

Appendix A

Draft Clean Water Act Section 404(b)(1) Guidelines Evaluation

APPENDIX A
DRAFT CLEAN WATER ACT SECTION 404(b)(1)
GUIDELINES EVALUATION FOR THE
PROPOSED NAVY BASE
INTERMODAL CONTAINER TRANSFER FACILITY
NORTH CHARLESTON, SOUTH CAROLINA

Prepared for:

U.S. Army Corps of Engineers
Charleston District
69-A Hagood Avenue
Charleston, South Carolina 29403

Prepared by:

Atkins North America, Inc.
7406 Fullerton Street
Jacksonville, Florida 32256

March 2016

Contents

	Page
Acronyms and Abbreviations	viii
1.0 INTRODUCTION.....	1-1
1.1 APPLICANT’S PROPOSED PROJECT	1-1
1.2 PROJECT BACKGROUND.....	1-2
1.2.1 Project Site	1-4
1.3 THE CORPS AUTHORITY AND SCOPE OF ANALYSIS	1-6
1.3.1 Section 404 of the Clean Water Act	1-6
1.3.2 National Environmental Policy Act	1-7
2.0 FINDING OF PRACTICABLE ALTERNATIVES (40 CFR 230.10 [A])	2-1
2.1 PROJECT PURPOSE	2-2
2.1.1 Applicant’s Stated Purpose and Need.....	2-2
2.1.2 The Corps’ Basic Project Purpose and Determination of Water Dependency	2-5
2.1.3 The Corps’ Overall Project Purpose and Alternatives Analysis	2-5
2.2 ALTERNATIVES DEVELOPMENT	2-6
2.2.1 Identification of Alternatives	2-6
2.3 ALTERNATIVES RECOMMENDED FOR FURTHER ANALYSIS IN THE EIS	2-8
2.4 ALTERNATIVES PRACTICABILITY ANALYSIS	2-9
2.4.1 Practicability Analysis Methods.....	2-10
3.0 RESTRICTIONS ON DISCHARGE (40 CFR 230.10[B]).....	3-1
4.0 FINDING OF NO SIGNIFICANT DEGRADATION (40 CFR 230.10[C]).....	4-1
5.0 MINIMIZATION OF POTENTIAL ADVERSE IMPACTS (40 CFR 230.10[D])	5-1
6.0 SUMMARY OF FINDINGS OF COMPLIANCE	6-1
7.0 SUBPART B: COMPLIANCE WITH THE GUIDELINES	7-1
7.1 RESTRICTIONS ON DISCHARGE (40 CFR 230.10).....	7-1
7.2 FACTUAL DETERMINATIONS (40 CFR 230.11)	7-2
7.2.1 Physical Substrate Determinations (40 CFR 230.11[a]).....	7-2
7.2.2 Water Circulation, Fluctuation, and Salinity Determinations (40 CFR 230.11[b])	7-3
7.2.3 Suspended Particulates and Turbidity Determinations (40 CFR 230.11[c]).....	7-3
7.2.4 Contaminant Determinations (40 CFR 230.11[d]).....	7-4
7.2.5 Aquatic Ecosystems Structure and Function Determinations (40 CFR 230.11[e]).....	7-4
7.2.6 Proposed Disposal Site Determination (40 CFR 230.11[f])	7-4
7.2.7 Determination of Cumulative Effects on the Aquatic Ecosystem (40 CFR 230.11[g]).....	7-5
7.2.8 Determination of Secondary Effects on the Aquatic Ecosystem (40 CFR 230.11[h])	7-5

8.0	SUBPART C: POTENTIAL IMPACTS ON PHYSICAL AND CHEMICAL CHARACTERISTICS OF THE AQUATIC ENVIRONMENT.....	8-1
8.1	SUBSTRATE (40 CFR 230.20)	8-1
8.2	SUSPENDED PARTICULATES AND TURBIDITY (40 CFR 230.21)	8-1
8.3	WATER QUALITY AND CHEMISTRY (40 CFR 230.22)	8-2
8.4	WATER CIRCULATION AND CURRENT PATTERNS (40 CFR 230.23)	8-2
8.5	ALTERATION OF NORMAL FLUCTUATIONS (40 CFR 230.24)	8-3
8.6	SALINITY GRADIENTS (40 CFR 230.25)	8-4
9.0	SUBPART D: POTENTIAL IMPACTS ON THE BIOLOGICAL CHARACTERISTICS OF THE AQUATIC ECOSYSTEM.....	9-1
9.1	PROTECTED SPECIES (40 CFR 230.30)	9-1
9.2	AQUATIC FOOD WEB (40 CFR 230.31)	9-2
9.3	OTHER WILDLIFE (40 CFR 230.32)	9-3
9.3.1	Birds.....	9-3
9.3.2	Mammals, Reptiles and Amphibians.....	9-3
10.0	SUBPART E: POTENTIAL IMPACTS ON SPECIAL AQUATIC SITES.....	10-1
10.1	SANCTUARIES AND REFUGES (40 CFR 230.40)	10-1
10.2	WETLANDS (40 CFR 230.41).....	10-1
10.3	MUDFLATS (40 CFR 230.42).....	10-2
10.4	VEGETATED SHALLOWS (40 CFR 230.43).....	10-3
10.5	CORAL REEFS (40 CFR 230.44)	10-3
10.6	RIFFLE AND POOL COMPLEXES (40 CFR 230.45)	10-3
11.0	SUBPART F: POTENTIAL EFFECTS ON HUMAN USE CHARACTERISTICS	11-1
11.1	MUNICIPAL AND PRIVATE WATER SUPPLIES (40 CFR 230.50)	11-1
11.2	RECREATIONAL FISHING (40 CFR 230.51) AND WATER-RELATED RECREATION (40 CFR 230.52)	11-2
11.3	AESTHETICS (40 CFR 230.53).....	11-3
11.4	PARKS, NATIONAL AND HISTORICAL MONUMENTS, NATIONAL SEASHORES, WILDERNESS AREAS, RESEARCH SITES, AND SIMILAR PRESERVES (40 CFR 230.54)	11-4
12.0	SUBPART G: EVALUATION OF DREDGED OR FILL MATERIAL (40 CFR 230.60).....	12-1
13.0	SUBPART H: ACTIONS TO MINIMIZE ADVERSE EFFECTS	13-1
13.1	ACTIONS CONCERNING THE LOCATION OF THE DISCHARGE (40 CFR 230.70)	13-2
13.2	ACTIONS CONCERNING THE MATERIAL TO BE DISCHARGED (40 CFR 230.71)	13-2
13.3	ACTIONS CONTROLLING THE MATERIAL AFTER DISCHARGE (40 CFR 230.72).....	13-2
13.4	ACTIONS AFFECTING THE METHOD OF DISPERSION (40 CFR 230.73).....	13-3
13.5	ACTIONS RELATED TO TECHNOLOGY (40 CFR 230.74)	13-3
13.6	ACTIONS AFFECTING PLANT AND ANIMAL POPULATIONS (40 CFR 230.75)	13-4
13.7	ACTIONS AFFECTING HUMAN USE (40 CFR 230.76)	13-5
13.8	OTHER ACTIONS (40 CFR 230.77)	13-6
14.0	REFERENCES	14-1

Acronyms and Abbreviations

°F	degrees Fahrenheit
µm	micrometers
BMP	Best Management Practice
CARTA	Charleston Area Regional Transportation Authority
CFR	Code of Federal Regulations
CNC	Charleston Naval Complex
Corps	U.S. Army Corps of Engineers
CSX	CSX Transportation
CWA	Clean Water Act
DA	Department of the Army
DO	dissolved oxygen
EIS	Environmental Impact Statement
ESA	Endangered Species Act of 1968, as amended
FLETC	Federal Law Enforcement Training Center
Guidelines	Section 404(b)(1) Guidelines
HABS	Historic American Buildings Survey
HUC	hydrologic unit code
I-526	Interstate Highway 526
ICTF	Intermodal Container Transfer Facility
LAMC	Lowcountry Alliance for Model Communities
LEDPA	least environmentally damaging practicable alternative
LF	linear feet
LRR	Land Resource Region
LUC	Land Use Control
mg/L	milligrams per liter
MLRA	Major Land Resource Area
NCTC	North Charleston Terminal Company
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge and Elimination System
NRCS	Natural Resources Conservation Service
NTU	nephelometric turbidity unit
Palmetto Railways	South Carolina Department of Commerce Division of Public Railways d/b/a Palmetto Railways
Port	Port of Charleston

RCRA	Resource Conservation and Recovery Act
RFFAs	reasonably foreseeable future actions
ROD	Record of Decision
ROW	right-of-way
SCDHEC	South Carolina Department of Health and Environmental Control
SCDNR	South Carolina Department of Natural Resources
SCPR	South Carolina Public Railways
SCSPA	South Carolina State Ports Authority
SF	square feet
SHPO	South Carolina State Historic Preservation Officer
SPCC	Spill Prevention and Control Countermeasures
SR 52	State Route 52
SWPPP	Storm Water Pollution Prevention Plan
TEUs	twenty-foot equivalent units
TSS	total suspended solids
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VCC	Voluntary Cleanup Contract

1.0 INTRODUCTION

As part of its permitting decision regarding the Navy Base Intermodal Container Transfer Facility (ICTF) (Proposed Project), the United States Army Corps of Engineers (Corps) must evaluate the compliance of the Proposed Project with the Section 404(b)(1) Guidelines (Guidelines)¹. This document constitutes a draft evaluation of the Navy Base ICTF's compliance with the Guidelines. This document has been prepared to serve two primary purposes:

- To present the preliminary information that ultimately will be used as part of the Corps' 404(b)(1) compliance determination and decision-making process regarding the proposed Navy Base ICTF; and
- To inform the public of the Corps decision-making process with respect to the 404(b)(1) compliance evaluation of the Navy Base ICTF and to invite the public to participate and provide comments relevant to that evaluation.

Notably, this draft Guidelines evaluation is based on the information contained in the Environmental Impact Statement (EIS) and supporting studies and reports, and is provided for information. The complete EIS and its appendices are available for review at www.navybaseictf.com. The Corps will not finalize its Guidelines compliance determination regarding the Navy Base ICTF Project Department of the Army (DA) permit application until after the public has had an opportunity to comment on the EIS and the Corps has published a Final EIS. After the Corps has published the Final EIS, a Record of Decision (ROD) will be issued describing the Corps' decision on the DA permit application and its determination of whether the Navy Base ICTF complies with the Guidelines.

1.1 APPLICANT'S PROPOSED PROJECT

The South Carolina Department of Commerce Division of Public Railways, d/b/a Palmetto Railways (Palmetto Railways), has proposed to construct and operate a state-of-the-art ICTF at the former Charleston Naval Complex (CNC) to facilitate the transfer of international cargo containers between ships/trucks and rail (i.e., trains) in North Charleston, South Carolina. The Proposed Project, also referred to as the Navy Base Intermodal Container Transfer Facility (Navy Base ICTF), would provide equal access to the Class I rail carriers (CSX Transportation [CSX] and Norfolk Southern Railway [NS]) that serve the Port of Charleston (Port) and various local businesses and industries.

The Proposed Project would require fill material in Waters of the United States, including wetlands (Waters of the U.S.). Section 404 of the Clean Water Act (CWA) establishes a regulatory program to

¹ 40 CFR 230. The Section 404(b)(1) Guidelines, prepared by U.S. Environmental Protection Agency, are the substantive criteria used by the USACE for evaluation of a Section 404 permit.

regulate the input of fill material into Waters of the U.S., including wetlands, through issuance of DA permits.

1.2 PROJECT BACKGROUND

The Proposed Project, as submitted by Palmetto Railways, consists of constructing and operating an ICTF on approximately 130 acres for the facility site, and undertaking off-site roadway and rail improvements. Palmetto Railways initially submitted a proposal to the Corps on September 27, 2013, and after several revisions, a final proposal was submitted on September 8, 2015.. The intermodal facility would include, but is not limited to, processing and classification railroad tracks, wide-span gantry cranes, container stacking areas, administrative buildings, and vehicle driving lanes. The off-site infrastructure improvements would include building: (1) a private drayage road approximately 1 mile long connecting the ICTF to the future Hugh K. Leatherman, Sr., Terminal (HLT), (2) rail improvements to the north and south of the ICTF, and (3) several roadway improvements and modifications, including the construction of a new overpass. Specific Proposed Project components are mapped on Figure 1.7-1 in the EIS.

The proposed 130-acre ICTF is bordered to the east by Bainbridge/North Hobson Avenues, to the north by Macmillan and Cosgrove Avenues, to the south by Stromboli Avenue, and to the west by Spruill Avenue and the Chicora/Cherokee neighborhoods. The ICTF would encompass the following permanent structures:

- Two two-story buildings (a locomotive repair shop and an administration and maintenance building, including heating, ventilation, air conditioning [HVAC] systems; plumbing; mechanical systems; security systems; and electrical systems); the area of the buildings would be approximately 26,576 square feet (SF);
- A parking area for operational and private vehicles (141 parking spaces and 7 handicap parking spaces);
- A landscaped earthen berm with security fence to provide for sound attenuation along the length of the processing and classification railroad tracks adjacent to the Chicora and Cherokee neighborhoods; in areas adjacent to Waters of the U.S., a sound attenuation and security wall would replace the earthen berm.
- Approximately 31,700 linear feet (LF) of processing railroad track;
- Approximately 25,505 LF of classification railroad track;
- Six electric, wide-span gantry cranes, each at a height of 91 feet, and the potential for up to five “nested” cranes that would be placed adjacent to existing wide-span gantry cranes, resulting in a maximum total combined height of 115 feet;
- Container stacking areas, up to four containers in height: Container area for Production/Stacking (Production Cranes) at approximately 256,500 SF;

- One automated gate system for on-road trucks entering/exiting the facility from the Wando Welch and North Charleston Container Terminals and an optical character recognition (OCR) portal on the drayage road between the ICTF and the HLT;
- Vehicle driving lanes: Gate Area at 7,225 LF, Yard Circulations at 6,425 LF; and
- Stormwater management improvements, including placement of 21,000 LF of pipe of varying sizes and approximately 55,300 LF of underdrains, and construction of four dry detention ponds, totaling approximately 2,358,000 cubic feet (cf) of storage for on-site water, and vegetated swales.

Establishing a direct connection between the ICTF and the HLT would involve construction of a drayage road of approximately 1 mile in length, and 50 feet in width (two lanes). The drayage trucks would exit the HLT, continue north through Federal Law Enforcement Training Center (FLETC)-owned property and across Shipyard Creek, and then would pass through the OCR portal before entering the southern portion of the ICTF (Figure 1.7-3 in the EIS). The drayage road would be elevated across Shipyard Creek and two areas of associated marsh and grade separated over the Port Access Road.

Several roadway improvements and modifications would be constructed to facilitate operation of the Proposed Project. At the northern end of the ICTF, the segment of McMillan Avenue between St. Johns Avenue and Kephart Street would be closed. The remainder of McMillan Avenue will become an extension of St. Johns Avenue. The segment of Cosgrove Avenue that is located east of Spruill Avenue would be realigned and replaced with a flyover over the new rail lines. The flyover would provide future roadway access between Spruill Avenue and North Hobson Avenue after McMillan Avenue is closed. The CNC gate at Turnbull Avenue and St. John's Avenue would remain closed. Turnbull Avenue would be closed.

At the southern end of the ICTF, the Viaduct Road Overpass would be closed and removed. Bainbridge Avenue and North Hobson Avenue would be realigned, including improvements to their intersection (Figure 1.7-5). With the removal of Viaduct Road, vehicular access to the southern end of the CNC would use the new Local Access Road. Stromboli Avenue would be elevated from its existing at-grade configuration. The construction of the local access segment of the Port Access Road including the elevation of Stromboli Avenue is part of the Port Access Road Design Build project to be undertaken by the SCDOT. Palmetto Railways will not begin closure and removal of Viaduct Road until SCDOT's project is completed.

Several rail improvements would be undertaken to facilitate operation of the Proposed Project and accommodate equal access for CSX and NS. These include:

- Construct a northern rail connection for NS through the Hospital District, which would connect to an existing interchange point with the North Charleston Terminal Company (NCTC) located across Noisette Creek.

- As part of the northern rail connection, construct a new railroad bridge across Noisette Creek that is adjacent to the existing railroad bridge. A second rail bridge is required because the existing bridge does not have capacity for a second track.
- Construct a southern rail connection for CSX that begins in the vicinity of Viaduct Road, extends to the south on the east side of Cooper Yard to a proposed interchange point with CSX, extends to the south to Herbert Street, runs along Milford Street, and then turns north to connect with an existing CSX railroad line near Meeting Street. While the segment from Viaduct Road through Cooper Yard would use existing CSX ROW, additional ROW would be acquired for the continuation of the southern rail connection through the industrial properties just north of Milford Street (Figure 1.7-7). One major at-grade rail crossing on Meeting Street would be required.

1.2.1 Project Site

The Proposed Project is located on the CNC in North Charleston, South Carolina, on the former Clemson Site. It lies on the west bank of the Cooper River six miles north of the confluence with the Ashley River. It is centrally located between several terminals operated by the South Carolina State Ports Authority (SCSPA), including the North Charleston Container Terminal, Veterans Terminal, the future HLT, Union Pier Terminal, Columbus Street Terminal, and the Wando Welch Container Terminal. The CNC is bounded by the Cooper River to the east, the neighborhoods of Chicora and Cherokee to the west, the Park Circle neighborhood to the north, and residential and industrial areas (e.g., the Macalloy site) to the south (Figure 1.1-1 of the EIS). The site contains both open land and developed areas that are interspersed within a network of private roads. Land uses on the site consist primarily of open fields and parking lots. The northern portion of the site contains Sterett Hall and the North Charleston Fire Department Station 2. The central portion of the site contains various abandoned buildings and athletic fields associated with the Academy High School prior to its relocation. A historic chapel was located in the northern portion of the site between North Hobson Avenue and Avenue B South, but has been relocated to another part of the CNC that is outside of the ICTF. A tank farm and the Viaduct Road overpass are located on the southern portion of the site.

Geography and Geology

The Proposed Project is located in the Tri-County area of South Carolina, consisting of Charleston, Berkeley, and Dorchester Counties. This area is located in the Southeastern area of South Carolina and is bordered by the Atlantic Ocean on its southeastern side. The regional area is low in elevation and has many rivers and streams that feed into the Atlantic Ocean through Charleston Harbor. The site for the Proposed Project is in North Charleston, on a peninsula between the Ashley and Cooper Rivers.

The study area is located within the Lower Atlantic Coastal Plain Physiographic Province in southeastern South Carolina. Geologic units underlying the study area range in age from Late Cretaceous (98 million years ago) to Holocene (8 to 0 thousand years ago) and are composed of

stratified gravel, sand, silt, clay, and limestone (Campbell et al. 1996). In the study area, the Coastal Plain sediments extend from land surface to the base of the Middendorf/Cape Fear formation(s) at approximately 3,000 feet depth. The coastal plain sediments are underlain by Triassic age crystalline basement rocks composed of diabase, basalt, or quartzitic sandstone depending on location (Corps 2006).

In the shallow subsurface of the Charleston area, to depths of approximately 230 feet below land surface, there are 11 sedimentary depositional units that record high stands of sea level during the last 40 million years. These units are bounded by interruptions in the sedimentation process and the processes of erosion resulting from the rise and fall of sea levels and are, for the most part, fossiliferous. The deposits are marine, marginal marine, and fluvial/ estuarine in origin, and range in age from Eocene (36 million years ago) to Holocene (8,000 years ago to present). From oldest to youngest, these deposits are the Harleyville, Parkers Ferry, and Ashley Formations of the Cooper Group; the Chandler Bridge, Edisto, and Marks Head Formations; the Goose Creek Limestone, the Daniel Island beds, the Penholoway Formation, the Ten Mile Hill beds, the Wando Formation, and various late Pleistocene and Holocene alluvium, artificial fill, barrier island sands, and estuarine deposits (Campbell et al. 1996).

Climate

The climate is humid subtropical, characterized by mild winters and hot, humid summers. January usually demonstrates the lowest annual temperatures, with a low of 35.9 degrees Fahrenheit (°F) and an average of 47.2 °F. On average, the warmest month is July, with highs of 91.4 °F and an average of 81.2 °F. The summer months have the most precipitation with August on average being the wettest month. Average precipitation in August is 6.16 inches, followed by September with 4.46 inches. Winters have mild precipitation varying around 3 inches each month and snowfall is rare, occurring every few years (National Climatic Data Center 2014).

Wind patterns in South Carolina are largely influenced by the Atlantic Ocean to the east and the Appalachian and Blue Ridge Mountains to the west. Average surface wind speeds range between 6 and 10 miles per hour. Wind direction varies seasonally. In the winter months, as cyclones move around the mountains, the winds are southwest. As they move over the Atlantic, the wind direction shifts to northeast. Winds in the spring are southwest on average. In the summer months, air flows from the Gulf of Mexico yielding south and southwestern winds. In autumn, a continental high pressure pattern fosters northeast winds (South Carolina Department of Natural Resources [SCDNR] 2010).

Watershed

The Proposed Project is located within the lower tidal reaches of the Cooper River watershed (Hydrologic Unit Code [HUC] 03050201). The project sites are drained by the tidal waters of Noisette and Shipyard Creeks.

Natural Communities

As defined by *The Natural Communities of South Carolina* (Nelson 1986), 10 natural and modified vegetation types occur in the study area. Of these 10 vegetation types, seven are natural communities (naturally occurring) and three are land use/non-natural communities that have been modified through the actions of humans. Descriptions of vegetation types in the study area are included in Section 3.4 of the EIS.

Land Use

Land use in the project vicinity includes the CNC and adjacent mixed residential and commercial land uses within portions of both the City of North Charleston and the City of Charleston. The dominant land use (aside from vacant parcels) at the former Naval Base and the Port of Charleston is Industrial, comprising 1,371 acres, or 25 percent of the study area. Industrial scale infrastructure within the Shipyards includes wharfs, dry docks, railroad lines, and gantry and tower cranes. Residential land use, comprising 1,030 acres or 19 percent of the study area includes traditional neighborhoods with a mix of single and multi-family housing units. New residential neighborhoods, developed as part of the City's community redevelopment program, also occupy these residential districts. Additional details on the existing land use are provided in Section 3.9 of the EIS.

Waters of the U.S.

Wetland habitat types within the study area are primarily tidal salt marsh, with occurrences of freshwater wetlands. Open tidal waters consist of Shipyard and Noisette Creek, their associated unnamed tributaries, and several ditches that are still considered tidal open waters due to their lunar tide flooding. The findings for Waters of the U.S. within the study area and their locations are found in Section 3.5 of the EIS.

1.3 THE CORPS AUTHORITY AND SCOPE OF ANALYSIS

1.3.1 Section 404 of the Clean Water Act

Many activities that Waters of the U.S. are subject to the jurisdiction of the Corps under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act of 1899. Under Section 404 of the CWA, the Corps has authority to permit the discharge of dredged or fill material in Waters of the U.S., and the authority to permit work. The placement of structures in navigable Waters of the U.S. is delegated to the Corps under Section 10 of the Rivers and Harbors Act. The permit application evaluation requirements of Section 404 of the CWA are guidelines developed by the U.S. Environmental Protection Agency (USEPA) in conjunction with the Corps and codified in 40 Code of Federal Regulations (CFR) Part 230. Under Subpart B of the Section 404(b)(1) Guidelines, the Corps' evaluation of the Navy Base ICTF is required to address the following four tests the Proposed Project must meet in order to receive a Section 404 permit.

- 40 CFR 230.10 (a): Whether there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. The alternative identified by this test is referred to as the least environmentally damaging practicable alternative or the least environmentally damaging practicable alternative (LEDPA). The evaluation of the Navy Base ICTF with respect to this compliance test is found in Chapter 2 of this document, Finding of Practicable Alternatives.
- 40 CFR 230.10 (b): Whether the discharge would violate any applicable state water quality standards, Section 307 of the CWA, the Endangered Species Act (ESA), or federal laws concerning marine sanctuaries. The evaluation of the proposed Navy Base ICTF with respect to this compliance test is found in Chapter 3, Restrictions on Discharge.
- 40 CFR 230.10 (c): Whether the discharge would cause or contribute to significant degradation of Waters of the U.S. The evaluation of the Navy Base ICTF with respect to this compliance test is found in Chapter 4, Finding of No Significant Degradation.
- 40 CFR 230.10 (d): Whether appropriate and practicable steps have been taken that will minimize potential adverse impacts of the discharge on the aquatic ecosystem. The evaluation of the Navy Base ICTF with respect to this compliance test is found in Chapter 5, Minimization of Potential Adverse Impacts.

Evaluation of a Proposed Project under all four of the tests listed above constitutes a determination of compliance with the Guidelines. While making a compliance determination, the Corps may gather information sufficient to support and make its decisions by soliciting comments from other federal, tribal, state, and local resource agencies and the public. However, the Corps is solely responsible for reaching a decision on the merits of the permit application, including determination of the project purpose, the extent of the alternatives analysis, which alternatives are practicable, the LEDPA, the amount and type of mitigation that is to be required, and all other aspects of the decision-making process.

1.3.2 National Environmental Policy Act

Because the required permit authorization from the Corps is a major federal action, the Corps is the lead federal agency in preparation of an EIS required under the National Environmental Policy Act (NEPA). The Corps is being assisted in the NEPA process by two cooperating agencies: the USEPA and the Federal Railroad Administration. Responsibilities of the cooperating agencies include assisting the Corps in identifying issues of concern and providing meaningful and timely comment and input throughout the NEPA process.

According to the Guidelines, the NEPA alternative and impact analysis should provide sufficient information to evaluate compliance with the Guidelines. As stated in the Guidelines:

For actions subject to NEPA, where the Corps of Engineers is the permitting agency, the analysis of alternatives required for NEPA environmental documents, including supplemental Corps NEPA documents, will in most cases provide the information for the evaluation of alternatives under these Guidelines. (40 CFR 230.10[a][4])

Similarly, the Corps' Standard Operating Procedures for the Corps' Regulatory Program state that "Districts should not conduct or document separate alternatives analyses for NEPA and the 404(b)(1) Guidelines" (Corps 2009).

The Corps prepared the EIS to meet the requirements of NEPA and the Guidelines under the Corps' regulatory program. Alternatives were developed to incorporate the LEDPA, and no additional alternatives will need to be developed as part of the Corps' Guidelines evaluation process. Notably, this draft Guidelines evaluation is not intended to replace any of the findings or conclusions in the EIS. Rather, this draft Guidelines evaluation document builds on the alternatives and impact analysis developed within the EIS, with a focus on the specific decision-making framework required by the Guidelines.

Because the EIS was developed within the context of the 404(b)(1) evaluation process, this draft Guidelines evaluation relies on the findings and conclusions in the EIS. For example, the EIS establishes the range of reasonable alternatives to the Applicant's Proposed Project. These alternatives provide a starting point for the Corps' practicability analysis under the Guidelines. The EIS also analyzes the potential direct, indirect, and cumulative impacts associated with the Navy Base ICTF under each of the EIS action alternatives. This analysis serves as the starting point for the Corps' evaluation of the impact of alternatives and alternative components on Waters of the U.S. and special aquatic sites. Information from the EIS is incorporated extensively into this draft Guidelines evaluation both by reference and by direct use of information contained therein.

2.0 FINDING OF PRACTICABLE ALTERNATIVES (40 CFR 230.10 [a])

The first compliance test of the Guidelines states that:

Except as provided under Section 404(b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. (40 CFR 230.10[a])

The Guidelines define a practicable alternative as one that is “available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes”(40 CFR 230.10 [a][2]). This chapter forms the basis of the Corps’ analysis of practicable alternatives for the Guidelines evaluation.

The first compliance test of the Guidelines establishes two presumptions that must be rebutted if a Proposed Project would affect special aquatic sites² and Waters of the U.S. First, the Guidelines state that, when an activity associated with the discharge of dredged or fill material in a special aquatic site does not require access or proximity to that special aquatic site to fulfill its basic purpose, the activity is not “water dependent” and practicable alternatives that do not include impacts on special aquatic sites are presumed to exist unless clearly demonstrated otherwise. Second, the Guidelines establish that all practicable alternatives to the proposed discharge not involving a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem unless clearly demonstrated otherwise. The evaluation of the water dependency of the Navy Base ICTF Project and the availability of practicable alternatives that do not involve special aquatic sites is discussed in Section 1.4.3 of the EIS.

After evaluating the water dependency of a Proposed Project, the Corps must then consider the full range of practicable alternatives that are capable of achieving the overall project purpose. The overall project purpose of the Navy Base ICTF, as defined by the Corps, is discussed in Section 1.4.4 of the EIS. According to the Guidelines, the Corps’ consideration of practicable alternatives also should consider:

- i. Activities which do not involve a discharge of dredged or fill materials into Waters of the U.S. or ocean waters; (40 CFR 230.10[a][1][i]) and

² Special aquatic sites are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region (40 CFR 230.3). These include wetlands, sanctuaries and refuges, mudflats, vegetated shallows, coral reefs, and riffle and pool complexes.

- ii. Discharges of dredged or fill material at other locations in Waters of the U.S. or ocean waters. (40 CFR 230.10[a][1][ii])

The evaluation of practicable alternatives in this chapter is based on the range of reasonable alternatives developed through the EIS alternatives development process. As discussed above, the EIS alternatives development process was implemented in a manner cognizant of the requirements of the Guidelines such that the range of reasonable alternative identified for the EIS can provide a starting point for the Corps' practicability analysis under the Guidelines. Thus, EIS alternatives form the basis from which the Corps will identify practicable alternatives and determine whether the Applicant's Proposed Project is the least environmentally damaging practicable alternative (the LEDPA). Section 2.1 of the EIS discusses the practicability analysis methods. The EIS alternatives are discussed in Section 2.4 of the EIS.

2.1 PROJECT PURPOSE

Establishing the underlying purpose and need for a project is a key step in evaluating compliance with the Guidelines. Corps regulations³ define three ways of stating the purpose of a project. As described below, one statement is provided by the applicant, and the other two are determined by the Corps:

- The Applicant included a stated purpose and need in the application to the Corps for a DA permit.
- The Corps determines the "basic" purpose of the project, which is used to determine whether the project is water dependent under Section 404(b)(1) of the CWA.
- The Corps determines the "overall" purpose of the project, which is used to determine the range of practicable alternatives to the Proposed Project to be considered during preparation of an EIS.

These three statements of the Project purpose and need form the basis by which the Corps will evaluate compliance of the Project with the Guidelines; they also were used as part of identifying the Project purpose for the NEPA process. Although the three statements were developed to meet distinct objectives within the Corps' evaluation of compliance with the Guidelines, they may overlap to some extent.

2.1.1 Applicant's Stated Purpose and Need

The applicant's stated purpose and need is an expression, typically in the applicant's own words, of the underlying goals for a proposed project. The Corps takes an applicant's purpose and need into account when determining the Corps' overall purpose.

³ 33 CFR 325, Appendix B, NEPA Implementation Procedures for the Regulatory Program; 40 CFR 230.10(a).

Palmetto Railways has stated that the purpose of the Proposed Project is:

“To locate, build, and operate a state-of-the-art intermodal container transfer facility serving the Port of Charleston with near-dock, equal access for the two Class I rail carriers serving the areas (e.g., CSX Transportation [CSX] and Norfolk Southern Railways [NS]) to meet future demand in the Charleston region to facilitate the movement of goods and commerce over rail, thus stimulating and supporting economic development in the region and providing and maintaining connections to key regional and national transportation corridors.”

As stated by the applicant, the need for the Proposed Project is to provide consolidated intermodal facility capacity beyond the current footprints of the two existing intermodal terminals in the Charleston region that serve the Port and other regional businesses, and accommodate projected future increases in the volume of intermodal container cargo in the region. It is anticipated that, by the year 2018, the Port will handle approximately 2.2 million twenty-foot equivalent units (TEUs) of container traffic, or “throughput,” the majority of which are international import and export. The projected increase in container throughput is expected to reach approximately 4.0 million TEUs by 2038 (SCSPA 2014).

Currently, the existing intermodal facilities in the Charleston region include the CSX Ashley Junction intermodal terminal and the NS 7-Mile intermodal terminal. CSX’s Ashley Junction/Bennett Yard includes four working tracks with grounded trackside storage, as well as storage for chassis and containers on chassis. The NS 7-Mile yard has a single loading track and both grounded and wheeled storage for containers and chassis. To promote competitive rail service, the new ICTF would provide equal access to both Class I rail carriers, allowing the facility to accommodate and provide equal service to both rail carriers simultaneously. The reported combined capacity of the two existing intermodal terminals is approximately 498,800 TEUs. Both existing intermodal facilities could increase the total throughput capacity with infrastructure and operational improvements to handle a portion of the projected future growth in intermodal container cargo volume at the Port; however, constraints such as available land and height restrictions may limit potential improvements.

As stated by the Applicant, today and historically at the Port of Charleston, intermodal containers transported by rail account for approximately 13 percent of the total container volumes handled by the Port, with the remainder being transported by truck. The recent creation of the Inland Port in Greer, South Carolina, is projected to raise the rail intermodal container transport volume percentage to nearly 20 percent of the total throughput. At that percentage, rail intermodal container volumes are projected to outgrow the region’s existing rail intermodal capacity to transport them in 2022.

To handle the next generation of container vessels, U.S. ports will require significant improvements to both waterside and landside infrastructure (Corps 2012). To successfully compete with other ports, Post-Panamax container terminals will need to provide “on-dock” or “near-dock” intermodal rail capabilities to serve these vessels and to minimize the truck traffic and environmental impacts associated with rapid transfers of large numbers of containers. Near-dock facilities are located

landward of the marine terminal and cargo containers are transported (typically by yard hostlers, sometimes by trucks) to the near-dock facility from the marine terminal or from the near-dock facility to the marine terminal. Near-dock facilities may serve multiple marine terminals. On-dock facilities are located proximate to the marine terminal and cargo containers may be transferred directly between the marine terminal and the on-dock facility.

The Port's main competitor to the north, the Virginia Ports Authority, handled intermodal container transport by rail at a rate of approximately 30 percent of total container cargo volumes in 2013 (Port of Virginia 2014). The Port of Savannah, the main competitor to the south, handled approximately 19 percent of its total container transport volumes by rail in 2013, with consistent increases over the past four years (Georgia Ports Authority 2013). The historical intermodal container transport volumes by rail for both Virginia and Savannah ports were approximately 15–18 percent of the total container volumes prior to their expanding intermodal capacity through the development of new intermodal terminals. Both of these ports operate "on-dock" intermodal facilities, thereby eliminating a public dray move of containers.

The State of South Carolina has a need for a regional ICTF to service the Port of Charleston's container terminals in order to provide capacity to accommodate existing and future growth of intermodal containerized cargo projected to move through the Port. In addition, the regional ICTF would need to be "near-dock." Palmetto Railways proposes to maximize their throughput capacity by connecting their near-dock facility with a private drayage road. Equally important is the need to connect the near-dock facility to a Port container terminal that handles and processes sufficient TEU volumes to support ICTF operations 24 hours per day, seven days a week. A private drayage road would eliminate interaction of truck drayage with public traffic (from the connected Port container terminal), and would provide operational efficiency to reach approximately 12,000 TEUs per acre of ICTF site. Increased operational efficiency of the Navy Base ICTF can be achieved because the private drayage road would enable the facility to operate 24 hours per day.

With a minimum throughput goal of 800,000 TEUs (20 percent of future projected throughput), the facility site size would need to be a minimum of approximately 65 acres. According to Palmetto Railways, at full build-out, the Navy Base ICTF is designed to accommodate a throughput capacity of 1.2 million TEUs, or 30 percent of the projected future volume of intermodal containers. While there is not a specific definable configuration that is required, the site configuration must be conducive to process the intended throughputs of the Navy Base ICTF.

2.1.2 The Corps' Basic Project Purpose and Determination of Water Dependency

The Guidelines⁴ require that the Corps determine whether a project is water dependent. *Water dependent* means that the project by its very nature requires access or proximity to, or siting within, a special aquatic site⁵ to fulfill its "basic purpose."

If a project is determined not to be water dependent, the guidelines presume that

(1) "...practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise;" and (2) "...all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise." (40 CFR 230.10 [a][3])

The regulations further require that the Corps alternatives analysis identifies the LEDPA.

The Corps has determined that the basic purpose of the Applicant's discharge of fill material is:

To create the elevations necessary to facilitate the construction of an ICTF that would handle the transfer of intermodal containers.

Handling and transferring intermodal containers in and of itself does not require access or proximity to, or siting within, a special aquatic site to fulfill its "basic purpose." Therefore, the Corps has found that the basic purpose of this Proposed Project is not water dependent.

2.1.3 The Corps' Overall Project Purpose and Alternatives Analysis

Under NEPA regulations, alternatives to be evaluated in an EIS must be reasonable. The Guidelines also require evaluation of practicable alternatives. The Corps uses the overall project purpose to identify the range of potential alternatives that will be evaluated. If an alternative does not meet the applicant's need, as determined by the Corps, it may be rejected from further consideration.

The Corps regulatory guidelines state:

"...The applicant's needs, and the type of project being proposed, should be considered. The overall project purpose should be specific enough to define the applicant's needs, but not so

⁴ The Section 404(b)(1) Guidelines constitute the substantive environmental criteria used in evaluating activities regulated under Section 404 of the Clean Water Act.

⁵ Special aquatic sites include six categories identified by the U.S. Environmental Protection Agency in Section 404 of the Clean Water Act, including sanctuaries and refuges, wetlands, mudflats, vegetated shallows, coral reefs, and riffle and pool complexes.

restrictive as to constrain the range of alternatives that must be considered under the 404(b)(1) guidelines (Corps 2009).”

The Corps has determined that the overall Project purpose of the Navy Base ICTF Project is:

The overall project purpose is to provide a state-owned, near-dock ICTF that provides equal access to both Class I rail carriers and accommodates existing and projected future increases in intermodal container cargo transport through the Port of Charleston to enhance transportation efficiency in the state of South Carolina.

2.2 ALTERNATIVES DEVELOPMENT

Having established the basic and overall purposes of the Navy Base ICTF Project, the Corps then conducted an alternatives development process as part of the NEPA process and to initiate evaluation of the Proposed Project under the first testing requirement of the Guidelines. As part of this process, the Corps and the cooperating agencies developed and evaluated a full range of alternatives in light of the overall Project purpose described in Section 1.4. The goal of this process was to consider the broadest range of possible alternatives and to identify the range of reasonable alternatives that could meet the overall Project purpose and that would advance for comparative analysis in the EIS. The intent of the iterative process was to eliminate infeasible and unreasonable concepts and alternatives as early in the process as practical to allow the Corps and the cooperating agencies to focus on more feasible concepts and alternatives.

The range of reasonable alternatives identified by the Corps in the EIS forms the starting point for the evaluation of practicable alternatives to the Applicant’s Proposed Project and determination whether the Applicant’s Proposed Project is the LEDPA. By examining the full scope of possible alternatives and then narrowing down potential alternatives to incorporate all reasonable alternatives into the EIS, the Corps believes that it has captured all of the alternatives necessary to determine whether the Applicant’s Proposed Project is the LEDPA.

Furthermore, the Corps structured the EIS development process to allow for consideration of alternative elements within the context of the EIS alternatives (e.g., alternative site design). This provides the Corps with the flexibility to evaluate the existence of practicable alternative components to elements of the Applicant’s Proposed Project in the Corps’ determination of whether the Applicant’s Proposed Project is the LEDPA.

The EIS alternative development process is described in Sections 2.2.1 through 2.2.3 below.

2.2.1 Identification of Alternatives

The Corps identified potential alternative ICTF sites using a three-level screening process, as described in greater detail in Section 2.3.1 of the EIS. The initial screening level recognized that any project site must be located near a port facility that currently handles or is planning to handle

intermodal containers. Locating a facility too far from the terminal would not be feasible as the distance to transport the containers from the terminal to the facility would be cost prohibitive. Furthermore, considering the service territory for Palmetto Railways, the Corps recognizes that the ICTF must be located near a private or public intermodal port facility in the Charleston Harbor. Therefore, the initial screening criterion used in the formulation of viable alternatives is the presence of private/public intermodal port facilities in the Charleston Harbor.

The initial screening identified four port facilities in the Greater Charleston Region that are expected to handle intermodal containers in the volume necessary to support a cost feasible ICTF. These facilities are the Wando Welch Terminal, North Charleston Terminal, Columbus Street Terminal, and HLT (under construction).

The Tier I screening criteria were used in a step-wise fashion to identify specific alternative sites for the Proposed Project (Section 2.3.1.2 of EIS). The criteria included:

- Proximity (within 4 miles) to private/public intermodal container terminals in Charleston Harbor with projected 400,000 rail-shipped TEU annual throughput
- Area required for an ICTF (65+ acres)

The Tier I Screening identified a total of 12 potential sites that met the first two criteria.

The Tier II screening process evaluated the remaining sites on the:

- Available infrastructure required for an ICTF (Section 2.3.1.3.1 of EIS)
 - Proximity to existing rail lines for both Class I carriers (Section 2.3.1.3.1.1 of EIS)
 - Proximity to highway network (Section 2.3.1.3.1.2 of EIS)
 - Major infrastructure needed to access existing rail and/or highway network (Section 2.3.1.3.1.3 of EIS)
- Availability of a private drayage road (Section 2.3.1.3.2 of EIS)
- Configuration of available acreage (Section 2.3.1.3.3 of EIS)

When the final 12 potential sites were determined, each site was then evaluated to determine (1) its proximity and distance to existing rail lines and highway networks, (2) the need to construct new, major road/rail improvements (e.g., highway and/or interstate bridges) to connect with existing rail and highway networks, (3) the impact (wetlands and rough cost) for connecting the existing road/rail connection to the potential site, and (4) proximity of the potential sites to the associated container terminal. Using the first screening criteria, eight sites were eliminated from further consideration due to the distance from existing roads/rail and/or major new infrastructure (bridges) that would be required to connect to them. Four potential alternatives were evaluated using the second screening criteria concerning the feasibility of a private drayage road. One of the key elements for a competitive and cost effective near-dock facility is the ability to transport intermodal rail

containers from the Port terminal to the ICTF on a private road, or private road network. The presence of such a road eliminates the need for containers to undergo additional handling and processing for transfer to additional containers in order to comply with applicable public roadway weight restrictions. A drayage road also eliminates the interaction of truck drayage with public traffic. One site was eliminated due to the length of the private drayage road exceeding the maximum length set forth in the screening criteria. In addition, this site is located on a former landfill (dredged material disposal site on top of unconsolidated trash), and would not be suitable for placement of an ICTF. For these reasons, this site was not carried forward for screening.

The remaining three sites (Macalloy Site, Proposed Project Site, and the River Center Site) were evaluated using the third screening criteria. The River Center Site and Proposed Project Site were determined to be reasonable alternatives as they both have sufficient acreage and configuration to support a state of the art ICTF. Although the Macalloy Site has sufficient acreage, the Port Access Road, scheduled to be completed in 2018, bisects the property. The Port Access Road will transect the site such that the site cannot accommodate the numerous processing and classification railroad tracks, wide-span gantry cranes, container storage areas, administrative and maintenance buildings, and other associated infrastructure for an ICTF to achieve a throughput capacity of at least 800,000 TEUs per year. Property constraints are discussed in detail in Section 2.3.2.3 of the EIS. The Macalloy Site was therefore eliminated from further consideration in the EIS.

2.3 ALTERNATIVES RECOMMENDED FOR FURTHER ANALYSIS IN THE EIS

Based on information submitted by the Applicant in their proposal, and its own independent review, the Corps has completed the initial identification and evaluation of alternatives for the proposed ICTF. At this time, the Corps has determined that eight alternatives be evaluated in detail in this EIS. In addition to the No Action Alternative, four alternatives are associated with the project site, and three alternatives are associated with the River Center project site. Variations of alternatives within a project site are primarily based on differing arrival/departure track alignments.

- **No Action Alternative** – Application for DA permit would be denied; the Proposed Project would not occur; CSX and NS would undertake operational and structural modifications to Ashley Junction and 7-Mile rail yards. Future use of the Proposed Project and River Center project sites would likely be mixed-use and industrial (e.g., rail-served warehousing distribution center). Section 2.4.1 in the EIS further describes the No Action Alternative.
- **Alternative 1: Applicant’s Proposed Project (CSX – South via Milford / NS – North via Hospital District)** – The Navy Base ICTF would be developed as proposed by the Applicant in the proposal initially submitted to the Corps on September 27, 2013 and revised on September 8, 2015.
- **Alternative 2: Proposed Project Site (CSX – South via Milford / NS – North via S-line)** – A variation of the Proposed Project where the northern rail connection for NS would be relocated along Spruill Avenue within existing CSX ROW to the S-line, and turn east along

Aragon Avenue to the existing NCTC rail line; road and rail improvements would be adjusted accordingly to facilitate rail and road traffic as a result of the NS northern rail connection alignment.

- **Alternative 3: Proposed Project Site (CSX – South via Kingsworth / NS – North via Hospital District)** – A variation of the Proposed Project where the southern rail connection for CSX would connect to an existing CSX rail line near Kingsworth Avenue (and adjacent to existing NS rail and ROW); road and rail improvements would be adjusted accordingly to facilitate rail and road traffic as a result of the CSX southern rail connection alignment.
- **Alternative 4: Proposed Project Site (CSX & NS – South via Milford)** - A variation of the Proposed Project where NS, like CSX, would also enter and exit the Navy Base ICTF from a southern rail connection. While CSX would enter and exit the Navy Base ICTF as described in the Proposed Project, NS would connect to an existing NS rail line near Milford Street (and adjacent to existing CSX rail and ROW). Proposed rail for train switching (building) through the Hospital District would stop short of Noisette Creek.
- **Alternative 5: River Center Project Site (CSX – South via Milford / NS – North via Hospital District)** - A variation of the Proposed Project with the project site being moved to the River Center project site; road and rail improvements would be adjusted accordingly to facilitate rail and road traffic at the new site.
- **Alternative 6: Alternative 6: River Center Project Site (CSX – South via Kingsworth / NS – North via Hospital District)** - A variation of the Proposed Project with the project site being moved to the River Center project site and the southern rail connection for CSX would connect to an existing CSX rail line near Kingsworth Avenue (and adjacent to existing NS rail and ROW). Road and rail improvements would be adjusted accordingly to facilitate rail and road traffic at the new site.
- **Alternative 7: River Center Project Site (CSX & NS South via Milford)** - A variation of the Proposed Project with the project site being moved to the River Center project site and NS, like CSX, would also enter and exit the Navy Base ICTF from a southern rail connection; road and rail improvements would be adjusted accordingly to facilitate rail and road traffic at the new site.

2.4 ALTERNATIVES PRACTICABILITY ANALYSIS

Having established the range of reasonable alternatives through the EIS alternatives development process, the Corps then must evaluate the practicability of the alternatives to determine whether a practicable alternative to the Applicant's Proposed Project exists that "would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." (40 CFR 230.10[a])

To make this determination, the Corps will evaluate the EIS alternatives and alternative components using the definition of practicability established by the Guidelines. As discussed in Section 2.1 of the EIS, Alternatives Analysis, the Corps believes that it has captured all of the reasonable alternatives necessary to determine whether the Applicant's Proposed Project is the LEDPA. The evaluation of

detailed alternatives within the EIS alternatives also provides the Corps with additional flexibility to ensure that the full extent of practicable alternatives is considered when determining whether the Applicant's Proposed Project is the LEDPA among all of the alternatives identified as practicable. The Corps may issue a permit for the Applicant's Proposed Project only if it is found to be the LEDPA.

The practicability analysis being conducted by the Corps is not intended to alter the conclusions reached by the EIS for the NEPA process, nor need it incorporate alternatives that were eliminated from consideration as part of the alternatives development process in the EIS. Rather, the purpose of the practicability analysis is to supplement the information and findings presented in the EIS, to meet the needs of the alternatives analysis requirements of the Guidelines.

The discussion in this section provides the methods by which the Corps ultimately will determine the practicability of the EIS alternatives. At this point in time, the Corps considers all EIS alternatives to be practicable, and the Corps will not make a final determination on practicability until the issuance of a ROD. The Corps invites the public to review the practicability analysis methods presented in this section. The Corps also solicits public comment on the practicability of the alternatives presented.

2.4.1 Practicability Analysis Methods

The Guidelines provide a two-fold definition of a practicable alternative (40 CFR 230.10[2]):

1. A practicable alternative is one that is available and capable of being done after taking into consideration cost, existing technology, and logistics.
2. The three practicability criteria (cost, existing technology, and logistics) apply in light of the overall project purpose.

Thus, in order to be practicable, an alternative must not only meet the three practicability criteria but also must fulfill the overall project purpose. The overall purpose of the Navy Base ICTF, as described by the Corps is:

To provide a State-owned, near-dock ICTF that provides equal access to both Class I rail carriers and accommodates existing and projected future increases in intermodal container cargo transport through the Port of Charleston to enhance transportation efficiency in the state of South Carolina.

In full compliance with NEPA guidelines, all information provided by the Applicant has been and will continue to be validated and verified by third-party reviewers.

As part of its practicability analysis, the Corps is working with the Applicant to evaluate the logistical and technological constraints associated with the EIS alternatives. Third-party reviews of the information provided by the Applicant are ongoing. These reviews will be incorporated into the Corps decision-making process and will be presented in the Final EIS for public consideration prior

to the ROD. At this time, the Corps considers the seven alternatives described in Section 2.4 to be practicable.

3.0 RESTRICTIONS ON DISCHARGE (40 CFR 230.10[B])

The second compliance test under the Guidelines considers specific impacts that may warrant additional restrictions on discharge. Specifically, the Guidelines state that no discharge of dredged or fill material may be permitted if it will:

1. Cause or contribute to violations of any applicable State water quality standard. (40 CFR 230.10[b][1])
2. Violate any applicable toxic effluent standard or prohibition under Section 307 of the CWA. (40 CFR 230.10[b][2])
3. Jeopardize the continued existence of species listed as endangered or threatened under the ESA of 1973, or result in the potential for adverse impacts (destruction or adverse modification) of a habitat which is determined by the Secretary of the Interior or Commerce to be a critical habitat under the ESA of 1973. If an exemption has been granted by the Endangered Species Committee, the terms of the exemption shall apply, in lieu of this paragraph. (40 CFR 230.10[b][3])
4. Violate any requirement imposed by the Secretary of Commerce to protect any marine sanctuary designated under Title III of the Marine Protection, Research, and Sanctuaries Act of 1972. (40 CFR 230.10[b][4])

If the proposed discharge is found to violate the standards or cause any of the adverse impacts listed above, the discharge may not be permitted.

The Corps has not yet made a determination regarding compliance of the Applicant's Proposed Project with the restrictions on discharge test of the Guidelines. A determination of whether the Proposed Project meets the standards listed above ultimately will be based on the findings outlined in this Guidelines evaluation document. The Corps invites the public to review the analysis of impacts found in the EIS and herein. The Corps seeks public comment on the evaluation of compliance or non-compliance of the Applicant's Proposed Project with the restrictions on discharge listed above.

This page intentionally left blank.

4.0 FINDING OF NO SIGNIFICANT DEGRADATION (40 CFR 230.10[C])

The third compliance test under the Guidelines considers the potential for the proposed discharge to cause or contribute to the degradation of Waters of the U.S. The Guidelines state that except as provided under Section 404(b)(2) of the CWA, the discharge of dredged or fill material that will cause or contribute to significant degradation of Waters of the U.S. may not be permitted. The Guidelines further define the types of effects that may, either individually or collectively, contribute to the significant degradation of waters of the U.S. These include:

1. Significant adverse effects of discharge of pollutants on human health or welfare, through pollution of municipal water supplies, fish, shellfish, wildlife and special aquatic sites (40 CFR 230.10[c][1]);
2. Significant adverse effects of discharge of pollutants on life stages of aquatic wildlife and other wildlife dependent on aquatic ecosystems, to include the transfer, concentration, and spread of pollutants or their byproducts outside of the disposal site through biological, physical, and/or chemical processes (40 CFR 230.10[c][2]);
3. Significant adverse effects of discharge of pollutants on aquatic ecosystem diversity, productivity, and stability including but not limited to the loss of fish and wildlife habitat, or the loss of the capacity of wetland to assimilate nutrients, purify water, or reduce wave energy (40 CFR 230.10[c][3]); and
4. Significant adverse effects of discharge of pollutants on recreational, aesthetic, and/or economic values (40 CFR 230.10[c][4]).

At this time, the Corps has not yet made a determination of the compliance of the Applicant's Proposed Project with the test of no significant degradation. The determination of whether the Applicant's Proposed Project causes or contributes to significant degradation of Waters of the U.S. will ultimately be based on the conclusions of the Factual Determinations (Subpart B) and the Evaluation of Dredged or Fill Material (Subpart G). The conclusions of these two sections also take into account the detailed analysis of impacts on specific physical, chemical, biological and human characteristics of the aquatic ecosystem found in Subparts C through F). The determination of compliance also will take into consideration the "Actions to Minimize Adverse Effects" found in Subpart H.

The Corps invites the public to review the analysis of impacts found in the EIS and herein. The Corps seeks public comment on the evaluation of the compliance or non-compliance of the Applicant's Proposed Project with the standards of no significant degradation outlined above.

This page intentionally left blank.

5.0 MINIMIZATION OF POTENTIAL ADVERSE IMPACTS (40 CFR 230.10[D])

The fourth compliance test under the Guidelines considers the extent to which steps have been taken to minimize potential adverse effects. The Guidelines state that, except as provided under Section 404(b)(2) of the CWA, no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken that will minimize potential adverse impacts of the discharge on the aquatic ecosystem.

At this time, the Corps has not yet made a determination of whether the Applicant's Proposed Project complies with the test of minimization of potential adverse impacts. This determination ultimately will be based on the minimization measures identified in "Actions to Minimize Adverse Effects" (Subpart H).

The Applicant has identified several potential measures to minimize adverse impacts. These measures are outlined in the Applicant's Mitigation Plan (Appendix N of the EIS). Applicant-proposed minimization measures are summarized in Chapter 6, Mitigation, in the EIS. Resource-specific measures are identified in the respective sections of Chapter 4, Environmental Consequences, in the EIS.

The Corps has reviewed the minimization measures proposed by the Applicant and considers them to be a reasonable starting point for developing the list of all appropriate and practicable steps that can be taken to minimize the potential adverse impacts of the Proposed Project. However, the Corps has not yet determined whether the Applicant's proposed minimization actions include all appropriate and practicable measures. The Corps invites the public to comment on the current list of Applicant-proposed minimization measures and to provide suggestions on additional avoidance and minimization measures that may be appropriate and practicable to reduce impacts on Waters of the U.S. and aquatic ecosystems.

This page intentionally left blank.

6.0 SUMMARY OF FINDINGS OF COMPLIANCE

This document constitutes a draft of the Corps' evaluation of the Navy Base ICTF Project's compliance with the Guidelines. This chapter ultimately will contain the Corps' findings of compliance based on Chapter 2, Finding of Practicable Alternatives (40 CFR 230.10[a]); Chapter 3, Restrictions on Discharge (40 CFR 230.10[b]); Chapter 4, Finding of No Significant Degradation (40 CFR 230.10[c]); and Chapter 5, Minimization of Potential Adverse Effects (40 CFR 230.10[d]).

As discussed in Chapter 1, the Corps will not finalize its compliance determination regarding the Applicant's DA permit application until after the public has had an opportunity to comment on the EIS and the Corps has published the Final EIS. At that time, the Corps will issue a ROD describing its decision on the permit application and its determination of whether the Applicant's Proposed Project complies with the Guidelines.

This page intentionally left blank.

7.0 SUBPART B: COMPLIANCE WITH THE GUIDELINES

7.1 RESTRICTIONS ON DISCHARGE (40 CFR 230.10)

The Guidelines state that no discharge of dredged or fill material may be permitted if it will:

1. Cause or contribute to violations of any applicable State water quality standard (40 CFR 230.10[b][1]).
2. Violate any applicable toxic effluent standard or prohibition under Section 307 of the CWA (40 CFR 230.10[b][2]).
3. Jeopardize the continued existence of species listed as endangered or threatened under the ESA of 1973, or result in the potential for adverse impacts (destruction or adverse modification) of a habitat which is determined by the Secretary of the Interior or Commerce to be a critical habitat under the ESA of 1973. If an exemption has been granted by the Endangered Species Committee, the terms of the exemption shall apply, in lieu of this paragraph (40 CFR 230.10[b][3]).
4. Violate any requirement imposed by the Secretary of Commerce to protect any marine sanctuary designated under title III of the Marine Protection, Research, and Sanctuaries Act of 1972 (40 CFR 230.10[b][4]).

If the proposed discharge is found to violate the standards or cause any of the adverse impacts listed above, the discharge may not be permitted. At this time, the Corps has not yet made a determination of whether the Applicant's Proposed Project complies with the test of no significant degradation.

The Guidelines state that, except as provided under Section 404(b)(2), the discharge of dredged or fill material that will cause or contribute to significant degradation of Waters of the U.S. may not be permitted. The Guidelines further define the types of effects that may individually or collectively contribute to the significant degradation of Waters of the U.S. These include:

1. Significant adverse effects of discharge of pollutants on human health or welfare, through pollution of municipal water supplies, fish, shellfish, wildlife and special aquatic sites (40 CFR 230.10[c][1]);
2. Significant adverse effects of discharge of pollutants on life stages of aquatic wildlife and other wildlife dependent on aquatic ecosystems, to include the transfer, concentration, and spread of pollutants or their byproducts outside of the disposal site through biological, physical, and/or chemical processes (40 CFR 230.10[c][2]);
3. Significant adverse effects of discharge of pollutants on aquatic ecosystem diversity, productivity, and stability including but not limited to the loss of fish and wildlife habitat, or the loss of the capacity of wetland to assimilate nutrients, purify water, or reduce wave energy (40 CFR 230.10[c][3]); and
4. Significant adverse effects of discharge of pollutants on recreational, aesthetic, and/or economic values (40 CFR 230.10[c][4]).

At this time, the Corps has not yet determined whether the Applicant's Proposed Project complies with the test of no significant degradation. The Guidelines consider the extent to which steps have been taken to minimize potential adverse effects. The Guidelines state that, except as provided under Section 404(b)(2) of the CWA, no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken that will minimize potential adverse impacts of the discharge on the aquatic ecosystem. The Applicant has identified several potential measures to minimize adverse impacts. These measures are outlined in the Applicant's Mitigation Plan. Applicant-proposed minimization measures are summarized in Chapter 6, Mitigation, in the EIS. Resource-specific measures are identified in the respective sections of Chapter 4, Environmental Consequences, in the EIS.

The Corps has reviewed the minimization measures proposed by the Applicant and considers them to be a reasonable starting point for developing the list of all appropriate and practicable steps that can be taken to minimize the potential adverse impacts of the Proposed Project. However, the Corps has not yet determined whether the Applicant's proposed minimization actions include all appropriate and practicable measures. The Corps invites the public to comment on the current list of Applicant-proposed minimization measures and to provide suggestions on additional avoidance and minimization measures that may be appropriate and practicable to reduce impacts on Waters of the U.S. and aquatic ecosystems. At this time, the Corps has not yet determined whether the Applicant's Proposed Project complies with the test of minimization of potential adverse impacts.

The Corps has not yet made a determination regarding whether the Applicant's Proposed Project complies with the restrictions on discharge test of the Guidelines. The Corps invites the public to review the analysis of impacts found in the EIS and incorporated by reference into this Guidelines evaluation document. The Corps seeks public comment on the evaluation of the compliance or non-compliance of the Applicant's Proposed Project with the restrictions on discharge listed above.

7.2 FACTUAL DETERMINATIONS (40 CFR 230.11)

7.2.1 Physical Substrate Determinations (40 CFR 230.11[a])

Physical substrate determinations include considering the effects of the Proposed Project, individually and cumulatively, on the substrate in the study area.⁶ Considerations include the physical characteristics of the material proposed for discharge; the material constituting the substrate at the disposal site; alterations in streamflow; and potential changes in substrate elevation and bottom contours, including changes outside of the disposal site that may occur as a result of erosion, compaction or other movement of the discharged material. The duration and physical extent of substrate changes are also considered.

⁶ Chapter 3 of the EIS defines the study area for each of the 17 resources analyzed.

Sections 3.1(Geology and Soils), 3.2(Hydrology), 3.3(Water Quality), and 3.5 (Waters of the United States) of the EIS describe existing characteristics of the substrate in the study area. A factual determination of impacts on substrate will be based on the impact analyses included in Sections 4.1(Geology and Soils); 4.2 (Hydrology), 4.3 (Water Quality). and 4.5 (Waters of the United States) of the EIS; findings of Subparts C through F; and “Actions to Minimize Adverse Effects” found in Subpart H.

7.2.2 Water Circulation, Fluctuation, and Salinity Determinations (40 CFR 230.11[b])

Water circulation, fluctuation, and salinity determinations include consideration of the effect of the Proposed Project, individually and cumulatively, on water circulation and current patterns in rivers, creeks, and streams in the study area. Consideration is given to the potential diversion or obstruction of flow; alterations of bottom contours; or other significant changes in the hydrologic regime such as alteration of the rate of groundwater inflows, surface runoff, and stream baseflow.

Sections 3.2(Hydrology) and 3.3 (Water Quality) of the EIS describe the existing groundwater and surface water hydrology, including water circulation, tidal fluctuation, and current patterns in rivers, creeks, and streams in the study area. Information regarding the impacts of Proposed Project activities on water circulation, tidal fluctuations, and current patterns in the study area is found in Sections 4.2(Hydrology) and 4.3 (Water Quality) of the EIS. A factual determination of impacts on water circulation, fluctuation, and salinity will be based on the technical evaluation factors findings in Subparts C through F, on the proposed actions for minimizing effects found in Subpart H, and the analysis of impacts in the EIS.

7.2.3 Suspended Particulates and Turbidity Determinations (40 CFR 230.11[c])

Suspended particulates and turbidity determinations include considering the effect of the Proposed Project, individually and cumulatively, on suspended particulates and turbidity in waters in the study area. Consideration is given to the physical characteristics of material proposed for discharge, the timing and duration of the discharge, the resulting turbidity plume, alterations in stream flows and water quality, and whether the potential changes would result in violations of applicable water quality standards.

Section 3.3 (Water Quality) describes existing characteristics of suspended particles and turbidity in the study area. A factual determination of impacts on suspended particles and turbidity will be based on the impact analyses in Section 4.3(Water Quality) of the EIS, the findings of Subparts C, and the “Actions to Minimizing Adverse Effects” found in Subpart H.

7.2.4 Contaminant Determinations (40 CFR 230.11[d])

Hazardous waste and hazardous materials are defined as substances or industrial byproducts that are destructive to the environment, unsafe to handle, and harmful to humans and animals. Runoff from improperly stored, transported, or disposed of hazardous materials and waste can contaminate Waters of the U.S., contaminate groundwater, and harm wildlife. For the Proposed Project, existing onsite contamination also has the potential to contribute to water quality degradation if the contaminated soil is improperly disturbed. The factual determinations within the Guidelines require a determination of the degree to which the material proposed for discharge could introduce, relocate, or increase contaminants. This determination considers the material to be discharged, the aquatic environment at the proposed disposal site, and the availability of contaminants.

Sections 3.15 and 4.15 (Hazardous, Toxic and Radioactive Waste) of the EIS provide information regarding the character of the materials proposed for discharge and the potential for contamination in the study area. The determination of the potential for contamination will be based on the analysis of impacts in Section 4.15 (Hazardous, Toxic and Radioactive Waste) of the EIS, and on the evaluation of dredged and fill material conducted as part of the “Evaluation of Dredged or Fill Material” in Subpart G of this document.

7.2.5 Aquatic Ecosystems Structure and Function Determinations (40 CFR 230.11[e])

Determinations of aquatic ecosystem structure and function require consideration of potential changes in substrate characteristics and elevation, water quality, water circulation and fluctuations, and the potential effects of such changes on aquatic organisms or communities. The aquatic ecosystems in the study area support aquatic and wetland vegetation, fish, invertebrates, mammals, and birds. A determination of impacts on the structure and function of the aquatic ecosystem will be based on the impact analyses in Sections 4.1 (Geology and Soils), 4.2 (Hydrology), 4.3 (Water Quality), 4.4 (Vegetation and Wildlife), 4.5 (Waters of the United States), 4.6 (Protected Species), and 4.7 (Essential Fish Habitat) of the EIS. The factual determination of the potential effects of the discharge on aquatic ecosystems also may include information based on the “Evaluation of the Dredged or Fill Material” in Subpart G.

7.2.6 Proposed Disposal Site Determination (40 CFR 230.11[f])

The Proposed Project does not include dredging or use of aquatic disposal sites. Approximately 263,000 cubic yards of export material is expected from the Proposed Project. Building materials and any asbestos containing materials would be exported to the Spring Grove Landfill in North Charleston, South Carolina; muck would be disposed of at the Oak Ridge Landfill in Dorchester, South Carolina. All paving/concrete demolished on site will be reused or recycled. As part of the Applicant’s Proposed Project, suitable fill materials obtained from any of 12 identified pits would be placed in portions of freshwater and tidal wetlands.

7.2.7 Determination of Cumulative Effects on the Aquatic Ecosystem (40 CFR 230.11[g])

Cumulative effects on the aquatic ecosystem include changes that are attributable to the collective effect of activities associated with the Proposed Project and other past, present, and reasonably foreseeable future actions (RFFAs) in the study area. The cumulative effect of numerous actions can result in a major impairment of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems. Criteria used in identifying cumulatively affected resources include whether (1) the resource is especially vulnerable to incremental impacts; (2) other similar actions in the same geographic area may result in similar impacts on the resource; (3) impacts have been historically significant for the resource; and (4) cumulative impact concerns have been previously analyzed and identified. A determination of cumulative impacts that may result from the Proposed Project should be evaluated to the extent reasonable and practical. A review of past, present, and RFFAs indicates that cumulative impacts would result primarily from potential changes in hydrology.

See Chapter 5 (Cumulative Impacts) of the EIS for a full list of past, present, and RFFAs in the study area. The determination of cumulative effects on the aquatic ecosystem will be based on these EIS impact analyses, with consideration for impacts discussed in Subparts D and E.

7.2.8 Determination of Secondary Effects on the Aquatic Ecosystem (40 CFR 230.11[h])

In addition to direct impacts associated with the Proposed Project, secondary effects may be experienced by Waters of the U.S. from changes in hydrology, water quality, shading, and habitat. Project-related activities that alter hydrology to the extent that wetlands are no longer inundated or saturated at a frequency or duration sufficient to support hydrophytic vegetation would result in partial or permanent loss of wetland resources. The extent of impact associated with hydrologic changes depends on baseline conditions (e.g., hydrologic regimes, wetland types, soils, geology). As described in Section 3.5 of the EIS, the wetlands habitat types within the study area are primarily tidal salt marsh, with occurrences of freshwater wetlands. Tidal ditches occur in urban developed habitat within the study area. Tidal ditches are vegetated wetlands that occur through non-hydric soils. Disturbance of wildlife populations by noise or human activity also can result in changes to the biotic component of aquatic ecosystems.

Sections 4.2(Hydrology), 4.3 (Water Quality), 4.4 (Vegetation and Wildlife), 4.5 (Waters of the United States), 4.6 (Protected Species), and 4.7 (Essential Fish Habitat) of the EIS contain detailed analyses of potential secondary impacts on the aquatic ecosystem. The factual determination of secondary effects will be based on these impact analyses and on the analyses found in Subparts D and E.

8.0 SUBPART C: POTENTIAL IMPACTS ON PHYSICAL AND CHEMICAL CHARACTERISTICS OF THE AQUATIC ENVIRONMENT

8.1 SUBSTRATE (40 CFR 230.20)

The substrate of the aquatic ecosystem includes sediments that underlie open water and hydric soils that constitute the surface of wetlands. Substrate consists of organic and inorganic solid materials, and includes water and other liquids or gases that occupy the pore space in the sediment or soil. Sections 3.1 (Geology and Soils), 3.2 (Hydrology), 3.3 (Water Quality), and 3.5 (Waters of the United States) of the EIS describe the existing characteristics of the substrate in the study area.

The substrate on which the proposed fill would be placed is located in freshwater and tidal wetlands. The substrates of Waters of the U.S. in the study area are comprised of areas of mucks within tidal wetlands, mucks underlain by clay in tidal streams, and sandy loam within the non-tidal freshwater wetlands and streams.

Potential Impacts

Potential project-related impacts on substrate include direct impacts from filling, shading, and temporary construction activities on freshwater and tidal wetlands. While the 130-acre facility site is the largest land disturbance associated with this project, the roadway and rail improvements have the largest overall impact to Waters of the U.S. Improvements that result in direct impacts include the bridge over Noisette Creek, the realignment of Hobson and Bainbridge Roads, the construction of the drayage road and associated bridge across Shipyard Creek, and the extension of the arrival/departure tracks through the tidal salt marshes adjacent to Shipyard Creek. Indirect impacts on substrate could result from alteration of the existing flow regimes and changes to water quality. These impacts are discussed in Sections 4.2 (Hydrology) 4.3 (Water Quality) and 4.5 (Waters of the United States) of the EIS and will be incorporated into this document after the public has had an opportunity to comment on the EIS and the Corps has published the Final EIS.

8.2 SUSPENDED PARTICULATES AND TURBIDITY (40 CFR 230.21)

The amount of suspended solids with a diameter greater than 0.45 micrometers (μm) is quantified by the measurement of total suspended solids (TSS). Values of TSS measured within the study area range from 1.6 to 27 milligrams per liter (mg/L) with an average value of 11.1 mg/L. Section 3.3, Water Quality, of the EIS further describes the existing characteristics of suspended particles and turbidity in the study area. Turbidity provides a measurement of what is suspended in the water, and a limit of 25 NTU (nephelometric turbidity units) has been established by the State (South Carolina Department of Health and Environmental Control [SCDHEC] 2012a).

Turbidity levels ranged from 1.4 to 76 NTU, with an average of 5.5 NTU; levels exceeded 25 NTU seven times since 2009.

Potential Impacts

Project-related impacts on suspended particles and turbidity may occur during construction activities and the placement of fill material within Waters of the U.S. Impacts on suspended particles and turbidity could result from changes in land topography, decreased soil permeability decreased vegetative cover, increased impervious surface, and an associated increase in stormwater runoff. These impacts are discussed in Section 4.3 (Water Quality) of the EIS. The impact analyses in the EIS will be incorporated into this document after the public has had an opportunity to comment on the EIS and the Corps has published the Final EIS.

8.3 WATER QUALITY AND CHEMISTRY (40 CFR 230.22)

The characteristics that measure water quality include clarity; nutrient, metal, and chemical content; physical and biological content; dissolved gas levels; pH; and temperature. The study area lies primarily within the Cooper River watershed (HUC 03050201). The SCDHEC monitors surface water quality at eight stations in the Cooper River watershed within the vicinity of the study area. The USEPA monitors another two stations and the U.S. Geological Survey (USGS) monitors one additional station. Two stations are listed as impaired for recreational use due to fecal coliform: Station RO-08352 (located in the Cooper River, 1 mile downstream from Noisette Creek) and Station MD-249 (located in Filbin Creek at Virginia Avenue). These waterbodies are listed on the 2012 Section 303(d) list of impaired waters (SCDHEC 2012b). Section 3.3 (Water Quality) of the EIS describes the existing water quality characteristics of the study area.

Potential Impacts

Project-related impacts on water quality and chemistry may occur during the construction and operation of the ICTF. Impacts may result from additional loading of nutrients and/or contaminants, stormwater runoff, and clearing and transportation activities. These impacts are discussed in Section 4.3 (Water Quality) of the EIS. The impact analyses in the EIS will be incorporated into this document after the public has had an opportunity to comment on the EIS and the Corps has published the Final EIS.

8.4 WATER CIRCULATION AND CURRENT PATTERNS (40 CFR 230.23)

Water circulation in the study area is influenced primarily by tidal fluctuations as well as river and creek flows. The study area lies on a peninsula of land formed by the Cooper River and Ashley River. The peninsula is crowned generally along the alignment of State Route 52 (SR 52) and SR 78. In 1941, construction of the Santee-Cooper Hydro-Electric Project and construction of Lakes Marion and

Moultrie resulted in the diversion of flow from the Santee River into the Cooper River. This action has caused the Cooper River to receive more freshwater and sediment loads that previously flowed into the Santee (Natural Resources Conservation Service [NRCS] 2010). In 1985, the Cooper River rediversion project redirected approximately 70 percent of the Santee River drainage water back into the Santee River, reducing the mean Cooper River flow.

Creeks within the study area include Noisette Creek, Shipyard Creek, and Filbin Creek. The USGS maintains a gage on the Cooper River at Filbin Creek. Average gage height at this station is 10.5 feet, with a range between 15.53 feet and 4.51 feet observed since 1997. Section 3.4 (Hydrology) of the EIS describes the existing water circulation characteristics of the study area.

Potential Impacts

Project-related impacts on surface water hydrology, including surface water flows and circulation, may occur during construction and operation of the ICTF as a result of placement of fill, embankment construction, placement of additional pilings within Noisette Creek and Shipyard Creek, and increased impervious surface; however, stormwater runoff would be better captured and treated under the Proposed Project versus existing conditions, resulting in a beneficial impact. Impacts to water circulation would be negligible in light of the Applicant's and Corps proposed mitigation measures. These impacts are discussed in Section 4.2 (Hydrology) of the EIS. The impact analyses in the EIS will be incorporated into this document after the public has had an opportunity to comment on the EIS and the Corps has published the Final EIS.

8.5 ALTERATION OF NORMAL FLUCTUATIONS (40 CFR 230.24)

Natural water fluctuations in an aquatic ecosystem consist of daily, seasonal, and annual flood fluctuations in water level. Section 3.2 (Hydrology) of the EIS describes the existing water fluctuations in the study area. Tides are the dominant mechanism which controls the movement of water between the Charleston Harbor and the Atlantic Ocean. The Charleston—SC Station (ID: 8665530), located on the Cooper River at the Port of Charleston, has a recorded mean tidal range of 5.22 feet and a diurnal range of 5.76 feet.

The estimated 100-year flood event in the Cooper River is estimated to be 12 feet near the Proposed Project, with maximum wave crest elevations between 14 and 16 feet (Federal Emergency Management Agency 2004).

Potential Impacts

Potential impacts to normal water fluctuations would be limited to degradation of tidal flushing in localized areas near the southwestern limits of the project. Placement of culverts to facilitate tidal flushing to tidal salt marsh areas to the east of the arrival/departure tracks would ensure that any impact to tidal flushing would be negligible.

Section 4.2 (Hydrology) of the EIS describes the potential impacts of Proposed Project infrastructure on water fluctuations. The impact analyses in the EIS will be incorporated into this document after the public has had an opportunity to comment on the EIS and the Corps has published the Final EIS.

8.6 SALINITY GRADIENTS (40 CFR 230.25)

Salinity gradients form where saltwater from the ocean meets and mixes with freshwater from land. Section 3.3 (Water Quality) of the EIS describes the existing salinity gradients in the study area. The majority of salinity measurements taken from within the study area were collected from between 0.2 and 0.3 meter, resulting in the inability to identify the presence of an existing vertical salinity gradient. The largest variation between surface and bottom salinities evaluated through South Carolina Estuarine and Coastal Assessment Program (2014) was 8.8 parts per thousand at one station in 2002.

Potential Impacts

Impacts on salinity gradients would be negligible as a result of filling of tidal wetlands in localized areas near the southwestern limits of the project. The potential for impacts is discussed in Section 4.3 (Water Quality) of the EIS. The impact analyses in the EIS will be incorporated into this document after the public has had an opportunity to comment on the EIS and the Corps has published the Final EIS.

9.0 SUBPART D: POTENTIAL IMPACTS ON THE BIOLOGICAL CHARACTERISTICS OF THE AQUATIC ECOSYSTEM

9.1 PROTECTED SPECIES (40 CFR 230.30)

Federally listed species include those species listed as threatened, endangered, or candidate by the U.S. Fish and Wildlife Service (USFWS) under the ESA, hereafter referred to as Protected Species. Endangered species include any species that is in danger of extinction throughout all or a significant portion of its range. Threatened species indicate any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Candidate species are plant and animal taxa considered for possible addition to the List of Endangered and Threatened Species. For these taxa, the USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposal to list, but issuance of a proposed rule is currently precluded by higher priority listing actions.

Protected species that may be affected by the Proposed Project are described in Section 3.6 (Protected Species) of the EIS. Protected species known to occur in Charleston County, South Carolina as of February 10, 2016 (USFWS 2016) include the following:

- Green sea turtle (*Chelonia mydas*) – federally listed as threatened
- Kemp’s ridley sea turtle (*Lepidochelys kempii*) – federally listed as endangered
- Leatherback sea turtle (*Dermochelys coriacea*) – federally listed as endangered
- Fin whale (*Balaenoptera physalus*) – federally listed as endangered
- Humpback whale (*Magaptera novaengliae*) – federally listed as endangered
- Northern Atlantic Right whale (*Balaena glacialis*) – federally listed as endangered
- West Indian manatee (*Trichechus manatus*) – federally listed as endangered
- Atlantic sturgeon (*Acipenser oxyrinchus*) – federally listed as endangered
- Shortnose sturgeon (*Acipenser brevirostrum*) – federally listed as endangered
- Frosted flatwoods salamander (*Ambystoma cingulatum*) – federally listed as threatened
- Bachman’s warbler (*Vermivora bachmanii*) – federally listed as endangered
- Piping plover (*Charadrius melodus*) – federally listed as endangered
- Red-cockaded woodpecker (*Picoides borealis*) – federally listed as endangered
- Red knot *Calidris canutus rufa*) – federally listed as threatened
- Wood stork (*Mycteria americana*) – federally listed as threatened
- American chaffseed (*Schwalbea americana*) – federally listed as endangered
- Canby’s dropwort (*Oxypolis canbyi*) – federally listed as endangered

- Pondberry (*Lindera melissifolia*) – federally listed as endangered
- Seabeach amaranth (*Amaranthus pumilus*) – federally listed as endangered

Potential Impacts

Section 4.6 (Protected Species) of the EIS discusses potential impacts on threatened and endangered species in the study area. The impact analyses in the EIS will be incorporated into this document after the public has had an opportunity to comment on the EIS and the Corps has published the Final EIS.

9.2 AQUATIC FOOD WEB (40 CFR 230.31)

The aquatic food web includes the current physical environment (water column, substrate, wetland vegetation, and riparian vegetation) and the associated biological assemblages or communities (the species composition) of various waterbodies within the resource study area. Biological assemblages can consist of:

- Fish;
- Benthic macroinvertebrates – animals without backbones larger than 0.5 millimeter that live on the bottom of a waterbody;
- Crustaceans;
- Amphibians and reptiles;
- Aquatic vegetation; and
- Aquatic periphyton – algae, cyanobacteria, microbes, or detritus attached to submerged surfaces that serve as food sources to aquatic animals.

Additional discussion of resources contributing to the aquatic foodweb can be found in Sections 3.4 and 4.4 (Vegetation and Wildlife), 3.5 and 4.5 (Waters of the U.S.), 3.6 and 4.6 (Protected Species), and 3.7 and 4.7 (Essential Fish Habitat) in the EIS.

Potential Impacts

Potential impacts on aquatic resources include direct and indirect impacts caused by fill discharged into Waters of the U.S. and potential changes to water quality; however, in light of proposed mitigation measures by the Applicant, there would be a negligible impact on aquatic resources. Section 4.4 (Vegetation and Wildlife) of the EIS discusses potential impacts on aquatic ecosystems and organisms in the study area. The impact analyses in the EIS will be incorporated into this document after the public has had an opportunity to comment on the EIS and the Corps has published the Final EIS.

9.3 OTHER WILDLIFE (40 CFR 230.32)

Wildlife associated with aquatic ecosystems includes resident and transient mammals and birds. Section 3.4 (Vegetation and Wildlife) of the EIS describes other wildlife present in the study area.

9.3.1 Birds

Ten species of birds were observed in the study area during site visits in July 2014 and January 2016. Carolina wren (*Thryothorus ludovicianus*), laughing gull (*Leucophaeus atricilla*), and American crow (*Corvus brachyrhynchos*), were the dominant species in the study area. The remaining species were the northern cardinal (*Cardinalis cardinalis*), blue jay (*Cyanocitta cristata*), red-shouldered hawk (*Buteo lineatus*), white ibis (*Eudocimus albus*), great blue heron (*Ardea herodias*), snowy egret (*Egretta thula*), and turkey vulture (*Cathartes aura*).

9.3.2 Mammals, Reptiles and Amphibians

Evidence of the following mammal and reptile species was observed in the study area: white-tailed deer (*Odocoileus virginianus*), beaver (*Castor canadensis*), raccoon (*Procyon lotor*), opossum (*Didelphis marsupialis*), eastern gray squirrel (*Sciurus carolinensis*), eastern cottontail rabbit (*Sylvilagus floridanus*), yellow-bellied slider (*Trachemys scripta scripta*) and the five-lined skink (*Eumeces [Plestiodon] fasciatus*). No amphibians or special-status species were observed in the area during the site visits conducted in July 2014 and January 2016.

Potential Impacts

Animal communities that would be impacted by the construction and operation of the Proposed Project include species that are well adapted to living near human development. Mammals such as foxes, raccoons, rabbits, squirrels, and opossums would lose already fragmented habitat, but these species have the ability to relocate to similar adjacent habitat. Long-term impacts to invertebrates include the permanent loss of tidal open waters and associated tidal salt marsh that provide nesting and foraging habitat. Existing reptiles and amphibians expected to inhabit the Proposed Project are abundant and common in species; any decrease in their abundance due to reduction of habitat from this project would not threaten the general population or their predators. Long-term permanent impacts include loss of tidal salt marsh habitat for foraging. Impacts on other wildlife are discussed in Sections 4.4 (Vegetation and Wildlife) and 4.6 (Protected Species) of the EIS. The impact analyses in the EIS will be incorporated into this document after the public has had an opportunity to comment on the EIS and the Corps has published the Final EIS.

This page intentionally left blank.

10.0 SUBPART E: POTENTIAL IMPACTS ON SPECIAL AQUATIC SITES

Special aquatic sites are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region (see 40 CFR 230.10[a][3]).

10.1 SANCTUARIES AND REFUGES (40 CFR 230.40)

Sanctuaries and refuges consist of areas designated under state or federal laws or local ordinances to be managed principally for the preservation and use of fish and wildlife resources. Planning documents have identified areas along Noisette Creek as the Noisette Preserve (Noisette 2013, Berkeley Charleston Dorchester Council of Governments 2013). The Noisette Preserve is not currently designated under local ordinances and therefore does not qualify as a sanctuary or refuge under 40 CFR 230.40.

There are no sanctuaries or refuges in the study area.

10.2 WETLANDS (40 CFR 230.41)

Wetlands are defined as:

...Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions... (33 CFR 328.3[b]).

Section 3.5 (Waters of the U.S.) of the EIS describes wetlands present in the study area.

The Proposed Project is located in the Cooper River watershed associated with the USGS designated HUC 03050201 and is within the Tidewater Area, Major Land Resource Area (MLRA) 153b. Elevation ranges from sea level to 80 feet above sea level. Local relief is mainly about three feet or less. The Suffolk Scarp is a geological feature that represents an ancient shoreline. The scarp delineates the western (or inland) limits of the Land Resource Region (LRR). The nearly level coastal plain is crossed by many broad shallow valleys that have been formed by meandering stream channels. Most of these valleys drain into and transition to tidal estuaries along the coast.

Most of the creeks and wetlands in the study area are considered tidal salt marsh. Tidal salt marsh contains a muck substrate in the upper-most soil horizon and contains coastal vegetation associated with salt tolerance. In addition, headwater forest freshwater wetlands occur in small areas associated with natural drainages that are not affected by lunar or wind tides. Tidal salt marshes act as nurseries

for commercially and recreationally important shell and fin fisheries; provide habitat and food sources for birds and other wildlife; protect coastal areas from flooding and storm surges; and provide educational and recreational opportunities. Tidal salt marshes also play a role in estuarine health by aiding in nutrient attenuation and cycling; water quality improvement; shoreline stabilization; and mitigation for climate change and sea level rise.

Within the study area, there are 143.93 acres of Waters of the U.S., including wetlands, consisting of wetlands and open waters, and 3,402.72 linear feet of freshwater creeks. These resources are described in Section 3.5 (Waters of the U.S.) of the EIS.

Potential Impacts

The Proposed Project involves both direct and indirect impacts on Waters of the U.S. Direct impacts from placement of fill, shading, and temporary construction activities would result in a permanent loss of freshwater and tidal wetlands. Furthermore, indirect impacts could occur within wetlands adjacent to the direct impacts due to changes in hydrology and water quality.

Section 4.5, Waters of the U.S., of the EIS discusses the potential impacts on wetlands. The impact analyses in the EIS will be incorporated into this document after the public has had an opportunity to comment on the EIS, and the Corps has published the Final EIS.

10.3 MUDFLATS (40 CFR 230.42)

Mudflats or intertidal flats are broad, flat areas along the sea coast and in coastal rivers to the head of tidal influence and in inland lakes, ponds, and riverine systems. These flats can provide a relatively low energy, shallow water habitat, and feeding grounds (with deeper water areas depending on the tidal phase) to support species such as summer flounder (*Paralichthys dentatus*), red drum (*Sciaenops ocellatus*), and striped mullet (*Mugil cephalus*). Mudflats also provide refuge from predators. There are approximately 120.4 acres of intertidal flats in the study area.

Potential Impacts

Development of the Proposed Project, including temporary construction activities, filling of soft sediments, and introduction of new structures may introduce physical barriers to species movement and increase siltation and/or chemical contamination of sediments in intertidal flats or mudflats, adversely impacting managed and common fishery species in the estuarine food chain.

Section 4.7 (Essential Fish Habitat) of the EIS discusses the potential impacts on intertidal flats or mudflats under all EIS alternatives. The impact analyses in the EIS will be incorporated into this document after the public has had an opportunity to comment on the EIS and the Corps has published the Final EIS.

10.4 VEGETATED SHALLOWS (40 CFR 230.43)

Vegetated shallows are permanently inundated areas that under normal circumstances support communities of rooted aquatic vegetation, such as turtle grass and eelgrass in estuarine or marine systems, as well as a number of freshwater species in rivers and lakes. There are no vegetated shallows in the study area.

10.5 CORAL REEFS (40 CFR 230.44)

Coral reefs consist of the skeletal deposit of invertebrate organisms present in growing portions of a reef. There are no coral reefs in the study area.

10.6 RIFFLE AND POOL COMPLEXES (40 CFR 230.45)

Riffle and pool complexes exist along steep gradient sections of streams where the rapid movement of water over a coarse substrate in riffles results in rough flow, a turbulent surface, and high dissolved oxygen (DO) levels. Riffles are intermixed with pools, which are characterized by slower stream velocity, smooth surface, and a finer substrate. There are no riffle and pool complexes within the study area.

This page intentionally left blank.

11.0 SUBPART F: POTENTIAL EFFECTS ON HUMAN USE CHARACTERISTICS

11.1 MUNICIPAL AND PRIVATE WATER SUPPLIES (40 CFR 230.50)

Surface water and groundwater resources may be used for agricultural, domestic, industrial and commercial, and public water supply uses downstream of and adjacent to the study area. The BP Amoco Cooper River chemicals plant has the greatest surface-water use in the vicinity, withdrawing 2,619 million gallons in 2006 (SCDNR 2009).

Regionally, the Middendorf aquifer is the principal public supply groundwater source in the vicinity of the study area (SCDHEC 2009). Mt. Pleasant is the largest user for municipal supply, withdrawing 1,783 million gallons in 2006. Significant cones of depression have developed in both the Middendorf and Floridan aquifers due to the long-term and ever-increasing use of groundwater in this subbasin (SCDNR 2009). The SCDHEC has designated Berkley, Charleston, and Dorchester counties as the Trident Capacity Use Area. Since the study area is located in Charleston County, any production water wells or wellfields withdrawing more than 3 million gallons per day must be permitted through SCDHEC.

The SCDNR maintains a record of coastal plain water wells. There are 10 wells in the study area and two of these are located in the project site. The two wells that are located within the project site are indicated for industrial use and unused, respectively (SCDNR 2007).

Municipal water supplies for the study area are served by the Charleston Water System. This utility sources their water primarily from Bushy Park Reservoir and secondarily from the Edisto River. Charleston Water System has no operating groundwater wells in the study area (personal communication, Jane Byrne, Charleston Water System 9/30/14).

Sections 3.3 (Water Quality) and 3.9 (Land Use and Infrastructure) of the EIS describe municipal and private water supplies. Other portions of the EIS describe closely related resources (Sections 3.2, Hydrology) and physical and biological assemblages of surface waters in the study area (Sections 3.4, Vegetation and Wildlife; 3.5, Waters of the U.S.; 3.6, Protected Species; and 3.7, Essential Fish Habitat).

Potential Impacts

Although the ICTF would increase the impervious areas at the site, thereby reducing local infiltration and surficial aquifer recharge, there are no active groundwater wells utilizing the underlying aquifers for public potable water within or near the project site. In addition, the construction and operation of the Proposed Project would not create any increased demands on groundwater resources. The Proposed Project would not include any surface water withdrawals.

Sections 4.3 (Water Quality) and 4.9 (Land Use and Infrastructure) of the EIS address the Project-related impacts on water supply that are associated with these concerns. Other Project-related changes that may occur to surface water and groundwater resources are described in Sections 4.2 (Hydrology) and 4.15, (Hazardous, Toxic and Radioactive Waste) of the EIS. The impact analyses in the EIS will be incorporated into this document after the public has had an opportunity to comment on the EIS and the Corps has published the Final EIS.

11.2 RECREATIONAL FISHING (40 CFR 230.51) AND WATER-RELATED RECREATION (40 CFR 230.52)

There is no existing water-related public recreation access to the project site, and no public recreation areas are located on parcels immediately adjacent to the project site. Located in the northeast of the study area, Riverfront Park is set on the banks of the Cooper River. The only access to this park is through the study area via McMillan Avenue to Hobson Avenue from the west and south, and via Noisette Boulevard from the north. The northern border of the park is Noisette Creek. Water related recreation at Riverfront Park includes a crabbing dock, fishing pier, and views of the Cooper River. Several large-scale City of North Charleston events are held here throughout the year, including the 4th of July celebration, concerts, and arts festivals. Section 3.9 (Land Use and Infrastructure) and Section 3.16 (Socioeconomics and Environmental Justice) of the EIS describe water-related recreation resources in the study area.

The Cooper River Marina, administered by the Charleston County Park and Recreation Commission, is located on the Cooper River north of the mouth of Shipyard Creek. This marina leases deepwater slips long-term for vessels up to 42 feet in length and for transient vessels up to 125 feet in length. The marina also provides boat storage and pump-out services. The marina is accessed through the study area from Naval Base Road off of Spruill Avenue.

Recreational kayaking/canoeing occurs within Noisette Creek and to a lesser extent within the Cooper River and Shipyard Creek. Power boating and recreational sailing occurs on the Cooper River. Recreational fishing for saltwater species such as redfish and seatrout occurs within the Cooper River and could occur within Noisette and Shipyard Creeks.

Potential Impacts

Potential issues that could affect water-related recreational experiences include changes to the recreational setting and experience caused by Project-related noise or visual changes, and impaired access to recreational areas.

Section 4.9 (Land Use and Infrastructure) and Section 4.16 (Socioeconomics and Environmental Justice) of the EIS describes the potential effects of the Proposed Project on recreation resources within the study area. The impact analyses in the EIS will be incorporated into this document after the public has had an opportunity to comment on the EIS and the Corps has published the Final EIS.

11.3 AESTHETICS (40 CFR 230.53)

Aesthetics associated with the aquatic ecosystem consist of the perception of beauty by one or a combination of the senses of sight, hearing, touch, and smell. Aesthetics of aquatic ecosystems apply to the quality of life enjoyed by the general public and property owners. The study area for visual resources and aesthetics is defined as the area within one-half mile of the boundaries of the project site.

Section 3.11 (Visual Resources and Aesthetics) of the EIS describes the visual resources in the study area. The study area is comprised of residential and industrial areas. The residential areas are predominantly single-family with some multi-family residential and neighborhood commercial corridors along Spruill Avenue, McMillan Avenue, and Reynolds Avenue in the western portion of the study area. In the eastern portion of the study area, the predominant land use is industrial, with large-scale port activities along the Cooper River supporting shipping, Riverfront Park, and old naval base housing.

The topography of the area is flat coastal plain, with no hills, mountains, or rock outcroppings. The dominant natural features within the study area are the Cooper River to the east, Noisette Creek to the north, and Shipyard Creek to the south of the study area. The Cooper River has been dredged to 45 feet and is maintained for commercial shipping. Noisette and Shipyard Creeks are currently crossed by a number of bridges, such as Noisette Boulevard and Spruill Avenue, railroads, and pipelines. Noisette Creek retains a primarily natural visual appearance and is used for recreational purposes, primarily by kayakers. Shipyard Creek is more industrial in nature and the Cooper River has extensive shoreline development related to the shipping industry.

Potential Impacts

Construction and operation of the Proposed Project would be consistent with existing visual elements since the dominant visual element is the Port with its industrial buildings and associated structures (e.g., cranes); however, the replacement of the mature tree line along the right of way with an earthen berm/sound wall would lessen visual quality for residential viewers and motorists, especially for residents in the Chicora-Cherokee neighborhood east of North Carolina Avenue and residents on the southern end of St. Johns Avenue. Wide-span gantry cranes would be visible above the earthen berm/sound wall, and the presence of an additional rail bridge and more frequent train activity across Noisette Creek would adversely impact this scenic resource. Introduction of high-mast lighting (illuminated from dusk until dawn) would introduce substantial new sources of light, and nighttime train head lamps have the potential to disturb sleep or nighttime activities for residences along curveatures in the arrival/departure tracks from the ICTF.

Section 4.11(Visual Resources and Aesthetics) of the EIS describes the potential effects of the ICTF on visual resources and aesthetics. The impact analyses in the EIS will be incorporated into this

document after the public has had an opportunity to comment on the EIS and the Corps has published the Final EIS.

11.4 PARKS, NATIONAL AND HISTORICAL MONUMENTS, NATIONAL SEASHORES, WILDERNESS AREAS, RESEARCH SITES, AND SIMILAR PRESERVES (40 CFR 230.54)

Parks, national and historic monuments, national seashores, wilderness areas, research sites, and similar preserves consist of areas designated under federal or state laws or local ordinances to be managed for their aesthetic, educational, historical, recreational, or scientific value. Section 3.9 (Land Use and Infrastructure) and Section 3.16 (Socioeconomics and Environmental Justice) of the EIS describes parks and preserves in the study area. Section 3.10 describes the cultural resources within the study area.

Three parks are located in the study area. These are:

- Park South – Located near the southern end of the study area on Spruill Avenue, this 11-acre park includes a playground, basketball court, green space, park benches and picnic tables. This park received funding in 1982 through the US Department of Interior and National Park Service’s Land and Water Conservation Fund and is therefore a Section 6(f) resource. Per the Settlement Agreement between the City of North Charleston and South Carolina Public Railways (SCPR, now Palmetto Railways), the City will transfer this property to SCPR if SCPR desires to accept title to the property.
- Chicora-Cherokee Community Park – This community park includes a 2,300-SF playground and is located at 3107 North Carolina Avenue. The park is adjacent to a community garden and hosts community events such as movie night and community gardening days.
- Riverfront Park – This park is set on the banks of the Cooper River, with Noisette Creek forming the northern border. The only access to Riverfront Park is through the project study area via McMillan Avenue to Hobson Avenue from the west and south, and via Noisette Boulevard from the north. The park is adjacent to historic homes that once served as officer housing for the Charleston Naval Base. Amenities within the 24-acre park include a boardwalk, a contemporary performance pavilion, art sculptures, crabbing dock, fenced dog park, fishing pier, fountain, green space, park benches, picnic pavilion, picnic tables, playground, and restrooms. The Greater Charleston Naval Base Memorial is also located in the park. Several large-scale City events are held here throughout the year, including the 4th of July celebration, concerts, and arts festivals.

Historic properties within and near the study area currently indicated in ArchSite include three historic districts (all associated with the Charleston Naval Complex [CNC]), two planned communities of houses and apartments (in the residential areas west of the CNC), 13 individual buildings (three within the CNC that are not associated with the districts, and 10 in the adjoining residential neighborhoods), and one structure. All three historic districts have been listed in the NRHP, four of the individual buildings and the structure have been demolished or moved recently, and one of the

planned communities of houses has been rebuilt. The SHPO determined that these rebuilt, demolished, and relocated historic properties no longer meet the criteria for NRHP eligibility (see Appendix G, SHPO comments on Owens et al. 2014). Thus, there are 11 historic properties within the study area (three historic districts, one planned residential community, and eight individual buildings; one property contains two buildings).

Potential Impacts

Potential issues that could affect parks and preserves would include changes to the recreational setting and experience caused by Project-related noise or visual changes, impaired access to recreational areas, and conflicts with adopted park and preserve plans or policies. The removal of contributing elements of one of the historic districts, as well as the altered visual setting of the same historic district and the USMC Barracks would result in an Adverse Effect to these historic properties.

The analysis of impacts on parks, preserves, monuments, and other sites of importance in the EIS include consideration of potential modification of the aesthetic, educational, historical, recreational, and/or scientific qualities thereby reducing or eliminating the uses for which such sites are set aside and managed. Historic sites require assessment of the introduction of visual, audible, or atmospheric elements that are out of character with the historic property or that alter its setting.

Section 4.16 (Socioeconomics and Environmental Justice) of the EIS describes the potential effects of the Proposed Project on cultural resources, parks, and preserves in the study area. The impact analyses in the EIS will be incorporated into this document after the public has had an opportunity to comment on the EIS and the Corps has published the Final EIS.

This page intentionally left blank.

12.0 SUBPART G: EVALUATION OF DREDGED OR FILL MATERIAL (40 CFR 230.60)

The purpose of the evaluation procedures and chemical and biological testing sequence outlined in this section is to provide the information needed to support the factual determinations required by “Proposed Disposal Site Determination.”

To determine whether additional chemical or biological testing is required, the Corps must consider available information regarding the proposed dredged and fill material, including prior evaluations, chemical and biological tests, scientific research, and past experience. The Guidelines outline the decision-making procedure for this determination, which includes the following tests:

- If the evaluation under Section B of Subpart G indicates that the dredged and fill material is not a carrier of contaminants, the required determination pertaining to the presence and effects can be made without testing. Dredged or fill material is most likely to be free from chemical, biological, or other pollutants where it is composed primarily of sand, gravel, or other naturally occurring inert material.
- The extraction site shall be examined in order to assess whether it is sufficiently removed from sources of pollution to provide reasonable assurance that the proposed discharge material is not a carrier of contaminants. Factors to be considered include, but are not limited to:
 - Potential routes of contaminants or contaminated sediments to the extraction site, based on maps, aerial photography, or other materials that show watercourses, surface relief, proximity to tidal movement, private and public roads, location of buildings, municipal and industrial areas, and agricultural or forest lands.
 - Pertinent results from tests previously carried out on the material at the extraction site, or carried out on similar material for other permitted projects in the vicinity. Materials shall be considered similar if the sources of contamination, the physical configuration of the sites and the sediment composition of the materials are comparable. Tests from other sites may be relied on only if no changes have occurred at the extraction sites to render the results irrelevant.
 - Any potential for significant introduction of persistent pesticides from land runoff or percolation.
 - Any records of spills or disposal of petroleum products or substances designated as hazardous under Section 311 of the CWA (see 40 CFR 116).
 - Information in federal, state, and local records indicating significant introduction of pollutants from industries, municipalities, or other sources, including the types and amounts of waste materials discharged along the potential routes of contaminants to the extraction site.

- Any possibility of the presence of substantial natural deposits of minerals or other substances that could be released to the aquatic environment in harmful quantities by human-induced discharge activities.
- Where the discharge site is adjacent to the extraction site and subject to the same sources of contaminants, and the materials at the two sites are substantially similar, the fact that the material to be discharged may be a carrier of contaminants is not likely to result in degradation of the disposal site. In such circumstances, when dissolved material and suspended particulates can be controlled to prevent carrying pollutants to less contaminated areas, testing will not be required.
- Even if the above tests lead to the conclusion that there is a high probability that the material proposed for discharge is a carrier of contaminants, testing may not be necessary if constraints are available to reduce the contamination to acceptable levels within the disposal site and to prevent contaminants from being transported beyond the boundaries of the disposal site. In this case, constraints must be acceptable to the permitting authority, and the potential discharger must be willing and able to implement such constraints. However, even if tests are not performed, the permitting authority must still determine the probable impact of the operation on the receiving aquatic ecosystem. Any decision not to test must be explained in the Factual Determinations.

If, upon evaluation of the proposed dredge or fill material, the Corps determines that additional chemical, biological, and physical testing is required, testing guidelines are outlined under Section 230.61 of the Guidelines. If additional testing is not required, the Corps may use the information outlined above in making the factual determination required in Subpart B “Proposed Disposal Site Determination.”

13.0 SUBPART H: ACTIONS TO MINIMIZE ADVERSE EFFECTS

Minimization includes actions that can be undertaken by the Applicant to minimize the adverse effects of discharges of dredged and fill material. Minimization measures are incorporated into the Corps' evaluation of the Proposed Project under the Factual Determinations (Subpart B) and technical evaluation factors (Subparts C through F) as they have the potential to lessen adverse effects on Waters of the U.S. and aquatic ecosystems. Minimization measures include, but are not limited to:

- actions concerning the location of the discharge;
- actions concerning the material to be discharged;
- actions controlling the material after discharge;
- actions affecting the method of dispersion;
- actions related to technology;
- actions affecting plant and animal populations;
- actions affecting human use; and
- other actions.

Examples of each of these action types are in the following subsections.

The Applicant has identified several potential measures to minimize adverse impacts. These measures are outlined in the Applicant's Mitigation Plan (Appendix N of the EIS). Applicant-proposed minimization measures are summarized in Chapter 6 (Mitigation) in the EIS. Resource-specific measures are identified in the respective sections of Chapter 4 (Environmental Consequences) in the EIS.

The Corps has reviewed the minimization measures proposed by the Applicant and considers them to be a reasonable starting point for developing the full list of all appropriate and practicable steps that can be taken to minimize the potential adverse impacts of the Proposed Project. However, the Corps has not yet determined whether the Applicant's proposed minimization actions include all appropriate and practicable measures and has not yet determined whether the Applicant's Proposed Project complies with the test of minimization of potential adverse impacts. This determination will be included in this document after the public has had an opportunity to comment on the EIS and the Corps has published the Final EIS. The Corps invites the public to comment on the current list of Applicant-proposed minimization measures and to provide suggestions on additional minimization measures that may be practicable and appropriate to help reduce impacts on Waters of the U.S. and aquatic ecosystems. A general list of minimization measures have been grouped by type and are listed below. The list is not exhaustive, but provides a starting point for consideration of the types of minimization measures that may be available to lessen potential impacts of the Proposed Project.

13.1 ACTIONS CONCERNING THE LOCATION OF THE DISCHARGE (40 CFR 230.70)

- Design and locate Navy Base ICTF and roadway and railway improvements to avoid Waters of the U.S., where feasible.
- Concentrate and confine impacts to previously disturbed areas, where feasible.
- Where possible, limit the placement of pilings for bridges within waterways.
- Avoid roads crossing Waters of the U.S. Where crossing is necessary, minimize impacts by crossing at the narrowest portion and/or by siting over existing road crossings.
- Redevelopment of an existing industrial site.
- Placement of rail improvements to minimize direct interaction with historic buildings and structures.
- Coordinate with South Carolina State Historic Preservation Officer (SHPO) to minimize and avoid impacts to historic buildings and structures on the CNC.

13.2 ACTIONS CONCERNING THE MATERIAL TO BE DISCHARGED (40 CFR 230.71)

- Implement a Solid and Hazardous Waste Management Plan.
- Implement a Material Safety Data Sheet program.
- Implement a Spill Prevention Control and Countermeasures (SPCC) Plan for petroleum products.
- Implement an identification and approval process prior to bringing any hazardous material within the ICTF.
- Comply with Resource Conservation and Recovery Act (RCRA) and SCDHEC requirements for storage and handling of hazardous and toxic wastes.
- Implement waste minimization measures.
- Perform all land disturbance activities in compliance 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).

13.3 ACTIONS CONTROLLING THE MATERIAL AFTER DISCHARGE (40 CFR 230.72)

- Comply with City of North Charleston's Permitting Standards and Procedures Manual and requirements of the National Pollutant Discharge and Elimination System (NPDES) permit, including applicable groundwater and surface monitoring and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

13.4 ACTIONS AFFECTING THE METHOD OF DISPERSION (40 CFR 230.73)

- Use methods of managing sediment and erosion control during construction as presented in the South Carolina Best Management Practice (BMP) Handbook (SCDHEC 2005).
- Use of 2:1 slopes in areas that are not bridged.
- Implement an SWPPP as required by Palmetto Railway's NPDES permit, including management of sediment and erosion control.
- Implement a Spill Prevention Control and Countermeasures (SPCC) Plan for petroleum and other contaminants.
- Use of BMPs (e.g., proposed detention ponds, vegetated swales) to manage increase in stormwater runoff and associated decrease in infiltration resulting from increased impervious surface and reduce pollutant loads to receiving waters
- Employ the use of oil-water separators at the locomotive shop and the "Repair in Place" tracks to ensure treatment of any oily waste from on-terminal equipment maintenance activities.
- Inclusion of forebay in stormwater management system to provide pretreatment of stormwater runoff before it discharges to the primary water quantity and quality control BMP.
- Implement dust control measures (such as watering unpaved work areas, temporary and permanent seeding and mulching, covering stockpiled materials, and using covered haul trucks) in accordance with the conditions set forth in the SCDHEC Air permit issued for the Proposed Project.
- Compliance with all applicable laws for testing and disposal of contaminated soils and treatment and disposal for dewatering effluent.
- Counter-pumping may be required near areas of existing groundwater contamination to prevent plume migration.
- Stoppage of work if discovery of unknown contamination occurs.
- Compliance with Land Use Controls (LUCs) provided by Navy document
- Conduct required asbestos and metals-based paint surveys on all buildings requiring demolition or significant renovation. If detected, these impacts would be abated prior to demolition/renovation.

13.5 ACTIONS RELATED TO TECHNOLOGY (40 CFR 230.74)

- Use state-of-the-art equipment, such as electric wide-span gantry cranes, that minimize sound emissions during operations.
- Use electric wide-span gantry cranes that emit zero air emissions versus diesel-powered lift equipment.

- Construct a semi-automated facility that minimize air quality emissions during operations as a result of increased efficiencies during the handling and processing of containers.
- Use Tier 4 Utility Truck Rigs (UTR) 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.
- Limit switching activity within the ICTF to Tier 4 locomotive engines at full build-out.
- Utilize automated gate system for the over-the-road (OTR) trucks entering/exiting the facility from the Wando Welch and North Charleston Container Terminals and an OCR portal at the connection from the facility (drayage road) to the HLT to reduce onsite idle times of trucks to 7.5 minutes/truckload and UTR to 5 minutes/truckload.
- Use of new, low-emission diesel yard trucks for transporting containers to and from the HLT.
- Provide around-the-clock security through a combination of security gate personnel, video cameras, and other security measures.
- Operate and maintain air pollution control equipment in accordance with permit requirements.
- Coordinate with the Maritime Training Center (being planned by the Mitigation Agreement Commission) to pursue potential opportunities for training associated with jobs created by the Proposed Project.

13.6 ACTIONS AFFECTING PLANT AND ANIMAL POPULATIONS (40 CFR 230.75)

- Follow environmental windows established by the National Marine Fisheries Service (NMFS), and further refined by the Corps, for construction activity.
- Adherence to the following USFWS Manatee Guidelines during in-water construction.
- The permittee will stop work if a turtle or sturgeon is seen near the project site during construction.
- The contractor will utilize soft-start techniques for pile driving activities. This will consist of a series of taps at 25-40% 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.
- 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.
- Require contractors to use air bubble curtains or sleeve piles to mitigate underwater noise from pile driving activities.
- Replacement of significant and/or grand trees under City of North Charleston tree ordinance and payment to the tree bank account.

13.7 ACTIONS AFFECTING HUMAN USE (40 CFR 230.76)

- Provide around-the-clock security through a combination of security fencing, video cameras, and other security measures.
- Develop detailed pollution prevention plans and implement BMPs to minimize the potential for spills.
- Conduct construction and operations in accordance with appropriate regulations, permits, best practices, and codes.
- Placement of a noise abatement wall/earthen berm, and other Proposed Project features that minimize noise, visual, and air quality impacts to adjacent communities.
- Construct a semi-automated facility that minimize air quality emissions during operations as a result of increased efficiencies during the handling and processing of containers.
- 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.
- 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.
- 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.
- Contribution to The City of North Charleston of \$8 million to mitigate the impacts to the adjacent communities including loss of Sterret Hall.
- Palmetto Railways is working with DHEC and community groups to determine concerns and identify mitigation measures.
- An expanded community mitigation plan will be developed in partnership with community organizations and State agencies.
- A community engagement and awareness plan is being implemented to keep stakeholders and the public engaged and informed.
- Direct operating lights downward to shield light sources and minimize light impacts.
- Install landscaping within and around the facility footprint to reduce visual impacts.
- Replacement of significant and/or grand trees under City of North Charleston tree ordinance and/or payment to the tree bank account and adhere to any zoning requirements for tree plantings along building setbacks and road frontages.
- Provide photometric design for facility high-mast lighting to less than 0.5 foot-candles outside of property boundary.
- Direct operating lights downward and shield light sources to minimize light impacts to adjacent areas.
- Project locomotive shop and administration buildings will incorporate architectural elements from historic naval buildings to maintain and enhance aesthetics.

- Perform Surface Transportation Study to identify rail and traffic impacts to traffic associated with the proposed project.
- Project has been designed to enhance efficiency of train movements so that trains are not required to stop while accessing the intermodal terminal and exacerbating traffic congestion associated with at-grade crossings.
- Provide access to St. Johns Ave. for residents and businesses located on the former Navy Base and west of project North Lead railroad track.
- Evaluate engineering options to minimize traffic impacts near the southern loop in response to City of Charleston request.
- Extend Cosgrove Ave. with a new overpass over the ICTF north rail lead to facilitate access to the CNC.
- Construct improvements to Bainbridge Avenue and N. Hobson Avenue intersection.
- Construct auxiliary turn lanes at the ICTF entrance to minimize queuing and reduce traffic delays on N. Hobson Avenue.
- Maintain Viaduct Road overpass until the local segment of the port access road is complete.
- Construct a private road to eliminate truck traffic on local roadways.
- Open the gate at Turnbull Avenue to provide multiple entry/exit routes for residences along St. John's Avenue.
- Locate roadway improvements to minimize/avoid at-grade crossings and traffic delays associated with rail operations.
- Construct a noise abatement wall/berm along the western boundary of the site, between the ICTF and adjacent neighborhoods to minimize noise and visual impacts.
- Use state-of-the-art equipment, such as electric wide-span gantry cranes, that minimize sound emissions during operations.
- Implement a 100 foot buffer to reduce the impacts of vibrations from construction and operations of the facility.
-

13.8 OTHER ACTIONS (40 CFR 230.77)

- Participate in Voluntary Cleanup Contracts (VCCs) for parcels within the ICTF.

14.0 REFERENCES

- Berkeley Charleston Dorchester Council of Governments. 2013. Partnership for Prosperity, A Master Plan for the Neck Area of Charleston and North Charleston. Final Report. Draft June 11, 2013.
- Campbell, Bruce G., M.D. Petkewich, J.E. Landmeyer, and F.H. Chapelle. 1996. Geology, Hydrogeology, and Potential of Intrinsic Bioremediation at the National Park Service Dockside II-Site and Adjacent Area, Charleston, South Carolina. USGS Water-Resources Investigations Report 96-4170.
- Federal Emergency Management Agency. 2004. Flood Insurance Study, Charleston, South Carolina and Incorporated Areas. Flood Insurance Study Number 45019CV000A.
- Georgia Ports Authority. 2013. <http://www.gaports.com/Media/PressReleases/tabid/379/xmmid/1097/xmid/8749/xmview/2/Default.aspx>
- National Climatic Data Center, National Oceanic and Atmospheric Administration. 2014. Climate at a Glance: Time Series. <http://www.ncdc.noaa.gov/cag/> (accessed July 23, 2014) (from Climate Affected Environment section).
- Natural Resources Conservation Service (NRCS), U.S. Department of Agriculture (USDA). 2010. An Assessment of the Cooper Subbasin Hydrologic Unit Code (8 Digit):03050201.
- Nelson, J.B. 1986. The Natural Communities of South Carolina: Initial Classification and Description. South Carolina Wildlife and Marine Resources Department (SCDNR). Columbia, South Carolina. Website: <http://herbarium.biol.sc.edu/publications/JBNDoc.pdf>. Accessed on August 8, 2014.
- Noisette Company. 2013. Noisette Our Journey to Sustainability: an update. October 2013.
- Port of Virginia 2014. <http://www.portofvirginia.com/about/port-stats/>
- South Carolina Department of Health and Environmental Control (SCDHEC). 2005. BMP Handbook. July. <http://www.scdhec.gov/Environment/WaterQuality/Stormwater/BMPHandbook/> (accessed on July 31, 2014).
- . 2012a. R.61-68, Water Classifications and Standards, Effective June 22, 2012.
- . 2012b. State of South Carolina Integrated Report for 2012 Part I: Section 303(d) List of Impaired Waters. May 24, 2012.
- South Carolina Estuarine and Coastal Assessment Program. 2014. The Condition of South Carolina's Estuarine and Coastal Habitats During 1999-2010. <http://www.dnr.sc.gov/marine/scecap/> (accessed on August 26, 2014).
- South Carolina Department of Natural Resources (SCDNR). 2009. South Carolina State Water Assessment. A. Wachob, A.D. Park, and R. Newcome, Jr. (editors). Second edition.

- . 2010. South Carolina Climate. http://www.dnr.sc.gov/climate/sco/ClimateData/cli_sc_climate.php#winds, (accessed July 8, 2014) (from Climate Affected Environment section).
- South Carolina State Ports Authority (SCSPA). 2014. Communication with the U.S. Army Corps of Engineers on 19 August 2014.
- U.S. Army Corps of Engineers (Corps). 2006. Final Environmental Impact Statement (FEIS) Proposed Marine Container Terminal at the Charleston Naval Complex. North Charleston, South Carolina. December 2006.
- . 2009. Memorandum for Commanders, Major Subordinate Commands and District Commands on Updated Standard Operating Procedures for the U.S. Army Corps of Engineers Regulatory Program.
- . 2012. U.S. Port and Inland Waterways Modernization Preparing for Post-Panamax Vessels. Institute for Water Resources. June 20, 2012.
- U.S. Fish and Wildlife Service (USFWS). 2016. List of Threatened and Endangered Species by County: Charleston County. Website: http://www.fws.gov/charleston/pdf/Endangered/species_by_county/charleston_county.pdf (accessed on February 10, 2016).