

## **Appendix U**

### **SCSPA Draft Mitigation Program**

# **Proposed Mitigation Program**

**For**

# **The Proposed CNC Marine Terminal**

**Submitted by: South Carolina State Ports Authority**

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## **1.0 CONCEPTUAL MITIGATION OPTIONS**

### **1.1 Introduction:**

It is our intent and commitment to mitigate the unavoidable adverse impacts resulting from construction and operation of the proposed CNC Marine Terminal. This document addresses potential mitigation opportunities and proposes specific mitigation that will compensate/mitigate the unavoidable impacts directly and indirectly associated with the proposed CNC Marine Terminal. Mitigation does not directly mean compensation; however, compensation is a component of mitigation. Mitigation is defined in the Council on Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR 1508.20), as five elements used to develop justifiable measures to avoid, minimize, rectify, reduce, and compensate for project-induced losses. Each of these five elements can be defined as follows:

1. Avoidance: The thrust of this element is clear, look for alternatives that would avoid the impact and continue to meet the project's purpose and need.
2. Minimize: This element involves limiting the degree or magnitude of the action.
3. Rectify: This element involves actions such as repairing, rehabilitating, or restoring the affected environment.
4. Reduce: This element is a part of minimization effort and may reduce or eliminate the impact.
5. Compensate: Appropriate and practicable compensation occurs only after the above elements have been exhausted. Compensation can include restoration or creation of mitigative measures related to impacts, unique undertakings like funding the purchase of ecologically sensitive land masses, funding environmentally enhancing actions at one or more locations, and/or collaborating with other environmental efforts to further the protection and/or enhancement unique environmental undertakings.

The types of mitigation enumerated by CEQ are compatible with the requirements of the Guidelines; however, they can be combined to form three general types of mitigation: 1) avoidance, 2) minimization, and 3) compensation. These three types are the subject of the MOA and they must be done in that sequence.

It is important to note that at this time any mitigation discussions are conceptual. In fact, the EIS process now underway is directly addressing the first four of the above noted components of mitigation. Once complete and specific impacts, development plans, and operations methods are known, specific and final mitigation plans will be developed and written. The concepts and ideas presented in this draft have not been finalized and cannot, at this time, be considered as a final, since the practicality and availability of each concept has not been fully determined.

The current Standard Operating Procedures (SOP) for Compensatory Mitigation prepared by the Corps of Engineers in concert with other state and federal agencies does not lend itself well to defining the necessary and required type and/or amount of compensatory mitigation for large projects. In fact, on page 1 under Applicability, it clearly states that this SOP may not be appropriate for some large, complex projects. The proposal new CNC Marine Terminal clearly falls within the category of a large, complex project. As such, the SOP will not be used to calculate the necessary and appropriate mitigation requirements.

Since the proposed CNC Marine Terminal impacts will not be calculated using the current SOP, some assessment of the type and quantity of mitigation to compensate for the CNC Marine Terminal impacts must occur in order to define reasonable limits of acceptability for the proposed undertaking and to avoid unnecessary disagreements.

To better understand and identify appropriate mitigation for projects of this magnitude, similar large-scale projects were examined to define limits for the mitigation effort of the SCSPA. The assessment of these other permitted large-scale projects focused on identifying the area impacted and the approximate costs to complete the required mitigation so that some degree of assurance could be acquired on appropriateness of mitigation for this undertaking. This assessment coupled with information gained from meetings, as described below, significantly aids in defining appropriate, desirable and practicable mitigation scenarios. The large scale or complex projects used are 1) Blue Circle Cement, 2) SCDOT (Conway By-Pass), 3) S.C. Public Railways (Mercedes), 4) Vaught Aircraft, 5) Mercedes (Savannah), and 6) APM Terminals Virginia. The table below provides a comparison or assessment of the project's impacts (acres) and the approximate cost of mitigation.

| Project                  | Impact (Acres) <sup>1</sup> | Cost <sup>1</sup>          |
|--------------------------|-----------------------------|----------------------------|
| Blue Circle Cement       | 242                         | \$1.0 million              |
| SCDOT (Conway By-Pass)   | 233                         | \$5.0 Million              |
| S.C. Railways (Mercedes) | 75                          | \$4.50 Million             |
| Vaught Aircraft          | 20                          | \$4.75 Million             |
| Mercedes Savannah        | 132                         | \$3.5 Million <sup>2</sup> |
| APM Terminals Virginia   | 215                         | \$6.0 Million              |

Based on these projects and a comparison of impacts and cost, it appears that projects of the magnitude of the proposed CNC Marine Terminal clearly fall within the mitigative parameters of these projects. Therefore, it is reasonable for one to conclude that mitigation in the cost limits defined above and of similar magnitude and environmental benefit should be appropriate to mitigate the impacts associated with the CNC Marine Terminal.

To begin the process of developing conceptual mitigation opportunities, numerous meetings have occurred with representatives of federal and state environmental agencies as well as representatives of local, state, and national environmental organizations in an attempt to gather data and ideas on mitigating the adverse impacts attributable to construction and/or operation of the proposed CNC Marine terminal. As this process and plan is furthered, these type of meetings will continue and will include other local governmental entities and local neighborhood groups. Through this collaborative process the most practicable, desirable, and appropriate mitigation opportunities can be identified to fit within the mitigative parameters outlined above.

<sup>1</sup> Note: Acreages are approximate and based on information obtained through Department of the Army (DA) permit records or through conversations with DA staff. Cost estimates are also approximate and based on information obtained through Department of the Army (DA) permit records or through conversations with DA staff

<sup>2</sup> While dollar values were unavailable, the dollar amount indicated is considered conservative. It was derived by using the total acres impacted and the total dollar values of cost to arrive at the estimated value.

Given the fact that the EIS is still underway and that final impacts have not been quantified for the proposed terminal, a complete and comprehensive mitigation proposal cannot be developed at this time. Additionally, the SCSPA will be seeking opportunities to incorporate “operational” standards and/or methods in the overall mitigation plan. This work is underway and will be completed once the impacts for the proposed project are defined. It is again noted that mitigation for all unavoidable impacts resulting from construction and operation of the proposed project will be provided.

The mitigation efforts follow the format of this DEIS document by addressing the public interest factors. The only public interest factors that will be addressed in this section are those that are salient to the CNC Marine Terminal undertaking. A brief discussion of the unavoidable impacts followed by the methodology for mitigating the unavoidable impacts will be included in each of the defined public interest areas. As indicated earlier, some of these impacts and mitigation features will be generally described at this time, since full disclosure could impact the SCSPA’s ability to accomplish the mitigation or the plans are not sufficient at this point to access the impact and develop and describe the mitigation. Anticipated impacts can result from construction actions such as filling aquatic resources, dredging sub-tidal bottoms, increases in noise levels, both temporary and permanent, increases in lighting, both temporary and permanent, increases in roadway traffic, increase in rail/train movements, impacts to air quality, impacts to significant historic properties, etc. Each of these type impacts fall within one of the public interest factors discussed and addressed herein.

## **1.2 SALIENT PUBLIC INTEREST AREAS**

Each of the public interest areas that are salient to the CNC Marine Terminal undertaking is listed below. Within each of these areas, the impacts are described as by the DEIS, followed by conceptual mitigation measures that, individually or collectively, will avoid, minimize or compensate for the ultimately defined unavoidable impacts. Broader descriptions and discussions of impacts can be found in the DEIS. It should be noted that the listed conceptual mitigation measures are not proposed, but rather represent potential or suitable means for mitigating such impacts. Section 2.0 of this document outlines specifically proposed mitigation.

### **1.2.1 Transportation and Infrastructure**

Transportation and infrastructure impacts relate primarily to the increases in traffic on existing roads and increases from additional or longer train movements through the North Charleston area.

#### **1.2.1.1 Roadway Impacts**

Roadway impacts associated with increased traffic (primarily trucks) resulting from port construction and operation activities is thoroughly discussed and described in the DEIS. The SCSPA conducted feasibility studies for access roadway(s). The first identified conceptual alternative alignments and the second identified feasible alternatives sites. The selected alignment will provide direct access to and from the CNC Marine Terminal and I-26.

The selected alignment will provide direct access to and from the CNC Marine Terminal and I-26. The proposed access corridor minimizes and mitigates traffic impacts through the North Charleston area, including the nearby neighborhoods, by removing CNC Marine Terminal vehicular traffic from local roadways.

The impacts associated with construction of the proposed access roadway will be addressed by the entity that intends to construct the roadway and mitigation for the unavoidable impacts will be the responsibility of that entity. To that end, the SCSPA and the City of North Charleston executed a Memorandum of Understanding and Agreement (MOU) that among other items of mutual interest addresses and discusses certain transportation and infrastructure issues including the need for rail and road access for the CNC Marine Terminal to operate effectively and efficiently. The agreement acknowledges that certain minimum infrastructure should be in place before the CNC Marine Terminal commences operation. The minimum infrastructure requirements include the truck access corridor/road leading directly to I-26 and three (3) overpasses at defined locations. The three (3) overpasses are defined for the areas of Rivers Ave. and Harley Street, Rivers Ave. and Durant Road, and North Rhett and I-526.

Implementation of the understandings contained in the MOU will minimize and/or mitigate impacts to local traffic from the increases in traffic (primarily trucks) resulting from port construction and operation activities.

#### **1.2.1.2 Railway Impacts**

The railway or train traffic impacts associated with longer and/or additional train movements through the North Charleston area resulting from port construction and operation activities is thoroughly discussed and described in the DEIS. The impact is directly related to the times that certain roadway crossing will be blocked resulting in traffic delays. The SCSPA and the City of North Charleston executed a Memorandum of Understanding and Agreement (MOU) that among other items of mutual interest addresses and discusses certain transportation and infrastructure issues including the need for rail and road access for the CNC Marine Terminal to operate effectively and efficiently. The agreement acknowledges that certain minimum infrastructure should be in place before the CNC Marine Terminal commences operation. The minimum infrastructure requirements include the truck access corridor/road leading directly to I-26 and three (3) overpasses at defined locations. The three (3) overpasses are defined for the areas of Rivers Ave. and Harley Street, Rivers Ave. and Durant Road, and North Rhett and I-526.

Execution of this agreement and the future mitigation for any direct impacts related to the construction of such infrastructure will address mitigation for these impacts.

#### **1.2.2 Dredged Material**

The Proposed Project would require dredging for the initial construction of the proposed marine terminal, berthing area and turning basin. For the project construction, approximately 4.7 million cubic yards (Mcy) of material would be excavated. Of this volume, 2.0 Mcy would be excavated from the area between the river shoreline and the proposed wharf and back filled with more geotechnically suitable soils upon which the container yard and support facilities would be constructed. Another 2.7 Mcy would be

dredged from the berth, turning basin and access channel areas. Although the projected method for the dredging is yet to be determined, based on previous harbor dredging practices, a majority of the project would most likely be dredged using a 24-inch hydraulic cutterhead dredge. The dredging would occur over a period of 12-15 months. The dredged material would be placed in the Daniel Island CDF, which is owned and managed by the SCSPA.

The Proposed Project would affect long-term maintenance dredging of the Federal navigation channel by altering the river geometry. A numerical sedimentation model was used to quantify the changes in sedimentation rates. The model results indicate that the Proposed Project would cause a 50 percent increase in shoaling of the Daniel Island Reach, Daniel Island Bend and Myers Bend segments of the navigation channel. This equates to an increase on the order of 40,000 cy/yr; however, this value is only approximate given the high variability of the sedimentation in the harbor from year to year and the numerical model uncertainty. The project would not cause an appreciable change in shoaling volume in the other reaches of the navigation channel.

The Proposed Project would impact sedimentation rates in areas outside the Federal navigation channel, such as the berth and turning basin constructed as part of the Proposed Project. The Proposed Project is estimated to cause long-term shoaling of approximately 30,000 cy/yr in the berth area if a Turbo-Scour System is not in operation. The Proposed Project includes installation of a Turbo-Scour System, and therefore, the shoaling rate in the berth would be much lower.

The Proposed Project is expected to cause shoaling at a rate of 80,000 cy/yr in the turning basin. As noted, this rate is very approximate because the shoaling can vary widely with the weather and the model includes uncertainty. Additionally, initial shoaling rates would be higher as a result of side slope adjustment following project construction.

Based on the Tier I analysis, the dredged materials could include the following of contaminants of potential concern (CoPCs): nutrients, metals, phenols, phthalate esters, PAHs, PCBs, butyltins, dioxins and furans, pesticides, non-metals and other pollutants. The dredging and disposal of these sediments could impact aquatic and terrestrial wildlife by exposure to these contaminants.

Dredged material management is essential to successful operation of a marine terminal. Facilities must be cited in such a manner as to reduce the necessity of dredging to maintain sufficient berthing area depths. The proposed CNC Marine Terminal layout is developed to minimize the need or requirement to conduct frequent maintenance dredging operations and the concomitant need to dispose of the dredged material. Conceptual mitigative measures for impacts associated with dredge material may include:

- Siting and design considerations
- Sediment Suspension Systems
- Proper operational standards to contain disposal and address contaminants.

### **1.2.3 Noise**

The potential noise effects of the Proposed Project were estimated and it was determined that the terminal operation would be unlikely to adversely affect sensitive resources. The layout of the Proposed Project would locate the dockside activities along the Cooper River and away from sensitive sites including residences. Distances from center of terminal to the monitored locations range from 1,425 feet to 6,510 feet. The day-night noise level (DNL) noise contours indicate that all residences are outside the range of potential adverse effect except for three institutional structures: the Federal Law Enforcement Training Center (FLETC) Student Housing, the Kossler Quarters, and the proposed entrance road on base.

Effects on community noise levels during construction would result from noise from construction equipment and from construction and delivery vehicles traveling to and from the site. Construction noise is regulated by local ordinances and standards for construction equipment.

The SCSPA will be seeking operational standards and methods to minimize or avoid these impacts to the greatest extent practical. Additional noise reduction measures will be identified and evaluated by experts in this field as the impacts become known. Conceptual mitigative measures may include:

- electric power at or near the shoreline, pier/wharf area, and berths
- buffers
- sound barriers

### **1.2.4 Light**

Marine terminal facilities have stringent requirements for illumination levels of work areas, established by the Occupation Safety and Health Administration (OSHA). At this phase of the study, only a conceptual layout of the sites is defined. Preliminary lighting layouts have been studied using general assumptions as to the functional zones. Computer generated illumination contours based on these layouts indicate that spill lighting levels greater than that provided by a full moon (approximately 0.05 foot-candles) may extend as far as 300 feet beyond the Proposed Project boundary. These predictions should be considered to be conservative. When the facility is designed and the lighting design is optimized, the spill lighting may be minimized through choice of fixture characteristics, lamp wattage, reflector patterns, shielding, fixture orientation, and mounting heights. Light trespass, the impact the illumination on the surrounding communities, would be up to approximately 300 feet beyond the Proposed Project boundary. Sky glow would likely be noticeable to nearby residential areas, such as Union Heights, Windsor, Chicora, and Cherokee neighborhoods when viewing the nighttime sky to the east and southeast. Glare is not expected to be a significant lighting impact at the Proposed Project site.

The SCSPA' s current lighting standards are intended to minimize and avoid impacts to the greatest extent practical. Additional light reduction measures will be identified and

evaluated by experts in this field as operational standards and designs are completed. Conceptual mitigative measures may include:

- additional light shields
- low impact directional lighting
- buffers

### **1.2.5 Air Quality**

The impact to air quality from the construction and operation of the Proposed Project would be from mobile sources traveling through residential neighborhoods, using existing roads from the Proposed Project to I-26, intermodal facilities and local destinations. Increases in mobile emissions from the construction and operation of the Proposed Project will likely be greater than the No-Action condition, but would not adversely impact regional ambient air quality.

Impacts to air quality during construction of the Proposed Project include short-term adverse PM<sub>2.5</sub> impact from fugitive dust and short-term adverse impact from fuel combustion emissions (i.e., NO<sub>x</sub>, SO<sub>2</sub>, CO, VOCs, PM<sub>10</sub>). Impacts to Air Quality from operation of the Proposed Alternative include fuel combustion emissions caused by terminal operations such as trucks, vessels, container-handling equipment.

The SCSPA will seek operational standards and methods that minimize or avoid impacts to the greatest extent practical. Additional air quality mitigative measures will be identified and evaluated by experts in this field as operational standards and designs are completed. Conceptual mitigative measures may include:

- Operational measures to reduce emissions
- Land preservation to limit regional growth affecting air quality standards

### **1.2.6 Historic and Archeologic Resources**

Brockington and Associates, Inc have conducted a Cultural Resource Survey. The survey did not reveal any sites of significance on the proposed CNC Marine Terminal Property. As such, no mitigative measures are necessary. However, there are identified concerns for impacts to certain view corridors from properties listed on or listed as eligible for inclusion on the National Register for Historic Places from construction of the proposed CNC Marine Terminal. A Memorandum of Agreement (MOA) is being developed in concert with the State Historic Preservation Office that will, among other items and issues, provide mitigation for view corridor impacts. Once finalized, the MOA will be included in the FEIS. As the mitigation plan is further developed, incorporation of mitigation for cultural resources may be best addressed in concert with other mitigation components. Should land preservation be a component of the final mitigation plan, efforts to identify lands that meet several mitigation needs (e.g. cultural resources, essential fish habitat, wetland impact/restoration) will be given priority.

## 1.2.7 Water and Natural Resources

### 1.2.7.1 Aquatic Resources

The Proposed Project footprint impacts no freshwater plant communities. The Proposed Project footprint adversely impacts no freshwater animal communities. Little submerged aquatic vegetation exists in the area except for a few species of bottom algae. EFH impacts in the Proposed Project footprint include the loss of 10.4 acres of tidal marsh, approximately 2.4 acres of shallow subtidal areas, approximately 147.5 acres of deep (greater than 2' deep) areas (divided between filling of 54.5 acres and dredging of a 10.7-acre berthing area and a 76.5-acre turning basin), 3042 linear feet of shoreline, and approximately 2.1 acres of intertidal consolidated areas (mudflats). Besides marsh, the only other EFH designation that occurs in the vicinity is estuarine water column habitat. The major impacts to EFH would be from water quality changes in DO, salinity, turbidity, current velocity changes, but all of these are predicted to be small and localized.

Impacts to these areas can and will be mitigated. Conceptual mitigative measures may include:

- Creation or restoration of tidal saltwater marsh (like for like) at a 2:1
- Restoration of impaired wetlands with the same watershed
- Land purchase/preservation
- Wildlife habitat creation and/or restoration
- Wildlife recovery assistance
- Threatened and endangered species monitoring and measures to avoid impact
- Support of research or ongoing programs

### 1.2.7.2 Water Quality

The potential impacts of the Proposed Project to water resources, including surface waters, groundwater, storm water and potential impacts to shorelines, floodplains and dredging were analyzed. Surface waters that may be affected by the Proposed Project include Shipyard Creek and the Lower Cooper River.

- **Current Velocities.** The Lower Cooper River will be affected by the dredging and filling of the river associated with the construction of the project. The turning basin, berth and access channel areas will be dredged and deepened. Numerical model analyses indicate that the Proposed Project will cause a localized reduction in current velocities at the project site. The project will not cause any significant changes to currents in areas upstream or downstream from the project site. The project will not affect currents in the vicinity of Cooper River Marina, nor will the project cause any significant changes in tidal elevations in the Lower Cooper River.

- **Groundwater Resources.** The Proposed Project facility will use treated surface water supply for municipal drinking water from the Charleston Commissioners of Public Works during construction and operation of the facility. Therefore, the construction and operation of the Proposed Project will not create increased demands on groundwater resources.

- **Stormwater Runoff.** The Proposed Project will result in the filling and paving of upland, intertidal and subaqueous areas, thereby increasing stormwater runoff quantity and pollution. Truck and operating equipment at the terminal will likely contribute an increase in pollutants to runoff flow. The results of the stormwater quality analysis indicates that pollutant loading will increase once the proposed marine container terminal is constructed; however stormwater from the terminal and the support areas and Tidewater Road will be collected by a network of pipes and inlets and routed into a dry detention stormwater treatment pond constructed along the south side of the terminal. A total of 25 acres have been allocated along the south side of the terminal for stormwater management. The stormwater runoff will be detained being released into Shipyard Creek through a series of controlled outfall structures. The dry detention pond, a “Best Management Practice” (BMP) will reduce the amount of pollutant(s) entering the receiving waters.

- **In-stream Water Quality.** The Proposed Project will cause minimal effects to (a) in-stream salinity, (b) dissolved oxygen (DO) and biochemical oxygen demand (BOD), (c) nutrients, (d) suspended sediments, and (e) heavy metals. The Proposed Project will not affect (f) shoreline erosion and (g) floodplains.

- (a) Salinity. Analyses using a hydrodynamic, salinity and sedimentation computer model show that the project construction will cause localized changes in salinity concentrations. The changes in salinity are mostly limited to the immediate project site; the project will not cause significant changes to salinity upstream and downstream of the project site.

- (b) Dissolved Oxygen and Biochemical Oxygen Demand. The hydrodynamic modeling results indicate that the project will cause a reduction in currents in the navigation channel at the project site. This current speed reduction will result in a reduction in vertical mixing and reaeration, and thereby cause some small localized reduction in DO concentration. The increase in depth will also directly result in a decrease in reaeration of the lower portion of the water column. The storm water pollutant loading to Shipyard Creek and the Cooper River will not significantly alter the DO concentrations in the Lower Cooper River. The Proposed Project will result in small, localized decreases in DO near the project site, particularly at the river bottom.

- (c) Nutrients. The change in land use at the Proposed Project site will cause an increase in storm water runoff nutrient concentrations. This will cause a small increase in in-stream nutrient concentrations in Shipyard Creek and the Lower Cooper River.

- (d) Suspended Sediments. (i) Storm water discharge is expected to cause only a minimal increase in in-stream suspended sediment concentrations in Shipyard Creek and the Lower Cooper River. (ii) Dredging activities during

project construction and maintenance dredging, including the Turbo-Scour System, will cause the suspension of bottom sediments. Model results show that the Total Suspended Solids (TSS) plume is limited to the region near the river bottom and that the periods of peak TSS concentrations at any given location occur over short periods of time. Because the suspended sediment plume is transient in nature and the spatial extent of the high TSS dredge plume is relatively small, the dredge plume is not expected to cause significant adverse effects to the aquatic environment.

(e) Heavy Metals and Other Toxic Contaminants. The large number of trucks operating at the facility and traveling along the access roadway and highways will generate some heavy metal, oil and grease pollution via storm water runoff. Analysis of storm water runoff (Section 5.2.14.3) indicates that the Proposed Project may increase the pollutant load of lead, zinc, and oils and greases to the surface waters of Shipyard Creek and the Lower Cooper River.

(f) Shoreline Erosion. Erosion of Charleston Harbor shorelines is controlled predominately by wind waves. Therefore, the Proposed Project and its associated increased ship traffic are not expected to cause any significant impacts to shoreline stability in the estuary.

(g) Floodplains. The Proposed Project was evaluated and found to cause little or no impact to flooding of terminal facilities within the 100-year floodplain.

Mitigation for many of the impacts related to this issue will be addressed by operational measures implemented as part of the planning and operation of the facility. Conceptual mitigative measures may include:

- A comprehensive storm water management plan
- Restoration of impaired wetlands with the same watershed
- Land preservation

### **1.2.8 Community Impacts**

Community impacts generally fall into the category of Transportation and Infrastructure. Additional impacts occur to nearby communities as a result of construction and operational features such as lighting and noise. Certain data is available, but the operation plan and design features for the CNC Marine Terminal have not been completed at this point. As additional data becomes available, reassessment of potential impacts resulting from lighting and noise will occur and, as necessary, appropriate mitigation features will be developed to minimize and/or mitigate adverse effects from lighting at the CNC Marine terminal and noise levels resulting from construction and/or operation. Other potential impacts may include displacement and/or separation. As part of the EIS process, additional information gathering meetings with community leaders and groups will be used to identify and refine the concerns and potential mitigation opportunities. Conceptual mitigative measures may include:

- Vegetative buffers between residential and port properties
- Relocation or creation of public parks
- Support of public programming or education
- Creation of safe public pedestrian accesses
- Support of urban revitalization projects
- Land preservation
- Funding of regional studies

## **2.0 PROPOSED MITIGATION**

### **2.1 Introduction**

Identification and development of mitigation concepts that truly compensate for the unavoidable impacts resulting from construction and operation of the proposed CNC Marine Terminal is a continuing process. However, to the extent practicable, certain actions have been identified and quantified that compensate for the direct (Section 404) and indirect impacts of the proposed undertaking. Direct impacts are generally the most straightforward and therefore the easier to quantify and mitigate. The indirect or secondary impacts are more multifaceted and, as such, considerably harder to quantify and address. This section is divided into two parts, one direct impact mitigation and, two, indirect impact mitigation. Defining the mitigation components for the direct impacts will be direct and address the location, methodology and manner of the mitigation proposed to offset the unavoidable adverse impact. The mitigation for indirect impacts are multifaceted since the unavoidable adverse impacts are more generalized. Nevertheless, the mitigation proposed will offset and/or compensate for each of the impact areas.

### **2.2 Direct Impacts**

Direct impacts to aquatic resources, wetlands, involve the filling of 10.4 acres of estuarine wetlands, and dredging and filling 54.5 acres of estuarine waters. Adjacent to the dredge and fill area, a 10.3-acre wharf structure (3,000 feet long and 150 feet wide) will be constructed. In addition to the container terminal development, the project includes dredging a 10.7-acre berthing area and a 76.5-acre turning basin adjacent to the wharf. Impacts to these areas can and will be mitigated. The preferred alternative and its impacts to waters and wetlands are unavoidable and, therefore, must have a method defined for compensating for the impact/loss of these aquatic areas so that there is “no net loss” of function and value. Mitigation for the fill impacts is as follows:

#### **2.2.1 Restoration of Intertidal Marsh**

Approximately 44 acres of previously filled intertidal marsh has been identified within the former Naval Base Golf Course. This area has been noted by the City of North Charleston and the Noisette Project as being a focus for restoration within ongoing efforts to restore historic functions and values to the Noisette Creek drainage basin. The SCSPA proposes coordinate with the City of North Charleston to under take the

restoration of this marsh ecosystem to compensate for the direct impacts to tidal marsh and subtidal bottoms.

Restoration will be accomplished through the 1) formal identification of impacted areas, 2) removal of fill material 3) establishment of desired tidal flows, 4) establishment of natural vegetative communities, 5) monitoring to ensure success and 6) perpetual protection of the area through easement or deed restriction.

Restoration of this marsh will restore functions and values associated with a natural marsh to include:

- Water Quality
- Estuarine habitat
- Nursery habitat for aquatic species
- Floodwater storage

Specifics of the restoration efforts will be evaluated and methodology for restoration determined following completion of the EIS process. Final restoration plans and methods will be coordinated with the appropriate state and federal agencies. Initiation of the evaluation and development of the plan will commence with completion and filing of the EIS.

### **2.2.2 Dredge Material Management**

The siting initiative is, in and of itself, mitigation by minimizing the need to conduct frequent maintenance dredging operations and minimizes the quantity of dredged material to be disposed of in a contained disposal facility (CDF). Such minimization efforts also minimize the potential adverse effects runback from the CDF may have on water quality. Minimizing the quantity and frequency of the maintenance dredging operations clearly is a mitigative feature.

An additional mitigative feature to be incorporated into the design of the proposed CNC Marine Terminal is "Sediment Suspension System(s)" along the berthing area(s). The incorporation of this system lessens the quantity of suspended sediment that accumulates at berthing areas and lengthens the amount of time between the maintenance dredging operations which minimizes the potential for adverse effects typically associated with maintenance dredging activities on water quality, threatened or endangered species, fisheries resources, air quality, availability/capacity of the CDF, and other public interest factors.

### **2.3 Indirect Impacts**

The following are proposed to offset the indirect impacts of the proposed project. The measures outlined are broad based and address more than one impact. Each of the proposed means of mitigation serves to meet public interest factors and/or environmental benefit.

#### **2.3.1 Land Preservation**

In response to the overwhelming concern regarding potential development within the East Branch area of the Cooper River, a broad-based consortium has been formed, led by SCDNR, to attempt to mitigate adverse development considerations. Working with SCDNR are The Nature Conservancy, Low Country

Open Land Trust, Ducks Unlimited, Lord Berkeley Conservation Trust, Coastal Conservation League and others actively involved in coastal conservation efforts. This consortium has been working with and consulting with property owners within the East and West Branch, other interested adjacent land owners and representatives of local communities considering both private and public interests, to include federal, state and local agencies.

As background, there has been recent significant protection activity on-going in the subject corridor as evidenced by approximately 40,000 acres now under some form of public/private conservation, not considering the approximate 250,000 acres of the adjacent and surrounding Francis Marion National Forest. Included in those recent 40,000 acre totals is the recent public/private initiative involving South Carolina Department of Natural Resources (SCDNR), United States Forest Service (USFS), conservation-based NGO's and private land owners to protect Bonneau Ferry, Mepkin Abbey and the Mead Family properties, totaling approximately 20,000 acres.

Shortly after the completion of the aforementioned Bonneau transaction, the conservation community now finds that very serious development pressures are being experienced within the East Branch area of the Cooper River. Significant local and regional opposition to any potential development has been formed, led by representatives of neighboring land owners including representatives of the local minority communities located in and around the East Branch properties.

The unprotected lands within the East Branch represents almost 17,000 acres and the Upper West Branch about 7,000 acres, for a total of approximately 24,000 acres of properties yet to be protected (see attached figure).

Currently efforts, negotiations and discussions with most land owners located within the boundaries of the East Branch are occurring to address these issues and establish longterm protection of this area. It is the expectation that these efforts will lead to the protection of nearly 15,000 acres, representing the majority if not most of the East Branch properties, within a relatively short period of time. Critical to the success of that effort will be the fee acquisition of certain properties (about 4500 acres) coupled with donated conservation easements from adjacent land owners (about 10,500 acres). The donation of conservation easements is dependent and contingent on the terms of the intended specific acquisition, and vice-versa. Critical to the success of this initiative is raising the necessary capital to support the specific acquisition which will trigger the preservation of the remaining lands. State, federal and private funding has been secured to form the foundation of the acquisition. Other options are now being pursued to raise the remaining funding. It is the belief of the consortium that if they achieve success in raising the additional funding, the total effort may produce approximately 15,000 acres of protection within the East Branch.

Concurrent with the work in the East Branch, an initiative to protect the remaining Upper West Branch properties is also underway. Under the leadership of Lord Berkeley Conservation Trust, meetings with and consulting with included land owners are ongoing and those talks have led to a strategy that may involve a combination of purchased and donated easements. Funding options for the

purchased easement component are occurring contemporaneously with the efforts for the East Branch initiative.

### **Ecoregional Significance**

The Mid-Atlantic Coastal Plain Ecoregional Plan has identified the Sewee to Santee Portfolio as a The Nature Conservancy Priority Action Area. The Sewee to Santee Portfolio contains 4 Conservation Areas (CA) that are treated in aggregate as one integrated functional landscape – including Francis Marion National Forest (FMNF) and the Cooper River. The FMNF CA is located in Charleston and Berkeley Counties, South Carolina, and covers 250,000 acres. The sand ridges and better drained portions of the forest support the endangered longleaf pine ecosystem. Longleaf pine communities of the FMNF represent one of the largest remaining ecologically intact complexes of longleaf pine forests. The National Forest's red-cockaded woodpecker (RCW) population with 368 active clusters is a designated U.S. Fish and Wildlife Service recovery population. Also, significant populations of federally endangered/threatened wood stork, flatwoods salamander, shortnose sturgeon, loggerhead turtle, bald eagle, pondberry and American chaffseed all occur at the site.

The Cooper River CA is located in Charleston and Berkeley Counties, South Carolina, and covers 97,500 acres. The site supports significant longleaf pine forest with similar ecological attributes as that of the FMNF as well as the federally listed Atlantic shortnose sturgeon. The site is important to the protection of the Cooper River corridor and as a southern buffer to the FMNF. The river drains almost 1,400 square miles of uplands and wetlands, including fresh and brackish marshes. The West Branch of the river is a meandering natural channel bordered by extensive tidal marshes, old rice fields, and levees in varying states of disrepair. The East Branch is a tidal slough throughout its 7.5 miles in length.

The U.S. Forest Service (USFS) estimates that as much as 12,500 acres of the FMNF could be adversely impacted by incompatible residential development within the East Branch. Large-scale development in this area of the FMNF would effectively shut down prescribed fire on both the public and neighboring private lands that use this practice regularly. Some of the most extensive longleaf pine forest on the FMNF occurs in the immediate area. This area is extremely diverse and contains the highest concentration of listed species on the entire Forest:

- An estimated 34 federally endangered red-cockaded woodpecker clusters occur in this area.
- There are 5 records for the federally threatened flatwoods salamander in the area of impact, including 3 recently active breeding ponds. Flatwoods salamanders are nearly extirpated from South Carolina and the FMNF population is the last and most recently documented.
- The sensitive gopher frog has similar habitat requirements to the flatwoods salamander. There are 8 documented gopher frog breeding ponds in the impacted area.
- The area has 6 federally endangered pondberry populations.

- American chaffseed is a federally endangered plant occurring in frequently-burned longleaf pine forests. There are 3 American chaffseed sites in the impacted area, all of which are declining.
- Additionally, there are at least 10 other records for sensitive species that need fire to persist in the area, including: red pitcher plant, pondspice, incised groovebur, and crested fringed orchid.

The density of listed or sensitive species is truly unique and the reduction in frequency or elimination of prescribed fire would result in tremendous negative impacts to the FMNF, a critical component of the Sewee to Santee landscape.

The support of the SCSPA to accomplish this preservation effort will directly affect and improve water and air quality for the watershed and region, will provide valuable habitat, protect cultural resources, and protect the rural character of this area and thereby have lasting effects on the established communities and residents.

The SCSPA proposes to contribute Four Million Dollars (\$4,000,000.00) to support the acquisition efforts related to the preservation initiative within the Cooper River Basin.

### **2.3.2 Community Resources**

Certain data is available at this time as the operation plan and design features for the CNC Marine Terminal have not been completed at this point. As data becomes available, an assessment of impacts resulting from lighting, noise, displacement and separation will occur and, as necessary, mitigation features will be developed and modified to minimize and/or mitigate adverse effects from these. The following are proposed to offset and mitigate for the known impacts:

**2.3.2.1 Relocation or creation of public parks** – The SCSPA agrees to provide an approximate 2-acre green space/park in the Windsor/Union Heights area. The SCSPA agrees to work with the City of North Charleston to identify the appropriate location. The SPA will acquire and landscape the site and provide appropriate playground type equipment. Upon completion the area would be deeded to the City of North Charleston.

#### **2.3.2.2 Support of public programming or education**

The SPA will provide job-training opportunities to include:

- Commercial Driver License (CDL) Training (three candidates per year)
- Broker/Forwarder Examination Training (three candidates per year)
- South Carolina Law Enforcement Division Officer Training (one candidate per year)
- College Degree in Engineering, Accounting, Information Technology, or Business (one candidate per year)

*(Qualifications: Candidates must be residents of North Charleston and*

*graduates of Charleston County High Schools. CDL and Broker/Forwarder training will be provided through local qualified schools or programs. SLED training will be provided through SLED. College scholarships will be to an accredited South Carolina institution. College scholarships will be for four years and renewable year to year upon maintenance of good academic standing. Upon successful completion of training/schooling the SPA will assist the student in securing employment within the local community. The above program will be offered for a minimum five years beginning with the first year following commencement of construction of the Container Terminal on the Charleston Naval Complex.)*

Additional educational commitment of the SCSPA include:

- The donation and sacrifice of use of an approximately 17-acre site located on the old Navy Base. The 17-acre site will be used and in support of the establishment of a research campus and restorative sciences program by State funded colleges and/or universities.

### **2.3.3 International Center for Birds of Prey**

The International Center for Birds of Prey (ICBP) is a non-profit educational, scientific and conservation organization located near Charleston, South Carolina. The Center is dedicated to the study and welfare of birds and their habitats and to engaging the public in important environmental issues that affect birds and humans alike.

Home to nearly 200 birds of prey representing 78 species from six continents, the International Center for Birds of Prey was created through the combination the South Carolina Center for Birds of Prey in Charleston, South Carolina, and the leading raptor center in Great Britain. The newly formed organization brings more than 40 years of combined experience to its educational, medical, research, and captive breeding initiatives.

The Center's Medical Clinic treats hundreds of injured hawks, owls, falcons, ospreys, eagles, and other birds of prey each year, releasing the majority back into their natural habitat.

As part of previous environmental settlements related to shipping incidents, the ICBP was awarded monies from levied fines to establish a facility to treat wading birds and an Oil Spill Recovery Facility to treat wildlife affected by oil spills and other water contaminations. Planning efforts for this facility are near completion and groundbreaking is expected in 2006 with operation beginning in 2007.

The SCSPA proposes to contribute Five Hundred Thousand Dollars (\$500,000.00) to the ICBP to support the operation of this facility. This money will support operation and will offset potential future impacts related to increases

in shipping traffic, negative interaction with wildlife and impacts to land or aquatic resources.

#### **2.3.4 Buffers**

Buffers, along the perimeter of the CNC Terminal property, will be established as defined in sections 4.85 of the MOU & A between the SCSPA and the City of North Charleston dated October 25, 2002.

#### **2.3.5 Stormwater Management**

A storm water management plan for the CNC Marine Terminal will be developed that will, by design, minimize and mitigate the potential adverse effects to the adjacent waters. The storm water management plan is being developed and once complete must be approved by the State of South Carolina. This effort will protect and minimize any potential impact to water quality in the adjacent waters.

### **Summary**

The unavoidable adverse impacts resulting from the proposed CNC Marine Terminal will be mitigated. An environmentally sustainable project is essential if the region is to remain viable in industrial, residential and tourism uses. While mitigation plans and means may be modified during the DEIS process to meet or match identified impacts, the proposed mitigation provides both specific mitigation for direct impacts and valuable broad reaching components to address indirect impacts that are difficult to quantify and address in a “like to like” manner. The proposed components address both public interest and environmental benefit and remain consistent with the impact and mitigation for similar projects. The proposed mitigation includes:

- A. Restoration of 44 acres of filled tidal marsh.
- B. Installation of Sediment Suspension System
- C. Contribution of Four Million Dollars (\$4,000,000.00) to support the Cooper River land preservation initiative.
- D. Creation of public parks.
- E. Establishment and support of public programming and education.
- F. Donation of 17 acres to support establishment of research campus and restorative sciences program.
- G. Contribution of Five Hundred Thousand Dollars (\$500,000.00) to the International Center for Birds of Prey to support establishment and operation of an Oil Spill Recovery Center.
- H. Establishment of buffers.
- I. Design and implementation of stormwater management plans.