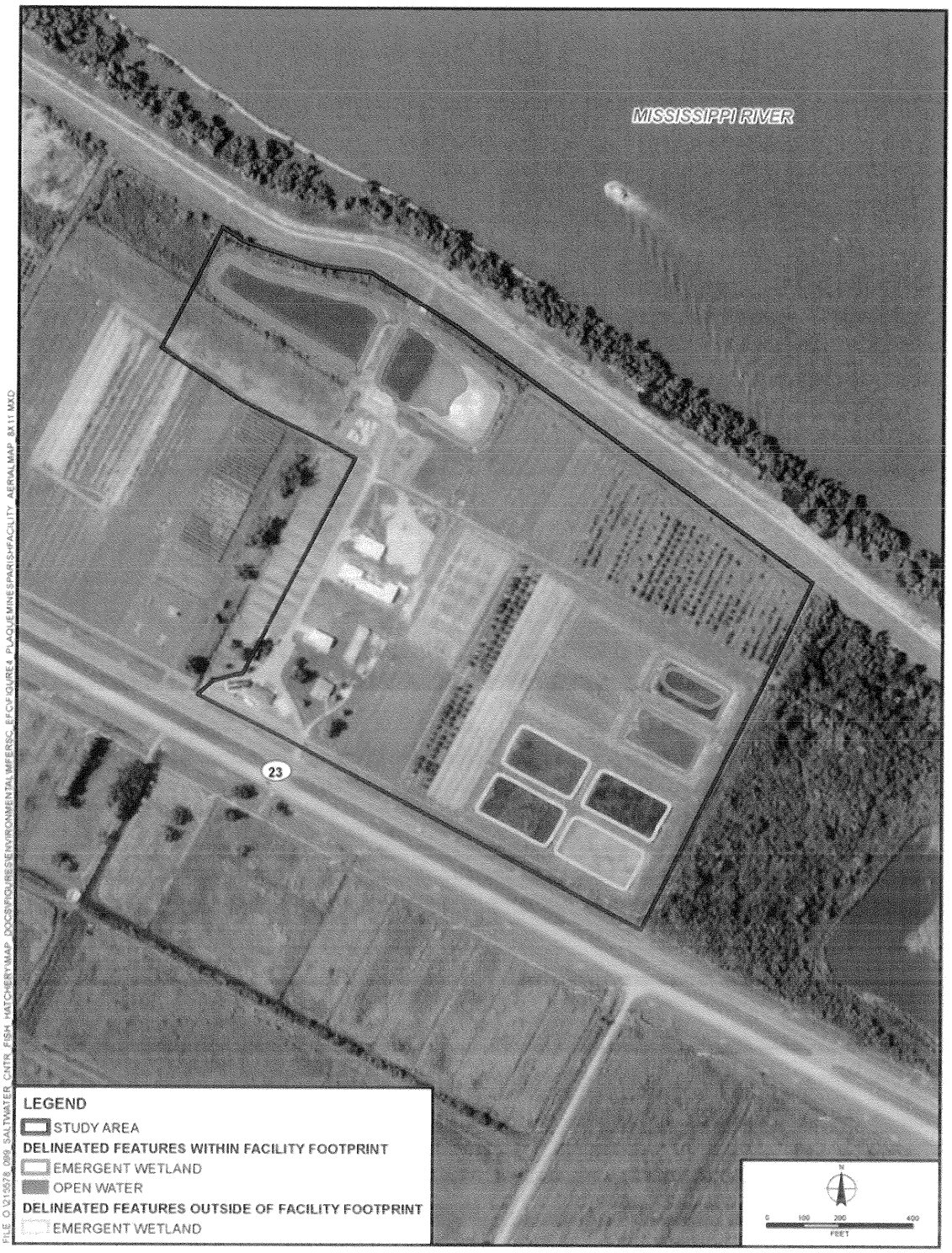

Figure 8. Plaquemines Parish facility preliminary wetland delineation based on 2013 field survey.

VII. Species and Habitat: Species lists for Calcasieu and Plaquemines Parishes were obtained from http://www.fws.gov/lafayette/pdf/LA_T&E_Species_List.pdf dated August 31, 2012.

A. Complete the following table:

SPECIES/CRITICAL HABIAT	STATUS[1]	HABITAT DESCRIPTION	HABITAT PRESENT OR PCH PRESENT
Piping plover *Charadrius melodus*	T	Open, sparsely vegetated coastal beaches	No[2]
Red-cockaded woodpecker *Picoides borealis*	E	Mature, longleaf pine savannah	No
Sprague's pipit *Anthus spragueii*	C	Open prairie or fields	Yes (Plaquemines only)[2]
Red Knot *Calidris canutus rufa*	PT	Wintering habitat - intertidal marine habitats, especially near coastal inlets, estuaries, and bays, or along resting formations	No[2]
Red wolf *Canis rufus*	E	Upland and lowland forest, shrubland, river bottoms, coastal prairies and marshes	Yes (Calcasieu only)[2]
West Indian manatee *Trichechus manatus*	E	Marine open water, bays, and rivers	No
Green sea turtle *Chelonia mydas*	T	Warm bays and oceans, seagrass beds, estuaries; mainland beaches and islands (nesting)	No
Hawksbill sea turtle *Eretmochelys imbricata*	E	Warm bays and shallow portions of oceans; seagrass beds; estuaries; mainland beaches and islands (nesting).	No
Kemp's Ridley sea turtle *Lepidochelys kempii*	E	Warm bays and coastal waters; tidal rivers; estuaries; sea grass beds; sandy coastal beaches are used for nesting.	No
Leatherback sea turtle *Dermochelys coriacea*	E	Open ocean and deeper waters of the Gulf and coastal bays; coastal beaches and barrier islands (nesting).	No
Loggerhead sea turtle (NW Atlantic Distinct Population Segment) *Caretta caretta*	T	Shallow water habitats, continental shelf waters, open Gulf waters; nesting on Gulf Coast beaches in Florida, Alabama, Mississippi, and Texas. Records of historical nesting in Louisiana and Mississippi.	No
Gulf sturgeon *Acipenser oxyrinchus desotoi*	T	All saltwater habitats, except during the spawning season when it is found in major rivers (Pearl River, LA east to Suwannee River, FL) that empty into the Gulf of Mexico	No
Pallid sturgeon *Scaphirhynchus albus*	E	Missouri-Mississippi River basin including the Lower Mississippi and Atchafalaya in large, relatively unaltered remnant reaches of free-flowing, warm water, turbid habitats with a	No[2]

SPECIES/CRITICAL HABIAT	STATUS[1]	HABITAT DESCRIPTION	HABITAT PRESENT OR PCH PRESENT
		diverse assemblage of physical attributes that were in a constant state of change	

[1]STATUS: E=endangered, T=threatened, PE=proposed endangered, PT=proposed threatened, CH=critical habitat, PCH=proposed critical habitat, C=candidate species

[2] See Figure 9 and table in Section VIII A for additional information about potential for impacts to these species.

B. Include species/habitat occurrence map: *Attach a map that identifies species locations with the project area.*

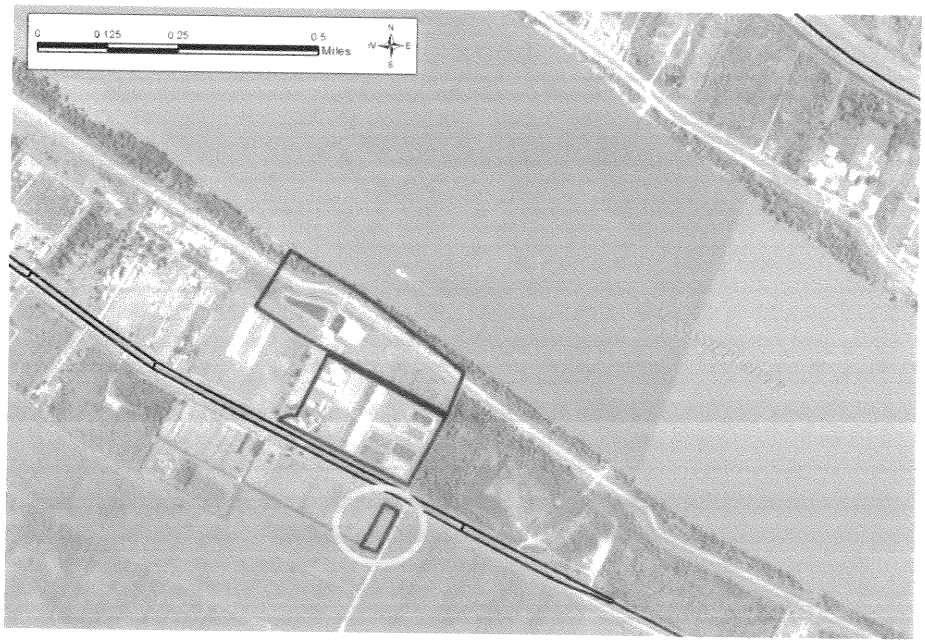

Figure 9. Location of potential Sprague's pipit habitat at the Plaquemines Facility project area (Hatchett, 2013).

The entire Calcasieu Facility property contains upland and bottomland forest, shrubland, river bottoms, or coastal prairies and marshes which is representative of potential red wolf habitat (See Figure 1).

VIII. Determination of Effects:

A. Explanation of effects of the action on species and critical habitats in item VII (attach additional pages as needed):

SPECIES/CRITICAL HABIAT	SPECIES/CRITICAL HABITAT IMPACTS
Sprague's pipit	Potential habitat could be present at the Plaquemines Parish facility for the Sprague's pipit. The Sprague's pipit is a small, cryptic, prairie grassland bird which breeds in the northern U.S. and Canada and winters in the southern U.S. and northern Mexico. The Sprague's pipit prefers dry, open grasslands with no shrubs or trees to breed and winter. The pipit is strictly a ground nesting species and feeds primarily on insects and seeds. The pipit has been declining due to conversion of grassland to agriculture and grazing. The project areas are within the wintering range of the pipit; however, only a 1.5 acre open grassland area of the Plaquemines Parish facility site, on the southwest side of Highway 23, may contain suitable wintering habitat (Figure 9). However, no impacts to this portion of the property are proposed. Although the area may provide potential wintering habitat, due to the historic agricultural use of the property, the pipit is highly unlikely to be present in the area. No effects to this species are anticipated.
Piping plover & Red Knot	Although not preferred habitat, the piping plover and/or red knot may use the marsh habitat along the unnamed tributary at the Calcasieu project site and on the fringes of the large ponds at the Plaquemines project site during migration to preferred wintering or migration stopover habitats along the coast. However, the probability of these species using this area is very low. Because the habitat on site is not optimal we would expect piping plover and red knot to move from the site readily in the *absence* of construction. If piping plover and red knots were to stop at the marsh habitat to rest or forage during construction, they could be startled by nearby construction noise. In the presence of construction we expect any startled birds to move to more suitable habitats in their wintering range. We consider this movement to be within the normal behavior patterns of both species and therefore consider any effects from startling insignificant and discountable.
Red wolf	The Calcasieu project area does contain potential red wolf bottomland forest and shrub habitat. While coastal Louisiana is within the historic range of the red wolf, the red wolf is considered extirpated in Louisiana. The remaining wild wolves in coastal Texas and Louisiana were captured by the USFWS in the early 1970's to start a captive breeding program. The only known wild population of true red wolves includes released, captive-reared wolves as well as wild-born wolves, and is located in North Carolina. Although it is possible that hybridized coyotes may occur in the area, true red wolves are not expected to occur in the project area, so the proposed project would have no effect on the species.
Pallid Sturgeon	The proposed project in Plaquemines Parish would require the use of an intake structure in the adjacent Mississippi River channel. The Plaquemines project area is located downstream of the known populations of pallid sturgeons in the Mississippi River, and the pallid sturgeon was not found during recent ERDC surveys (2007, 2010, and 2011) near the project area. In

SPECIES/CRITICAL	SPECIES/CRITICAL HABITAT IMPACTS
	addition, the Mississippi River at the Plaquemines project area is channelized and has been highly altered from its natural geomorphology. The degree of channel alteration has altered the in-stream habitat; therefore, the sturgeon is not expected to occur in the project area. The proposed project would have no effect on the pallid sturgeon.
All other species included in Table VIIA above	No habitat for these species is present in the action area and these species do not occur in the action area. Therefor no effects to these species would occur.

B. Explanation of actions (Conservation Measures) to be implemented to reduce adverse effects:

SPECIES	CONSERVATION MEASURES TO MINIMIZE IMPACTS
NONE	No conservation measures are necessary to minimize impacts to listed species

IX. Effect Determination and Response Requested:

Species	Species Impacts					Response Requested*
	NE	NLAA	MAA	JP	JC	
Piping plover *Charadrius melodus*		X				Concurrence
Red-cockaded woodpecker *Picoides borealis*	X					Concurrence
Sprague's pipit *Anthus spragueii*	X					Conference
Red Knot *Calidris canutus rufa*		X				Conference
Red wolf *Canis rufus*	X					Concurrence
West Indian manatee *Trichechus manatus*	X					Concurrence
Green sea turtle *Chelonia mydas*	X					Concurrence
Hawksbill sea turtle *Eretmochelys imbricata*	X					Concurrence

Species	Species Impacts					Response Requested*
	NE	NLAA	MAA	JP	JC	
Kemp's Ridley sea turtle *Lepidochelys kempii*	X					Concurrence
Leatherback sea turtle *Dermochelys coriacea*	X					Concurrence
Loggerhead sea turtle (NW Atlantic Distinct Population Segment) *Caretta caretta*	X					Concurrence
Gulf sturgeon *Acipenser oxyrinchus desotoi*	X					Concurrence
Pallid sturgeon *Scaphirhynchus albus*	X					Concurrence

*Concurrence, Formal Consultation, Formal Conference

X. Bald Eagles

Are bald eagles present in the action area? _X_No ____Yes

If "Yes", can you implement the conservation measures below? ____Yes ____ No

1. If bald eagle breeding or nesting behaviors are observed or a nest is discovered or known, all activities (walking, camping, cleanup, use of a UTV, ATV, or boat) should avoid the nest by a minimum of 660 feet. If the nest is protected by a vegetated buffer where there is *no* line of sight to the nest, then the minimum avoidance distance is 330 feet. This avoidance distance shall be maintained from the onset of breeding/courtship behaviors until any eggs have hatched and eaglets have fledged (approximately 6 months).
2. If a similar activity (like driving on a roadway) is closer than 660 feet to a nest, then you may maintain a distance buffer as close to the nest as the existing tolerated activity.
3. If a vegetated buffer is present and there is no line of sight to the nest and a similar activity is closer than 330 feet to a nest, then you may maintain a distance buffer as close to the nest as the existing tolerated activity.
4. In some instances activities conducted within 660 feet of a nest may result in disturbance, particularly for the eagles occupying the Mississippi barrier islands. If an activity appears to cause initial disturbance, the activity shall stop and all individuals and equipment will be moved away until the eagles are no longer displaying disturbance behaviors.

If not, contact the Service's Migratory Bird Permit Office to determine how to avoid impacts or if a permit may be needed.

XI. Migratory Birds

A. Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation.

SPECIES	BEHAVIOR	SPECIES/HABITAT IMPACTS
Wading birds: great blue heron snowy egret great egret cattle egret great blue heron tricolored heron (belted kingfisher)	Roosting and foraging	Calcasieu Facility: Habitat for wading birds was observed near the unnamed tributary north of the project site and potential foraging habitat at two 0.1-acre constructed livestock ponds on the project site. No facilities would be located near the tributary, except for the treated effluent pipeline. The two ponds would be filled and graded for construction of the facilities. The loss of these ponds would not cause a substantial adverse effect to local populations of wading birds due to the presence of large areas of suitable habitat within the project area landscape. Short-term ground disturbance for construction of the pipeline would occur. The temporary noise and activity of construction may impact roosting or foraging. Plaquemines Facility: The rehabilitation of some constructed ponds would remove some habitat that may be used for foraging by wading birds. However, the two larger ponds with open water where all of the wading birds were observed would not be impacted. The temporary noise and activity of construction may impact roosting or foraging.
Shorebirds: killdeer least sandpiper black-necked stilt greater yellowlegs Marsh birds: clapper rail king rail marsh wren common moorhen swamp sparrow	Loafing and foraging Foraging, roosting, and/or nesting	Calcasieu Facility: No suitable loafing or foraging habitat was observed for shorebirds. No shorebirds were observed during the site visit and are not likely to utilize the site. Although not preferred habitat, shorebirds may use the marsh habitat along the unnamed tributary during migration to preferred wintering habitats along the coast. Plaquemines Facility: Open, sparsely vegetated loafing and foraging habitat was recently created at the project site with the deposition of the earthen material and the creation of depressions which have collected water. Prior to construction of facilities and rehabilitation of the ponds, these areas would be leveled and either re-vegetated with a soil stabilization seed mix, or be allowed to re-vegetate naturally. Both facilities: The narrow area of brackish marsh along the unnamed tributary at the Calcasieu project site and the pond fringes of the larger ponds on the north end of the Plaquemines project site may provide suitable foraging, roosting and/or nesting habitat for marsh birds. Minor

SPECIES	BEHAVIOR	SPECIES/HABITAT IMPACTS
		ground disturbing activities, such as clearing for the effluent pipeline at the Calcasieu site, could result in temporary impacts to herbaceous marsh vegetation. No impacts to the large ponds at the Plaquemines site are proposed.
Raptors: black vulture red-tailed hawk red-shouldered hawk	Roosting, foraging, and nesting	Calcasieu Facility: The proposed project would have only minor impacts to the foraging areas for these species. A few scattered trees that may be used for roosting may be removed. The temporary noise and activity of construction may impact roosting, foraging and/or nesting behavior. Normal behaviors would be expected to resume quickly after disturbance Plaquemines Facility: Several large trees are present near the existing structures. These trees are not planned for removal. However, due to the recent storm damage, they may be assessed as potential safety hazards and removed if necessary. The temporary noise and activity of construction may impact roosting, foraging and/or nesting behavior. Normal behaviors would be expected to resume quickly after disturbance
Songbirds: Carolina wren Carolina chickadee northern mockingbird northern cardinal American redstart brown thrasher gray catbird blue jay American robin boat-tailed grackle (mourning dove) (unidentified hummingbird)	Roosting, foraging, and nesting	Calcasieu Facility: No native coastal prairie habitat is within the project site impact area. The shrub habitat (dominated by groundsel tree, bayberry, and Chinese tallow), which may provide roosting, foraging, and nesting habitat for some songbirds, would be cleared for construction of the buildings and pond complex. In addition, some forested habitat adjacent to or within the ROW of Big Lake Road may be cleared for construction of the intake pipeline to the Turn Basin. The temporary noise and activity of construction may impact roosting, foraging, and/or nesting behavior. Normal behaviors would be expected to resume quickly after disturbance Plaquemines Facility: Most of the songbird observations at the Plaquemines facility were associated with the park-like area around the existing structures and in the shrub areas around the two large, open water ponds on the north side of the property. No impacts to these areas are currently planned; however, if the trees near the structures are determined to be safety hazards they may be removed. The temporary noise and activity of construction may

SPECIES	BEHAVIOR	SPECIES/HABITAT IMPACTS
		impact roosting, foraging and/or nesting behavior. Normal behaviors would be expected to resume quickly after disturbance
Woodpeckers: pileated woodpecker northern flicker red-bellied woodpecker hairy woodpecker downy woodpecker	Roosting, foraging, and nesting	Calcasieu Facility: The shrub habitat (dominated by groundsel tree, bayberry, and Chinese tallow), which may provide roosting, foraging, and nesting habitat for some woodpeckers, would be cleared for construction of the buildings and pond complex. In addition, some forested habitat adjacent to or within the ROW of Big Lake Road may be cleared for construction of the intake pipeline to the Turn Basin. The temporary noise and activity of construction may impact roosting, foraging and/or nesting behavior. Normal behaviors would be expected to resume quickly after disturbance Plaquemines Facility: Several large trees are present near the existing structures. These trees are not planned for removal. However, due to the recent storm damage, they may be assessed as potential safety hazards and removed if necessary. The temporary noise and activity of construction may impact roosting, foraging and/or nesting behavior. Normal behaviors would be expected to resume quickly after disturbance

B. If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Wading birds	Calcasieu Facility: The treated effluent pipeline corridor would be designed to avoid large trees, to the extent practicable, which could be used for roosting and nesting, near the tributary. The pipeline corridor would be re-vegetated following construction. Plaquemines Facility: Although all of the constructed ponds on the site contain surface water, wading birds were observed on only the large ponds on the north side of the property. These ponds had large areas of open water, whereas dense mats of vegetation covered the other ponds on the property. No ground disturbing activities are proposed for the ponds on the north side of the property.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
	Both Facilities: The facility operations may attract wading birds, or other aquatic dependent species, due to the open water habitats created. See "General Conservation Measures for Both Facilities" below this table.
Shorebirds and Marsh Birds	Calcasieu Facility: No shorebirds or shorebird habitat were observed at the Calcasieu facility. Plaquemines Facility: Shorebirds observed at the Plaquemines facility were loafing in bare areas and foraging in large depressions which were created by the deposition and spreading of the earthen material. Due to the upland location of the project area, there are no natural ecological processes (e.g. regular flooding, tides, etc.) that would maintain this area as open and sparsely vegetated loafing and foraging habitat for shorebirds. The temporary habitat that was created would be allowed to return to its previous condition (i.e. maintained grassy areas around structures and ponds). Both facilities: The narrow area of brackish marsh along the unnamed tributary at the Calcasieu project site and the pond fringes of the larger ponds on the north end of the Plaquemines project site may provide suitable foraging, roosting and/or nesting habitat for marsh birds. See "General Conservation Measures for Both Facilities" below this table.
Raptors and Woodpeckers	Calcasieu Facility: Although some scattered trees within the shrub habitat may be removed for construction, to the extent practicable, the pipelines, structures and ponds would be designed to avoid removal of large trees which could be roosting and/or nesting habitat. In addition, the intake pipeline to the Turn Basin would be located within or adjacent to the Big Lake Road right-of-way to minimize direct impacts to forested habitats on the property. Plaquemines Facility: No raptors or woodpeckers were observed at the Plaquemines facility during the site visit. The trees around the existing structures are not planned for removal. However, due to the recent storm damage, they may be assessed as potential safety hazards and removed if necessary. No raptor nests were observed in these trees. If possible tree removal would be conducted outside of the nesting season. The trees would be surveyed for active nests if the removal is planned during nesting season. Both Facilities: The facility operations may attract piscivorous species due to the open water habitats created. See "General Conservation Measures for Both Facilities" below this table.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Songbirds	Calcasieu Facility: Shrub removal and ground clearing would be conducted outside of the avian nesting season, March 15 to September 15, to the extent practicable to avoid direct impacts to nesting birds. If the project schedule should require ground-clearing activities during this time, pre-construction nest surveys of areas to be cleared would be conducted by a qualified biologist, and active nests would be avoided until nest fate is determined. Plaquemines Facility: Ground clearing around the ponds would be conducted outside of the avian nesting season, March 15 to September 15, to the extent practicable to avoid direct impacts to nesting birds. If the project schedule should require ground-clearing activities during this time, pre-construction nest surveys of areas to be cleared would be conducted by a qualified biologist, and active nests would be avoided until nest fate is determined. Other conservation measures: Although not determined at this point in project development, as part of the Section 404 permitting for the proposed project, potential wetland mitigation may include brush control to enhance the function of the degraded wetlands on the Calcasieu facility project area which will not be impacted. Although this may include habitat loss for some shrub-nesting species, the benefit of increasing the avian diversity through prairie-wetland enhancement may result in an overall benefit to the local avian community.

General Conservation Measures for Both Facilities

The construction of aquaculture ponds for the brooding and rearing of bait fish and commercial sport fishes could attract piscivorous bird species, such as herons, cormorants, egrets, kingfishers, and ducks, as well as mammals such as raccoons. Damage prevention and/or control strategies for managing bird damage and/or losses at each of the proposed facilities would be assessed during project development. Any prevention or control measures deemed necessary would be established in compliance with the Migratory Bird Treaty Act (e.g. non-lethal exclusionary or deterrent devices) and LDWF regulations.

Ground-clearing construction activities, including tree and shrub removal, would be conducted outside of the avian nesting season, March 15 to September 15, to the extent practicable, to avoid direct impacts to nesting birds, in accordance with the Migratory Bird Treaty Act. If the project schedule should require ground-clearing activities during this time, pre-construction nest surveys of areas to be cleared would be conducted by a qualified biologist. Active nests would be avoided until nest fate is determined by a qualified biologist.

References

Daigle, J.J., Griffith, G.E., Omernik, J.M., Faulkner, P.L., McCulloh,

R.P., Handley, L.R., Smith, L.M., and Chapman, S.S., 2006, Ecoregions of Louisiana (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S.Geological Survey (map scale 1:1,000,000).

Hatchett, Erin (HDR). Personal observation, 30 September 2013.

XII. Signatures from the station preparing the Intra-Service Biological Evaluation:

/s/ Holly N. Blalock-Herod — January 29, 2014
Signature (originating station - preparer) **date**

DOI Case Management Team, ESA Coordinator
Title

Deborah L McCall — 1/31/14
Signature (originating station) **date**

Deputy Case Manager

This analysis resulted in a determination that no "take" of a federally listed species would occur. If any of the following occur, then there must be reinitiation on this action:

(1) any unforeseen circumstances arise or incidental take occurs
(2) new information reveals effects of the Service's action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion;
(3) the Service's action is later modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or
(4) a new species is listed or critical habitat designated that may be affected by the action.

In instances where any incidental take occurs, the operations causing such take must cease until reinitiation.

If reinitiation is required, contact the (*insert the ES field office*) **about the action.**
Louisiana Ecological Services Field Office, 646 Cajundome Boulevard, Suite 400, Lafayette, Louisiana 70506

XIII. Reviewing Ecological Services Office Evaluation:

A. Concurrence ✓ **Nonconcurrence** _____

B. Formal consultation required _____

C. Conference required _____

D. Informal conference required _____

E. Remarks (attach additional pages as needed):

Louisiana Fishery enhancement Research & Sci. Center

RECEIVED 2/13/14

[signature] 2/13/14

Signature **date**

Jeff Weller Lafayette Ecol Svcs.

Field Supervisor **office**