6.0 MITIGATION

6.1 AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES UNDER NEPA

6.1.1 Avoidance, Minimization, and Mitigation Measures Proposed by the Applicant

The Applicant's measures to avoid, minimize, and mitigate potential impacts of Alternative 1 (Proposed Project) are summarized by resource area in Table 6-1, based on information provided in various reports, plans, and agreements submitted by Palmetto Railways. Additional details on mitigation and Memoranda of Agreement (MOAs) can be found in the Section 404/401 Permit Application located in Appendix B and mitigation plan in Appendix N. The Corps views these elements as part of the Applicant's Proposed Project for purposes of the environmental impacts analysis presented in Chapter 4. Some of these measures are required under federal, state, and local permits; others are measures that Palmetto Railways has incorporated into the design and operations of the Proposed Project.

These avoidance, minimization, and mitigation measures, except the items noted with an asterisk (*), have been considered in the impact analysis in Chapter 4. Each mitigation measure is also designated as one that either helps to avoid an impact, or one that minimizes an impact. Measures from a number of categories in Table 6-1 may be applicable to more than one resource area. For example, certain measures listed under surface water resources may also help to avoid, minimize, or mitigate potential impacts to waters of the U.S.

Table 6-1
Summary of Avoidance, Minimization, and Mitigation Measures Proposed by the Applicant

Resource Area	Avoidance, Minimization, and Mitigation Measures
Geology and Soils	• Implement an SWPPP as required by the National Pollutant Discharge Elimination System (NPDES) permit, including management of sediment and erosion control. (Minimization) • Implement an SPCC plan for petroleum products. (Minimization) • Use Best Management Practices (BMPs) and/or methods of managing sediment and erosion control during construction pursuant to the South Carolina Stormwater Management Handbook (South Carolina Department of Health and Environmental Control [SCDHEC] 2005). (Minimization) • Capping contaminated sites within the ICTF to "seal" existing soil and groundwater contamination. (Minimization) • Perform all land disturbance activities in compliance with the U.S. Navy Construction Process Document (Navy "Dig" Permit) which identifies the permit process and requirements for conducting construction or other land disturbing activities in Land Use Control (LUC) Areas at the former Navy Base (Charleston Naval Complex). (Minimization) • Development of a soil management plan during design to be implemented during construction. (Minimization) • Use of clean fill material. (Minimization)
Hydrology	• Design culverts and/or bridges to maintain existing surface drainage patterns and to prevent erosion. (Minimization) • Where possible, limit the placement of pilings for bridges within waterways. (Avoidance) • Use existing bridge over Noisette Creek to reduce impacts. (Avoidance) • Design culverts (e.g., under the arrival/departure tracks) and bridges to maintain existing flow and hydrology for wetland areas and to prevent flooding upstream. (Minimization) • Provide stormwater capacity improvements by constructing new stormwater infrastructure where the existing systems are failing from lack of maintenance. (Minimization)
Water Quality	• Comply with requirements of the Individual Section 402 NPDES permit, including applicable groundwater and surface monitoring. (Minimization) • Employ the use of oil-water separator at the locomotive shop and proper spill protection (e.g., spill kit, collector pans) for light duty repairs in the vicinity of the “repair in place” tracks to ensure treatment of any oily waste from on-terminal equipment maintenance activities. (Minimization) • Implement an SWPPP and Stormwater Master Plan as required by the Individual Section 102 NPDES permit. (Minimization) • Inclusion of forebay in stormwater management system to provide pretreatment of stormwater runoff before it discharges to Pond A. (Minimization) • Construct five stormwater detention ponds located at the topographical low points of the site and in close proximity to the existing outfalls to contain and manage stormwater runoff. (Minimization) • Implement sediment and erosion control measures to mitigate sediment and sediment-associated pollutant loading from disturbed areas. (Minimization) • Cap much of the Project site with pavement to mitigate spread of existing contaminants. (Minimization) • Implement dust control measures for roads and construction areas. (Minimization) • Use clean fill material. (Minimization)

Resource Area	Avoidance, Minimization, and Mitigation Measures
	• Design for the facility includes approximately 86,375 linear feet of new pipe or underdrain and five dry detention ponds (A, B, C, D1, and D2), including one forebay, totaling approximately 1,527,000 CF. (Minimization) • A Stormwater Pollution Prevention Plan (SWPPP) and Best Management Practices (BMPs) will be implemented to manage stormwater on-site during construction of the intermodal facility. (Avoidance and Minimization)
Vegetation and Wildlife	• Redevelopment of an existing industrial site that minimizes impacts to undeveloped land. (Avoidance and Minimization) • Plant native vegetation and trees on the earthen berm within the 100-foot buffer along the western property boundary, the north lead area, and the entire 135-acre ICTF site. (Minimization)
Waters of the United States	• Locate the ICTF on an existing vacant industrial site mostly comprised of uplands. (Avoidance and Minimization) • Design the ICTF and roadway and rail improvements to minimize impacts to waters of the U.S., including wetlands, such as the drayage road placement that reduce impacts to waters of the U.S., including wetlands associated with Shipyard Creek. (Minimization) • Where possible, limit the placement of pilings for bridges within waterways. (Minimization) • Use of 2:1 slopes in areas that are not bridged. (Minimization) • Rehabilitate existing bridge over Noisette Creek to reduce impacts. (Minimization) • Design culverts and bridges to maintain existing flow/exchange and hydrology for wetland areas and marshes. (Minimization) • Replacement of earthen berm with a sound attenuation and security wall, where appropriate, in areas adjacent to waters of the U.S., including wetlands to avoid filling of wetlands. (Minimization) • Restoration of temporary wetland impacts during construction. (Minimization) • Develop and execute the wetland mitigation plan (Appendix N) to ensure any wetland impacts have been minimized and that compensation will be provided for all remaining unavoidable impacts. The plan proposes a combination of the purchase of wetland mitigation credits and restoration of tidal marsh. (Minimization)
Protected Species	• Where possible, the placement of pilings for bridges within waterways will be limited, ensuring channels are not blocked. (Minimization) • Reconstruct the existing superstructure of the rail trestle bridge of Noisette Creek to reduce impacts. (Avoidance and Minimization) • Contractors will be required to use bubble curtains or sleeve piles to mitigate underwater noise while driving piling in essential fish habitat (EFH) areas. (Minimization) • The contractor will utilize soft-start techniques for pile driving activities. This will consist of a series of taps at 25 to 40 percent of the pile driver's energy followed by a one-minute waiting period. (Minimization) • During in-water work, a floating semi-permeable turbidity curtain will be deployed around areas where pile driving is taking place. (Minimization) • Adherence to environmental windows for construction during the winter months when sea turtles are less abundant. (Avoidance and Minimization) • The contractor will hire a qualified marine biologist to be onsite during in-water construction activities to avoid potential impacts to marine resources and EFH. (Avoidance and Minimization) • Implement an SPCC plan to minimize the impact of a potential spill on protected species. (Minimization)

Resource Area	Avoidance, Minimization, and Mitigation Measures
Essential Fish Habitat	• Where possible, possible limit the placement of pilings for bridges within waterways, ensuring channels are not blocked (including use of the existing bridge over Noisette Creek). (Minimization) • Reconstruct the existing superstructure of the rail trestle bridge of Noisette Creek to reduce impacts. (Avoidance and Minimization) • Contractors will be required to use bubble curtains or sleeve piles to mitigate underwater noise while driving piling in essential fish habitat (EFH) areas. (Minimization) • The contractor will utilize soft-start techniques for pile driving activities. This will consist of a series of taps at 25 to 40 percent of the pile driver's energy followed by a one-minute waiting period. (Minimization) • During in-water work, a floating semi-permeable turbidity curtain will be deployed around areas where pile driving is taking place. (Minimization) • Adherence to environmental windows for construction during the winter months when sea turtles are less abundant. (Minimization) • The contractor will hire a qualified marine biologist to be on-site during in-water construction activities to avoid potential impacts to marine resources and EFH. (Minimization) • Implement an SPCC plan to minimize the impact of a potential spill on EFH. (Minimization) • Permanent loss of EFH habitat will be mitigated through the mitigation plan and efforts described above. (Mitigation)
Transportation	• Perform a separate Surface Transportation Impact Study (in cooperation with the City of North Charleston, the South Carolina Ports Authority, and the South Carolina Department of Transportation) to study and provide guidance regarding rail and highway traffic related to the facility; including the identification of optimal truck routes to and from the facility (see Appendix B for the proposal/scope of this study). * (Minimization) • To minimize impacts to at-grade crossings outside of the facility footprint, automated switches will be used throughout the Project area to facilitate a continuous movement of trains while arriving or departing the facility. (Minimization) • All at-grade crossings within the facility footprint will be eliminated to provide safe and unfettered movements through the facility. (Minimization) • Provide access to St. Johns Ave. for residents and businesses located on the former Navy Base and west of Project North Lead railroad track. (Minimization) • Automated gates and additional turn lanes will be constructed to reduce truck idling, wait times and congestion on North Hobson Avenue. When exiting the facility, a right-only turn onto North Hobson Avenue will direct truck traffic to the Port Access Road highway ramps. (Minimization) • Cosgrove Avenue will be extended and an overpass over the facility's north rail lead will be constructed to facilitate public access to the CNC and adjoining neighborhoods. During construction, McMillan Avenue will be detoured. Once construction of the overpass is completed, McMillan Avenue will be closed east of Spruill Avenue and a cul-de-sac will be constructed. (Minimization) • Improvements to Bainbridge Avenue and North Hobson Avenue intersection will be constructed to facilitate traffic flows in the southern portion of the CNC, including the Federal Law Enforcement Training Complex (FLETC), U.S. Coast Guard complex and Veterans Terminal. (Minimization) • A drayage road will be constructed to eliminate truck traffic on local roadways when transporting containers to the intermodal facility. (Minimization) • Palmetto Railways will support the City of North Charleston to develop a truck route and restriction plan for the area. Additionally, Palmetto Railways will work to inform

Resource Area	Avoidance, Minimization, and Mitigation Measures
	facility truck traffic of streets where truck traffic is not permitted when traveling to and from the intermodal facility. * (Minimization) • Maintain Viaduct Road overpass until the local segment of the port access road is complete. (Minimization) • Locate roadway improvements to minimize/avoid at-grade crossings and traffic delays associated with rail operations. * (Minimization) • Additional intermodal capacity will encourage rail use and reduce truck traffic on local roads. * (Minimization) • The Applicant is working with multiple parties to develop standards on studying public at-grade crossings (Crossing Analysis) impacted by the ICTF in the City of Charleston and drafted a Transportation Memorandum of Agreement (MOA) with the City of Charleston, the South Carolina Department of Commerce, and South Carolina Department of Transportation (SCDOT). The draft Transportation MOA commits these parties to conducting a joint Crossing Analysis and the Applicant proposes to fund up to $4,.5 million for five transportation mitigation measures to be undertaken by the City of Charleston (or another government body). See Appendix N for additional details. * (Minimization)
Land use and Infrastructure	• Ensure the Project and its operations are consistent with zoning and the Comprehensive Plan. (Avoidance) • Support direction of the Historical Trust for land use and landscaping surrounding the Charleston Naval Hospital. (Minimization) • Construction of a raised overpass with a pedestrian and multiuse path from Spruill Avenue to Riverfront Park to provide safe and uninterrupted access to existing and future development on the former CNC. (Minimization) • Support the City of North Charleston and the Community Mitigation Group in the establishment of Quitman's marsh as a recreational area. (Minimization) • Continue efforts to locate new utilities in ways to avoid/minimize impacts to significant utility facilities and minimize disruptions to service. (Avoidance and Minimization) • Continue coordination efforts with utility providers and their design consultants to ensure capacity is available at the Project site, conflicts have been identified, and relocation plans are feasible. (Minimization)
Cultural Resources	• Minimize and avoid impacts to buildings and structures on the CNC. (Avoidance and Minimization) • Minimize and avoid direct interaction with historic buildings and structures. (Avoidance and Minimization) • Consulted with multiple agencies (state and federal) and historic organizations regarding potential impacts and mitigation for cultural resources. (Minimization) • Executed a Cultural Memorandum of Agreement (MOA) regarding effects of the Project on historic properties (May 30, 2018) between the Corps, the Federal Railroad Administration (FRA), Palmetto Railways, the Advisory Council on Historic Preservation (ACHP), the Muscogee (Creek) Nation, and the State Historic Preservation Office (SHPO). (Minimization) • The Cultural Resources MOA shall continue throughout the development and implementation of the ICTF. The agreement acknowledges that the Applicant has undertaken multiple efforts for the benefit of historic and cultural preservation on the CNC, including adversely affected properties. The Cultural Resources MOA outlines the following mitigation activities: – The Applicant shall monitor adversely affected historic properties for vibration damage during construction and for a period of 2 years during operation of the facility. If damage does occur during construction, the Applicant or its contractors shall be responsible for repairs of vibration damage to historic properties, in

Resource Area	Avoidance, Minimization, and Mitigation Measures
	coordination with the Corps and SHPO and in accordance with the Secretary of the Interior Standards. (Minimization) – Construction activities shall occur in accordance with local noise regulations, policies, and guidance to minimize adverse noise effects. (Minimization) – The Applicant will develop and erect three state historical markers regarding the history of the USMC Barracks, CNH, and CNYOQ within 2 years of the execution of the Cultural Resources MOA and in coordination with SHPO. (Minimization) – The Applicant shall prepare a nomination of the USMC Barracks to the National Register of Historic Places (if deemed appropriate by SHPO) within 1 year of the execution of the Cultural Resources MOA. (Minimization) – The Applicant shall establish the Charleston Naval Base Historical Trust (CNB Historical Trust). The CNB Historical Trust governing board shall consist of at least one (1) representative from the City of North Charleston, each concurring party, the Redevelopment Authority, Palmetto Railways, and SHPO. (Minimization) – The Applicant shall provide funding in the amount of $2 million for the CNB Historical Trust for use in preserving and rehabilitating the Charleston Naval Hospital and USMC Barracks. (Minimization) – The Applicant shall fund an additional historic resource survey of the study area under the oversight of SHPO, which is intended to update and catalogue changes to the properties listed in the Programmatic Agreement for use by the signatories on a going forward basis. (Minimization) – The Applicant shall lease the CNH and/or USMC Barracks to the CNB Historical Trust for a nominal fee as long as they are actively implementing rehabilitation and preservation efforts. A transfer of title shall be provided upon satisfaction of certain conditions. (Minimization) – The Applicant shall work with the CNB Historical Trust to place appropriate restrictive covenants on the CNH and/or USMC Barracks to reasonably protect the historic and cultural value of such structures for any rehabilitation or use to be held by the CNB Historical Trust if such properties are transferred or leased to any third party (or held by an appropriate third party), if title is retained by the CNB Historical Trust. Rehabilitation and reuse may include use for residential, commercial, office, mixed-use, and retail space and which may include an exhibit of historic or cultural interest. (Minimization). – The Applicant will cause rehabilitation and reuse of the Power House (CNC Building 32 – Central Power Plant), which may include use for commercial, office, and retail space which may include an exhibit or other recognition of CNC objects of historical, scientific, artistic, or cultural interest, including but not limited to the transfer of title to any appropriate entity to accomplish these tasks upon reasonable request, subject to SHPO's prior consent approval. The Applicant has sold the Powerhouse to a private ownership entity with the stipulation that it be redeveloped within four years of purchase or returned to Palmetto Railways. (Minimization) – The Applicant shall follow post-review discovery requirements and suspend construction operations if cultural resources are found and notify relevant parties for consultation including the Corps, SHPO, Muscogee (Creek) Nation, Catawba Indian Nation, and the FRA. (Minimization). – The Applicant shall prepare an Annual Report documenting actions carried out in the MOA and distribute to the signatories and concurring parties. (Minimization)
Visual resources and aesthetics	• Trains transiting from the north will travel through the base of a cut section (trench) that will serve to minimize the visual impacts associated with the site. (Minimization) • Construct an earthen berm and sound walls within a 100-foot buffer along the western boundary of the site to minimize visual impacts. (Minimization)

Resource Area	Avoidance, Minimization, and Mitigation Measures
	• The material used for the noise/visual barriers will be aesthetically pleasing and may incorporate a community mural project or other design. (Minimization) • Landscaping will be installed within and around the facility footprint to reduce visual impacts from adjacent roadways for residences and businesses. The landscaping will meet City code requirements and architectural elements will match surrounding buildings. (Minimization) • Completed a photometric design for intermodal facility high-mast lighting that would result in less than 0.5 foot-candles outside of the property boundary. (Minimization) • The construction of the earthen berm between the facility and adjacent neighborhoods may also help to minimize visual impacts of light sources at the site. (Minimization) • LED lighting fixtures will be installed over bridges and other areas where practical. (Minimization) • Buildings on the facility (locomotive shop and administration buildings) will be architecturally designed to match the historical characteristics of other buildings in the area. (Minimization) • Implement four-container tall stacking limits to reduce visual impacts on surrounding neighborhoods. (Minimization) • To minimize the impact of lights from the site on adjacent areas, all operating lights will be directed downward to shield light sources minimizing any light bleed off the facility footprint. (Minimization)
Noise and vibration	• To minimize noise impacts associated with operation of the site, the facility will use state-of-the-art equipment, such as electric wide-span gantry cranes, that will minimize sound emissions during operations. (Minimization) • To further minimize noise impacts to the communities adjacent to the proposed facility, an earthen berm will be used to mitigate the noise/visual impacts. The earthen berm is planned for the western boundary of the site between the facility and adjacent neighborhoods. (Minimization) • To minimize the impact of vibrations on the adjacent community, the Applicant will create a 100-foot buffer to the west of the current property line. This is expected to reduce the impacts of property damage, deterioration of residents' foundations, and structural damage to homes as it relates to vibrations associated with the construction and operations of the facility. (Minimization) • One sound attenuation wall will be used in place of the earthen berm adjacent to waters of the U.S., including wetlands to avoid filling wetlands. One sound attenuation wall will be located at the northern end of the earthen berm. Two sound attenuation walls will be used to minimize noise and visual impacts in two areas along the northern rail connection. (Minimization) • The Applicant and the City of North Charleston are collaborating on the design of a mutually agreeable landscaping program for the ICTF. (Minimization) • Support the Cities of Charleston and North Charleston, and Class I Rail Carriers in the establishment of rail "Quiet Zones"[104]. (Minimization) • The existing topography of the North Lead will require a substantial cut (trench) section to provide adequate grades to accommodate train movements. This cut section will mitigate visual and noise impacts that may result from the movement of trains in and out of the facility from the north. (Minimization)

[104] In order to mitigate the effects of train horn noise, communities can establish "Quiet Zones" where horns are not needed due to safety improvements at the grade crossings. A guide to the quiet zone establishment process can be found at: www.fra.gov under Railroad Safety: "FRA Train Horn Rule and Quiet Zones."

Resource Area	Avoidance, Minimization, and Mitigation Measures
	• Provide relocation services for a period of 3 years to owner-occupied residential property owners who reside in the Relocation Area from 100 feet of the Project up to North Carolina Avenue. (Minimization)
Air quality	• The Applicant is committed to implement options to minimize air emissions for the community and the environment of the region and executed an Air Quality Memorandum of Agreement (MOA) with South Carolina Department of Health and Environmental Control (SCDHEC). The facility will comply with all applicable requirements, conditions, and reporting and would maintain air pollution control equipment in accordance with such requirements and commitments found in the Air Quality MOA. The Air Quality MOA will expire by its term on December 31, 2019, unless otherwise terminated. Commitments outlined in the Air Quality MOA include: – SCDHEC Bureau of Air Quality commits to promptly and thoroughly review any regulatory determinations and respond to requested consultations by the Applicant. (Minimization) – SCDHEC commits to designate a point of contact who will make staff reasonably available to participate in discussions related to the design of the ICTF and review of operational and equipment options at future and existing Palmetto Railway facilities. (Minimization) – SCDHEC commits to work cooperatively with Palmetto Railways in evaluating reasonable and proven practices and technologies to assist Palmetto Railways in meeting applicable environmental standards at the proposed and existing Palmetto Railways facilities while fairly accounting for environmental, economic, and competitiveness considerations. (Minimization) – During the term of the MOA and for two years after operations begin at the ICTF, SCDHEC shall conduct an annual community meeting in the vicinity of the ICTF to update the community on relevant and pertinent environmental and health issues. Palmetto Railways shall use its best efforts to cooperate and assist SCDHEC with such community meeting as may be reasonably requested by SCDHEC. (Minimization) – The Applicant commits to work cooperatively with SCDHEC staff to evaluate potential design, operation, and equipment options that are environmentally beneficial and fiscally feasible with demonstrated technologies and practices of intermodal facilities on the east coast in areas designated as attainment for implementation at the ICTF. Palmetto Railways will consider innovative technologies on a case-by-case basis. (Minimization) – The Applicant commits that when major equipment reaches the end of its useful life and is retired, they will identify and replace such equipment with environmentally beneficial and fiscally feasible equipment and demonstrated technology of intermodal facilities on the east coast in areas designated as attainment then currently available. Enterprise (MBE) firms will be provided opportunities on the project. An example of this commitment, replacement equipment for retired equipment will include engines that meet the federal Tier 3 or higher emission standard. (Minimization) – The Applicant will designate one (1) individual as the point of contact with SCDHEC related to the implementation of the Air Quality MOA. (Minimization) – The Applicant will contribute fifty thousand dollars ($50,000.00) towards ambient air quality initiatives in conjunction and coordination with SCDHEC and the Medical University of South Carolina on air quality initiatives in the Charleston region, for which SCDHEC will serve as the lead and point of contact. (Minimization) – The Applicant will include in its contractor bid documents and in the construction contract for the ICTF the terms, conditions, and provisions set forth in the Air Quality MOA to ensure the implementation of best management practices (BMPs) and minimize air emissions during the construction of the ICTF. (Minimization)

Resource Area	Avoidance, Minimization, and Mitigation Measures
	• Once operational, the ICTF will reduce truck traffic on local roads by providing additional intermodal capacity and encouraging the use of rail to transport containers, thereby improving fuel efficiency and reducing emissions. (Minimization) • The ICTF will be a semi-automated facility that minimizes air quality emissions during operations as a result of increased efficiencies during the handling and processing of containers. (Minimization) • The project will use electric wide-span gantry cranes that emit zero air emissions versus diesel-powered lift equipment. (Minimization) • An automated gate system will be utilized for the over-the-road (OTR) trucks entering/exiting the facility from the Wando Welch and North Charleston Container Terminals and an optical character recognition (OCR) portal at the connection from the facility (drayage road) to the HLT to reduce on-site idle times of trucks. (Minimization) • Use of automated gates at at-grade crossings to reduce emissions due to reduced truck idling. (Minimization) • The Applicant will provide access to air quality and health assessment data as requested to evaluate health impacts. (Minimization) • The Applicant will support the South Carolina Ports Authority (SCPA) efforts to implement a container barge service to transfer containers between Wando Welch Terminal and a yet-to-be- determined wharf location at the former CNC in North Charleston for transport via intermodal rail at the proposed ICTF. Transferring containers between terminals via barge transportation will help to alleviate truck congestion on the interstate system, specifically I-526 between the Wando Welch Marine Container Terminal on Long Point Road and I-26, and minimizing impacts of air emissions. This service would work in conjunction with the Hugh K. Leatherman, Sr. Terminal (HLT) and the ICTF drayage road efforts in alleviating truck congestion on the area local roads and interstate system. *(Minimization) • Implement dust control measures (such as watering unpaved work areas, temporary and permanent seeding and mulching, covering stockpiled materials, and using covered haul trucks). (Minimization) • Construct an earthen berm between the processing and classification tracks and adjacent neighborhoods. (Minimization) • Comply with Air Quality State Construction and Operating permit requirements, conditions, and reporting. (Minimization) • Operate and maintain air pollution control equipment in accordance with permit requirements. (Minimization) • Use Tier 4 Utility Tractor Rigs (UTR) at full build out (2038) on the private drayage road to transfer containers to the ICTF versus transferring the same containers using over the road trucks on public roadways to minimize emissions. (Minimization) • Limit switching activity within the ICTF to Tier 4 locomotive engines by full build-out (2038). (Minimization)

Resource Area	Avoidance, Minimization, and Mitigation Measures
Climate change	• See measures in Air Quality.
Hazardous and toxic waste	• Implement a Solid and Hazardous Waste Management Plan, SPCC plan, and comply with Resource Conservation and Recovery Act (RCRA) and SCDHEC requirements for storage and handling of hazardous and toxic wastes. (Minimization) • The Applicant is working with the U.S. Navy for long-term monitoring and removal of hazardous wastes. The following hazardous materials have already been removed from the intermodal site: 10,860 linear feet of fuel lines, 2,110 linear feet of natural gas lines, 4,570 linear feet of underground asbestos lines, 530 linear feet of asbestos stream lines, 980 square feet of transite panel, 96,150 gallons of product, and 206 cubic yards of asbestos containing materials. * (Minimization) • Employ the use of an oil-water separator at the locomotive shop and proper spill protection (e.g., spill kit, collector pans) for light duty repairs in the vicinity of the "repair in place" tracks to ensure treatment of any oily waste from on-terminal equipment maintenance activities. (Minimization) • Inclusion of forebays in stormwater management system to provide pretreatment of stormwater runoff before it discharges to Pond A. (Minimization) • Installation of additional water monitoring wells, in cooperation with SCDHEC and the Navy, will support ongoing reclamation of the site from U.S. Navy Operations. (Minimization) • Perform all land and groundwater disturbance activities in compliance with the U.S. Navy Construction Process Document (Navy "Dig" Permit), included as part of its SCDHEC RCRA Hazardous Waste Permit, which identifies the permit process and requirements for conducting construction or other land disturbing activities in Land Use Control (LUC) Areas at the former Navy Base (Charleston Naval Complex). (Minimization)
Socioeconomics and Environmental Justice (Community)	• Contributed $8 million to the City of North Charleston as part of the 2012 settlement agreement to mitigate the impacts to the community[105]. (Minimization) • Residential properties that are forced to relocate will receive full compensation in accordance with the Uniform Relocation Assistance and Real Properties Act of 1970 (The Uniform Act). Affected property owners and displaced persons will receive assistance in accordance with The Uniform Act including (but not limited to) the following: relocation services to displaced tenants and owner occupants, minimum 90 days written notice to vacate, reimbursement for moving expenses, and payments for the added cost of renting or purchasing comparable replacement housing. (Minimization) • The Applicant will provide relocation services for a period of three (3) years (after the official opening of the facility) to owner-occupied residential property owners who, as of the Effective Date of the Community MOA, reside in the Relocation Area from 100 feet of the Project up to North Carolina Avenue. (Minimization) • Nonresidential properties (businesses, nonprofit organizations) will receive full compensation in accordance with The Uniform Act. The business located on the four parcels along Milford Street that are required to relocate will receive relocation assistance consisting of the following: inspecting and gathering information regarding each displacee and a search area for available replacement sites, conducting an inventory of personal property to be moved and securing a cost to relocate those items within a 50-mile radius, offering relocation assistance to displaces after establishing their eligibility and assist in getting them relocated from the site, providing the appropriate written notices to the displacees, coordinating securing the approximate payment, ensuring that displaces understand their options, and providing relocation services as necessary to advance the project. (Minimization)

[105] This mitigation measure is based on lawsuit settled in December 2012 (Section 1.5.1).

Resource Area	Avoidance, Minimization, and Mitigation Measures
	• Developed the Community Mitigation Working Group, comprised of the Chicora-Cherokee Neighborhood Association, Union Heights Community Council, Lowcountry Alliance for Model Communities (LAMC), and Metanoia Community Development Corporation. (Minimization). • The Applicant and the Community Mitigation Working Group entered into a Memorandum of Agreement (MOA) related to the use of mitigation funds in connection with the impacts of the facility (details on the agreement can be found in Appendix N). The Community MOA specifically addresses the following activities: – The Applicant shall fund $3 million for the construction of a community recreation center on property to be provided by the City of North Charleston, located in the area of the Chicora Tank Farm. The recreation center is proposed to include approximately 10,000 square feet of gymnasium space, 5,000 square feet of fitness facility space, office space, and bathrooms facilities. LAMC commits to provide $200,000 for fitness equipment and $50,000 for exterior fitness stations. The Applicant also supports the inclusion of an outdoor area that could be used as a community farmer's market in the planning for the center. (Minimization) – The Applicant shall provide an additional $1 million in mitigation funds for the impacts of the ICTF. The funding amount may be increased should the construction funds for the recreation center not be fully expended or utilized. The community mitigation funds shall be distributed as follows: 47% for affordable housing, 13% for job training, 13% for education, 13% for environmental research, 8% for a youth endowment, and 6% for an endowment for community organizations. (Minimization) – Development of an agreement with SCDHEC to address environmental impacts including support for operational efficiencies and Best Management Practices (BMPs) for intermodal facilities. (see Air Quality mitigation). (Minimization) – The Applicant will construct a 100-foot buffer with a landscaped earthen berm and noise wall between the ICTF and Chicora-Cherokee Neighborhood. The buffer will be appropriately landscaped with native, noninvasive vegetation. When appropriate, the Applicant will seek exceptions to the City of North Charleston's Tree Preservation Ordinance for vegetation options that can support appropriate mitigation. The buffer will be permanently maintained by the Applicant. (Minimization) – For a period of three (3) years after the official opening of the ICTF, the Applicant shall provide relocation services to owner-occupied residential property owners who, as of the Effective Date of the Community MOA, reside in the Relocation Area from the project area to North Carolina Avenue. The relocation services provided by will be consistent with the Uniform Act. (Minimization) – The Applicant will maintain its 5 percent set aside goal for Disadvantaged Business Enterprises (DBEs) in its construction contracts. They further commit to making the Community Mitigation Working Group aware of all job opportunities, through providing job announcements to the community, minority media, and local organizations. The Applicant will also support job fairs in the local community, internship and training programs, with regard to the facility in both its construction and operation stages. In addition, the Applicant will further investigate the possibility of summer internships for youth in partnership with the Community Mitigation Working Group. See Appendix N for specific details (Minimization) – The Applicant will support the City of North Charleston and Class I Rail Carriers and the Community Mitigation Working Group to establish quiet zones for rail traffic within the affected communities. (Minimization) – The Applicant will support the City of North Charleston to develop a truck route and restriction plan for the area and will work to inform truck drivers as to the approved routes to and from the facility. (Minimization) – The Applicant will support the City of North Charleston in the rehabilitation and repair of the former Chicora Elementary School in the Chicora-Cherokee area for the benefit of the community. The City of North Charleston's rehabilitation of the

Resource Area	Avoidance, Minimization, and Mitigation Measures
	auditorium, which, when combined with the recreation center partially funded by the Applicant, will serve to replace the facilities that were once provided to the affected communities at Sterett Hall. Palmetto Railways assumes no responsibility or obligation, financial or otherwise, for the rehabilitation of the auditorium, which is not a part of the agreement. (Minimization) – The Applicant will support the City of North Charleston and the Community Mitigation Working Group in the establishment of Quitman's Marsh as a recreational area. (Minimization) • The Applicant and the Low County Orphan Relief have reached an agreement to minimize and compensate for impacts to the property. (Minimization) • The Applicant has developed an ongoing community engagement and awareness plan to keep stakeholders and the public engaged and informed, including the following activities – Provide newsletters to the affected community on a biannual basis targeting the needs and opportunities for the affected community during the duration of construction. (Minimization) – Provide community presentations to organizations and the affected community throughout the project's duration. (Minimization) – Presenting the Community Mitigation Plan to the community during the draft and final stages. (Minimization) – Hold community leadership meetings in the affected community every six months after the Record of Decision (ROD) is posted to address community concerns. (Minimization) – Hold construction meetings with the affected community twice a year during construction to keep the public informed and gather comments and feedback from the public. (Minimization) – A Community Advisory Panel will be established with the affected community, interested stakeholders and businesses twice a year after construction is completed to gather feedback and keep the public informed about the facility. The Community Advisory Panel will continue through operations. (Minimization) – The Applicant agrees to provide a quarterly report to the Community Mitigation Working Group regarding the construction of the recreation center, until construction is completed. (Minimization) – The Palmetto Railways website (www.palmettorailways.com) will be used for community information about the facility and tours of the facility can be scheduled at any time during construction and operation. (Minimization) • Implement the Air Quality Memorandum of Agreement (MOA) with the SCDHEC to address certain concerns related to the environmental impacts of the Project. The Air Quality MOA provides for air quality initiatives including the contribution of $50,000 from the Applicant to go towards ambient air quality initiatives in conjunction and coordination with SCDHEC and the Medical University of South Carolina on air quality initiatives in the Charleston region. (Minimization) • Incorporate design elements into the facility including a landscaped earthen berm, sounds walls, 100-foot buffer, cut (trench) section, use directional lighting, container stacking limits, and implement other identified mitigation measures that minimize noise, vibrations, visual, and air quality impacts. (Minimization) • Continue to cooperate with the appropriate emergency services personnel within the Cities of North Charleston and Charleston to address emergency response coordination and other specific issues as they arise. (Minimization) • Examine emergency service benefits and gather input from local emergency service providers as part of the Surface Transportation Impact Study. See Appendix B for details on the study* (Minimization) • Study the need for grade separated crossings as part of the Crossing Analysis. See Appendix N for details. * (Minimization)

Resource Area	Avoidance, Minimization, and Mitigation Measures
Human health and safety	• Provide around-the-clock security through a combination of security fencing, video cameras, and other security measures. (Minimization) • Conduct construction and operations in accordance with appropriate regulations, permits, best practices, and codes. (Minimization) • Employ the use of automated switches to eliminate the need for train crews to get out of trains to manually throw switches and thus enhancing the safety of railroad workers. (Minimization) • Use of inter-box connector (IBC) carts to provide enhanced safety for railroad workers by avoiding slip, trip, and fall incidents while accessing railcars to (un)lock IBCs on containers. (Minimization) • Employ the use of an automated gate system to eliminate the need for railroad workers to complete inbound, container and chassis damage inspections by walking in a congested gate area thus enhancing safety of railroad workers and potentially reducing grade crossing closures. (Minimization) • Safety precautions and training measures will be implemented by the Applicant during construction and operation of the facility, and safety guidelines would be complied with. (Minimization) • Use of state of the art equipment to minimize sound emissions during operations. (Minimization) • Design and construct a cut section (trench), sound walls, and a landscaped berm within a 100-foot buffer for noise reduction to adjacent neighborhoods. (Minimization) • See Section 4.12.12 for a complete list of mitigation for potential noise and vibration impacts. • Design and construct a semi-automated facility that minimizes emissions during operations. (Minimization) • Contribute $50,000 towards ambient air quality initiatives in conjunction and coordination with SCDHEC and the Medical University of South Carolina on air quality initiatives in the Charleston region. (Minimization) • See Section 4.13.12 for a complete list of mitigation for potential air quality impacts. • Continue planned removal of hazardous materials at the site. (Minimization) • Install additional water monitoring wells at the site. (Minimization) • Implementation of BMPs and SPCC at the site. (Minimization) • See Section 4.15.12 for a complete list of mitigation for potential impacts from Hazardous materials. • To minimize the impact of lights from the site on adjacent areas, all operating lights will be directed downward to shield light sources minimizing any light bleed off the facility footprint. (Minimization) • Design the facility to minimize visual impacts including a cut section (trench) and an earthen berm within a 100-foot buffer between the facility and adjacent neighborhoods. LED lighting fixtures will be installed over bridges and other areas where practical. (Minimization) • Completed a photometric design for intermodal facility high-mast lighting that would result in less than 0.5 foot-candles outside of the property boundary. (Minimization) • See Section 4.11.12 for a complete list of mitigation for potential impacts from light and glare. • Continue to cooperate with the appropriate emergency services personnel within the Cities of North Charleston and Charleston to address emergency response coordination and other specific issues as they arise. (Minimization)

Resource Area	Avoidance, Minimization, and Mitigation Measures
	• Examine emergency service benefits and gather input from local emergency service providers as part of the Surface Transportation Impact Study (See Appendix B). (Minimization) • Study the need for grade separated crossings as part of the Crossing Analysis (See Appendix N). * (Minimization). • Provide detour routes (elevated Stromboli Avenue and Cosgrove-McMillan Overpass). (Minimization)
Section 4(f) and 6(f) resources	• See measures for cultural resources.

Items noted with an asterisk (*), have not been considered in the impact analysis in Chapter 4.

6.1.2 Mitigation

Mitigation is an important component of the project and is considered throughout the DA permit evaluation and the NEPA process. The Applicant has committed to a number of measures to minimize environmental impacts from Alternative 1 (Proposed Project), in the event that the DA permit is granted. These measures are included in the DA permit application and mitigation plan (Appendix N).

Many of the major mitigation measures proposed by the Applicant were committed to as part of several Memoranda of Agreements. The Applicant worked with local jurisdictions and several community organizations to develop the Community Memorandum of Agreement (MOA). This agreement commits the Applicant to mitigation actions that reduce and offset some of the negative impacts that the Alternative 1 (Proposed Project) may have on the local community. As part of the Community MOA, the Applicant will provide $3 million for the construction of a new recreation center to replace Sterett Hall and $1 million for a revolving fund for affordable housing, job training, educational initiatives, environmental research, and health impact studies. The Air Quality MOA provides for air quality initiatives including the contribution of $50,000 from the Applicant to go towards ambient air quality initiatives in conjunction and coordination with SCDHEC and the Medical University of South Carolina on air quality initiatives in the Charleston region. The Community MOA and Air Quality MOA have been executed. The Cultural Resources MOA was executed on May 30, 2018, and includes mitigation proposed by the Applicant, including the funding of $2 million for a CNB Historical Trust for rehabilitation of historic structures at the Charleston Naval Hospital or USMC Barracks. Appendix N includes copies of the MOAs and details of the agreements.

To reach an agreement concerning the impacts and potential mitigation options for the City of Charleston, the Applicant prepared a draft Transportation Memorandum of Agreement (draft Transportation MOA) between the Applicant, South Carolina Department of Transportation (SCDOT), the South Carolina Department of Commerce, and the City of Charleston. This draft Transportation MOA was prepared to address transportation and safety impacts; specifically, with ICTF-related grade crossings within the City of Charleston. The draft Transportation MOA recognizes the importance of the ICTF to facilitate and enhance economic growth and development in the region,

while ensuring an adequate and functioning transportation system in the surrounding jurisdictions. The draft Transportation MOA identifies the scope of evaluation activities, sources of funding, and roles and responsibilities of the parties. As part of the draft Transportation MOA, the parties will conduct a Crossing Analysis (funded by the Applicant) to examine conditions at the crossings and identify potential improvements, where warranted. The draft Transportation MOA does not specifically identify, or commit the Applicant to construct, any new grade separated crossings; however, it proposes to study the impacts and needs for these improvements. In addition to the Crossing Analysis, the Applicant also proposes in the draft Transportation MOA to provide funds up to $4.5 million to the City of Charleston (or another government body) for its use on mitigation measures for transportation improvements. The draft Transportation MOA is included in Appendix N. Although the Applicant and the City of Charleston have not reached a final agreement on the specific terms of mitigation for the City of Charleston, the Applicant has represented by letter dated December 6, 2017, that it is "committed to fulfilling the items in Section 2 of the MOA as mitigation for the [ICTF] impact on the City [of Charleston]" (Appendix B).

Pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), Sections 401 and 404 of the Clean Water Act (33 U.S.C. 1344), and the South Carolina Coastal Zone Management Act (48-39-10 et seq.), a joint permit application was submitted to the Department of the Army (DA) and the S.C. Department of Health and Environmental Control (SCDHEC) in October 2016. The Applicant's permit application included a Wetland Mitigation Plan (Appendix N). Temporary impacts would be minimized with the removal of dredge/fill material deposited during construction and the restoration of natural grades. The Applicant proposes to offset losses to waters of the U.S., including wetlands, with a combination of off-site measures to replace losses of aquatic resources, consistent with 33 C.F.R. 332, Compensatory Mitigation for Losses of Aquatic Resources. The Applicant's Wetland Mitigation Plan proposes to purchase 86.3 wetland mitigation credits from Pigeon Pond Mitigation Bank to compensate for freshwater impacts, as well as a permittee responsible mitigation plan to restore and protect approximately 40.6 acres of tidal marsh at the former Kings Grant Country Club and Golf Course in North Charleston, Dorchester County, SC. Final calculation of the required wetland mitigation credits will be based on approved and final plans. A complete list of mitigation measures is included in Appendix N.

6.1.3 Additional Mitigation Measures Identified by the Corps

The additional measures the Corps has identified to further mitigate potential impacts of the Navy Base ICTF are listed by resource area in Table 6-2. These measures are summarized from Chapter 4 and presented here for convenience. Additional avoidance, minimization, and mitigation may be identified by the Corps in its decision-making process. Final mitigation measures may be adopted as conditions of the DA permit and documented in the Record of Decision (ROD).

Table 6-2
Additional Mitigation Measures Being Identified by the Corps

Resource Area	Avoidance, Minimization, and Mitigation Measures
Geology and soils	• No additional measures have been identified.
Hydrology	• The Corps proposes an additional mitigation measure that the pre-construction course, condition, capacity, and location of open waters must be maintained.
Water quality	• No additional measures have been identified.
Vegetation and wildlife	• No additional measures have been identified.
Waters of the United States	• No additional measures have been identified
Protected Species	• Adherence to the following USFWS Manatee Guidelines during in-water construction: ○ The permittee will stop work if a manatee is seen near the Project site. ○ The Project Manager shall instruct all personnel associated with the Project of the potential presence of manatees and the need to avoid collisions with manatees. All construction personnel must monitor water-related activities for the presence of manatee(s) during May 15 through October 15. ○ The Project Manager shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973. ○ Any siltation barriers used during the Project shall be made of material in which manatees cannot become entangled and must be properly secured, and regularly monitored to avoid manatee entrapment. ○ All vessels associated with the Project shall operate a "no wake/idle" speeds at all times while in the construction area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible. ○ If manatee(s) are seen within 100 yards of the active construction area all appropriate precautions shall be implemented to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet to a manatee. Operation of any equipment closer than 50 feet to a manatee shall necessitate immediate shutdown of that equipment. Activities will not resume until the manatee(s) has departed the Project area of its own volition. ○ Any collision with and/or injury to a manatee shall be reported immediately to Jim Valade of the U.S. Fish and Wildlife Service, North Florida Field Office, at (904) 731-3116. • The permittee will also stop work if a turtle or sturgeon is seen near the Project site during construction. • Adherence to environmental work windows for in-water construction during the winter months when sea turtles are less abundant. • The contractor will hire a qualified marine biologist to be on-site during in-water construction activities to avoid potential impacts to aquatic Protected Species. • During in-water work, a floating semi-permeable turbidity curtain will be deployed around areas where pile driving is taking place. • The contractor will hire a qualified marine biologist to be on-site during in-water construction activities to avoid potential impacts to aquatic Protected Species. • Time of year and methods for preconstruction surveys for protected bird species will be coordinated with the USFWS.

Resource Area	Avoidance, Minimization, and Mitigation Measures
Essential Fish Habitat	• The contractor will utilize soft-start techniques for pile driving activities. This will consist of a series of taps at 25-40 percent of the pile driver's energy, followed by a one-minute waiting period. • During in-water work, a floating semi-permeable turbidity curtain will be deployed around areas where pile driving is taking place. • Adherence to environmental windows for construction during the winter months when sea turtles are less abundant. • The contractor will hire a qualified marine biologist to be on-site during in-water construction activities to avoid potential impacts to marine resources and EFH. • Implement an SPCC plan to minimize the impact of a potential spill event on EFH.
Traffic and transportation	• No additional measures have been identified.
Land use and infrastructure	• No additional measures have been identified.
Cultural resources	• If any previously unknown historic, cultural, or archaeological remains or artifacts are discovered during construction, the District Engineer for the Charleston District, U.S. Army Corps of Engineers must be notified immediately.
Visual resources and aesthetics	• No additional measures have been identified.
Noise and vibration	• No additional measures have been identified.
Air quality	• No additional measures have been identified.
Climate change	• No additional measures have been identified.
Hazardous, toxic, radioactive waste (HTRW)	• No additional measures have been identified.
Socioeconomics and Environmental Justice	• No additional measures have been identified.
Human health and safety	• No additional measures have been identified.
Section 4(f) and 6(f) resources	• See measures for cultural resources.

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