DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SAVANNAH DISTRICT
100 WEST OGLETHORPE AVENUE
SAVANNAH, GEORGIA 31401-3604

July 24, 2020

Regulatory Branch
SAS-2019-00751

JOINT PUBLIC NOTICE

Savannah District/State of Georgia

The Savannah District has received an application for a Department of the Army permit, pursuant to Section 10 of the Rivers and Harbors Act of l899 (33 U.S.C. § 403) and pursuant to Section 404 of the Clean Water Act (33 U.S.C § 1344), as follows:

Application Number: SAS-2019-00751

Applicant: Mr. Philip Rowland
Sulfco, LLC
118 East 35th Street
Savannah, Georgia 31401

Agent: Mr. Stuart Sligh
Sligh Environmental Consultants, Inc.
31 Park of Commerce Way, Suite 200B
Savannah, Georgia 31405

Location of Proposed Work: In waters and wetlands located at 100 Seapoint Boulevard, within the SeaPoint Industrial Complex on Kemira Road, in the city of Savannah, on the Savannah River, Chatham County, Georgia (Latitude 31.0841, Longitude -81.0227).

Description of Work Subject to the Jurisdiction of the U.S. Army Corps of Engineers: The existing 283.52-acre project area is comprised of 201.89-acres of upland with existing National Pollutant Discharge Elimination System (NPDES) features, 9.21 acres of freshwater wetland, 16.81 acres of saltmarsh, 5.36 acres of the intertidal zone (mudflat) and 50.25 acres of open water Savannah River. The applicant is proposing the construction of a new berth and attendant features to facilitate redevelopment of the existing 226.67-acre industrial facility. The proposed project will include dredging and filling waters of the US for construction of a multi-use deep water marine terminal adjacent to the Savannah River and expansion of an access road into the site. A 19.7-acre dredged material containment area (DMCA) with 500,000 cubic yard (cy) capacity will be constructed in uplands on the southern end of the project area. Effluent from the DCMA will discharge into an existing NPDES feature.

The proposed wharf will be approximately 3,000 feet (ft) long and will be constructed no closer than 800 ft from the Savannah River Federal Navigation Channel. The project will include dredging approximately 2.7 million cy of material from an approximate 58-acre area that includes 50.25 acres of open water (Savannah River), 1.24 acres of vegetated salt marsh, and 5.36 acres of the intertidal zone. The proposed dredge elevation at the face of the berth would be -42.0 mean low water (MLW) plus 2 feet of over dredge, with a 17-foot wide trough below the fender at -45.0 MLW for the section parallel to the new berth. The initial dredging will be conducted via hydraulic cutterhead method, and future maintenance dredging activities will be necessary to maintain the required depths. Future maintenance dredging will be conducted by agitation or hydraulic method and will not exceed 250,000 cubic yards annually. The dredged material will be disposed of at the on-site upland DMCA constructed during the project.

The proposed access road improvements will include permanent fill impacts to 1.8 acres of freshwater wetland to widen and expand existing infrastructure.

Mitigation for the proposed access road impacts would be provided through the purchase of 7.2 compensatory wetland mitigation credits from AA Shaw mitigation bank which is within the primary service area of the project. Regarding dredging impacts the applicant has provided the following mitigation statement:

> "The proposed project will create an additional 19.63 acres of open water habitat adjacent to the Savannah River by excavating upland acres to create open water for ships to access the berth. The 19.63 acres of open water habitat to be created will provide additional habitat for certain fish species. While the proposed deep water habitat does not have exactly the same functions and values as the shallow intertidal zone including 1.24 acres of vegetated marsh, it does provide almost three times the area of tidal waters habitat. It is the applicant's opinion that this additional habitat will fully compensate for the loss of 6.6 acres of intertidal zone habitat and no additional mitigation should be required."

BACKGROUND

The project site is listed on the Hazardous Site Inventory (HSI) and is undergoing an approved Corrective Action Plan (CAP) with oversight from the Georgia Environmental Protection Division and the United States Environmental Protection Agency. The site has historically been used for chemical production and other contaminant producing commercial activities. As a result, the applicant has completed sediment analysis per the Inland Testing Manual titled "Tier II Sediment Sampling and Analysis Report".

There have been multiple Corps permit actions on the site since the 1970s that have expired. The Corps verified the use of Nationwide Permit (NWP) 38 for the removal of gypsum material from freshwater and tidal wetland locations on the site by letter dated

July 26, 2018, under file number SAS-2010-01064. The Corps is currently working with the applicant to resolve potential unauthorized fill activities within the project area.

This Joint Public Notice announces a request for authorizations from both the Corps and the State of Georgia. The applicant's proposed work may also require local governmental approval.

STATE OF GEORGIA

Water Quality Certification: The Georgia Department of Natural Resources, Environmental Protection Division will review the proposed project for water quality certification, in accordance with the provisions of Section 401 of the Clean Water Act. Prior to issuance of a Department of the Army permit for a project location in, on, or adjacent to the waters of the State of Georgia, review for Water Quality Certification is required. A reasonable period of time, which shall not exceed one year, is established under the Clean Water Act for the State to act on a request for Water Quality Certification, after which, issuance of such a Department of the Army permit may proceed.

State-owned Property and Resources: The applicant may also require assent from the State of Georgia, which may be in the form of a license, easement, lease, permit or other appropriate instrument.

Marshlands Protection: This notice also serves as notification of a request to alter coastal marshlands (under the provision of the Coastal Marshlands Protection Act, Georgia Laws, 1970, p. 939 and as amended), if required. Comments concerning this action should be submitted to the Marsh and Shore Management Section, Coastal Resources Division, Georgia Department of Natural Resources, 1 Conservation Way, Brunswick, Georgia 31523-8600 Telephone (912-264-7218).

Georgia Coastal Management Program: Prior to the Savannah District Corps of Engineers making a final permit decision on this application, the project must be certified by the Georgia Department of Natural Resources, Coastal Resources Division, to be consistent with applicable provisions of the State of Georgia Coastal Management Program (15 CFR 930). Anyone wishing to comment on Coastal Management Program certification of this project should submit comments in writing within 30 days of the date of this notice to the Federal Consistency Coordinator, Coastal Management Program, Coastal Resources Division, Georgia Department of Natural Resources, One Conservation Way, Brunswick, Georgia 31523-8600 (Telephone 912-264-7218).

U.S. ARMY CORPS OF ENGINEERS

The Savannah District must consider the purpose and the impacts of the applicant's proposed work, prior to a decision on issuance of a Department of the Army permit.

Cultural Resources Assessment: There are no known cultural resources located on the site. Review of Georgia's Natural, Archaeological, and Historic Resources GIS (which includes sites listed on the National Register of Historic Places (NRHP)) did not identify any sites listed or eligible for listing in the NRHP within the proposed permit area. Presently unknown archaeological, scientific, prehistorical, or historical data may be located at the site and could be affected by the proposed work.

Essential Fish Habitat (EFH): This notice initiates the EFH consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The applicant's proposal would result in the destruction or alteration of EFH utilized by various life stages of species comprising the red drum, shrimp, bluefish and/or snapper grouper management complexes. Our initial determination is that the proposed project would not have an individual or cumulatively substantial adverse impact on EFH or federally managed fisheries in the Atlantic Ocean. Our final determination relative to project impacts to EFH and the need for mitigation measures are subject to review by and coordination with the NMFS and the South Atlantic Fisheries Management Council.

Endangered Species: A preliminary review of the U.S. Fish and Wildlife Service (FWS) Information for Planning and Consultation (IPaC) list of Endangered and Threatened Species indicates the following listed species may occur in the project area: Northern long-eared bat (*Myotis septentrionalis*); West Indian manatee (*Trichechus manatus*); Eastern Black Rail (*Laterallus jamaicensis spp. jamaicensis*); piping plover (*Charadrius melodus*); red-cockaded woodpecker (*Picoides borealis*); wood stork (*Mycteria americana*); Eastern indigo snake (*Drymarchon corais couperi*); green sea turtle (*Chelonia mydas*); hawksbill sea turtle (*Eretmochelys imbricata*); Kemp's Ridley sea turtle (*Lepidochelys kempii*); leatherback sea turtle (*Dermochelys coriacea*); loggerhead sea turtle (*Caretta caretta*); frosted flatwoods salamander (*Ambystoma cingulatum*); American chaffseed (*Schwalbea Americana*); Canby's dropwort (*Oxypolis canbyi*); and pondberry (*Lindera melissifolia*).

In addition, the project area provides habitat for shortnose sturgeon (*Acipenser brevirostrum)* and is designated critical habitat for Atlantic sturgeon (*Acipenser oxyrinchus*).

By letters dated May 27, 2020, the Corps initiated Section 7 consultation with both the Fish and Wildlife Service and National Marine Fisheries Service) for Section 7, coordination is ongoing.

Pursuant to Section 7(c) of the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 et seq.), we request information from the U.S. Department of the Interior, Fish and Wildlife Service, the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service; or, any other interested party, on whether any species listed or proposed for listing may be present in the area.

Public Interest Review: The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity

on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors, which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and in general, the needs and welfare of the people.

Section 408: The Corps is required to evaluate whether an activity also requires permission from the Corps pursuant to 33 U.S.C. 408 when it has the potential to "…take possession of or make use of for any purpose, or build upon, alter, deface, destroy, move, injure, obstruct by fastening vessels thereto or otherwise, or in any manner whatever impair the usefulness of…" a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"). The Corps is requesting any information on whether this project may so affect a USACE project. The decision on a Department of the Army permit application pursuant to Section 10 or Section 404 will not be rendered prior to the final determination regarding Section 408."

Consideration of Public Comments: The Corps is soliciting comments from the public; federal, state, and local agencies and officials; Native American Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Application of Section 404(b)(1) Guidelines: The proposed activity involves the discharge of dredged or fill material into the waters of the United States. The Savannah District's evaluation of the impact of the activity on the public interest will include application of the guidelines promulgated by the Administrator, Environmental Protection Agency, under the authority of Section 404(b) of the Clean Water Act.

Public Hearing: Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application for a Department of the Army permit. Requests for public hearings shall state, with particularity, the reasons for requesting a public hearing. The decision whether to hold a public hearing is at the discretion of the District Engineer, or his designated appointee,

based on the need for additional substantial information necessary in evaluating the proposed project.

Comment Period: Anyone wishing to comment on this application for a Department of the Army Section 10/Section 404 permit should submit comments by email to skye.h.stockel@usace.army.mil. Alternatively, you may submit comments in writing to the Commander, U.S. Army Corps of Engineers, Savannah District, Attention: Ms. Skye H. Stockel, 100 West Oglethorpe Avenue Savannah, Georgia 31401-3604, no later than 30 days from the date of this notice. Please refer to the applicant's name and the application number in your comments.

If you have any further questions concerning this matter, please contact Ms. Skye H. Stockel, Project Manager, Coastal Branch at (912) 652-5690.

Enclosures:

1. Project Application and Description
2. Vicinity and Location Maps
3. Impact Drawings
4. Mitigation Worksheets
5. Threatened and Endangered Species Survey Report
6. Essential fish Habitat Assessment

sligh environmental consultants, inc

October 14, 2019

U.S. Army Corps of Engineers
Regulatory Branch, Southern Section
100 West Oglethorpe Avenue
Savannah, Georgia 31401-3640

Subject: **Individual Permit Application**
SeaPoint Marine Terminal
Chatham County, Georgia

Sligh Environmental Consultants, Inc. (SECI), on behalf of Sulfco, LLC (applicant), is pleased to submit the attached information requesting authorization for the proposed SeaPoint Marine Terminal located at the SeaPoint Industrial Complex in Chatham County, Georgia. The project will include the expansion/redevelopment of an existing industrial facility to include the development of a multi-use deep water marine terminal adjacent to the Savannah River. Much of the project related construction will be in upland, but the project will require dredging of intertidal wetlands and open water, and impacts to 1.8 acres of freshwater wetland to facilitate a new access road into the facility. The project will dredge approximately 2.6 million cubic yards from a 58-acre area (50.25 acres is open water dredging).

For your review, please find attached an Individual Permit application which includes:

- Joint Application Form
- GADNR-CRD Revocable License Form
- Permit Drawings depicting the proposed project
- Project Description
- Atlantic and Shortnose Sturgeon Assessment of Effects
- Sediment and Analysis Plan

If you have any questions or comments upon your review of this information, or should you require any additional information, please do not hesitate to contact us at (912) 232-0451.

Sincerely,

Stuart F. Sligh
Sligh Environmental Consultants, Inc.

cc: Mr. Philip Rowland - Applicant
Mr. Bradley Smith – EPD
Ms. Kelie Moore – GADNR - CRD
Mr. Josh Noble – GADNR - CRD

SEW 10/18/19

31 PARK OF COMMERCE WAY / SUITE 200B / SAVANNAH, GA 31405 / T 912.232.0451 / F 912.232.0453

JOINT APPLICATION
FOR
A DEPARTMENT OF THE ARMY, CORPS OF ENGINEERS PERMIT,
STATE OF GEORGIA MARSHLAND PROTECTION PERMIT,
REVOCABLE LICENSE AGREEMENT
AND REQUEST FOR
WATER QUALITY CERTIFICATION
AS APPLICABLE

INSTRUCTIONS FOR SUBMITTING APPLICATION:
Every Applicant is Responsible to Complete The Permit Application and Submit as Follows: One copy each of application, location map, drawings, copy of deed and any other supporting information to addresses 1, 2, and 3 below. If water quality certification is required, send only application, location map and drawing to address No. 4.

1. For Department of the Army Permit, mail to: Commander, U.S. Army Engineer District, Savannah ATTN: CESAS-OP-F, P.O. Box 889, Savannah, Georgia 31402-0889. Phone (912)652-5347 and/or toll free, Nationwide 1-800-448-2402.
2. For State Permit - State of Georgia (six coastal counties only) mail to: Habitat Management Program, Coastal Resources Division, Georgia Department of Natural Resources, 1 Conservation Way, Brunswick, Georgia 31523. Phone (912) 264-7218.
3. For Revocable License - State of Georgia (six coastal counties plus Effingham, Long, Wayne, Brantley and Charlton counties only) - Request must have State of Georgia's assent or a waiver authorizing the use of State owned lands. All applications for dock permits in the coastal counties, or for docks located in tidally influenced waters in the counties listed above need to be submitted to Real Estate Unit. In addition to instructions above, you must send two signed form letters regarding revocable license agreement to: Ecological Services Coastal Resources Division, Georgia Department of Natural Resources, 1 Conservation Way, Brunswick, Georgia 31523. Phone (912) 264-7218.
4. For Water Quality Certification State of Georgia, mail to: Water Protection Branch, Environmental Protection Division, Georgia Department of Natural Resources, 4220 International Parkway, Suite 101, Atlanta, Georgia 30354 (404) 675-1631.

The application must be signed by the person authorized to undertake the proposed activity. The applicant must be the owner of the property or be the lessee or have the authority to perform the activity requested. Evidence of the above may be furnished by copy of the deed or other instrument as may be appropriate. The application may be signed by a duly authorized agent if accompanied by a statement from the applicant designating the agent. See item 6, page 2.

1. Application No. _____ 2. Date _____ 3. For Official Use Only_____

4. Name and address of applicant.
Mr. Philip Rowland
Sulfco, LLC
118 East 35th Street
Savannah, Georgia 31401

5. Location where the proposed activity exists or will occur. Lat. 32.084110° N Long. -81.022792° W

Chatham County	5th Military District	N/A In City or Town
Savannah Near City or Town	N/A Subdivision	N/A Lot No.
226 ac of 755 ac Parcel Lot Size	+/- 14 Feet Approximate Elevation of Lot	Georgia State
Savannah River Name of Waterway	Savannah River Name of Nearest Creek, River, Sound, Bay or Hammock	

6. Name, address, and title of applicant's authorized agent for permit application coordination.

Sligh Environmental Consultants, Inc.
Attn: Stuart F. Sligh
31 Park of Commerce Way, Suite 200B
Savannah, GA 31405

phone (912) 232-0451
fax (912) 232-0453

Statement of Authorization: I Hereby designate and authorize the above named person to act in my behalf as my agent in the processing of this permit application and to furnish, upon request, supplemental information in support of this application.

Signature of Applicant

10/7/19
Date

7. Describe the proposed activity, its purpose and intended use, including a description of the type of structures, if any to be erected on fills, piles, of float-supported platforms, and the type, composition and quantity of materials to be discharged or dumped and means of conveyance. If more space is needed, use remarks section on page 4 or add a supplemental sheet. (See Part III of the Guide for additional information required for certain activities.)

See attached project description

8. Proposed use: Private ___ Public ___ Commercial ___ Other _X_ (Marine Terminal)

9. Names and addresses of adjoining property owners whose property also adjoins the waterway.

State of Georgia
Martin Luther King, Jr. Drive
SE, 1454E
Atlanta, GA 30334

Coastal Heritage Society
303 Martin Luther King, Jr. Blvd.
Savannah, GA 31402

10. Date activity is proposed to commence. Upon Permit Authorization to Proceed

Date activity is expected to be completed. Within five years of authorization

11. Is any portion of the activity for which authorization is sought now complete ___Y _X_N
A. If answer is "Yes", give reasons in the remarks in the remarks section.
Indicate the existing work on the drawings.
B. If the fill or work is existing, indicate date of commencement and completion.
C. If not completed, indicate percentage completed.

12. List of approvals or certifications required by other Federal, State or local agencies for any structures, construction discharges, deposits or other activities described in this application. Please show zoning approval or status of zoning for this project.

Issuing Agency	Type Approval	Identification No.	Date/Application	Date/Approval

13. Has any agency denied approval for the activity described herein or for any activity directly related to the activity described herein? ___Yes _X_NO (If "yes", explain).

Note: Items 14 and 15 are to be completed if you want to bulkhead, dredge or fill.

14. Description of operation: (If feasible, this information should be shown on the drawing).
A. Purpose of excavation or fill To create a deep water multi-purpose deep water shipping terminal. See Project Description attached to this application for details

1. Access channel	length_____	depth_____	width_____
2. Boat basin	length +/- 3,000'	depth-42 MLW	width +/- 500'
3. Fill area	length_____	depth_____	width_____
4. Other	length_____	depth_____	width_____

(Note: If channel, give reasons for need of dimensions listed above.)

B. 1.If bulkhead, give dimensions Proposed bulkhead (King Pile Wall) will be installed in existing upland area.
2.Type of bulkhead construction (material) Steel Sheetpile
Backfill required: Yes _____ No X Cubic yards _____
Where obtained _____

C. Excavated material
1.Cubic yards 2.7 Million Cubic Yards
2.Type of material Sand and Clay

15.Type of construction equipment to be used Mechanized earth moving equipment and Hydraulic Dredge
A. Does the area to be excavated include any wetland? Yes X No___
B. Does the disposal area contain any wetland? Yes____ No X
C. Location of disposal area On-Site DMCA – See attached Permit Drawings
D. Maintenance dredging, estimated amounts, frequency, and disposal sites to be utilized: Annual Maintenance Dredging of 250,000 CY per year via agitation, hydraulic, or clamshell with disposal in On Site DMCA.
E. Will dredged material be entrapped or encased? No – Stored and Managed in on-site DMCA
F. Will wetlands be crossed in transporting equipment to project site? No
G. Present rate of shoreline erosion (if known) None

16. WATER QUALITY CERTIFICATION: In some cases, Federal law requires that a Water Quality Certification from the State of Georgia be obtained prior to issuance of a Federal license or permit. Applicability of this requirement to any specific project is determined by the permitting Federal agency. The information requested below is generally sufficient for the Georgia Environmental Protection Division to issue such a certification if required. Any item which is not applicable to a specific project should be so marked. Additional information will be requested if needed.

A. Please submit the following:
1. A plan showing the location and size of any facility, existing or proposed, for handling any sanitary or industrial waste waters generally on your property.
2. A plan of the existing or proposed project and your adjacent property for which permits are being requested.
3. A plan showing the location of all points where petro-chemical products (gasoline, oils,cleaners) used and stored. Any above-ground storage areas must be diked, and there should be no storm drain catch basins within the diked areas. All valving arrangements on any petro-chemical transfer lines should be shown.
4. A contingency plan delineating action to be taken by you in the event of spillage of petro-chemical products or other materials from your operation.
5. Plan and profile drawings showing limits of areas to be dredged, areas to be used for placement of spoil, locations of any dikes to be constructed showing locations of any weir(s), and typical cross sections of the dikes.

B. Please provide the following statements:
1. A statement that all activities will be performed in a manner to minimize turbidity in the stream.
2. A statement that there will be no oils or other pollutants released from the proposed activities which will reach the stream.
3. A statement that all work performed during construction will be done in a manner to prevent interference with any legitimate water uses.

17. Application is hereby made for a permit or permits to authorize the activities described herein, Water Quality Certification from the Georgia Environmental Protection Division is also requested if needed. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete and accurate. I further certify that I posses the authority to under take the proposed activities.

Signature of Applicant

18. U.S.C. Section 1001 provides that: Whoever, in any matter within the jurisdiction of any department or agency of the United States, knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations, or makes or uses false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined no more than $10,000 or imprisoned not more than 5 years or both.

PRIVACY ACT NOTICE

The Department of the Army permit program is authorized by Section 10 of the Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act and Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972. These laws require permits authorizing structures and work in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Information provided will be used in evaluating the application for a permit. Information in the application is made a matter of public record through issuance of a public notice. Disclosure of the information requested is voluntary, however, the data requested are necessary in order to communicate with the applicant and to evaluate the permit application. If necessary information is not provided, the permit application cannot be processed nor can a permit be issued.

SUPPORTING REMARKS:

See Attached Project Description and Permit Plans

STATE OF GEORGIA
5-YEAR REVOCABLE LICENSE REQUEST

APPLICANTS NAME(S): Sulfco, LLC – Attn: Mr. Philip Rowland

MAILING ADDRESS: 118 East 35th Street (Street) Savannah (City) Georgia (State) 31401 (Zip)

PROJECT ADDRESS/LOCATION: 100 SeaPoint Boulevard, Savannah, GA 31404

COUNTY: Chatham WATERWAY: Savannah River DATE: October 5, 2019

LOT, BLOCK & SUBDIVISION NAME FROM DEED: See Attached Exhibit A to Quitclaim Deed Legal Description of Property

Georgia Department of Natural Resources
Coastal Resources Division
One Conservation Way
Brunswick, Georgia 31520-8687

I am making application for a permit with the U.S. Department of the Army, Corps of Engineers, Savannah District. I understand that the issuance of such a permit will not relieve me of the obligation to obtain authorization from the State of Georgia since the proposed project would constitute an encroachment on the beds of tidewaters which are State-owned property. Accordingly, I hereby request that I be granted a revocable license from the State of Georgia. Attached hereto and made a part of this request is a copy of the plans and description of the project which will be the subject of such a license. I certify that all information submitted is true and correct to the best of my knowledge and understand that the willful misrepresentation or falsification is punishable by law.

I understand that if permission from the State is granted, it will be a revocable license and will not constitute a license coupled with an interest. I acknowledge that this revocable license does not resolve any actual or potential disputes regarding the ownership of, or rights in, or over the property upon which the subject project is proposed, and shall not be construed as recognizing or denying any such rights or interests. I acknowledge that such a license would relate only to the property interests of the State and would not obviate the necessity of obtaining any other State license, permit or authorization required by State law. I further recognize that I will have no liveaboards, nor allow them to occur, at this structure. I recognize that I waive my right of expectation of privacy and I do not have the permission of the State of Georgia to proceed with such project until the Commissioner of the DNR has signed a copy of this request.

Sincerely,

By: PhpRhd
Philip Rowland – Sulfco, LLC

By: Vice President - Operations
(Applicant), title if applicable

Attachment

****

The State of Georgia hereby grants you a revocable license not coupled with an interest as provided in your request. This area may now or in the future be utilized by boats employing power drawn nets under the provisions for commercial or sport bait shrimping. In its occupancy and use of the premises, licensee shall not discriminate against any person on the basis of race, gender, color, national origin, religion, age, or disability. This covenant by licensee may be enforced by termination of this license, by injunction, and by any other remedy available at law to the Department. The project proposed for this license must be completed within 5 years of the date of issuance of the license and must be maintained in serviceable condition. Otherwise, action will be initiated to revoke the license and all structures must be removed immediately at the licensee's expense.

STATE OF GEORGIA
Office of the Governor

By: _____
For: Mark Williams, Commissioner-DNR

DATE: _____

Revised 3/2012

Sulfco, LLC
SeaPoint Marine Terminal Project Description
Chatham County, Georgia

Sulfco, LLC, a subsidiary of Dulany Industries, is proposing the development of a multi-use marine terminal on an approximately 226.67-acre site located at 100 Seapoint Boulevard in Savannah, Chatham County, Georgia. The project site is a portion of the former Tronox/Kerr-Mcgee industrial facility. The following information is submitted as support documentation in association with the attached application requesting authorization to impact waters of the U.S. pursuant to Section 10 of the Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act, and the Coastal Marshlands Protection Act of 1970 pursuant to the Official Code of Georgia Annotated, Part 12-5-286 (OCGA). While the project site totals 226.67 acres based on the project area survey landward of the Coastal Marshlands Protection Act jurisdiction line, the permit plans give a project area of 268.41 acres which includes the additional open water area out to the existing Savannah River Navigation Channel.

1.0 Introduction

Sulfco, LLC (Applicant) is proposing the redevelopment of the 226.67 -acre industrial site and the construction of a multi-use marine terminal at the SeaPoint Industrial Complex located at 100 SeaPoint Boulevard (formerly 1 Kerr-McGee Road), Savannah, Georgia 31404. The project site is located adjacent to the Savannah River (mile marker 12) with the center coordinates being latitude 32.084110° and longitude -81.022792°.

2.0. Background

Development and manufacturing operations on the site were originally initiated in 1955 when American Cyanamid Company developed the property for the manufacturing of titanium dioxide, which is used as pigment in many products including paint, plastic, paper and sunscreen. Kemira, Inc. purchased the property/project in 1985 and continued operations for the development of pigments. In 2000 Kerr-McGee Chemical, LLC acquired the site from Kemira and continued the titanium dioxide pigment production through two different processes including the sulfate process and the chloride process. The sulfate plant separated a low-grade ore using sulfuric acid (produced on-site at the sulfuric acid plant) to separate titanium from the ore and operated from 1955 until 2004. The chloride plant utilized chlorine to separate the titanium from a higher-grade ore and operated from 1970 until 2009. Through this ownership, Kerr-McGee employed over 700 local residents and 300 contract workers for the manufacturing of titanium dioxide. Kerr-McGee Chemicals created Tronox Pigments (Savannah), Inc. in November of 2005. Kerr-McGee transferred all properties, assets, and environmental liability into the newly created Tronox Pigments (Savannah), Inc. The sulfate plant was shut down in September 2004, and the chloride plant was shut down in July 2009. The 2009 economic recession caused Tronox Incorporated (including Tronox Pigments (Savannah), Inc. to file petitions on January 12, 2009 with the United Stated Bankruptcy Court under Chapter 11 of the Bankruptcy Code. The sulfuric acid plant remains operational on the site.

In December 2009, Tronox completed the idling of the Savannah operations. Tronox subsequently removed all proprietary technology related to the titanium dioxide operations and collected inventories to realize net value. On February 14, 2011, and upon Tronox's emergence from bankruptcy, the Savannah site was transferred to an environmental trust. Pursuant to this plan for reorganization, Tronox entered into an environmental settlement agreement by which all of its rights, title, and interest with respect to the Savannah facility were assigned to Greenfield Environmental Savannah Trust, LLC as trustee of the Savannah Environmental Trust. The Trust

was created with the State of Georgia and the United States of America as beneficiaries of the site. The overall purpose of the Trust is to perform environmental remediation and restore the inherent value of the site for future development. The on-site investigations and clean up/remediation activities were completed by Sulfco, LLC under the oversight of the Georgia Department of Natural Resources Environmental Protection Division (GADNR-EPD) and the U.S. Environmental Protection Agency (USEPA), both of which were instrumental in creating the innovative design and criteria for the overall remediation of the site and ultimate sale of the site to Sulfco, LLC.

The proposed project site is located along the northeast river bank of the Seapoint Terminal facility, which was formerly part of the Tronox/Kerr-McGee Pigments (Tronox) site. The project site is bound to the north by the Savannah River. Land east and southeast of the property consists of marshes previously deeded to the State of Georgia. Access to the site is via Seapoint Boulevard (formerly known as Kerr-McGee Road), which intersects East President Street to the south. Land west of the project site consists of a mixture of heavy industrial and commercial facilities. The proposed multi-purpose berth area is located along the northeast bank of the Savannah River.

The Tronox site is listed on the Hazardous Site Inventory (HSI) and is undergoing a corrective action plan in accordance with the Georgia EPD and USEPA approved Prospective Purchaser Corrective Action Plan to address contaminant source areas. All hot spots within the proposed project area have been delineated and remediated via excavation and disposal at an EPD approved facility (Subtitle D Landfill).

In January 2013, the Savannah Trust offered the property for sale through a competitive bidding process. Sulfco's parent company, Dulany Industries, was in the process of evaluating properties along the east coast for investment/development opportunities, and through careful evaluation made the determination that the SeaPoint project is a very unique project and fit their search criteria of project size, location, access to deep water, and with existing infrastructure. The key to the Sulfco's proposal for site acquisition was the multi-use approach and to incorporate existing facilities with new facilities utilizing on-site resources of solar power and steam power to create a sustainable model of redevelopment co-located on the site. Through coordination with the USEPA and EPD, a July 2014 Purchase and Sale Agreement (PSA) identified Dulany Industries, Inc (Dulany), as the selected Prospective Purchaser of the site over several other bidders. The PSA was subsequently assigned to Sulfco, LLC (Sulfco), a single purpose wholly owned subsidiary of Dulany. Transfer of the property to Dulany/Sulfco was completed in September 2017.

The purchase agreement included the responsibility to complete remediation clean up, which is in the final stages of being completed with oversight from USEPA and EPD. Through this purchase and remediation clean-up, Sulfco initiated planning for the redevelopment of the site into the proposed SeaPoint Industrial Terminal Complex over a year ago. The proposed plan is to redevelop/expand the industrial site into a multi-use marine terminal to accommodate partnered logistic firms, material handlers, bulk commodities transporters, and other terminal operations.

3.0 Project Overview:

As outlined above, the purpose of the proposed project is to complete the remediation efforts per the agreement with the Environmental Trust and to develop a marine terminal on an existing industrial site adjacent to the Savannah River collocated with support manufacturing facilities and existing utilities in a sustainable redevelopment model. The proposed SeaPoint Marine Terminal

is proposed as a general purpose multi-use marine terminal on the Savannah River to provide berthing facilities for the projected growth of cargo throughput in the Savannah Harbor.

Specifically, the SeaPoint site has existing paved access to President Street, an internal road network, a security gate, power, water, wastewater treatment facilities, rail, steam, heavy industrial zoning, and 60,000 square feet of existing office/research and development buildings immediately adjacent to the project site. The site has approval as a Federal Opportunity Zone, which recognizes economic development projects/opportunities and aims to drive long-term private investment into the redevelopment of real-estate of underserved communities. The project site is located on the bank of the Savannah River and federal navigation channel (approximately 3,000 linear feet of Savannah River frontage), and with existing rail and access to President Street, the site is ideally situated for redevelopment into a multi-use marine terminal.

4.0 Existing Site Conditions

As outlined above, the majority of the site was previously developed and used as an industrial facility for the production of titanium dioxide. The western half of the 226-acre project site includes existing internal roadways, concrete building pads from previous uses, and existing rail lines where previous facilities were located for the production of titanium dioxide. The eastern half of the site included various industrial uses including stockpile areas, settling ponds, stormwater treatment facilities, roads, and other infrastructure associated with the former industrial operations. As stated previously, remediation has been completed on the western portion of the property and is nearing completion on the eastern portion. All areas associated with the former industrial operation are filled, graded, and/or capped with soil material and grassed as part of the reclamation process. To the east and south, outside of the project site limits, is open salt marsh which was deeded to the State of Georgia on September 29, 2017. The southern portion of the project includes a previously developed site that was the City of Savannah incinerator facility that was closed in 2008 and removed in 2012. The paved driveway, concrete pad, and other adjacent concrete pad structures are all that remain of the incinerator facility. There is freshwater wetland area immediately north of the old incinerator facility and south of the old Tronox facility. The northern portion of the project adjacent to the Savannah River is mostly an armored bank with rip/rap from the upland down to the mean low water line. There are pockets of vegetated marsh, but most of the river frontage is existing rip/rap along the slope of the riverbank down to the open water habitat of the Savannah River.

With the previous industrial land use, the 226-acre project site is mostly upland with freshwater and saltwater fringes along the edge and mostly outside of the project footprint. Descriptions of each are included below:

A. Developed Upland:

Access to the new marine terminal will be via the existing paved drive to the old incinerator plant and through an existing developed upland industrial site. The habitats within the existing upland area include paved roadways, existing rail lines, concrete building pads, and open sparsely vegetated upland areas that were previously associated with the industrial development.

B. Tidal Wetland/Open Water:

The Savannah River interface at the location of the proposed berth within the project site includes an armored rip/rap bank along the upland/wetland line which slopes down to the mean low tide line. Through this mostly rip/rap rocked area there are small areas along the river bank that are vegetated saltmarsh that include sea oxeye (*Borrichea frutescens*) and saltmeadow cordgrass (*Spartina patens*) along the higher elevations. Moving lower

in topography along the slope, the vegetation changes to needle rush (*Juncus roemeranus*) with shrub species including saltwater false willow (*Baccharis angustifolia*) and false willow (*Baccharis halimifolia*) with red cedar located closer to the upland. Further down the slope into the intertidal zone, the vegetation transitions to more obligate salt tolerant species dominated by smooth cordgrass (*Spartina alterniflora*). Channelward of the vegetated saltmarsh is open water and intertidal mudflat habitat associated with the Savannah River. Total vegetated salt marsh habitat within the intertidal zone is approximately 1.24 acres.

C. **Freshwater Wetland:**
North of the closed incinerator site and along the eastern edge of the proposed project limits there is a freshwater wetland fringe that is dominated with common reed (*Phragmites australis*). Other species included within this freshwater fringe habitat include wild rice *(Zizania aquatica*), soft rush (*Juncus effusus*), and other sedges. Overstory trees include eastern red cedar (*Juniperus virginiana*), Chinese tallow (*Sapium sebiferum*), and a few red maple (*Acer rubrum*).

5.0 Proposed Site Development Plans

The proposed project consists of an expansion of the SeaPoint facilities and includes construction of a general purpose marine terminal on an existing industrial site adjacent to the Savannah River in Chatham County, Georgia. The new wharf will be approximately 3,000 feet long and is located on the eastern portion of the SeaPoint property. The proposed terminal will be designed to accommodate the loading and unloading operations for bulk goods, break bulk cargo, and a broad range of maritime transported goods and services. The terminal has been designed to operate and function as a multi-purpose facility to accommodate a variety of ships that will call on SeaPoint for imports and exports.

Specifically, the proposed project includes 1.8 acres of impacts to freshwater wetland associated with the improvements to an existing road for access to the terminal near the location of the old incinerator facility. The proposed access to the terminal will be through the old incinerator facility which is east of SeaPoint Boulevard. The applicant proposes to improve and widen the existing 2-lane paved road to facilitate access into the facility (1.01 acres of wetland impact). The access road will be widened within upland area at the location of the old incinerator where the terminal entrance gate and truck scale areas will be located. From the gate and scales, the road will extend across wetland area (0.79 acres) to developed upland within the SeaPoint project site and will provide access to the terminal facilities.

The wharf is to be constructed within all upland area landward of the CMPA/Section 10 jurisdiction line and will include a proposed king pile wall which will consist of 48" diameter pipe piles spaced every eight feet on center and AZ sheetpile spacers in between. This king pile wall holds the upland material back from the water as well as provides pile supports for the waterside loading equipment and operations. The proposed terminal construction sequence/schedule will be as follows:

1. Excavate the upland area along the king pile wall to Elevation 10. The king pile wall will be installed in upland to an embedment depth of at least elevation -56. This will provide stability for the unbraced height along the berth, capacity for the crane/loader waterside beam, and strength to prevent overturn from the landside soil pressures.
2. Concurrent with the installation of the king pile wall, the applicant will begin construction on the 19.74-acre upland dredged material containment area (DMCA) located on the southern portion of the project site. The DMCA will be designed to accommodate the dredged material

from the proposed dredging operations in phases. The DMCA will be designed with enough storage to allow the sediments to settle with each proposed dredging phase before ultimately outfalling into the existing on-site NPDES treatment facility. The estimated dredge volume storage in the DMCA is 500,000 cubic yards with 14-foot high dikes and maintaining 4-feet of freeboard from the top of the dredged material to the top of the dikes. After each dredging phase, the DMCA will be managed to dry the dredged material and eventually remove the material from the DMCA to suitable upland areas on the SeaPoint site or hauled to an upland /storage disposal area. This phased dredging and maintenance process will allow all of the proposed dredging operations (including maintenance dredging) to process the dredged material through the on-site upland DMCA.

3. Once the king pile wall is installed, the upland material on both sides will be excavated with mechanical equipment. The water side upland area will be excavated to a depth of at least Elevation -42. This excavation task will be completed landward of the jurisdictional line at a slope down of no more than 3:1. The excavated upland material will be hauled/transported to upland areas on the SeaPoint project site.

4. The upland material on the landside of the king pile wall will be removed at a slope of 3:1 from the wall. The material will be replaced with clean sands suitable for structural stability to support the future wharf. The king pile wall will integrate a pile supported relieving platform and fender system to accommodate the horizontal berthing reactions from the design vessels. This will be installed concurrent with the excavation of the material behind the king pile wall. The upland excavated material will be placed on other upland areas within the SeaPoint site.

5. Once the work in upland for the construction of the king pile wall is complete, the area within the Project Limits below the jurisdiction line in Phase I (western 1,500 linear feet of proposed wharf) will be dredged (after removing the existing rip-rap armor on the existing shoreline: approximately 3,000-sy) to an initial depth of elevation -30. The Phase I initial dredging to elevation -30 will remove an estimated 400,000 cubic yards of material which will be pumped into the DMCA. This material in the initial Phase I dredging is predominantly silt to silty sands and will bulk 20% when removed hydraulically. Dredged material will be placed in the on-site upland disposal facility (DMCA).

6. Once the Phase I initial depth material is dried and removed from the DMCA, the Phase I finish depth dredging to elevation – 42 will be completed. This Phase I final depth dredging is estimated to remove an additional 700,000 cubic yards of mostly clay material. Management and maintenance of this material will be on-going within the DMCA during this dredging operation to ensure the DMCA continues to function as designed to prevent sediments from outfalling into the NPDES outfall facility. Alternative dredging operations including clamshell may be utilized concurrent with hydraulic dredging when necessary.

7. After the Phase I area is complete and operational, the Phase II dredging operation will begin by using the clay from the Phase I dredging to increase the height of the dikes on the perimeter of the DMCA to 20 feet, which will increase the storage capacity in the DMCA to 700,000 CY. The Phase II dredging will be completed in a similar fashion as the Phase I operation with an initial dredging down to elevation -30 which will produce 600,000 cubic yards of material to be pumped to the DMCA. After the initial depth is completed for Phase II, the dredging will continue down to elevation -42 which will produce an estimated 1,000,000 cubic yards of material. All dredged material will be placed within the upland disposal facility.

8. The DMCA will be designed and managed to accommodate the proposed dredged material and future maintenance dredging through the life of the project. Annual maintenance dredging is estimated to be 250,000 cubic yards for the entire project (both Phase I and Phase II area). The design of the DMCA is proposed to discharge less than 20% TSS from the disposal site and free of other constituents of concern before being routed though the existing onsite wastewater treatment system. The outfall from the DMCA and onsite NPDES wastewater treatment system

extends to the east of the proposed wharf where it will ultimately discharge back into the Savannah River.

Proposed impacts associated with the dredging activity will include the dredging of 6.6 acres of intertidal area including 1.24 acres of vegetated marsh and 50 acres of existing open water. The total proposed dredging is 2,700,000 cubic yards. The Applicant has submitted a Sediment Sampling Analysis Plan dated August 12, 2019 attached to this application for USACE review and approval. The sediment analysis will be completed and results submitted for approval prior to initiating the dredging activities.

6.0 Proposed Activities in Jurisdiction

All activities proposed for the project are water dependent and necessary to provide a new berth for water borne vessels. Activities include construction of a new berth in uplands as outlined above, installation of the main access road to the new berth which will impact 1.8 acres of freshwater wetland, dredging within the intertidal zone to include 6.60 acres (including 1.24 acres of vegetated coastal marsh) and dredging of 50.25 acres of open water to the appropriate project depth to accommodate ship access from the navigation channel to the berth. The proposed wharf structures will be positioned no closer than 800 feet from the federally maintained navigational channel line and the Savannah River is approximately 2,300 feet wide at the location of the proposed project.

The majority of the proposed dredging will be in existing open water habitat to provide adequate depths for the proposed vessels to use the facility. The area of the new wharf will have similar subsurface depths as the adjacent navigational channel to allow for ships to access the new wharf. The proposed dredge elevation at the face of the berth would be -42.0 MLW (plus 2 feet of over dredge) with a 17-foot wide trough below the fender at -45.0 MLW for the section parallel to the new berth. The initial dredging will be conducted via hydraulic cutterhead method, and future maintenance dredging activities will be necessary to maintain the required depths. Future maintenance dredging will be conducted by agitation or hydraulic method and will not exceed 250,000 cubic yards annually. The dredged material will be disposed of at the on-site upland DMCA. The dredging activities will impact a total of 58.09 acres of jurisdictional area including 50.25 acres of open water and 6.60 acres of intertidal areas (including 1.24 acres of vegetated marsh). The total volume of material to be removed by dredging totals 2.7 million cubic yards.

7.0 Project Purpose

The basic project purpose must be known to determine if a project is water dependent. The basic purpose of this project is to construct a multi-use deep water marine terminal which is a water dependent activity. It is therefore assumed that alternative sites would have similar impacts and a formal evaluation of alternative sites is not required.

The overall project purpose is to construct a multi-purpose marine terminal facility by expanding/improving the existing SeaPoint Industrial Complex.

Justification to support the project is closely associated with the existing facilities on the site combined with the proposed terminal improvements on the eastern portion of the property. The University of Georgia's Center for Agribusiness and Economic Development completed a study in July 2019 quantifying the economic impact of future and potential operations at the SeaPoint Industrial Terminal Complex and the effects these operations may have within Chatham County and the State of Georgia (Kane and Wolfe, UGA, College of Agriculture and Environmental Sciences, Center Report CR-19-04, July, 2019). The report captured the existing chemical manufacturing operations (existing sulfuric acid operation), existing warehousing and storage

facilities on the site, existing research and development office complex, and proposed marine terminal. The direct economic effect of the proposed marine terminal project includes 1,045 employees and an annual revenue of $150.0 million dollars. When the marine terminal is combined with the existing support facilities on the site, the direct economic impact jumps to 1,703 employees and total annual revenue of $531.0 million dollars for the project.

The report concludes that the estimated revenue of $531 million, combined with employee spending and sales in input sectors resulting from development of this facility and associated industries could impact the Georgia economy by $970 million dollars. Additionally, production within the proposed facility directly accounts for 1,703 jobs and supports in total more than 4,466 jobs in the Georgia economy which adds up to over $225 million in labor income when considering all the related sectors and support facilities within the economy. The report concludes there will be a ripple effect from the proposed facility and other industries indirectly linked to the facility will experience increases in revenues and employment, demonstrating linkages between these sectors for input purchases and employees spending their earned income.

The proposed project includes the redevelopment of an existing industrial site to create a multi-use deep water marine terminal capable of handling a variety of industrial cargo needs and providing a wide array of services. The industrial site has nearly completed a remediation program as per the agreement with the Environmental Trust. This site has existing infrastructure, utilities, office space, warehousing, and access to support the proposed facility. The proposed SeaPoint Marine Terminal, together with existing and anticipated support facilities, is expected to have significant positive economic impacts to Chatham County and the State of Georgia. The proposed project is economically justified and within the public interest.

8.0 Alternatives Analysis

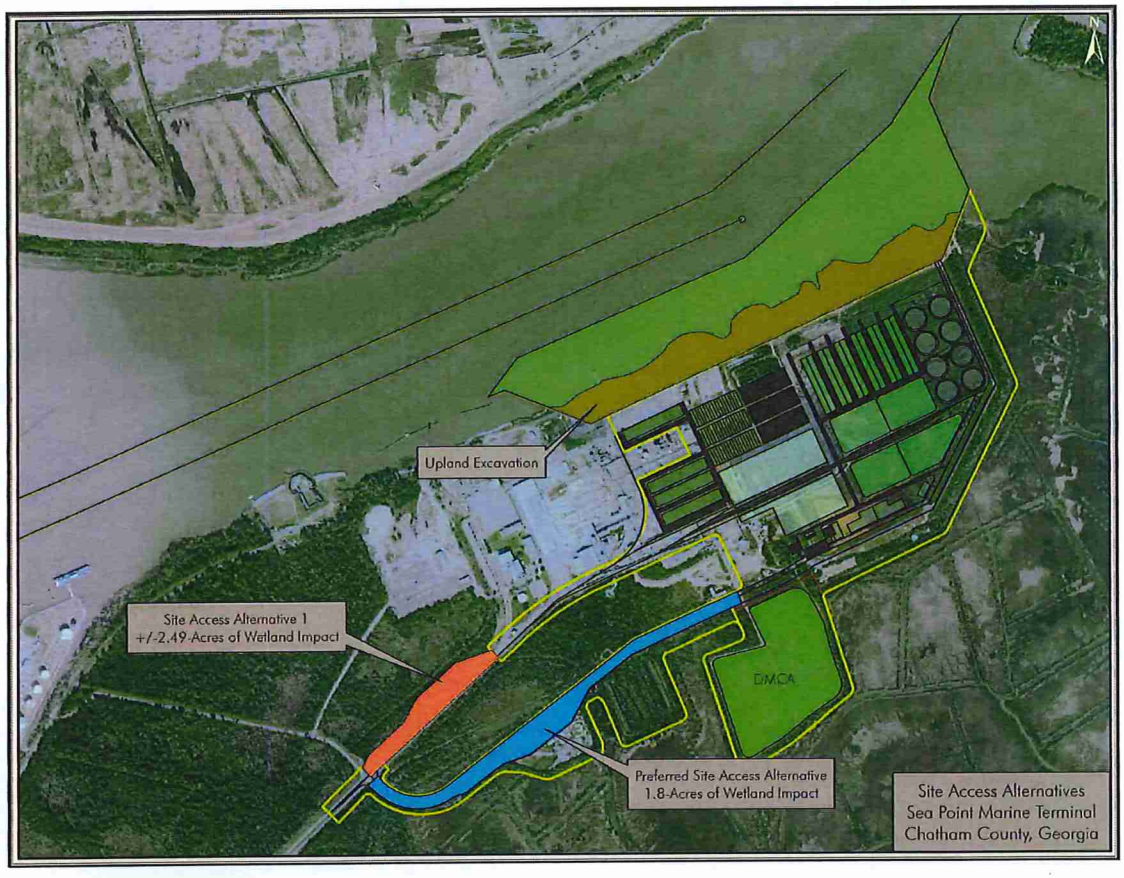
Prior to deciding on a final location, plan, and design for the proposed multi-use shipping terminal, the applicant completed a thorough due diligence in which various alternative plans were evaluated. Off-site alternatives are not practicable for the project as this project is an improvement to an existing industrial facility, the property is owned by the applicant, and the project purpose is to construct a marine terminal on the Savannah River which is water dependent. Therefore, alternatives were limited to on-site development alternatives to satisfy the overall project purpose and avoid and minimize impacts to wetlands to the greatest extent practicable.

8.1 Site Access Road Alternatives:

The first planning efforts included locating the preferred route for the terminal access road, main gate and scales that would not interrupt or alter existing and ongoing operations at the SeaPoint industrial facility, mainly including the existing acid plant, sulfer tanks, existing rail, and above ground steam utilities. The existing SeaPoint Boulevard extends northeast from President Street into the center of the existing development which includes guard house, office buildings, warehouses, and rail to serve the existing acid plant and the production of sulfuric acid. The existing rail parallels SeaPoint Boulevard on the east side from President Street into the existing plant. Once SeaPoint Boulevard passes the guard house, the rail splits and extends through the plant for staging of rail cars for the production of sulfuric acid. In addition to the active rail operations, there is an existing 60,000 square foot research and development office complex immediately west of the main access road, and existing warehouses to support the Seagate Terminal operations are further to the north and west. In addition, wetlands parallel the SeaPoint Boulevard to the west, so any shift in the road to the west would require impacts to additional wetland area.

Alternative Access 1 – Utilize existing SeaPoint Entrance: As outlined above, utilizing the existing SeaPoint Boulevard for access to the proposed terminal will include expanding the road to the west into approximately 2.49 acres of wetland for the development of a new gate entrance and scale area as expansion to the east is not feasible with existing rail and utilities to the east of the existing road. Additionally, once through the gate and scale area, the access road will extend directly into the existing industrial facility and will require multiple rail line crossings through existing overhead steam utilities and adjacent to an existing steam power generation equipment. With the existing sulfuric acid facility located in this immediate area, relocating rail, steam utilities, and existing operating industrial facilities is not feasible. Relocating these existing facilities is cost prohibitive to allow for a new terminal access road. For these reasons, utilizing the existing SeaPoint Boulevard through the existing SeaPoint gate and existing facility for access to the new terminal is not a feasible alternative.

Site Access Alternatives Exhibit



Alternative Access 2 – Utilizing the old Incinerator Drive and Incinerator Plant Site: This proposed access includes improving the existing incinerator access road, developing the gate and scale area on the old incinerator upland pad, and then extending a new road across freshwater wetland area to upland where the main access to the new terminal will be from the south so traffic can be directed to the appropriate loading area on the terminal without interrupting existing on-going industrial operations. This alternative will require one rail crossing to the east of SeaPoint Boulevard when turning on the incinerator road, will require impacts to a total of 1.8 acres of freshwater wetland for two freshwater wetland road crossings, and avoids allowing traffic through the existing acid processing facility and rail operations. This access alternative has less

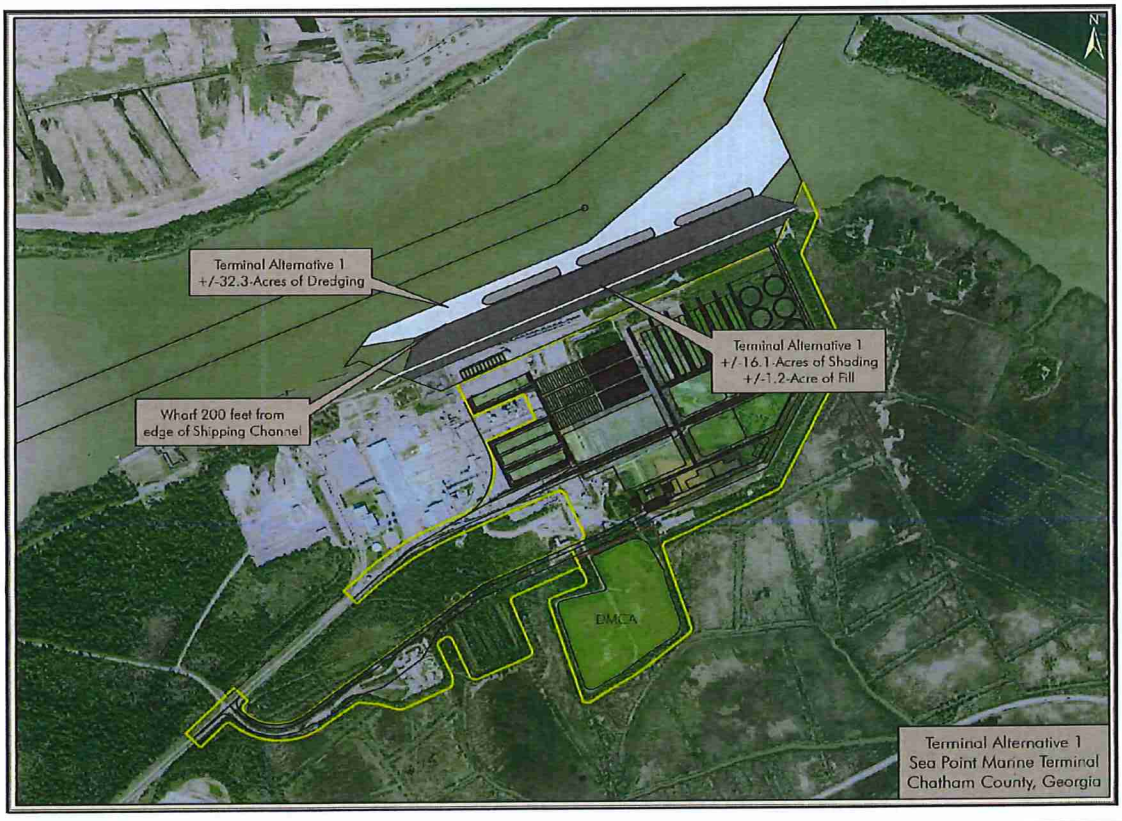
impacts to wetlands, avoids potential impacts to existing plant operations, directs traffic into the southern side of the proposed facility, and is preferred as it utilizes existing developed area for scale and gate access. For this reason, Alternative 2 is the preferred site access alternative.

8.2 Marine Terminal Planning Alternatives:

Several alternatives were evaluated to determine the preferred footprint for the proposed shipping terminal. The primary selection criteria included distance to existing navigation channel and impacts to jurisdictional area. The alternatives considered and evaluated are outlined below:

1. Build new pile supported wharf to existing Pier Head Line: This alternative would include installing a bulkhead near the existing jurisdiction line and extending a pile supported concrete wharf approximately 250 feet into the waterway to the existing pier head line. Based on the irregular shape of the shoreline, this alternative would require filling/impacting approximately 1.2 acres of coastal marshlands and Section 10 Waters for the installation of the bulkhead, and would require the installation of hundreds of pilings in the waterway to support the pile supported concrete wharf that would extend approximately 250 feet over the waterway. The shading impact to open water would be approximately 16.1 acres. This alternative would locate the wharf much closer to the Navigation Channel and substantially lessen the dredging requirement down to 32.3 acres. The existing pier head line is approximately 200 feet from the south side of the navigation channel. Although this alternative would minimize the dredging requirement and provide a cost savings to the applicant, this alternative is not feasible as the proposed wharf would be too close to the navigation channel for ships to pass in the channel with a ship at berth along the proposed wharf. For this reason, utilizing and building the proposed wharf to the existing pier head line is not a practicable alternative.

Pile Supported Terminal Exhibit



2. Build Wharf at Existing Jurisdiction Line: This alternative would include installing a bulkhead at the jurisdiction line and back filling to an appropriate height to get the wharf to the necessary elevation for loading and unloading ships (approximately 20-feet above MLW). Because of the irregular shape of the jurisdiction line, filling/impacting approximately 1.2 acres of coastal marshlands and jurisdictional area would be required for the bulkhead installation. Dredging would be required from the seaward face of the bulkhead out to the navigation channel for ship access to the berth totaling approximately 55.4 acres (50.52 acres of open water and 5.4 acres of intertidal zone). Once complete, the seaward edge of the berth would be approximately 450 feet from the southern edge of the navigation channel. Industry standard for this section of the Savannah River suggests that the minimum distance for safe passage from a ship traveling in the navigation channel to a ship tied at berth is 500 feet. This alternative would lessen the total dredge/excavation quantity compared to the preferred alternative, but requires filling coastal marshlands and jurisdictional Section 10 waters for the development of the berth and pile driving within the Savannah River for the bulkhead which has the potential to impact certain fish species within the river. Most importantly is the distance to the Navigation Channel, which would be closer to the channel than industry standard recommends for this section of the Savannah River and could be a navigation/safety issue for ships traveling in the channel with a ship at berth in the proposed terminal. For this reason, Alternative 2 is not a feasible alternative for the proposed berth.

Terminal at Existing Shoreline Exhibit

3. Construct the Berth in Upland (Preferred Alternative): This alternative includes constructing the wharf within existing upland area landward of the existing jurisdiction line and includes a proposed king pile wall built in existing upland area. The proposed king pile wall will hold the upland material back from the water as excavation and dredging occur on the waterside of the structure. The king pile wall will be installed in upland with pile hammer to an embedment depth of at least elevation -56. This will provide stability for the unbraced height along the berth, capacity for the crane/loader waterside beam, and strength to prevent overturn from the landside active soil pressures. Concurrent with constructing the berth wall, the applicant proposes to begin construction on the 19.74-acre upland DMCA located on the southern portion of the project site. The upland material on both sides of the wall will be excavated with mechanical equipment. The water side upland area will be excavated to a depth of at least elevation -42 to match the Savannah River Navigation Channel authorized depth and advanced maintenance adjacent to the project. The upland material on the landside of the king pile wall will be removed at a slope of 3:1 from the wall. The material will be replaced with clean sands suitable for structural stability to support the future wharf. The king pile wall will integrate a pile supported relieving platform and fender system to accommodate the horizontal berthing reactions from the design vessels. Once the wall is complete, the area within the Project Limits below jurisdiction the line will be hydraulically dredged after removing the 3,000 square yards of existing rip-rap armor on the existing shoreline. The initial dredging depth in Phase I is elevation -30. Once the dredge elevations are set to elevation -30 in Phase I, the hydraulic dredging will continue to elevation – 42. All dredged material will be placed within the upland disposal facility. Once Phase I is complete and operational, the Phase II dredging would begin in a similar phase approach as Phase I. The DMCA will be designed and managed/maintained to accommodate the proposed dredged material and future maintenance dredging through the life of the project. Annual maintenance is proposed for the project. The design of the DMCA is proposed to discharge less than 20% TSS from the disposal site and free of other constituents of concern before being routed though the existing onsite wastewater treatment system. The outfall from the DMCA and onsite wastewater treatment system extends to the east of the proposed wharf where it will discharge back into the Savannah River. Proposed impacts associated with the preferred alternative wharf design include dredging of 6.60 acres of intertidal area including 1.24 acres of vegetated marsh and 50.25 acres of existing open water dredging. The total proposed dredging is 2.7 million cubic yards. The Applicant has submitted a Sediment Sampling Analysis Plan dated August 12, 2019 attached to this application for USACE review and approval. The sediment analysis will be completed and results submitted for approval prior to initiating the dredging activities. While Alternative 3 (preferred alternative) proposes dredging impacts to 6.6 acres of intertidal zone, this alternative proposes no fill in jurisdiction for the development of the terminal. Additionally, the proposed terminal is constructed within upland which will minimize pile driving noise within the waterway. This alternative proposes to locate the wharf approximately 800 feet from the navigation channel which exceeds the minimum distance of 500 feet from the navigation channel. For these reasons Alternative 3 is the preferred alternative that satisfies the overall project purpose.

9.0 Avoidance and Minimization:

In order to minimize the effects of the proposed project, all development activities will be performed using best management practices to further avoid and minimize impacts to upstream and downstream waters. The proposed development alternative proposes to develop the wharf in uplands which will minimize the effects to protected species and habitats in the adjacent Savannah River. There will be no open water use of impact hammer for pile driving which will prevent fish species being harmed by elevated noise levels. All work will be performed from upland or waterborne barge as much as possible. It is anticipated that these measures will

minimize the effect of the project to not only avoided waters, but also to protected species and habitats.

10.0 Threatened and Endangered Species

The property was assessed for the potential occurrence of threatened and endangered species and habitats suitable to sustain these listed species for Chatham County, Georgia. The habitats found on site consist of industrial developed upland, freshwater wetland, open water, vegetated salt marsh, and grassed upland. The aquatic habitat could support the shortnose sturgeon, Atlantic sturgeon, west Indian manatee, loggerhead sea turtle, green sea turtle, and Kemp's ridley sea turtle. Additionally, foraging habitat may be present for wood stork, red knot, bald eagle, and piping plover. A formal Biological Assessment Report that addresses all of these species and potential impacts was completed by Sligh Environmental Consultants, Inc. and is submitted concurrently with this permit application. The report concludes that the project is not likely to adversely affect the west Indian manatee, shortnose sturgeon, Atlantic sturgeon, loggerhead sea turtle, green sea turtle, and Kemp's ridley sea turtle. It also concludes there will be no effect on all other listed species in Chatham County.

11.0 Essential Fish Habitat

The proposed waterside activities are located within coastal waters identified as Essential Fish Habitat (EFH). Sligh Environmental Consultants, Inc. completed an EFH Assessment for the project which outlines existing conditions, the proposed activities, and measures to avoid, minimize, and mitigate impacts to EFH. The report is submitted to the USACE concurrent with the permit application for review by the USACE and NMFS. The report concludes that the project would not significantly affect EFH.

12.0 Impaired Waters

The Savannah River at the project site is listed on the 303(d) list of impaired waters. Based on previous studies and available literature, the proposed dredging is expected to only impact the DO level by 0.1 mg/L in the immediate berth area and would have a negligible effect on aquatic species. When placed in context of the influences that the tides, currents, and water temperatures have on the river, the effect from the proposed dredging on DO is very small. Also, empirical data suggests that dredging does not appreciably affect DO enough to impact sturgeon. Therefore, it is not expected that the initial dredging or the future maintenance dredging would have a negative effect on DO in the harbor or on sturgeon in the vicinity of the proposed project.

13.0 Upland Component:

The upland component associated with the dredging for the proposed wharf is the 19.74 acre upland DMCA. The 19.74 acre upland DMCA is to be designed to accommodate the proposed dredge material. The design for the DMCA is to allow the hydraulic dredged material to enter the site where the solids will begin to settle within the first of three chambers. As the solids settle, water will pass through the remainder of the area and continue to allow solids to settle before reaching the controlled outfall. The clean water will then pass through a weir pipe structure and discharge into the existing NPDES outfall structure for the SeaPoint facility. The water from the DMCA will travel through the NPDES system and ultimately discharge to the Savannah River to the east of the proposed wharf. Construction activities within the upland component (DMCA) include site grading and development of the perimeter dikes to contain the dredged material. The interior will be chambered with earthen material to create three chambers to allow the dredged material to settle within the DMCA. The development activities within the DMCA are not expected to have an adverse effect on the adjacent marshlands. During construction of the DMCA, proper BMP's such as silt fencing, grassed slopes, etc. will be utilized to prevent erosion and sedimentation. The proposed construction activities associated with building the dikes of the

DMCA within the upland component of the project should not require a state waters buffer variance.

14.0 Mitigation:

Site Access Road: The proposed project requires impacts to 1.8 acres of freshwater wetland for access to the project site. The impacts are associated with widening an existing paved road and the installation of a new road crossing from the site of the old incinerator to existing upland on the SeaPoint project site. In working through the USACE Standard Operation Procedure for Calculating required mitigation credits (version 1.0, April 27, 2018) (see attached SOP worksheets), the 1.8 acres of impacts requires 0.90 2018 wetland credits, or 7.20 grandfathered credits. The applicant proposes to purchase the 7.20 grandfathered credits from the AA Shaw Mitigation Bank which has the credits available and is within the primary service area of the SeaPoint project site.

Proposed Deep Water Berth: The applicant proposes to construct 3,000 linear feet of deep water shipping terminal to be completed in phases as outlined above. The terminal is to be constructed within upland area to minimize impacts to fish species within the adjacent Savannah River and to locate the face of the berth at a proper distance from the Savannah River Shipping channel. Once the king pile wall is installed, the applicant proposes to dredge 6.6 acres of intertidal zone including 1.24 acres of vegetated coastal marshland and to remove 3,000 square yards of existing rip-rap along the shoreline and intertidal zone. The additional dredging to the existing shipping channel (approximately 50.25 acres) is all within open water.
The proposed project will create an additional 19.63 acres of open water habitat adjacent to the Savannah River by excavating upland acres to create open water for ships to access the berth. The 19.63 acres of open water habitat to be created will provide additional habitat for certain fish species. While the proposed deep water habitat does not have exactly the same functions and values as the shallow intertidal zone including 1.24 acres of vegetated marsh, it does provide almost three times the area of tidal waters habitat. It is the applicant's opinion that this additional habitat will fully compensate for the loss of 6.6 acres of intertidal zone habitat and no additional mitigation should be required.

15.0 Supplemental Information

This additional information is provided for compliance with Coastal Marshlands Protection Act of 1970 information requirements:

OCGA 12-5-286. Permits to fill, drain, etc., marshlands.

(b) Each application for such permit shall be, properly executed, filed with the department on forms as prescribed by the department, and shall include:

(1) The name and address of the applicant-

Sulfco, LLC
Attn: Mr. Philip Rowland
118 East 35th Street
Savannah, GA 31401

(2) A plan or drawing showing the applicant's proposal and the manner or method by which such proposal shall be accomplished. Such plan shall identify the coastal marshlands affected-

See attached drawings from Ball Maritime Group, LLC.

(3) A plat of the area in which the proposed work will take place-

See attached property deed. The attached permit exhibits depict the area in which the proposed work will take place.

(4) A copy of the deed or other instrument under which the applicant claims title to the property or, if the applicant is not the owner, then a copy of the deed or other instrument under which the owner claims title together with written permission from the owner to carry out the project on his land. In lieu of a deed or other instrument referred to in this paragraph, the committee may accept some other reasonable evidence of ownership of the property in question or other lawful authority to make use of the property; The committee will not adjudicate title disputes concerning the property which is the subject of the application; provided, however, the committee may decline to process an application when submitted documents show conflicting deeds-

Please see attached property deed.

(5) A list of all adjoining landowners together with such owners' addresses, provided that if the names or addresses of adjoining landowners cannot be determined, the applicant shall file in lieu thereof a sworn affidavit that a diligent search, including, without limitation, a search of the records of the county tax assessor's office, has been made but that the applicant was not able to ascertain the names or addresses, as the case may be, of adjoining landowners-

State of Georgia
Martin Luther King, Jr. Dr.
SE 1454E
Atlanta, GA 30334

Coastal Heritage Society
303 Martin Luther King, Jr. Blvd.
Savannah, GA 314012

(6) A letter from the local governing authority of the political subdivision in which the property is located, stating that the applicant's proposal does not violate any zoning law;

Permit plans and a zoning request letter have been sent to the Chatham County Zoning Administrator for review and certification that the proposed project is not in violation of current zoning laws.

(7) A non-refundable application fee to be set by the board in an amount necessary to defray the administrative cost of issuing such permit. Renewal fees shall be equal to application fees, which shall not exceed $1,000.00 for any one proposal and shall be paid to the department.

The Applicant will provide the appropriate fee to GADNR once the amount is determined by GADNR.

(8) A description from the applicant of alternative sites and why they are not feasible and a discussion of why the permit should be granted-

See above project description

(9) A statement from the applicant that he has made inquiry to the appropriate authorities that the proposed project is not over a landfill or hazardous waste site and that the site is otherwise suitable for the proposed project-

Based on intensive field investigations by Terracon Consultants, Inc., the proposed project is not over a landfill and does not contain hazardous waste. Attached to this application is a Sediment Analysis Plan for a Tier II sampling of the soils to be excavated and dredged. If the Tier II sampling finds any contaminants in the soil, the issues will be addressed or planned for accordingly.

(10) A copy of the water quality certification issued by the department if required for the proposed project-

GADNR-EPD is copied on this application and will provide the 401 Water Quality Certification once they process the application. A copy of the certification will be provided to CRD upon receipt.

(11) Certification by the applicant of adherence to soil and erosion control responsibilities if required for the proposed project-

The project will conform to all state-mandated land disturbing and stormwater management requirements.

(12) Such additional information as is required by the committee to properly evaluate the application.

The proposed project is an expansion and redevelopment of an existing industrial site and will promote growth and economic development as outlined in the permit application. The proposed project will result in increased jobs, tax revenue, and income for residents of the State of Georgia. The proposed project is in the public interest and is the least

environmentally damaging most practicable alternative to satisfy the overall project purpose

OCGA 12-5-286. Permits to fill, drain, etc., marshlands.

(g) In passing upon the application for permit, the committee shall consider the public interest, which, for purposes of this part, shall be deemed to be the following considerations:

(1) Whether or not unreasonably harmful obstruction to or alteration of the natural flow of navigational water within the affected area will arise as a result of the proposal-

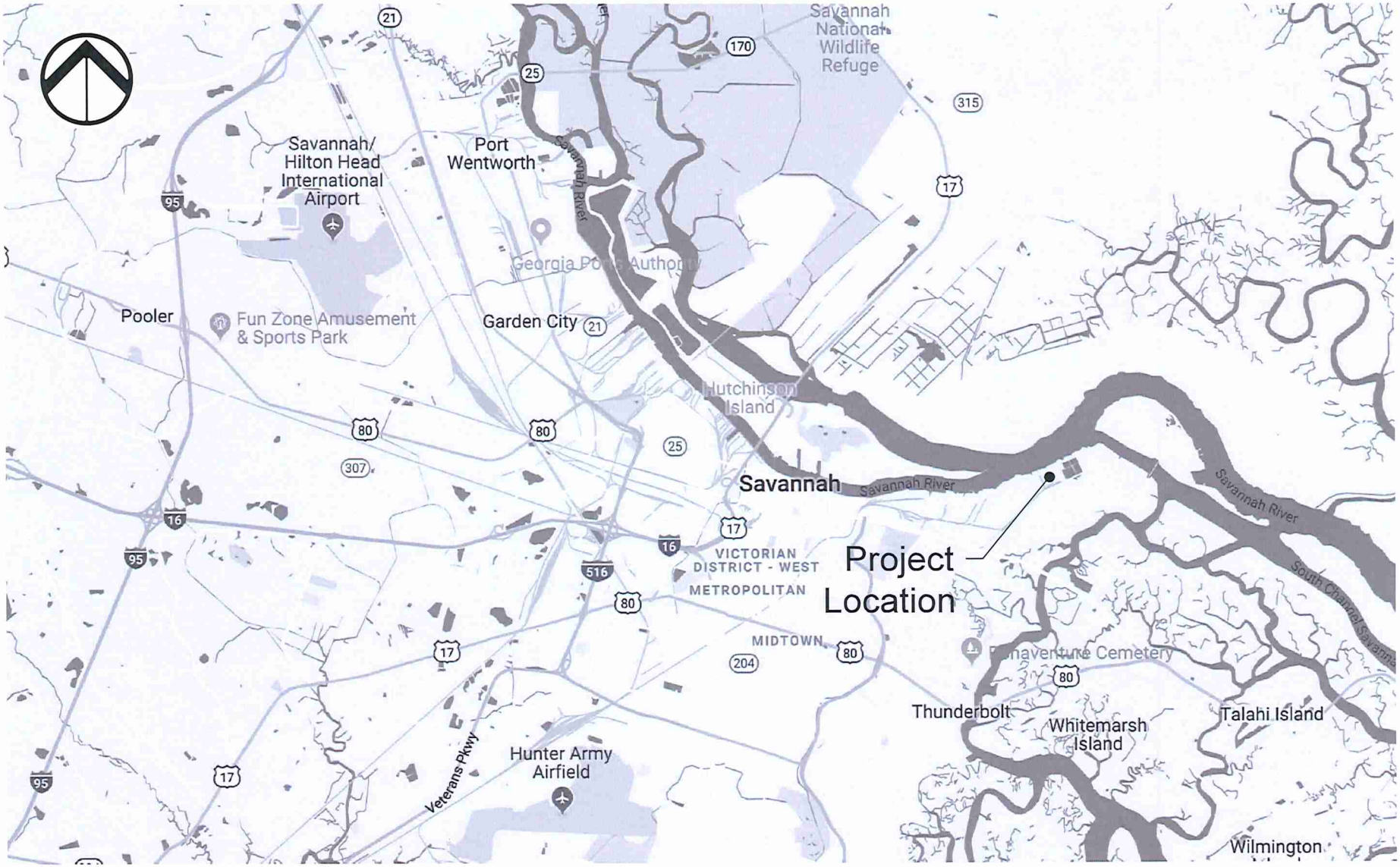
The proposed project will not alter natural flow of navigable waters nor will it obstruct public navigation. The proposed multi-use deep water terminal is to be constructed landward of the existing CMPA jurisdiction line, which will have no effect on navigation within the Savannah River Navigation Channel. There are no structures proposed that would obstruct or alter the natural flow of navigational water.

(2) Whether or not unreasonably harmful or increased erosion, shoaling of channels, or stagnant areas of water will be created-

The proposed project will not increase erosion, shoaling of channels, or create stagnant areas of water.

(3) Whether or not the granting of a permit and the completion of the applicant's proposal will unreasonably interfere with the conservation of fish, shrimp, oysters, crabs, clams, or other marine life, or wildlife, or other resources, including but not limited to water and oxygen supply-

The proposed project will not interfere with the conservation of fish, shrimp, oysters, crabs, clams, or other marine life, or wildlife, or other resources, nor affect water and oxygen supply.



VICINITY MAP

SEAPOINT MARINE TERMINAL

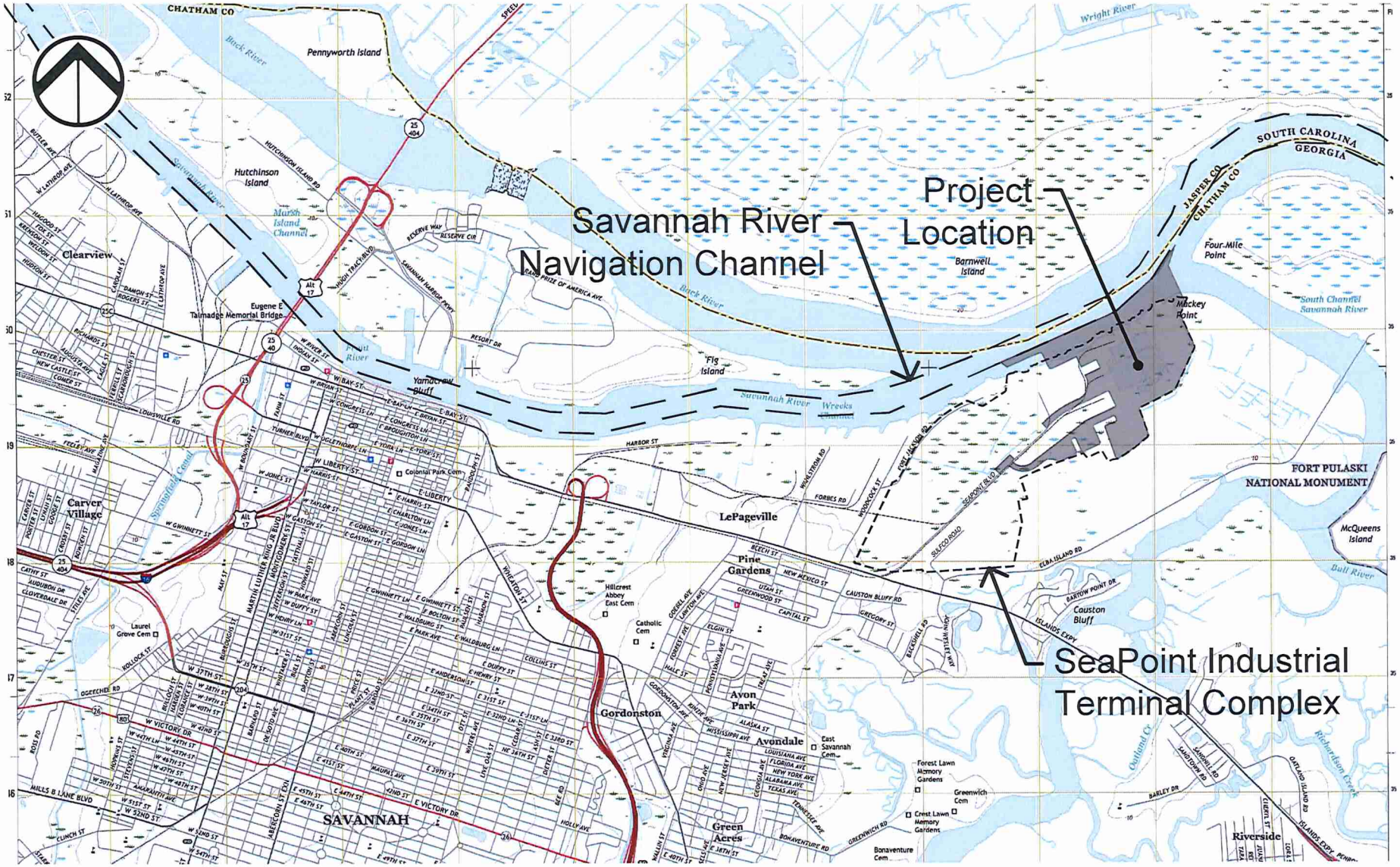
PROPOSED ACTIVITY: GENERAL PURPOSE MARINE TERMINAL — SAVANNAH, GA

Applicant: SEAPOINT MARINE TERMINAL
Date: 10/02/2019
County: CHATHAM
JOB#: 18-1041 DATUM: NAVD88
SCALE: 1" = 2 MILES SHEET: 2 of 11

GENERAL NOTES:

0 — 1 Mile — 2 Miles — 4 Miles
SCALE: 1" = 2 Miles

Ball Maritime Group, LLC
4 Cedar View Court | Savannah, Georgia | 31410 | (912) 662-2914
www.ballmaritime.com



LOCATION MAP

SEAPOINT MARINE TERMINAL

PROPOSED ACTIVITY: GENERAL PURPOSE MARINE TERMINAL — **SAVANNAH, GA**

Applicant: SEAPOINT MARINE TERMINAL

Date: 10/02/2019

County: CHATHAM

JOB#: 18-1041 **DATUM:** NAVD88

SCALE: 1" = 3/4 MILE **SHEET:** 3 of 11

GENERAL NOTES:

0 — 3/8 Mile — 3/4 Mile — 1 1/2 Miles

SCALE: 1" = 3/4 Mile

Ball Maritime Group, LLC

4 Cedar View Court | Savannah, Georgia | 31410 | (912) 662-2914

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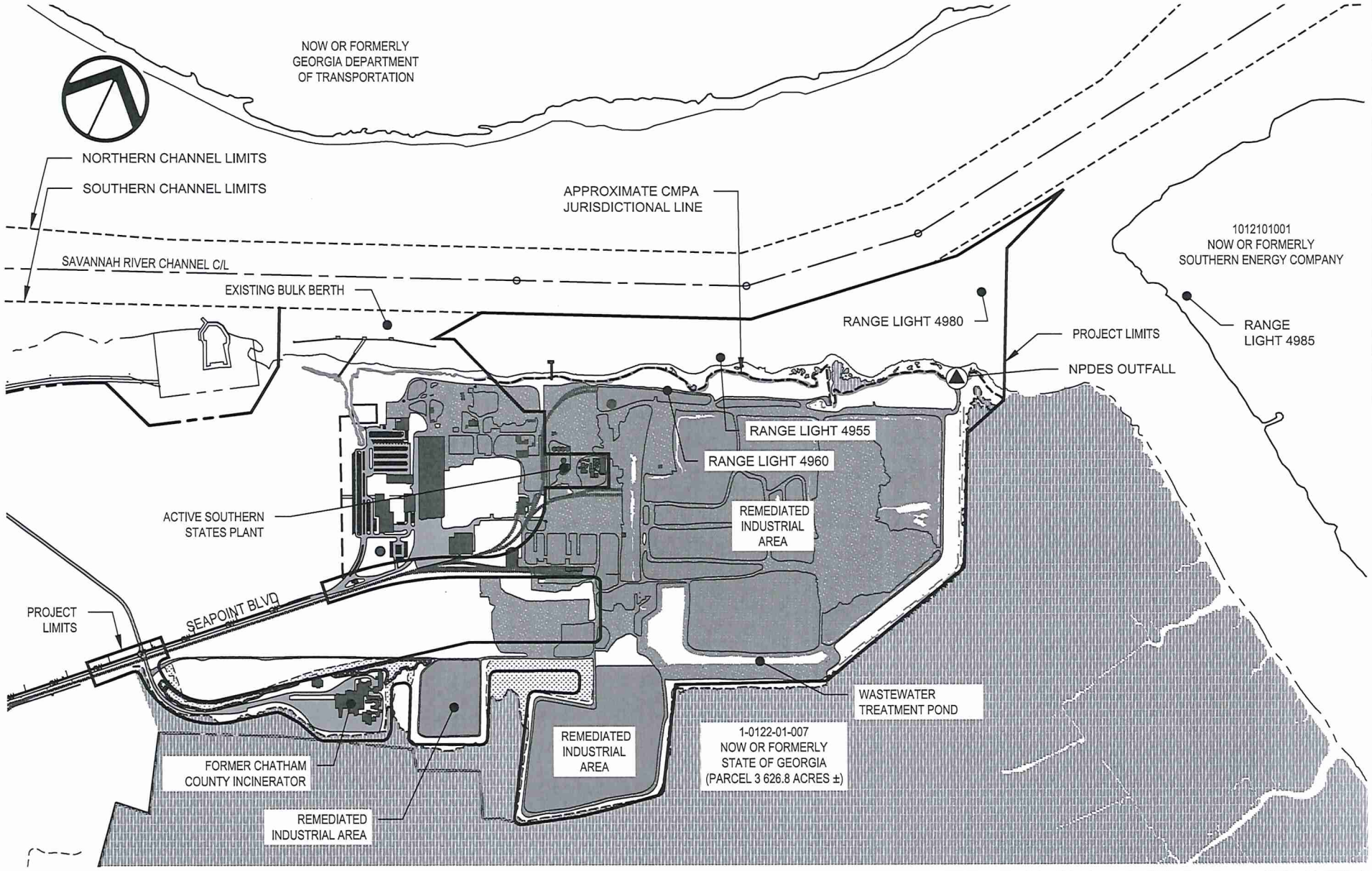


EXISTING CONDITIONS MAP

SEAPOINT MARINE TERMINAL

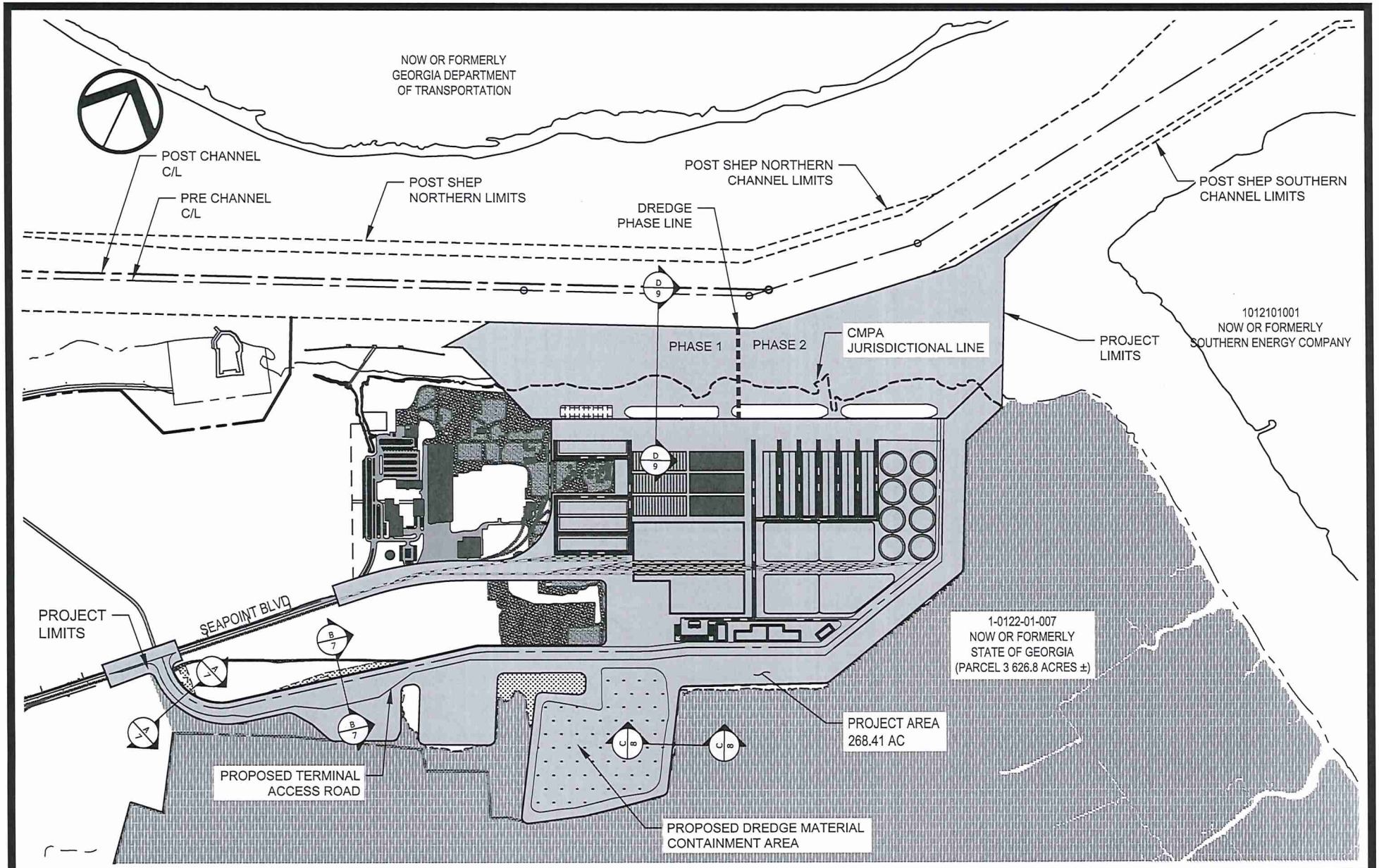
PROPOSED ACTIVITY: GENERAL PURPOSE MARINE TERMINAL — **SAVANNAH, GA**

Applicant: SEAPOINT MARINE TERMINAL
Date: 10/02/2019
County: CHATHAM
JOB#: 18-1041 **DATUM:** NAVD88
SCALE: 1" = 1000' **SHEET:** 4 of 11

GENERAL NOTES:

0 500' 1,000' 2,000'
SCALE: 1" = 1,000'

Ball Maritime Group, LLC
4 Cedar View Court | Savannah, Georgia | 31410 | (912) 662-2914
www.ballmaritime.com



MASTERPLAN

SEAPOINT MARINE TERMINAL

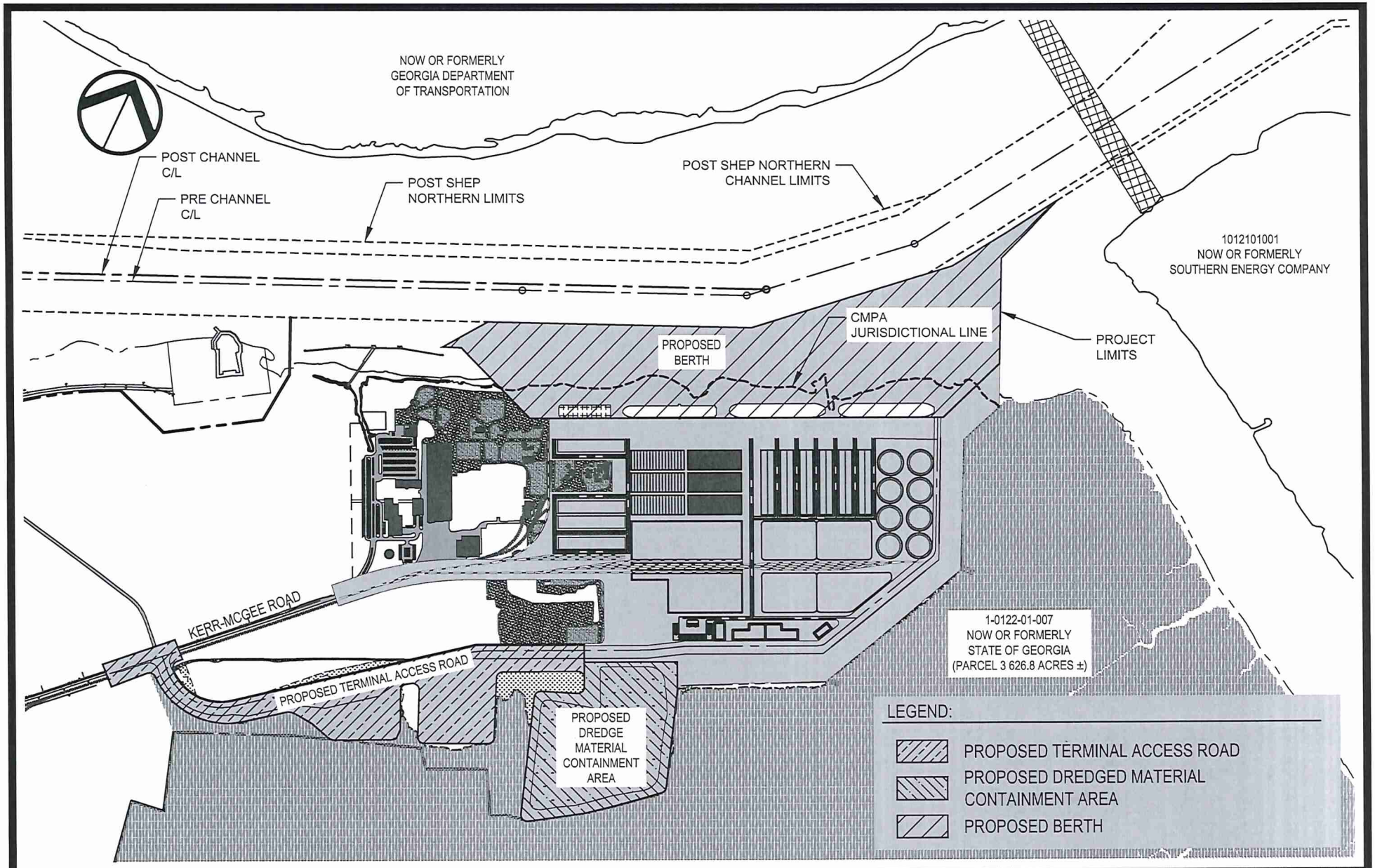
PROPOSED ACTIVITY: GENERAL PURPOSE MARINE TERMINAL — **SAVANNAH, GA**

Applicant: SEAPOINT MARINE TERMINAL
Date: 10/02/2019
County: CHATHAM
JOB#: 18-1041 **DATUM:** NAVD88
SCALE: 1" = 1000' **SHEET:** 5 of 11

GENERAL NOTES:

0 500' 1,000' 2,000'
SCALE: 1" = 1,000'

Ball Maritime Group, LLC
4 Cedar View Court | Savannah, Georgia | 31410 | (912) 662-2914
www.ballmaritime.com



SITE FOCUS AREAS

SEAPOINT MARINE TERMINAL

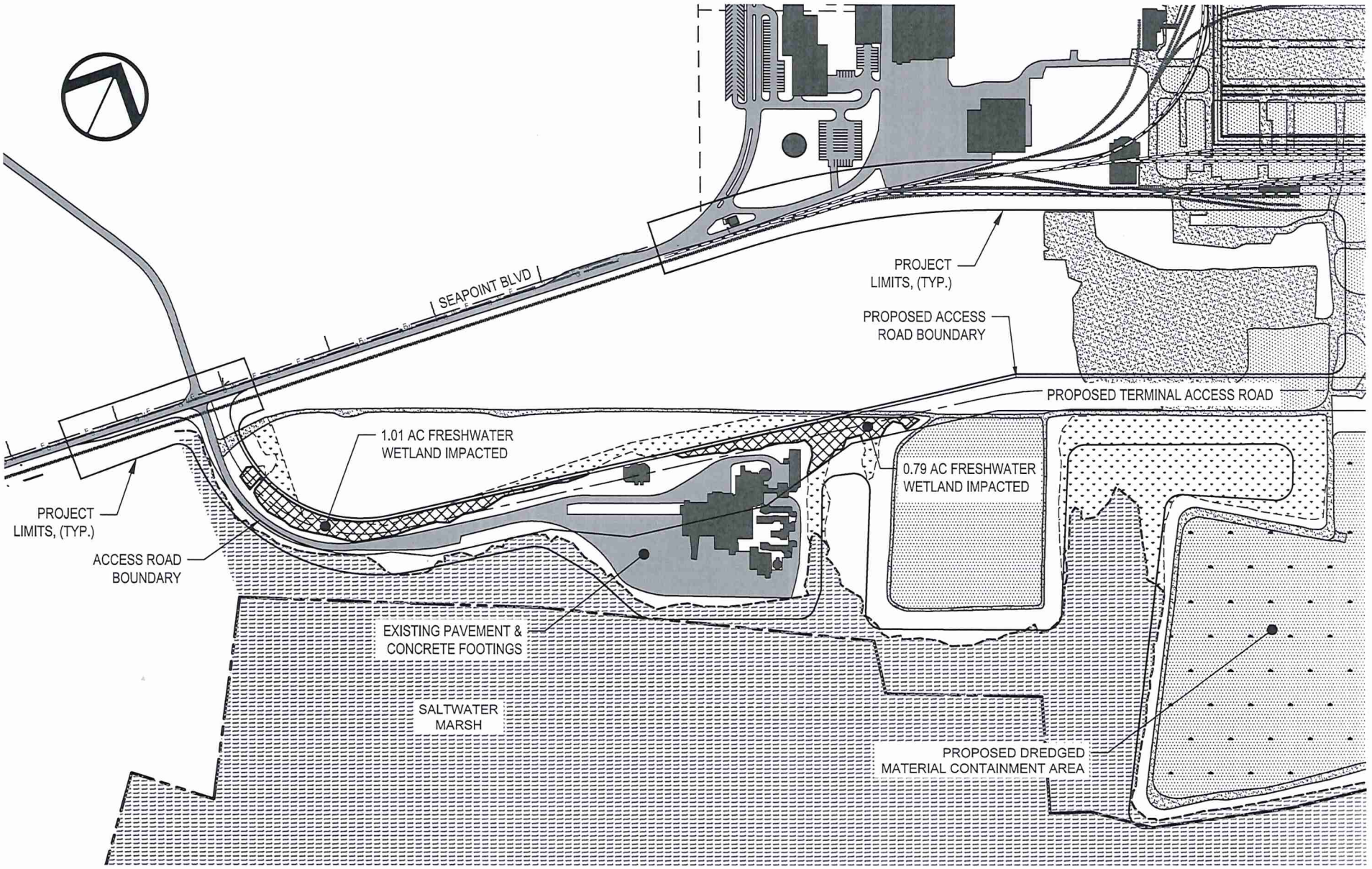
PROPOSED ACTIVITY: GENERAL PURPOSE MARINE TERMINAL — **SAVANNAH, GA**

Applicant: SEAPOINT MARINE TERMINAL
Date: 10/02/2019
County: CHATHAM
JOB#: 18-1041 **DATUM:** NAVD88
SCALE: 1" = 1000' **SHEET:** 6 of 11

GENERAL NOTES:

0 500' 1,000' 2,000'
SCALE: 1" = 1,000'

Ball Maritime Group, LLC
4 Cedar View Court | Savannah, Georgia | 31410 | (912) 662-2914
www.ballmaritime.com



ACCESS ROAD IMPACTS

SEAPOINT MARINE TERMINAL

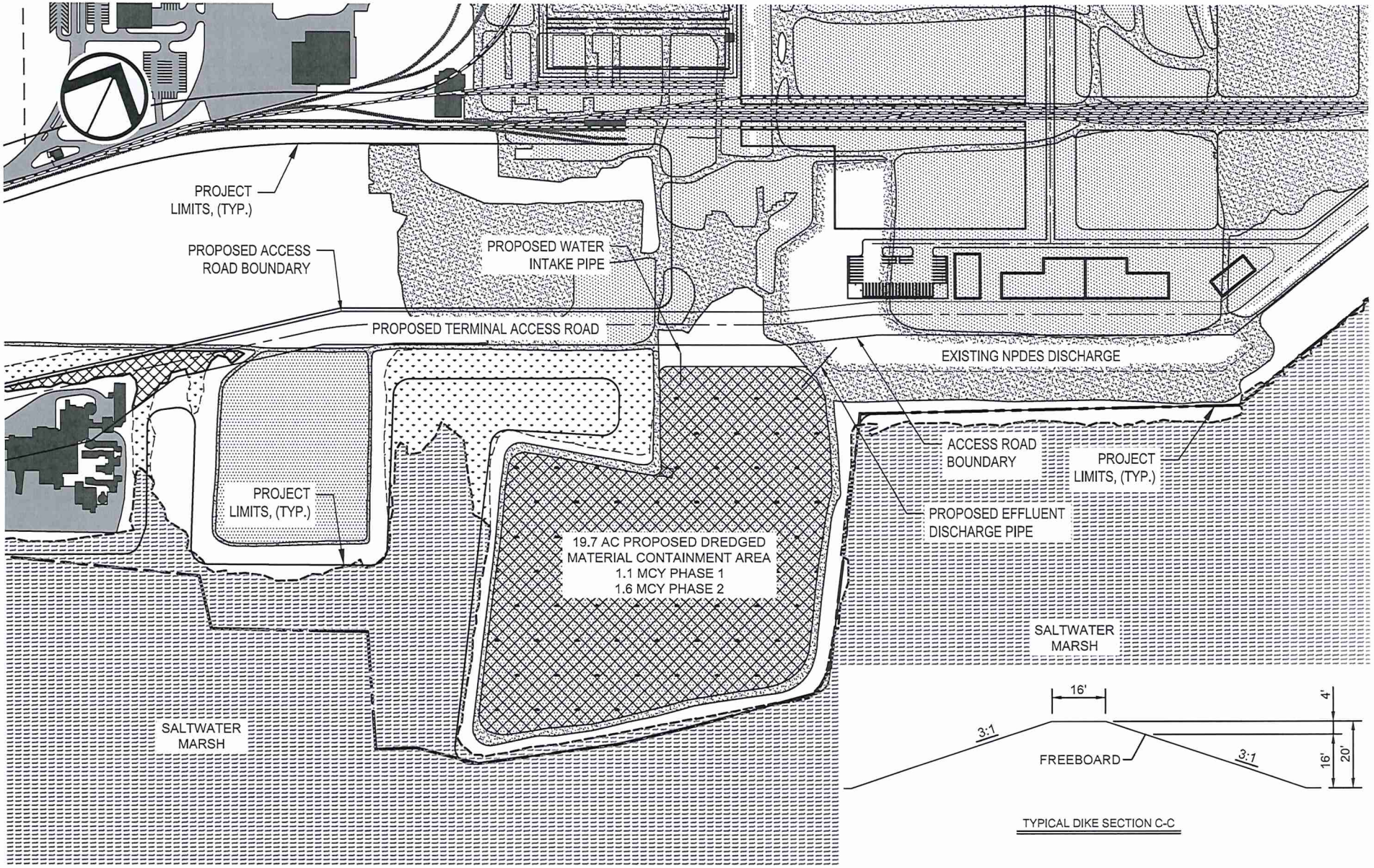
PROPOSED ACTIVITY: GENERAL PURPOSE MARINE TERMINAL — **SAVANNAH, GA**

Applicant: SEAPOINT MARINE TERMINAL
Date: 10/02/2019
County: CHATHAM
JOB#: 18-1041 **DATUM:** NAVD88
SCALE: 1" = 400' **SHEET:** 7 of 11

GENERAL NOTES:

0 200' 400' 800'
SCALE: 1" = 400'

Ball Maritime Group, LLC
4 Cedar View Court | Savannah, Georgia | 31410 | (912) 662-2914
www.ballmaritime.com



TYPICAL DIKE SECTION C-C

DREDGE MATERIAL IMPACTS

SEAPOINT MARINE TERMINAL

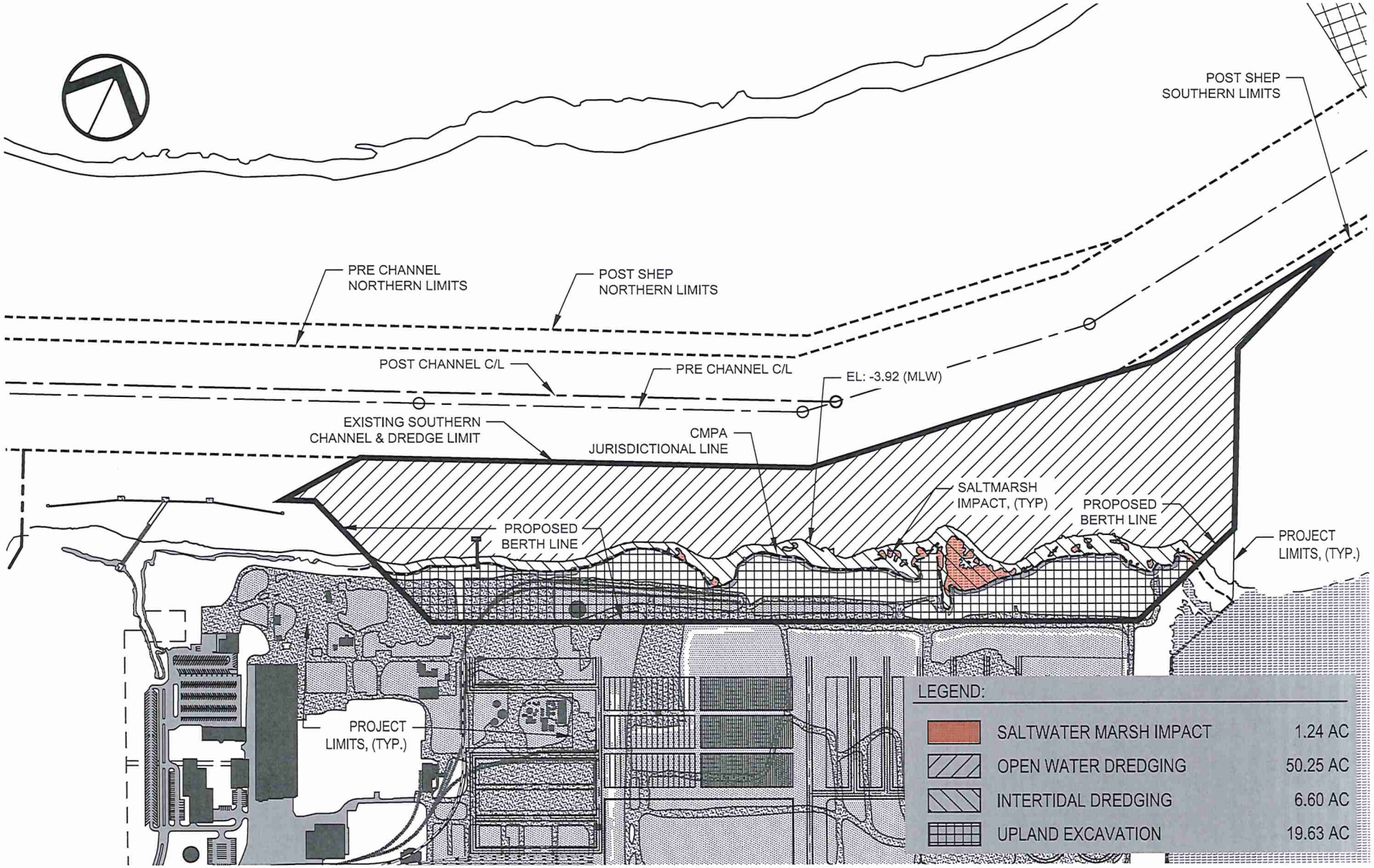
PROPOSED ACTIVITY: GENERAL PURPOSE MARINE TERMINAL — **SAVANNAH, GA**

Applicant: SEAPOINT MARINE TERMINAL
Date: 10/02/2019
County: CHATHAM
JOB#: 18-1041 **DATUM:** NAVD88
SCALE: 1" = 400' **SHEET:** 8 of 11

GENERAL NOTES:

0 200' 400' 800'
SCALE: 1" = 400'

Ball Maritime Group, LLC
4 Cedar View Court | Savannah, Georgia | 31410 | (912) 662-2914
www.ballmaritime.com



BERTH IMPACTS

SEAPOINT MARINE TERMINAL

PROPOSED ACTIVITY: GENERAL PURPOSE MARINE TERMINAL — **SAVANNAH, GA**

Applicant: SEAPOINT MARINE TERMINAL
Date: 10/07/2019
County: CHATHAM
JOB#: 18-1041 **DATUM:** NAVD88
SCALE: 1" = 600' **SHEET:** 9 of 11

GENERAL NOTES:

0 300' 600' 1200'
SCALE: 1" = 600'

Ball Maritime Group, LLC
4 Cedar View Court | Savannah, Georgia | 31410 | (912) 662-2914
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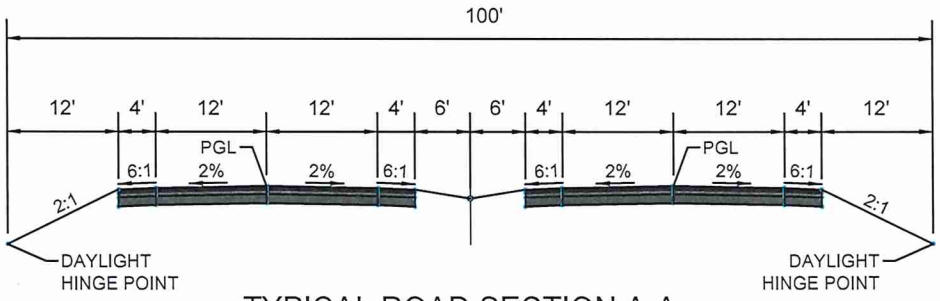
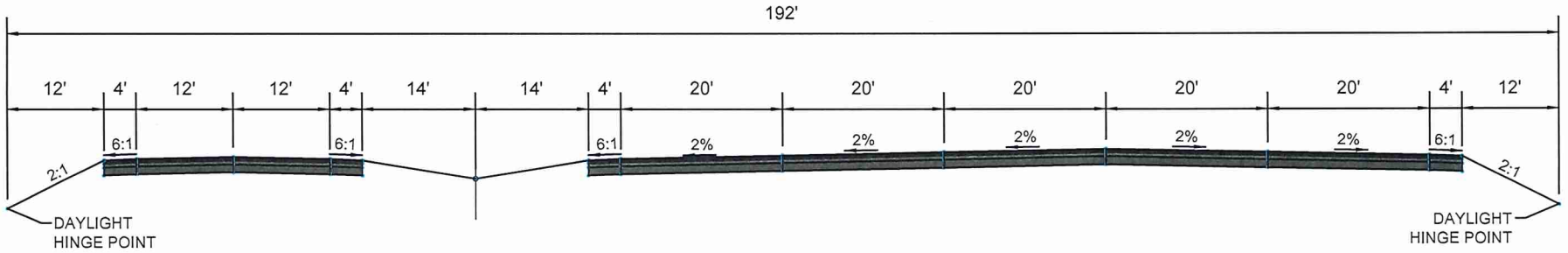


TYPICAL ROAD SECTION A-A



TYPICAL SECTION THRU GATE B-B

23,190 CY FILL

TYPICAL ROAD SECTIONS — **SEAPOINT MARINE TERMINAL**

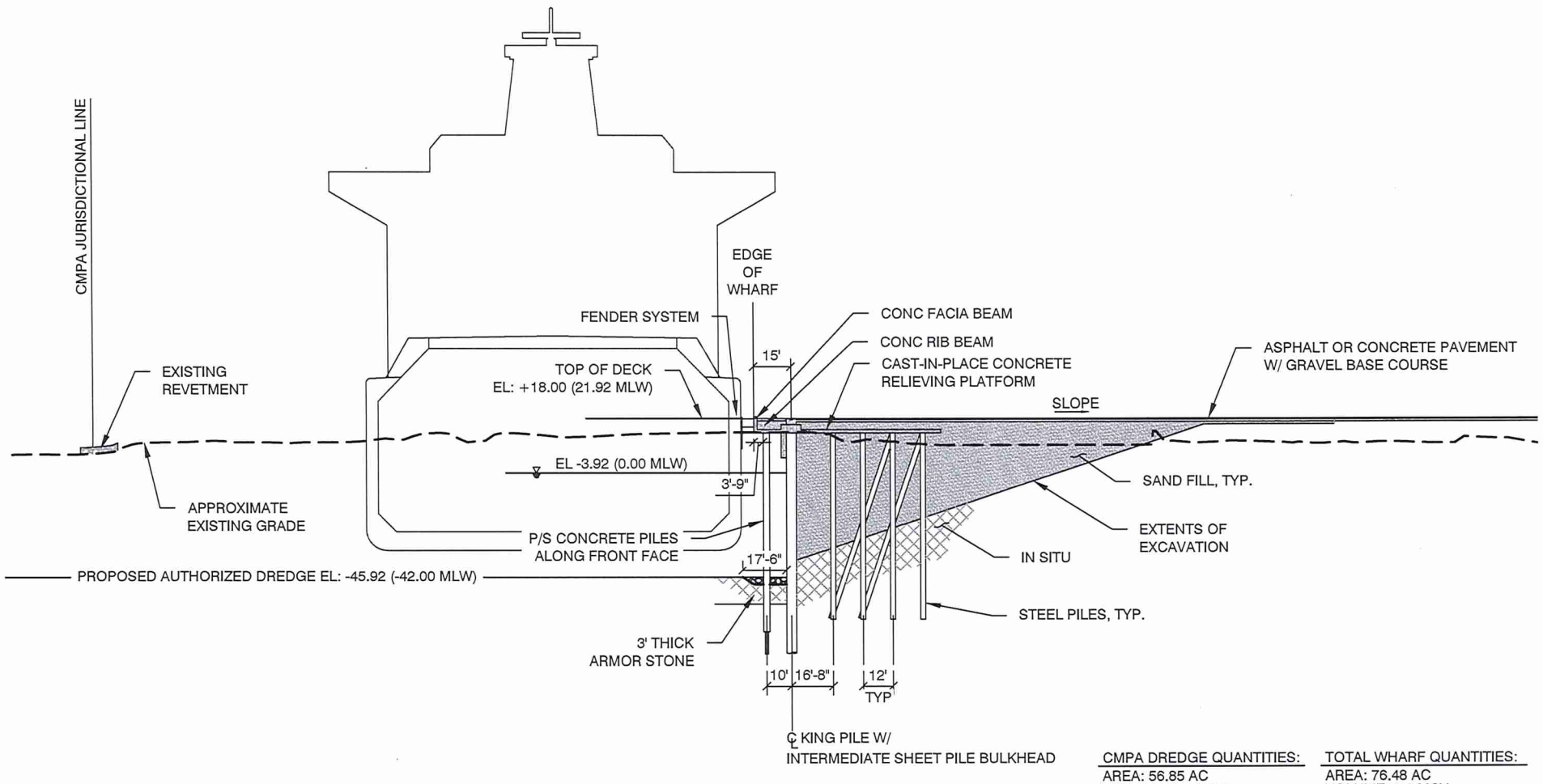
PROPOSED ACTIVITY: GENERAL PURPOSE MARINE TERMINAL — SAVANNAH, GA

Applicant: SEAPOINT MARINE TERMINAL
Date: 10/02/2019
County: CHATHAM
JOB#: 18-1041 DATUM: NAVD88
SCALE: 1" = 20' SHEET: 10 of 11

GENERAL NOTES:

0 10' 20' 40'
SCALE: 1" = 20'

Ball Maritime Group, LLC
4 Cedar View Court | Savannah, Georgia | 31410 | (912) 662-2914
www.ballmaritime.com



CMPA DREDGE QUANTITIES:	TOTAL WHARF QUANTITIES:
AREA: 56.85 AC	AREA: 76.48 AC
VOLUME: 2.7 MCY	VOLUME: 3.8 MCY

TYPICAL WHARF SECTION D-D

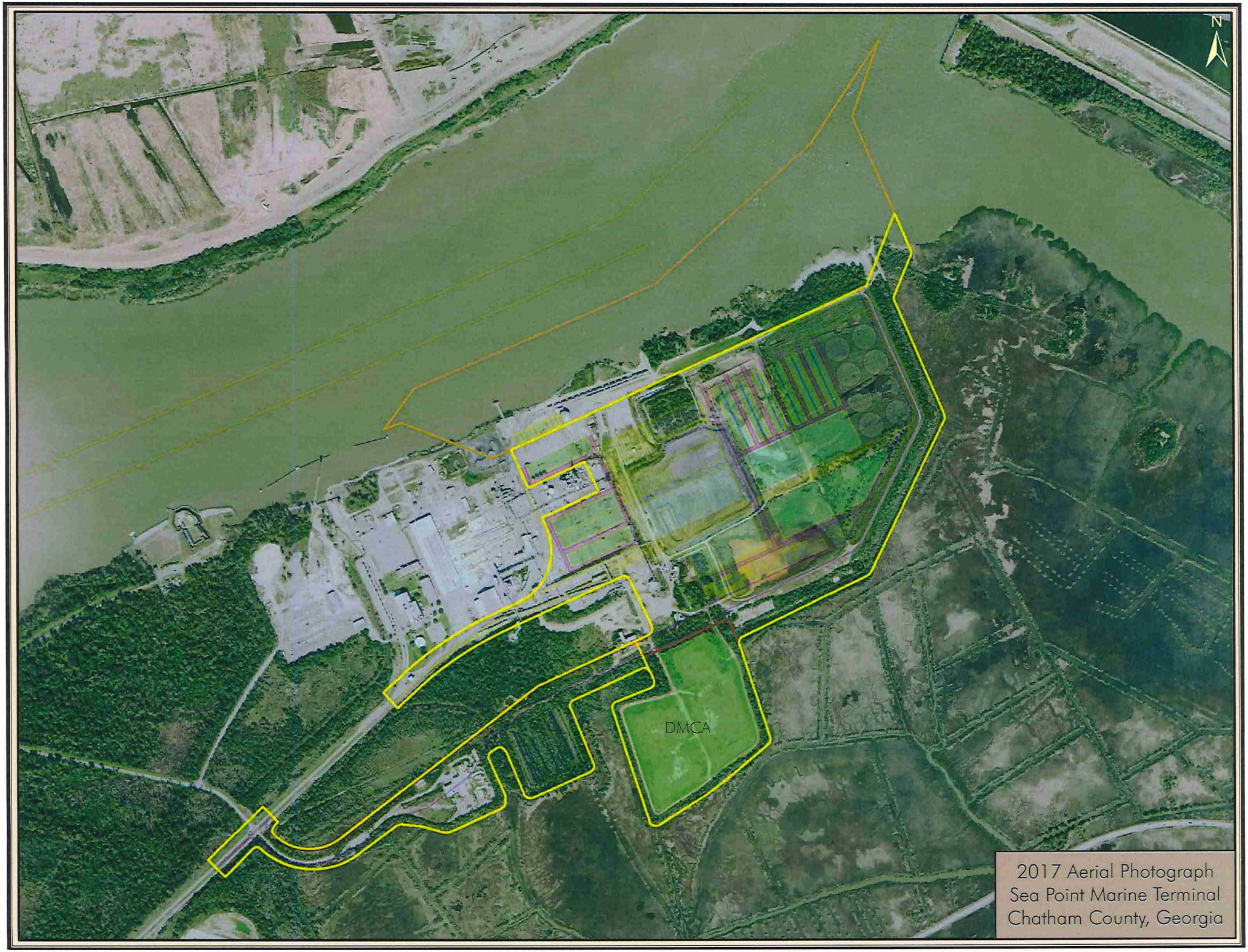
TYPICAL WHARF SECTION — **SEAPOINT MARINE TERMINAL**

PROPOSED ACTIVITY: GENERAL PURPOSE MARINE TERMINAL — SAVANNAH, GA

Applicant: SEAPOINT MARINE TERMINAL
Date: 10/02/2019
County: CHATHAM
JOB#: 18-1041 DATUM: NAVD88
SCALE: N.T.S. SHEET: 11 of 11

GENERAL NOTES:

Ball Maritime Group, LLC
4 Cedar View Court | Savannah, Georgia | 31410 | (912) 662-2914
www.ballmaritime.com


N
DMCA
2017 Aerial Photograph
Sea Point Marine Terminal
Chatham County, Georgia

NON-RIVERINE WETLAND QUALITATIVE ASSESSMENT

Project Name:	SeaPoint Access Road
Impact Wetland Name:	Freshwater Wetland Road Crossing
Wetland Type:	Flat
WAA Center Coordinates:	32.0755058 -81.033103
Date:	10/5/2019

Water Storage -1

Answer		Questions
Yes		Are there above grade fills or structures obstructing hydrologic flows into or out of the wetland, or are there drainage structures, ditches, or man-made impoundments within 100 feet of the assessment area and within the catchment that are hydrologically affecting the wetland? (Y/N)
Yes		Is the contributing drainage basin at least 50 percent forested? (Y/N)
FUNCTION SCORE	Moderate	

BioGeoChemical Cycling - 2

Answer		Questions
No		Is there large woody debris (LWD) in the wetland? (Y/N)
Yes		Has the vegetative community been adversely altered within the last 20 years? (Y/N)
FUNCTION SCORE	Low	

Maintain Characteristic Wetland Community - 3

Answer		Questions
		Has the vegetative community been adversely altered within the last 20 years? (Y/N)
Yes		Is there greater than 10 percent invasive cover (i.e., cummulative absolute cover across all strata)? (Y/N)
FUNCTION SCORE	Low	

Maintain Faunal Habitat - 4

Answer		Questions
		Has the vegetative community been adversely altered within the last 20 years? (Y/N)
		Is there woody debris in the wetland? (Y/N)
		Is the contributing drainage basin at least 50 percent forested? (Y/N)
FUNCTION SCORE	Low	

WETLAND QUALITATIVE FUNCTIONAL CAPACITY SCORE	**Low**

Legend

Green Cell = User must manually input information.
Orange Cells = User must select the choice from the drop-down list.
Grey Cells = The calculation of these cells is automated.
Dark Grey Cells = These cells do not require input. The corresponding value is populated from the user input to a previous question.

Worksheet 1: Qualitative Worksheet for Wetland Adverse Impacts

Project Name:	SeaPoint Access Road
Impact Wetland Name:	Freshwater Wetland Road Crossing
Acres of Impact (Acres):	1.80
Wetland Type:	Depressional/Flat Wetlands
Date:	October 5, 2019

Impact Factors	**Index Description**	**Index Value**
1. Wetland Qualitative Functional Capacity Score (*WQFC*)	Low	0.50
2. Impact Category Description (*Impact Category*)	Discharge of Fill	1.00
3. Product of WQFC and Impact (*WQFC Impact*) =		0.50
4. Duration of Impact (*Duration*)	Permanent/Reoccurring	1.00
5. Product of WQFC Impact and Duration (*Total WQFC Impact*) =		0.50
6. Product of Total WQFC Impact and Acres (***Total 2018 Wetland Credits Owed***) =		**0.90**
7. Conversion of Total 2018 Wetland Compensation to Grandfathered Credits (***Grandfathered Wetland Credits Owed***) =		**7.20**

Legend
Green Cells = User must manually input information.
Orange Cells = User must select the index choice from the drop-down list.
Grey Cells = The calculation of these cells is automated.

Threatened and Endangered Species Survey Report

SeaPoint Marine Terminal
Sulfco, LLC
Chatham County, Georgia

October 1, 2019

Prepared by:
Sligh Environmental Consultants, Inc.
31 Park of Commerce Way, Suite 200B
Savannah, Georgia 31405
(912) 232-0451

Report Author: _____
Stuart F. Sligh, President, SECI

Table of Contents

List of Figures

List of Appendices

Protected Resources Summary Table

Species	Common Name	Federal Rank	State Rank	Habitat Present	Species Present	Special Provisions	Biological Determination
Eubalaena glacialis	Right whale	E	E	No	No	No	No Affect
Trichechus manatus	West Indian manatee	E	E	No	No	No	May Affect, Not Likely to Adversely Affect
Chelonia mydas	Green sea turtle	T	T	No	No	No	May Affect, Not Likely to Adversely Affect
Lepidochelys kempi	Kemp's Ridley sea turtle	E	E	No	No	No	May Affect, Not Likely to Adversely Affect
Dermochelys coriacea	Leatherback sea turtle	E	E	No	No	No	May Affect, Not Likely to Adversely Affect
Caretta caretta	Loggerhead sea turtle	E	E	No	No	No	May Affect, Not Likely to Adversely Affect
Drymarchon corais couperi	Eastern indigo snake	E	E	No	No	No	No Effect
Acipenser brevirostrum	Shortnose sturgeon	E	E	No	No	No	May Affect, Not Likely to Adversely Affect
Acipenser oxyrinchus	Atlantic sturgeon	E	E	No	No	No	May Affect, Not Likely to Adversely Affect
Mycteria americana	Wood stork	E	E	Yes	No	Yes	No Effect
Picoides borealis	Red cockaded woodpecker	E	E	No	No	No	No Effect
Charadrius melodus	Piping plover	E	E	No	No	No	No Effect
Calidris canutus	Red Knot	T	T	No	No	No	No Effect
Gopherus polyphemus	Gopher tortoise	C	T	No	No	No	No Effect

* E = Endangered; T = Threatened; PT = Proposed Threatened; C = Candidate; R = Rare; NL = Not Listed; U = Unusual

1.0 INTRODUCTION:

A preliminary threatened and endangered species survey was completed by Sligh Environmental Consultants, Inc. (SECI) for the SeaPoint Marine Terminal project during the Summer months from June 1, 2019 through July 15, 2019. Sulfco, LLC, a subsidiary of Dulany Industries, is proposing the development of a multi-use marine terminal on an approximately 226.67-acre site located at 100 Seapoint Boulevard in Savannah, Chatham County, Georgia. The project site is a portion of the former Tronox/Kerr-Mcgee industrial facility. While the project site totals 226.67 acres based on the project area survey landward of the Coastal Marshlands Protection Act jurisdiction line, the project area, for the purposes of this report includes the open water of the Savannah River where dredging is to occur making the total project area 268.41 acres. The project site is located adjacent to the Savannah River (mile marker 12) with the center coordinates being latitude 32.084110° and longitude -81.022792° (Figure 1). This threatened and endangered species survey was conducted to determine the potential occurrence of animal and plant species listed as endangered or threatened by current federal regulations [Federal Endangered Species Act of 1973 (16 USC 1531-1543).

Figure 1. SeaPoint Site, 2017 Aerial Photograph

2.0 PROPOSED PROJECT:

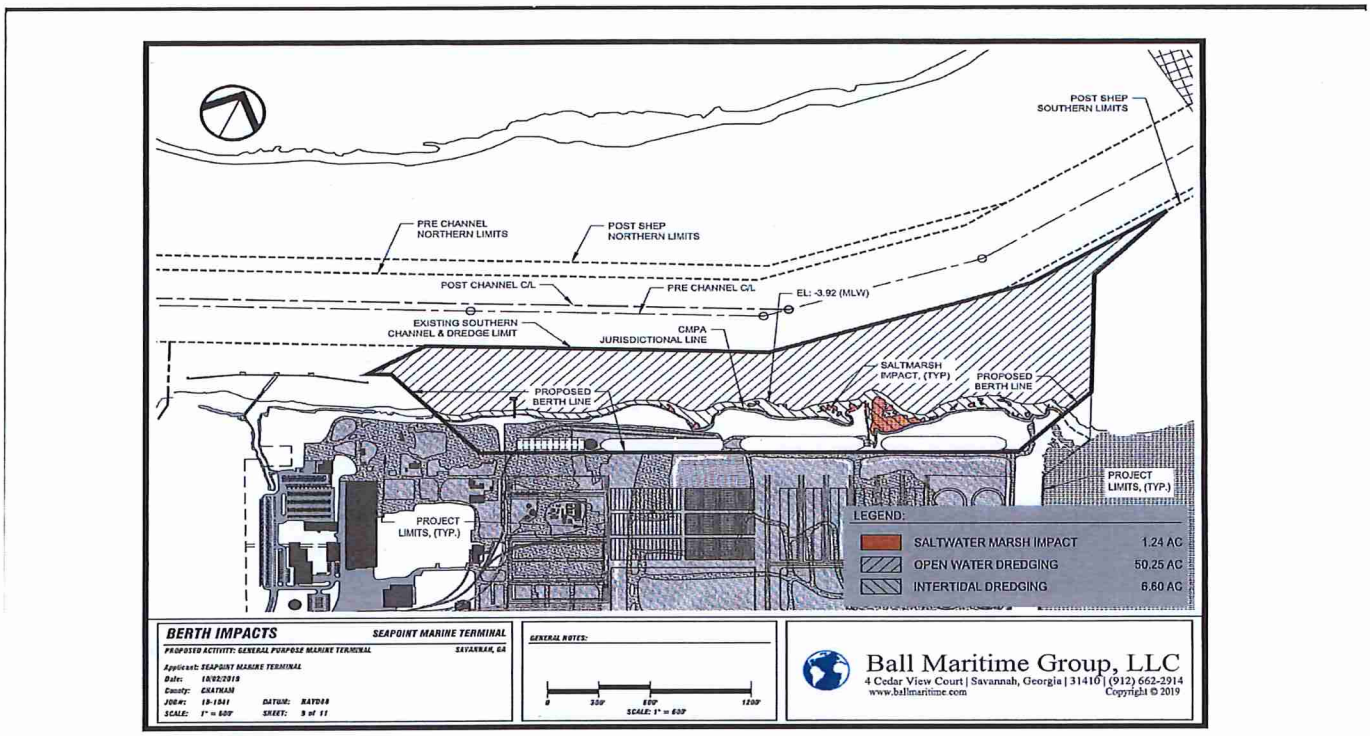
The proposed project consists of an expansion of the SeaPoint facilities and includes construction of a general purpose marine terminal on an existing industrial site adjacent to the Savannah River in Chatham County, Georgia. The new wharf will be approximately 3,000 feet long and is located on the eastern portion of the SeaPoint property. The proposed terminal will be designed to accommodate the loading and unloading operations for bulk goods, break bulk cargo, some container cargo and other general shipping. The terminal has been designed to operate and function as a multi-purpose facility to accommodate a variety of ships.

Specifically, the proposed project includes 1.8 acres of impacts to freshwater wetland associated with the improvements to an existing road for access to the terminal near the location of the old incinerator facility. The proposed access to the terminal will be through the old incinerator facility which is east of SeaPoint Boulevard. The applicant proposes to improve and widen the existing 2-lane paved road to facilitate access into the facility (1.01 acres of wetland impact). The access road will be widened within upland area at the location of the old incinerator where the terminal entrance gate and truck scale areas will be located. From the gate and scales, the road will extend across wetland area (0.79 acres) to developed upland within the SeaPoint project site and will provide access to the terminal facilities.

The wharf is to be constructed within all upland area landward of the CMPA jurisdiction line and will include a proposed king pile wall which will consist of 48" diameter pipe piles spaced every eight feet on center and AZ sheetpile spacers in between. This king pile wall holds the upland material back from the water as well as provides pile supports for the waterside loading equipment and operations. Once the wall is installed in upland, the applicant proposes to excavate the water side upland to the jurisdiction line. The jurisdictional area, including 6.6 acres of intertidal area and 50 acres of open water habitat, will be hydraulically dredged in phases to an elevation of -42 MLW. All dredged material will be pumped to an on-site upland dredge material containment area (DMCA) and allowed to settle before water is discharged back to the Savannah River east of the proposed terminal.

Proposed impacts associated with the proposed project include 1.8 acres of freshwater wetland fill for the construction of the site access road, and dredging of 6.6 acres of intertidal area including 1.24 acres of vegetated marsh and 50 acres of existing open water. The Applicant has submitted a Sediment Sampling Analysis Plan dated August 12, 2019 for USACE review and approval. The sediment analysis will be completed and results submitted for approval prior to initiating the dredging activities.

Figure 2. SeaPoint Deep Water Terminal Site Plan



3.0 METHODS:

SECI completed the on-site threatened and endangered survey field study from June 1 through July 15, 2019. The survey for federally protected species and habitats was conducted to identify any potential impacts associated with the project. The Rare Species Profiles on the Georgia Department of Natural Resources (GDNR) website (http://www.georgiawildlife.com/node/2721) were consulted to determine suitable habitats for protected species within Chatham County. Additionally, the USFWS Information, Planning, and Conservation (IPaC) System was consulted to determine the potential impacts of the proposed project on federally listed species. A copy of the IPaC Record can be found in the Appendix to this report.

Pursuant to the Endangered Species Act of 1973, the pedestrian survey was conducted to identify protected individuals and/or potential habitat for protected individuals within the project area. The survey was conducted for only those species listed as threatened or endangered in Chatham County, Georgia. A list of the protected species for which the survey was conducted is outlined below.

SPECIES	FEDERAL STATUS
Right whale (*Eubalaena glacialis)*	Endangered
West Indian manatee (*Trichechus manatus*)	Endangered
Kemp's Ridley sea turtle (*Lepidochelys kempi*)	Endangered
Leatherback sea turtle *(Dermochelys coriacea)*	Endangered

Loggerhead sea turtle (*Caretta caretta*)	Threatened
Green sea turtle (*Chelonia mydas*)	Threatened
Eastern indigo snake (*Drymarchon corais couperi*)	Threatened
Shortnose sturgeon (*Acipenser brevirostrum*)	Endangered
Atlantic sturgeon (*Acipenser oxyrinchus*)	Endangered
Wood stork (*Mycteria americana*)	Endangered
Red-cockaded woodpecker (*Picoides borealis*)	Endangered
Piping plover (*Charadrius melodus*)	Threatened
Red knot (*Calidris canutus*)	Proposed Threatened
Pondberry (*Lindera melissifolia*)	Endangered
Gopher tortoise (*Gopherus polyphemus*)	Candidate

4.0 EXISTING SITE CONDITIONS:

The majority of the site was previously developed and used as an industrial facility for the production of titanium dioxide. The western half of the 226-acre project site includes existing internal roadways, concrete building pads from previous uses, and existing rail lines where previous facilities were located for the production of titanium dioxide. The eastern half of the site included various industrial uses including stockpile areas, settling ponds, stormwater treatment facilities, roads and other infrastructure associated with the former industrial operations. To the east and south, outside of the project site limits, is open salt marsh which was deeded to the State of Georgia on September 29, 2017. The southern portion of the project includes a previously developed site that was the City of Savannah incinerator facility that was closed and removed in 2008-2012. The paved driveway, concrete pad, and other adjacent concrete pad structures are all that remain of the incinerator facility. There is freshwater wetland area immediately north of the old incinerator facility and south of the old Tronox facility. The northern portion of the project adjacent to the Savannah River is mostly an armored bank with rip/rap from the upland down to the mean low water line. There are pockets of vegetated marsh, but most of the river frontage is existing rip/rap along the slope of the riverbank down to the open water habitat of the Savannah River.

Specific on-site habitats include the following:

A. Developed Upland:

Access to the new marine terminal will be via the existing paved drive to the old incinerator plant and through an existing developed upland industrial site. The habitats with the existing upland area include paved roadways, existing rail lines, concrete building pads, and open sparsely vegetated upland areas that were previously associated with the industrial development.

B. Tidal Wetland/Open Water:

The Savannah River interface at the location of the proposed berth within the project site includes an armored rip/rap bank along the upland/wetland line which slopes down to the mean low tide line. Through this mostly rip/rap rocked area there are small areas along the river bank that are vegetated saltmarsh that include sea oxeye (*Borrichea frutescens*) and saltmeadow cordgrass (*Spartina patens*) along the higher elevations. Moving lower in topography along the slope the vegetation changes to needle rush (*Juncus roemeranus*) with shrub species including saltwater false willow (*Baccharis angustifolia*) and false willow (*Baccharis halimifolia*) with red cedar located closer to the upland. Further down the slope into the intertidal zone the vegetation transitions to more obligate salt tolerant species dominated by smooth cordgrass (*Spartina alterniflora*). Channelward of the vegetated saltmarsh is open water and intertidal mudflat habitat

associated with the Savannah River. Total vegetated salt marsh habitat within the intertidal zone is approximately 1.24 acres.

C. Freshwater Wetland:

North of the closed incinerator site and along the eastern edge of the proposed project limits there is a freshwater wetland fringe that is dominated with common reed (*Phragmites australis*). Other species included within this freshwater fringe habitat include wild rice *(Zizania aquatica*), soft rush (*Juncus effusus*), and other sedges. Overstory trees include eastern red cedar (*Juniperus virginiana*), Chinese tallow (*Sapium sebiferum*), and a few red maple (*Acer rubrum*).

5.0 FINDINGS

The following is a brief discussion of each of the federally listed species, their associated habitat, and the potential for any land disturbing activities to impact the species.

A. <u>Right Whale (Federal Status – Endangered, State Status – Endangered)</u>:

Right whales are dark grey to black with distinctive white abrasions on their heads. They may grow up to 60 feet long and weigh as much as 100 tons. Being baleen whales, they feed primarily on plankton, krill, and other tiny crustaceans. Once found throughout the Northern Hemisphere, these whales now inhabit the temperate and subpolar waters of the north Atlantic and north Pacific Oceans. Northwest Atlantic populations occur from Iceland to the Gulf of Mexico, with largest concentrations occurring between Nova Scotia, Canada, and Florida. Winter calving grounds occur off the coasts of Florida and Georgia. Right whales spend much of their time near bays and peninsulas and in shallow, coastal waters which provide shelter, food, and security for females rearing young or avoiding the mating efforts of males. Populations of right whales were drastically reduced during the active years of the whaling industry. Today, the right whale is listed as federally and state endangered. The proposed project requires construction of a deep water berth excavated from upland and dredging to allow ships to access the facility from the Savannah River Navigation Channel. It is not anticipated that any of these activities will impact the right whale. All activities will be limited to the edge of the Savannah River, and no activities will be required within the shallow coastal water (ocean) habitat necessary to support this species. Therefore, the proposed project will have **no effect** on the right whale.

B. <u>West Indian Manatee (Federal Status – Endangered, State Status – Endangered)</u>:

The west Indian manatee is a federally and state listed endangered species. The manatee is a large aquatic mammal whose habitat consists of warm coastal and spring fed waters. During winter months these mammals are primarily confined to the coastal waters of the southern half of Florida and the spring fed rivers of Florida and Georgia. During the summer months as the water temperature rises, the manatees range expands to as far north as Virginia and it is during these months that the manatees may occasionally utilize the estuaries of coastal Georgia. Critical habitat for this species has been identified as large portions of coastal Florida including the St. Mary's River on the Georgia-Florida border[1]. The estuarine envrironment throughout the Georgia coast is known to support the west Indian manatee during the summer months. The proposed waterside activities will be conducted in accordance with the United States Army Corps of Engineers (USACE) Standard Manatee Conditions in order to minimize and avoid impacts to the manatee. Generally, these conditions include:

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[1]U.S. Fish and Wildlife Service. 1992. Endangered and Threatened Species of the Southeast United States (The Red Book). Prepared by Ecological Services, Division of Endangered Species, Southeast Region, Government Printing Office, Washington D.C. 1,242 pp. (two volumes)

- All personnel and contractors will be advised that there are civil and criminal penalties for harming, harassing, or killing mantes.
- Any silt barriers will be made of material in which manatees cannot become entangled, are properly secured, and are regularly monitored to avoid manatee entrapment. The barriers will not block manatee entry or exit from essential habitat.
- All vessels will operate at "no wake/idle" speeds while in construction areas. All vessels will follow routes of deep water when possible.
- All personnel are responsible for observing water-related activities for the presence of manatees. All construction activities will cease upon sighting of a manatee within 50 feet of the project area and will not resume until the manatees have left the project area for at least 30 minutes.
- All equipment or materials will be lowered at the lowest possible speed.
- Any collision with a manatee shall be reported immediately to the USACE USFWS, and GADNR. In the event of injury or mortality, all aquatic activity will cease pending Section 7 consultation.
- The contractor shall keep a detailed log of sightings, collisions, or injury to manatees. Upon completion of the project, a report summarizing any incidents or sightings of manatees will be submitted to USFWS.
- All fresh water supplies will be maintained to prevent freshwater leakage.
- The applicant will install and maintain appropriate manatee awareness signage at prominent locations within the construction area prior to construction.
- All temporary construction materials will be removed upon completion of the work, and no trash will be discarded in the water.

Because the applicant will adhere to the standard manatee conditions, the project **may affect but is not likely to adversely affect** the west Indian manatee.

C. **Kemp's Ridley, Leatherback, Loggerhead, and Green Sea Turtles (Federal Status – Threatened and Endangered, State Status – Threatened and Endangered):**

These large marine turtles inhabit the offshore waters of the Atlantic and Caribbean. During nesting periods which fall within the summer months, these species leave the water to nest on sandy beaches and primary dunes of the Atlantic and Caribbean coasts. Turtle nests are not uncommon on the barrier islands of Georgia and have been located in the past. The green sea turtle and loggerhead are listed as threatened on the state and federal level, and the Kemp's Ridley and leatherback are endangered. The proposed project was assessed for potential direct and indirect effects to sea turtles. Direct effect could result from construction of the new berth and the proposed dredging activities. Indirect effects include those potential effects from new lighting on the proposed berth to sea turtle nesting habitat on Tybee Island, Daufuskie Island, and Hilton Head Island. The proposed project requires new berth construction within all upland area and dredging within deep open water habitat that could support these ocean dwelling species. Although these species primarily live in the open ocean and only come near the beaches to lay eggs, they could potentially be found on occasion in harbors and inlets. It is unlikely that the proposed dredging activities would impact sea turtles due to the rarity of these species being found inland of the coastal beaches and also because they would not likely stay close to the construction area while construction is on-going. With respect to indirect effects from new lighting, it is unlikely that the minimal amount of lighting required on the new berth would result in a direct, indirect, or a sky glow effect on nesting sea turtles. The proposed lighting of the new

berth will ensure that lighting levels are minimized to the greatest extent practicable to avoid disorienting or mis-orienting sea turtles during the summer nesting season. Therefore, the proposed project **may affect but is not likely to adversely affect** the Kemp's Ridley, leatherback, loggerhead, or green sea turtle.

D. <u>Eastern Indigo Snake (Federal Status – Threatened, State Status – Threatened)</u>:
Throughout its range, habitat for the eastern indigo snake may include flatwoods, hammocks, dry glades, stream bottoms, cane fields, riparian thickets, and high ground with well-drained, sandy soils. In Georgia, however, the snakes prefer excessively drained, deep sandy soils along major streams, as well as dry longleaf pine/turkey oak (*Quercus laevis*) sandhill communities and xeric slash pine plantations all in association with significant wetlands or stream systems. They spend much of their time in underground burrows and feed on rodents, birds, other snakes, and frogs. They often use gopher tortoise burrows as suitable dwellings. The species is listed as state and federally threatened. The upland habitat on-site is dominated by existing development and existing industrial uses and is not consistent with the required xeric sand hill community required by this species. Also, the required wetland or stream bottom foraging habitat is not present on site. The wetlands within the project area consist of densely vegetated freshwater wetlands, rock rip-rap intertidal zone, vegetated salt marsh, or open salt water. Due to the lack of suitable habitat, the project will have **no effect** on this species.

E. <u>Flatwoods Salamander (Federal Status – Threatened, State Status – Threatened)</u>:
The flatwoods salamander is federally and state threatened. The salamander requires open, mesic woodlands of longleaf/slash pine maintained by frequent fire. Pine flatwoods are typically flat, low-lying open woodlands that lie between the drier sandhill community up slope and wetlands down slope. Wiregrasses (*Aristida spp.*), especially *Aristida beyrichiana*, are often the dominant grasses in the herbaceous layer. Adult flatwoods salamanders move to their wetland breeding sites during rainy weather from October to December. The breeding sites are isolated pond cypress (*Taxodium ascendens*), swamp tupelo (*Nyssa biflora*), or slash pine (*Pinus elliottii*) dominated depressions which dry completely on a cyclic basis. The upland habitat on-site is dominated by existing industrial development and there are no wetland breeding ponds located on the site. No mesic woodlands, flatwoods, or breeding ponds are located on-site. Due to the lack of suitable habitat, the project will have **no effect** on this species.

F. <u>Shortnose Sturgeon (Federal Status – Endangered, State Status – Endangered)</u>:
The shortnose sturgeon is state and federally endangered. This large (up to 43") fish, which is easily recognized by the shovel shaped snout, large fleshy barbels, and ventrally located mouth, is known to inhabit the waters of coastal Georgia. This species inhabits river mouths, bays and estuaries and depending on the water temperature, enters freshwater to spawn during January through May. Acknowledged spawning periods for this area normally occur from February through March. Normal spawning locations are characterized by swift currents over gravel, rubble, or submerged timber/logs. Nursery habitat for this species is normally found downstream of the freshwater/saltwater line and is associated with a sandy bottom.

The applicant understands that the shortnose sturgeon is present in the Savannah River during certain times of the year. While the Savannah River supports this species, their presence is extremely rare but tracking data suggests they may be in the harbor area all months of the year. Researchers in Georgia and South Carolina have found that the fewest sturgeon are present in the river during the summer months when the water temperature is hot and dissolved oxygen (DO) is low. Based on previous research, sturgeon may be located downstream of the project site during

the coldest months, and it is highly likely that the fish would be found well upstream of the project area during the summer months. Given the scientific data concerning sturgeon we would conclude that the project **may affect but is not likely to adversely affect** the shortnose sturgeon. Please see Section 6.0 below for full assessment and determination of effect for the sturgeon species.

G. **Atlantic Sturgeon (Federal Status – Endangered, State Status – Endangered):**
The Atlantic sturgeon is a newly listed species. Atlantic sturgeon can grow to approximately 14 feet long and can weigh up to 800 lbs. They are bluish-black or olive brown dorsally (on their back) with paler sides and a white belly. Atlantic sturgeon are similar in appearance to shortnose sturgeon, but can be distinguished by their larger size, smaller mouth, different snout shape, and scutes. Atlantic sturgeon are anadromous; adults spawn in freshwater in the spring and early summer and migrate into estuarine and marine waters where they spend most of their lives. They spawn in moderately flowing water in deep parts of large rivers. Sturgeon eggs are highly adhesive and are deposited on bottom substrate, usually on hard surfaces (e.g., cobble). It is likely that cold, clean water is important for proper larval development.

The applicant understands that the Atlantic sturgeon is present in the Savannah River during certain times of the year. Given the research on this species, we have concluded that the project **may affect but is not likely to adversely affect** the Atlantic sturgeon. Please see Section 4.0 below for full assessment and determination of effect for the sturgeon species.

H. **Wood Stork (Federal Status – Endangered, State Status – Endangered):**
Wood storks use freshwater and estuarine wetlands as feeding, nesting, and roosting sites, and annual population fluctuations are closely related to the year-to-year differences in the quality and quantity of suitable habitat. Nests may be located in large or small trees, but the trees must be in standing water or on islands surrounded by water. The height of nests above the water ranges from three to six feet in small trees to over 60 feet in cypress trees. Wood storks use a variety of feeding sites with water depths between two and 16 inches in both freshwater and estuarine wetlands to obtain adequate food. In coastal Georgia, wood storks feed in small tidal creeks at low tide, ponds, and other open shallow waters where prey fish become concentrated. The overall decline in wood stork numbers is attributed to the loss or degradation of essential wetland habitat primarily in southern Florida. The project area contains developed upland with limited trees to support wood stork nesting, resting, or breeding areas. The jurisdictional habitat consists of dense herbaceous freshwater wetlands, and open water which is too deep to support the wood stork's specialized foraging technique. Given the lack of suitable habitat, the proposed project will have **no effect** on the wood stork.

I. **Red-Cockaded Woodpecker (Federal Status – Endangered, State Status – Endangered):**
The red cockaded woodpecker (RCW) has a black bill, white breast, and a black and white ladder pattern along the back and wings, but the most identifiable feature is the black cap and large white patch on the cheek. Suitable habitat is very specific for these birds. They inhabit old pine forests with open understory maintained by frequent fires. The birds live in excavated nests in mature pines (60 years or older) which contain heartwood. The cavity trees are easily identified by the presence of a cavity hole and the prevalence of white pine resin which seeps from the holes pecked by the bird to deter predators such as rat snakes from invading the nest. The cursory RCW survey for this project was conducted using USFWS protocol ("Guidelines for the

Preparation of Biological Assessments and Evaluation for the Red-Cockaded Woodpecker"[2]) and Georgia Department of Transportation (GDOT) protocol ("Guidelines for Conducting a Survey for the Red-Cockaded Woodpecker"[3]). These guidelines include methods for identifying areas to survey as well as actual survey methods for determining the presence of the RCW. The guidelines state that suitable foraging and nesting habitat should first be indentified within the project impact area. If no suitable nesting or foraging habitat is present, then further assessment is not necessary and a "no effect" determination is appropriate. Suitable foraging habitat is defined as a pine or pine/hardwood stand of forest, woodland, or savannah in which 50 percent or more of the dominant trees are pines and the dominant pine trees are generally 30 years in age or older; however, ideal foraging habitat consists of mature pines with open canopy, low densities of small pines, little or no hardwood or pine midstory, few or no overstory hardwoods, and abundant native bunchgrass and forb groundcover. Suitable nesting habitat is defined as pine, pine/hardwood, and hardwood/pine stands that contain pines 60 years in age or older that are within 0.54 miles of the suitable foraging habitat at the project site. The project site consists of developed upland and open water riverine habitat which is not suitable to support this species. Therefore, the proposed project will have **no effect** on the red cockaded woodpecker.

J. **Piping Plover (Federal Status – Threatened, State Status – Threatened):**
The piping plover is threatened on the state and federal list. It forages and nests on sandy beaches on the Atlantic Coast from Georgia to the north shore of the Gulf of St. Lawrence, on sandy shores of the Great Lakes, and on alkaline wetlands and prairie river sandbars of the Northern Great Plains. Sparse clumps of grass or herbaceous vegetation are important habitat components. They feed on invertebrates found in the sand including insects, crustaceans, and mollusks. Because the project does not contain the sandy beach or sandbar habitat required by the piping plover, the project will have **no effect** on this protected species.

K. **Red Knot (Federal Status – Proposed Threatened, State Status – Rare):**
This medium-sized shorebird is easily distinguished from other sandpipers by its red to reddish-orange head, neck, breast, and abdomen. In the Western Hemisphere, the red knot breeds in the mid to high arctic tundra of Alaska, Canada, and Greenland. During migration, this species switches to coastal beaches usually at or near the mouth of bays, estuaries, or tidal inlets which is where it may be found in Georgia. Wintering sites are generally intertidal habitats such as beaches with significant wave action or currents. In Georgia, small clams including coquina (*Donax spp.*) and dwarf surf (*Mulinia lateralis*) are an important part of their fall and winter diet, while horseshoe crab eggs are consumed heavily during spring staging along the coast. The project does not contain the coastal habitats as described above necessary to support this species. The project will therefore have **no effect** on this protected species.

L. **Pondberry (Federal Status – Endangered, State Status – Endangered):**
Pondberry is a 1½ to 6½ foot tall perennial found in the Mississippi River alluvial plains of Missouri, Arkansas, Alabama, and Mississippi, and the Coastal Plains region of Georgia, South Carolina, and North Carolina. The plant flowers from late February through mid March and fruits from August to October. The best time to survey for this species is during the growing

[2]Henry, V. Gary. Guidelines for the Preparation of Biological Assessments and Evaluations for the Red-Cockaded Woodpecker. U.S. Fish and Wildlife Service Southeast Region. September 1989. Not Paginated.

[3]Bouthillier, William. Guidelines for Conducting a Survey for the Red-Cockaded Woodpecker. Georgia Department of Transportation Ecology Section, Preconstruction Division. April 2004. Not Paginated.

season from March to October. The habitat is variable throughout the range, but in Georgia, pondberry grows in sandy sinks, pond cypress/gum pond margins, cypress domes, and swampy depressions in lowland forests with an open canopy that are seasonally flooded. The most dependent factor seems to be stable hydrology and seasonal inundation. As with many endangered species, population decline is associated with habitat loss, alteration, and degradation through silviculture, agriculture, drainage, and development. The project site consists of developed upland, and none of the above wetland habitats are present. Due to the lack of suitable habitat, the proposed project will have **no effect** on this species.

M. Gopher Tortoise (Federal Status – Candidate, State Status – Threatened):

The gopher tortoise is found along dry sand ridges of the southeastern Coastal Plain. In order to thrive, the species requires sandy soils, low plant growth, and open sunny areas. The species ranges from Louisiana to southern South Carolina and throughout Florida. The burrows dug by the gopher tortoise provide shelter for other species such as the gopher frog, small mammals, and snakes, namely the endangered eastern indigo snake. The gopher tortoise is listed as a candidate for federal protection. The project site consists of developed upland, and none of the sandhill habitat necessary to support this species is present. Due to the lack of suitable habitat, the proposed project will have **no effect** on this species.

N. Critical Habitat

Under the Endangered Species Act, critical habitat is an area essential to the conservation of a listed species, though the area need not actually be occupied by the species at the time it is designated. Critical habitat is defined as: (1) specific areas within the geographical area occupied by the species at the time of listing, if they contain physical or biological features essential to conservation, and those features may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation. The USFWS Critical Habitat Mapper was examined to determine the presence or absence of designated critical habitat in Chatham County and the presence or absence of critical habitat for any of the listed species. Critical habitat was identified for the piping plover, flatwoods salamander, north Atlantic right whale, Atlantic sturgeon, and west Indian manatee. Critical habitat for the piping plover was identified in Chatham County on Tybee Island, Little Tybee Island, and Wassaw Island. The closest critical habitat is located approximately 10 miles southeast of the project area. Critical habitat for the flatwoods salamander was identified in Jasper County, South Carolina approximately 15 miles northeast of the project area. Critical habitat for the north Atlantic right whale was identified within the Atlantic Ocean off the coast of Glynn County approximately 60 miles south of the project area. Critical habitat for the west Indian manatee was identified within the St. Mary's River on the Georgia – Florida border approximately 70 miles south of the project area. Given the distance between the project area and these critical habitats, the project would result in **no effect** to any of these listed critical habitats. Critical habitat for the Atlantic Sturgeon is listed as the Savannah River including the portion of the river adjacent to the proposed project area. The specific discussion of this critical habitat and determination of effects is discussed in Section 6.0 below.

O. Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940 provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds. During the pedestrian survey and background research, no bald eagle nest sites were identified within or adjacent to the project or within one mile of the

project site. Although the Savannah River could potentially, by definition, be considered suitable foraging habitat, no potential eagle nest trees are located in the vicinity of the project. Given the lack of evidence of any existing eagle nest sites in the vicinity of the project site, the proposed project would result in **no take** as defined under the Bald and Golden Eagle Protection Act.

6.0. Atlantic and Shortnose Sturgeon Assessment and Determination of Effect

A. Savannah River Population

The movements and the habitats of sturgeon in the Savannah River are not well documented and not well understood, especially relative to continued harbor modifications. Previous studies by Hall et al. (1991) indicated that shortnose sturgeon utilized the vicinity of the saltwater/freshwater interface (near the city of Savannah), with the adults making extensive use of the estuary, including the Front, Middle, and Back Rivers. The shortnose sturgeon nursery area was, at that time, located in the Kings Island Turning Basin. During 1999-2000, 57 shortnose sturgeon were captured in the lower Savannah River by the South Carolina Department of Natural Resources. Acoustic transmitters were implanted in 32 (15 juveniles and 17 adults). The fish were then tracked and their habitat utilization patterns were determined. Juveniles used two relatively small areas very intensively. When water temperatures were less than 22°C (71.6° F), they concentrated in the vicinity of the intersection of the Front and Middle Rivers (river kilometer (rkm) 31), moving about in both the Front and Middle Rivers. When temperatures were greater than 22°C, they moved well upriver from the area of the proposed project, concentrating especially around rkm 47.5. Adult movement patterns were similar in that the fish moved upriver (especially concentrating around rkm 47.5) when temperatures were high. When water temperatures dropped below 22°C, the adults began a downriver migration and were found in the coldest months well downriver almost to the ocean at rkm 5.5. Juveniles appeared to congregate in two areas during the cool period. In spring months they were located in an area just down from the Houlihan Bridge in the Front River (rkm 34.3), and in winter months they were found just inside the Middle River in a 7.9 meter deep hole (rkm31.3).

It can be concluded from the above research that although sturgeon may be found in the Savannah River at any time during the year, it is more likely that the fish would be found upstream of the project area for the majority of the year. Based on the existing telemetry data, adult sturgeon may be found near the project site during the cooler months. Juveniles appear to stay upstream of the project site during all seasons.

B. Potential Effects to Atlantic and Shortnose Sturgeon

Over the past decade many studies and effects analyses have been conducted in the Savannah Harbor for a variety of projects including the Maintenance Dredging at Georgia Ports Authority Garden City Terminal, SSPFC Bulk Dock & Dredging, Plant Riverside, and Ocean Terminal Berth 13 Improvements, etc. Impacts to sturgeon from dredging can be either direct (entrainment) or indirect through water quality changes (i.e. siltation, dissolved oxygen, contaminant release, etc.). Both the direct and indirect impacts were assessed for the proposed project as discussed below:

i. <u>Entrainment</u>

The most obvious effect from a dredging project is the entrainment of sturgeon from the dredge. The initial dredging will most likely be conducted by using a hydraulic cutterhead although a clamshell could also be utilized. The use of both the hydraulic cutterhead and the clamshell is known to have very little effect from entrainment. For example, the Savannah Harbor Expansion Project (SHEP) EIS notes that since 1990,

hydraulic dredges have entrained five shortnose sturgeon, but the overall risk is not significant (USACE 2010). The effects from clamshell dredging are even less with only three documented captures during the same period from 1990 to 2007. In comparison, hopper dredges are much more likely to entrain sturgeon, but still, the entrainment effect from the use of hopper dredges has been found to be an insignificant threat to the species by NMFS. For instance, on the Kennebec River, the NMFS found that, "the death of up to 27 shortnose sturgeon resulting from the proposed dredging will not appreciably reduce the likelihood of survival for this species..." (MGA 2013). The likelihood of entrainment is greatest for immobile life stages of sturgeon such as eggs and larvae which cannot move away from the dredge. Potential entrainment of juvenile and adult sturgeon is highly unlikely as they are simply able to swim away from the dredge. The salinity at the project site is too high to support immobile life stages of the sturgeon. Eggs and larvae require freshwater and are only present well upstream of the project site. Therefore, entrainment of eggs or larvae is not a concern for this project. Any sturgeon present near the project site would be juveniles or adults which can move away from the dredge during construction. The applicant will avoid using a hopper dredge in order to minimize potential direct impacts to sturgeon. It was therefore concluded that the project is not likely to affect sturgeon through entrainment, but the applicant understands that they must continue to monitor for potential fish kills downstream of the project site. In the unlikely event of a sturgeon kill or injury, the applicant will cease all work on the project and notify the USACE, NMFS, and USFWS immediately for consultation prior to continuing any further work.

ii. Water Quality Impacts from Decreased Dissolved Oxygen

Project related impacts from reduced levels of dissolved oxygen (DO) may be another potential concern during dredging operations. Low DO is a concern for a healthy ecosystem. In general, the critical DO threshold for sturgeon has been identified by previous studies as 4.0 mg/L. In the summer, it has been found that sturgeon seek areas with suitable DO content. For example, when the water temperature is high at the surface, but the DO is low near the bottom, sturgeon will seek out the higher DO content near the surface (MGA 2013). Under low DO conditions, sturgeon will most likely leave the area. The effects of DO on sturgeon are dependent on temperature, salinity, and other variables, and the effect of low DO in the summertime is especially harmful (MGA 2013). The effects of dredging on DO vary from small increases to small decreases. Previous studies conducted by others throughout the Savannah Harbor have concluded that both agitation dredging and hydraulic dredging do not result in appreciable depletions of DO content. For example, when DO levels are low during the summertime, monitoring by ATM in a 2000 and 2001 study showed no reduction in DO as a direct result from agitation dredging. Conversely, a dredging event in March 2001 when water temperatures were cooler and DO levels were higher showed no adverse effect on DO levels. Any reductions were not below the regulatory threshold of 4.0 mg/L. When placed in context of the influences that the tides, currents, and water temperatures have on the harbor, the effect from the proposed dredging on DO is very small. Also, empirical data suggests that dredging does not appreciably affect DO enough to impact sturgeon. Therefore, it is not expected that the proposed dredging or the future maintenance dredging would have a negative effect on DO in the harbor or on sturgeon.

iii. Water Quality Impacts from Contaminants

Release of contaminants that were bound to bottom sediments during dredging is another potential concern. Contaminants released into the waterway could affect sturgeon as well as prey species and the ecosystem in general. A Tier II Sediment Sampling Analysis Plan is being submitted concurrent with this permit application. The analysis plan proposes to evaluate not only the chemical composition of potential contaminants in the existing sediments, but also sediment settling characteristics and the elutriate. The analysis will be conducted to review all potential contaminants to ensure the concentrations are below the ERM values so that no adverse effects to organisms would be anticipated. The ERM value is the value above which adverse effects frequently occur. The ERL and ERM values are intended as informal guidelines and not regulatory standards, toxicity thresholds, or pass/fail targets. The dredge materials will be disposed of in the on-site DMCA and water ultimately discharged through the on-site NPDES discharge into the Savannah River. Monitoring of the outfall is proposed to ensure the water leaving the DMCA facility is within range of the existing levels of the Savannah River. As such, zero supernatant discharge from the disposal site is expected as a result of the project. Based on the size of the disposal facility, available capacity and retention time within the facility, and proposed dredge phasing schedule, there should not be any degradation into the waterway. Once the results of the testing are completed and report of findings published, the applicant will deliver the information to the USACE and this section of the effects determination can be finalized for consideration. Based on existing information concerning the previous testing on adjacent upland areas, it is not expected that the proposed project would result in the release of harmful contaminants in the waterway that could affect sturgeon.

iv. Effects from Increased Suspended Solids

The effects of increased total suspended solids (TSS) from initial and maintenance dredging on sturgeon is also a potential concern during dredge events. An increase in TSS in the water column has the potential to abrade gills. Dredging events may temporarily increase TSS in the water column at the project site and downstream for a short period of time. The effects, however, are limited to a very small portion of the Savannah Harbor. The effects of TSS on sturgeon are determined based in comparison to the ambient levels of TSS in the harbor which are dependent on ship traffic, other dredging, tides, currents, storms, etc.

Hydraulic dredging with upland containment will be used for the berth construction. The cutterhead can be a source of suspended sediments near the bottom immediately surrounding the dredge, but they dissipate rapidly as the distance from the dredge increases. The TSS concentrations from hydraulic dredging with upland containment are comparable to the natural fluctuations of TSS in the river and would not affect sturgeon (MGA 2013).

Agitation dredging may be employed in the future to maintain the permitted berth depth. Agitation dredging may cause increases in TSS at the project site and downstream, but this fluctuation is within the range commonly occurring in the river from spring tides. These levels are lower than the levels experienced during storm conditions (MGA 2011) and should therefore not adversely affect sturgeon.

Particulate size should also be considered when assessing a project's affects on sturgeon. Previous studies on particulate size in the Savannah River concluded that the organic material and fine grain size of the sediments proposed to be dredged could cause damage to fish gills (O'Connor et al.), but the small size of these particulates within this section of the Savannah River will be less damaging than if the sediments were comprised of more angular mineral particles. O'Connor et al. also state that most fish species are capable of avoiding or temporarily leaving a hostile environment. Based on previous Savannah River sediment sampling data, the proposed dredged material from the river will mostly include silt with some fine sand and clay. The particles are mostly round (as opposed to the angular structure or medium to course sands) which will minimize the potential effect to sturgeon gills. Also, the ambient levels of siltation and TSS in the river are already high due to the high ship traffic, other ongoing dredging projects, and other activities in the waterway. Based on previous studies, it is likely that resident sturgeon are already accustomed to these high levels of sedimentation, and the effects from the minor TSS increases from the project would be negligible and not adversely affect sturgeon. Additionally, and based on previous studies, the sediments should settle within ten hours which is a relatively short time. Based on this information, the particulates from the proposed dredging project would settle out of the water column very quickly with minimal potential to affect sturgeon or downstream habitats. Any potential sediments plumes would therefore be expected to persist at a single point in the river for no more than a few hours due to the sediment composition, current, and tidal effects in the river. While the proposed dredging and future maintenance dredging may increase TSS near the bottom of the water column for a short duration, the sediments will settle to the bottom quickly and should not adversely affect sturgeon.

v. Effects from Loud Noises

Noise impacts from projects in the waterway can also be detrimental to sturgeon affecting their behavior and potentially their physiology if they are too close to the noise source. Typically noise impacts are associated with pile driving where sudden pile stikes generate an energy pulse than can harm fish. Conversely, constant or ambient noise sources have a much less affect on fish. No piles are proposed for the SeaPoint berth. Any noise generated by the dredge would increase noise levels at the project site but would be a constant source and blend in with the ambient noise levels elsewhere in the Savannah Harbor from ship traffic, dredging, and other activities. The dredging will not produce sudden noise pulses such as those from pile strikes that are known to be detrimental to fish. Therefore, there will be no adverse effect from noise as a result of this project.

C. Potential Effects to Proposed Critical Habitat

Under the Endangered Species Act, critical habitat is an area essential to the conservation of a listed species, though the area need not actually be occupied by the species at the time it is designated. Critical habitat is defined as: (1) specific areas within the geographical area occupied by the species at the time of listing, if they contain physical or biological features essential to conservation, and those features may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation.

On June 3, 2016, a proposal was made by the NMFS in the Federal Register to designate critical habitat for the Carolina distinct population segment of the Atlantic sturgeon and the South Atlantic distinct population segment of the Atlantic sturgeon. The SeaPoint berth project is

located in the Savannah River which is within the critical habitat designation for Atlantic sturgeon (South Atlantic DPS Unit 3, Savannah River). Four essential features of Atlantic sturgeon critical habitat have been identified by NMFS and are discussed below followed by a determination of the project's effects on each.

i. Suitable hard bottom substrate (e.g., rock, cobble, gravel, limestone, boulder, etc.) in low salinity waters (i.e., 0.0-0.5 ppt range) for settlement of fertilized eggs and refuge, growth, and development of early life stages.
Sturgeon spawning occurs well upriver of the project site in freshwater with suitable hard bottom substrate. The substrate in the proposed project area consists of silt with some fine sand and clay, and there is no documented suitable hard bottom substrate. Additionally, the salinity at the project site is too high for spawning. Sturgeon eggs and larvae cannot survive in this high saline environment. It was therefore determined that this first essential habitat feature is not present at the project site and would not be affected by the project.

ii. Transitional salinity zones inclusive of waters with a gradual downstream gradient of 0.5 - 30 ppt and soft substrate downstream of spawning sites for juvenile foraging and physiological development.
Spawning habitat for the Atlantic sturgeon is known to occur well upstream of the project site (upstream of rkm 113), and there is no documented soft substrate at the project site that could be used for juvenile foraging downstream of spawning sites. The nursery area for sturgeon is located upstream of the project site in more brackish habitats free from the daily disturbances caused by ship traffic, dredging, etc. It was therefore determined that this second essential feature is not present and would not be affected by the project.

iii. Water of appropriate depth and absent physical barriers to passage (e.g., locks, dams, reservoirs, gear, etc.) between the river mouth and spawning sites necessary to support: 1) unimpeded movement of adults to and from spawning sites; (2) seasonal and physiologically dependent movement of juvenile Atlantic sturgeon to appropriate salinity zones within the river estuary; and (3) staging, resting, or holding of subadults and spawning condition adults. Water depths in main river channels must be deep enough to ensure continuous flow in the main channel at all times when any sturgeon life stage would be in the river. Water depths of at least 1.2 m are generally deep enough to facilitate effective adult migration and spawning behavior.
This third essential habitat feature is available at the proposed project site, but it was determined that the effect of the project would be insignificant. The proposed dredging activities are temporary in nature and would not result in a reduction in water depth or addition of physical barriers in the waterway. The dredging will occur from the face of the berth to the navigation channel where the total width of the river is approximately 2,300 feet. This leaves the navigation channel and the entire north side of the river available to support unimpeded movement of Atlantic sturgeon. Since the project results in a temporary and minimal disturbance in the river, and since the remaining portion of the river (northern half) is still available to support the unimpeded movement of adults, juveniles, and subadults, it was determined that the effect of the project activities on this essential feature of critical habitat is insignificant.

iv. Water quality conditions, especially in the bottom meter of the water column, with temperature and oxygen values that support: (1) spawning; (2) annual and inter-annual adult, subadult, larval, and juvenile survival; and (3) larval, juvenile, and subadult growth, development, and recruitment. Appropriate temperature and oxygen values will vary interdependently, and depending on salinity in a particular habitat. For example, 6.0 mg/L D.O. for juvenile rearing habitat is considered optimal, whereas D.O. less than 5.0 mg/L for longer than 30 days is considered suboptimal when water temperature is greater than 25°C. In temperatures greater than 26°C, D.O. greater than 4.3 mg/L is needed to protect survival and growth. Temperatures of 13° C to 26° C for spawning habitat are considered optimal. This fourth essential feature is reasonably expected to be available at the project site during certain times of the year for certain life stages. It has been documented that the salinity and substrate in the lower harbor is not suitable to support spawning, eggs, or larval development, and it is much more likely that the fish would be found upstream of the project area for the majority of the year. Based on existing telemetry data, adult sturgeon may be found near the project site during the cooler months when water conditions are more favorable. Juveniles appear to stay upstream of the project site during all seasons. Therefore, temperature and oxygen values that support: (1) spawning; (2) annual and inter-annual adult, subadult, larval, and juvenile survival; and (3) larval, juvenile, and subadult growth, development, and recruitment would not be expected to occur during summer months. As discussed previously in this report, empirical data suggests that dredging does not appreciably affect DO enough to impact sturgeon, and when placed in context of the influences that the tides, currents, and water temperatures have on the Savannah Harbor, the effect from the proposed dredging on water quality is very small. Since spawning habitat is known to be located well upstream (over 80 kilometers) from the project site, because sturgeon are only known to occupy the lower harbor in the cooler months, and because dredging has very little effect on DO or water temperature, it was determined that the project's effects on water quality conditions would be insignificant.

D. Measures to Avoid Adverse Effects

As mentioned above, the applicant understands that both the shortnose sturgeon and Atlantic sturgeon are present in the Savannah River during certain times of the year and the Savannah River is listed as critical habitat for Atlantic sturgeon. The proposed project includes the dredging of approximately 2,700,000 cubic yards of material in order to construct the berth and future maintenance dredge by the agitation, clamshell, or hydraulic method. When considered in context of SHEP and the approximately six million cubic yards of maintenance sediment dredged from the federal navigation channel each year, and the additional material removed by other maintenance dredging projects, the proposed project is very small. Nonetheless, the applicant has taken the follow measures to avoid impacts to sturgeon and the proposed critical habitat:

- No pile driving in the waterway is proposed. This measure avoids noise impacts to sturgeon. All pile driving will occur in upland.
- The dredging activity is temporary and will be completed in phases as outlined in the permit application. Additionally, the dredging time for each phase will be limited by the on-going management of the DMCA to ensure the DMCA can handle the projected quantity of material with each dredging event. The phased dredging and maintenance of the DMCA will dictate that the dredge times are relatively short lived which will minimize potential impacts to sturgeon and the habitat.

- Future maintenance dredging will likely be completed on a quarterly basis when a dredge is in the area and will only take a day or two per event. The short duration further avoids and minimizes potential impacts.
- Careful monitoring of the water quality at the upland disposal site outfall will occur to ensure the water quality in the receiving waterway remains consistent with baseline conditions.
- In the highly unlikely event that a sturgeon fish kill or injury is found, the applicant agrees to stop all work and notify the USACE, NMFS, and USFWS immediately for consultation prior to continuing any further work.

E. Effects on Sturgeon Species Conclusion

The proposed project consists of initial dredging and future maintenance dredging at the SeaPoint berth on the Savannah River. Based on the extensive research and studies that have been completed for sturgeon in the Savannah Harbor over the past 10 years, the results of this report conclude that the proposed project will have no adverse effect on sturgeon. Ongoing harbor maintenance dredging, ship traffic, extreme tides, and storm events all contribute to the background water quality baseline in the harbor. The proposed dredging associated with this project will have a minimal impact to a very localized area of the harbor, and the water quality/TSS associated with the proposed dredging operation will not appreciably exceed baseline conditions. Use of the confined disposal site will not contribute to water quality degradation, and the applicant proposes to monitor this activity to ensure there is no degradation.

The applicant has utilized all the scientific data with respect to the presence of protected sturgeon species in the river and designed a specific construction methodology to avoid and minimize potential impacts. The above information provides the necessary documentation to address all of the concerns and provides site specific information to demonstrate that the proposed project will not adversely affect the Atlantic or shortnose sturgeon or the proposed critical habitat for the Atlantic sturgeon.

7.0 CONCLUSION:

The subject property was assessed for the potential occurrence of listed species and habitats suitable to sustain listed species for Chatham County, Georgia. It was concluded that the Savannah River adjacent to the project site is known to support the west Indian manatee, shortnose sturgeon, and Atlantic sturgeon. The developed upland within the project site does not support any of the listed species in Chatham County. The applicant proposes to complete sediment testing and to follow a strict monitoring protocol to avoid and minimize impacts to listed species. The applicant will strictly adhere to the USACE Standard Manatee Conditions in order to avoid impacts to the west Indian manatee. Therefore, based on the field survey, observation of habitats, and construction methodology, the proposed project should have no adverse effect on any of the above listed species. Although the current absence of any of the other listed species on the site does not necessarily preclude the possibility of the future occupation, the available habitats found on the subject property are common throughout the region and any future on-site habitat modification should not adversely affect any of these species

LITERATURE REVIEW

SECI utilized the following references and reports to compile and present this report with respect to the proposed project. SECI was able to find all reports/abstracts cited below, although some of the reports were only in readable format and not reproducible, or only abstracts/executive summaries were available for review.

1. ATM 2009. Georgia Port Authority Deepening Project Essential Fish Habitat Assessment. Report to US Army Corps of Engineers, Savannah District.

2. Clark, Douglas, and Tina Miller-Way. July 1992. An Environmental Assessment of the Effects of Open Water Disposal of Maintenance Dredged Material on Benthic Resources in Mobile Bay, Alabama. Department of the Army, Waterways Experiment Station, Corps of Engineers, Vicksburg Mississippi. 173 pp.

3. Illinworth and Rodkin. 2007. Compendium of Pile Driving Sound Data. Report Prepared for the California Department of Transportation. September 27, 2007.

4. MG Associates, December 22, 2011. Essential Fish Habitat Assessment, Maintenance Dredging in the Upper Savannah River Estuary, Georgia, Prepared for Georgia Ports Authority.

5. MG Associates, October 12, 2012. Biological Assessment for Shortnose and Atlantic Sturgeons, Maintenance Dredging in the Upper Savannah Estuary, Georgia. Prepared for Georgia Ports Authority.

6. MG Associates, September 6, 2013. Biological Assessment for Shortnose and Atlantic Sturgeons, Southern States Phosphate & Fertilizer Company Bulk Dock in the Savannah River Estuary, Georgia. Prepared for Sligh Environmental Consultants, Inc.

7. O'Connor, J.M., and Neumann, D.A., and J.A. Sherk, Jr. December, 1976. Lethal Effects of Suspended Sediments on Estuarine Fish. Technical Paper No. 76-20. U.S. Army Corps of Engineers Coastal Engineering Research Center, Fort Belvoir, Va. 38 pp.

8. Pavel, Christy, Catherine J. Carroll, Amanda W. Meadows, Bill Post, Corbett Norwood, Jason Moak, and Oscar Flite. Movement Patterns of Shortnose Sturgeon *Ancipenser brevirostrum* in the Savannah River, GA. Poster Presentation. September 2011 American Fisheries Society Meeting, Seattle, Washington.

9. Van Dolah, R.F., Calder, D.R., Knott, D.M. 1984. Effects on Dredging and Open Water Disposal on Benthic Macroinvertebrates in a South Carolina Estuary. Estuaries 7:28-37.

10. US Army Corps of Engineers, Savannah District. January 2012, Revised July 2012. Final Environmental Impact Statement Savannah Harbor Expansion Project. Abstract. Chatham County, Georgia and Jasper County, South Carolina.

11. Hall WJ, Smith TIJ, Lamprecht SD. 1991. Movements and Habitats of Shortnose Sturgeon *Acipenser brevirostrum* in the Savannah River. *Copeia*, 1991, 695-702.

12. Collins, Mark R., Post, William C., Russ, Daniel C., Distribution of Shortnose Sturgeon in the Lower Savannah River, Results of Research Conducted 1999-2000. Final Report to Georgia Ports

Essential Fish Habitat Assessment

SeaPoint Marine Terminal
Savannah River
Chatham County, Georgia

October 14, 2019

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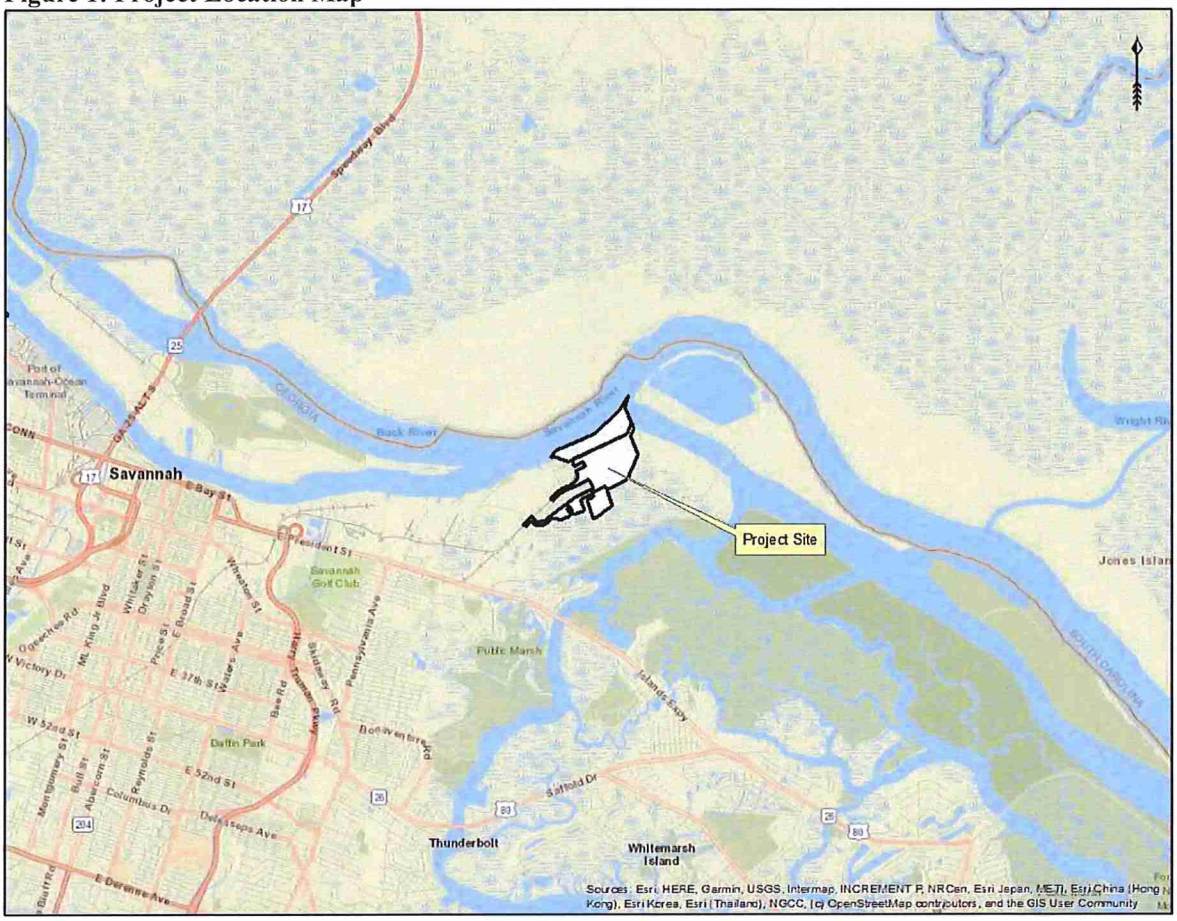
I. PROJECT OVERVIEW

A. Project Location

Sulfco, LLC (Applicant) is proposing the redevelopment of the 226.67 -acre industrial site and the construction of a multi-use marine terminal at the SeaPoint Marine Terminal Complex located at 100 SeaPoint Boulevard (formerly 1 Kerr-McGee Road), Savannah, Georgia 31404. The project site is located adjacent to the Savannah River (mile marker 12) with the center coordinates being latitude 32.084110N and longitude -81.022792W.

Figure 1: Project Location Map



B. Report Purpose

The intent of this Essential Fish Habitat (EFH) Assessment is to determine the project's potential impacts to EFH resources for species managed by the National Marine Fisheries Service (NMFS). This report is intended to meet the requirements of Title 50 of the Code of Federal Regulations (CFR) Part 600 (Magnuson-Stevens Act Provisions). Field evaluations were conducted in June and July 2019 to determine the presence of potential EFH for federally managed marine species. The objectives of the assessment were to evaluate whether or not EFH for managed species exists within the project footprint, determine if the proposed project will have adverse impacts to EFH, provide

recommendations for avoidance and minimization of impacts, and discuss potential mitigation options if impacts are unavoidable.

C. Project Description

The purpose of the proposed project is to develop a marine terminal on an existing industrial site adjacent to the Savannah River co-located with support manufacturing facilities and existing utilities in a sustainable redevelopment model. The proposed SeaPoint Marine Terminal is proposed as a general purpose multi-use marine terminal on the Savannah River to provide berthing facilities for the projected growth of cargo throughput in the Savannah Harbor.

Specifically, the SeaPoint site has existing paved access to President Street, an internal road network, a security gate, power, water, wastewater treatment facilities, rail, steam, heavy industrial zoning, and 60,000 square feet of existing office/research and development buildings immediately adjacent to the project site. The site has approval as a Federal Opportunity Zone, which recognizes economic development projects/opportunities and aims to drive long-term private investment into the redevelopment of real-estate or communities. The project site is located on the bank of the Savannah River adjacent to the federal navigation channel (approximately 3,000 linear feet of Savannah River frontage). With existing rail and access to President Street, the site is ideally situated for redevelopment into a multi-use marine terminal.

D. Site Plan

All activities proposed for the project are water dependent and necessary to provide a new berth for water borne vessels. Activities include construction of a new berth in uplands, installation of the main access road to the new berth which will impact 1.8 acres of freshwater wetland, dredging within the intertidal zone to include 6.60 acres (including 1.24 acres of vegetated coastal marsh), and dredging of 50.25 acres of open water to the appropriate project depth to accommodate ship access from the navigation channel to the berth. The proposed wharf structures will be positioned no closer than 800 feet from the federally maintained navigational channel line, and the Savannah River is approximately 2,300 feet wide at the location of the proposed project.

The majority of the proposed dredging will be in existing open water habitat to provide adequate depths for the proposed vessels to use the facility. The area of the new wharf will have similar subsurface depths as the adjacent navigational channel to allow for ships to access the new wharf. The proposed dredge elevation at the face of the berth would be -42.0 MLW (plus 2 feet of over dredge) with a 17-foot wide trough below the fender at -45.0 MLW for the section parallel to the new berth. The initial dredging will be conducted via hydraulic cutterhead method, and future maintenance dredging activities will be necessary to maintain the required depths. Future maintenance dredging will be conducted by agitation or hydraulic method and will not exceed 250,000 cubic yards annually. The dredged material will be disposed of at the on-site upland containment area. The dredging activities will impact a total of 58.09 acres of jurisdictional area including 50.25 acres of open water and 6.60 acres of intertidal areas (including 1.24 acres of vegetated marsh). The total volume of material to be removed by dredging totals 2.7 million cubic yards.

Figure 2: 2017 Aerial Photograph

E. Survey Methodology

In order to identify potential EFH within the project area and assess potential impacts from the proposed project, a field review of the project site was conducted in June and July 2019. EFH within the project footprint consists of the open water riverine habitat of the Savannah River and adjacent saltmarsh and intertidal zone. The property conforms to adjacent industrial and commercial land uses in that the river frontage has been stabilized with heavy rip-rap and concrete material. Seaward of the rip-rap are patches of vegetated saltmarsh and unvegetated shallow water intertidal shoreline which is exposed at low tide.

F. Habitats and Land Use

As outlined above, the majority of the site was previously developed and used as an industrial facility for the production of titanium dioxide. The western half of the 226-acre project site includes existing internal roadways, concrete building pads from previous uses, and existing rail lines where previous facilities were located for the production of titanium dioxide. The eastern half of the site included various industrial uses including stockpile areas, settling ponds, stormwater treatment facilities, roads, and other infrastructure associated with the former industrial operations. Remediation has been completed on the western portion of the property and is nearing completion on the eastern portion. All areas associated with the former industrial operation are filled, graded, and/or capped with soil material and grassed as part of the reclamation process. To the east and

south, outside of the project site limits, is open salt marsh which was deeded to the State of Georgia on September 29, 2017. The southern portion of the project includes a previously developed site that was the City of Savannah incinerator facility that was closed in 2008 and removed in 2012. The paved driveway, concrete pad, and other adjacent concrete pad structures are all that remain of the incinerator facility. There is freshwater wetland area immediately north of the old incinerator facility. The northern portion of the project adjacent to the Savannah River is mostly an armored bank with rip/rap from the upland down to the mean low water line. There are pockets of vegetated marsh, but most of the river frontage is existing rip/rap along the slope of the riverbank down to the open water habitat of the Savannah River.

With the previous industrial land use, the 226-acre project site is mostly upland with freshwater and saltwater fringes along the edge and mostly outside of the project footprint. Descriptions of each area are included below:

i. Tidal Wetland/Open Water

The Savannah River interface at the location of the proposed berth within the project site includes an armored rip/rap bank along the upland/wetland line which slopes down to the mean low tide line. Through this mostly rip/rap rocked area there are small areas along the river bank that are vegetated saltmarsh that include sea oxeye (*Borrichea frutescens*) and saltmeadow cordgrass (*Spartina patens*) along the higher elevations. Moving lower in topography along the slope, the vegetation changes to needle rush (*Juncus roemeranus*) with shrub species including saltwater false willow (*Baccharis angustifolia*) and false willow (*Baccharis halimifolia*) with red cedar (*Juniperus virginiana*) located closer to the upland. Further down the slope into the intertidal zone, the vegetation transitions to more obligate salt tolerant species dominated by smooth cordgrass (*Spartina alterniflora*). Channelward of the vegetated saltmarsh is open water and intertidal mudflat habitat associated with the Savannah River. Total vegetated salt marsh habitat within the intertidal zone is approximately 1.24 acres.

ii. Freshwater Wetland

North of the closed incinerator site and along the eastern edge of the proposed project limits there is a freshwater wetland fringe that is dominated with common reed (*Phragmites australis*). Other species included within this freshwater fringe habitat include wild rice (*Zizania aquatica*), soft rush (*Juncus effusus*), and other sedges. Overstory trees include eastern red cedar, Chinese tallow (*Sapium sebiferum*), and a few red maple (*Acer rubrum*). The habitats within the footprint of the proposed waterside activities consist of open water and debris field/rubble. The upland area of the project consists of existing development including the powerplant building and adjacent rocked/paved parking area. Adjacent land uses consist of upstream and downstream commercial and industrial facilities with bank armoring and waterside facilities.

iii. Upland

Access to the new marine terminal will be via the existing paved drive to the old incinerator plant and through an existing developed upland industrial site. The habitats within the existing upland area include paved roadways, existing rail lines, concrete building pads, and open sparsely vegetated upland areas that were previously associated with the industrial development.

II. ESSENTIAL FISH HABITAT

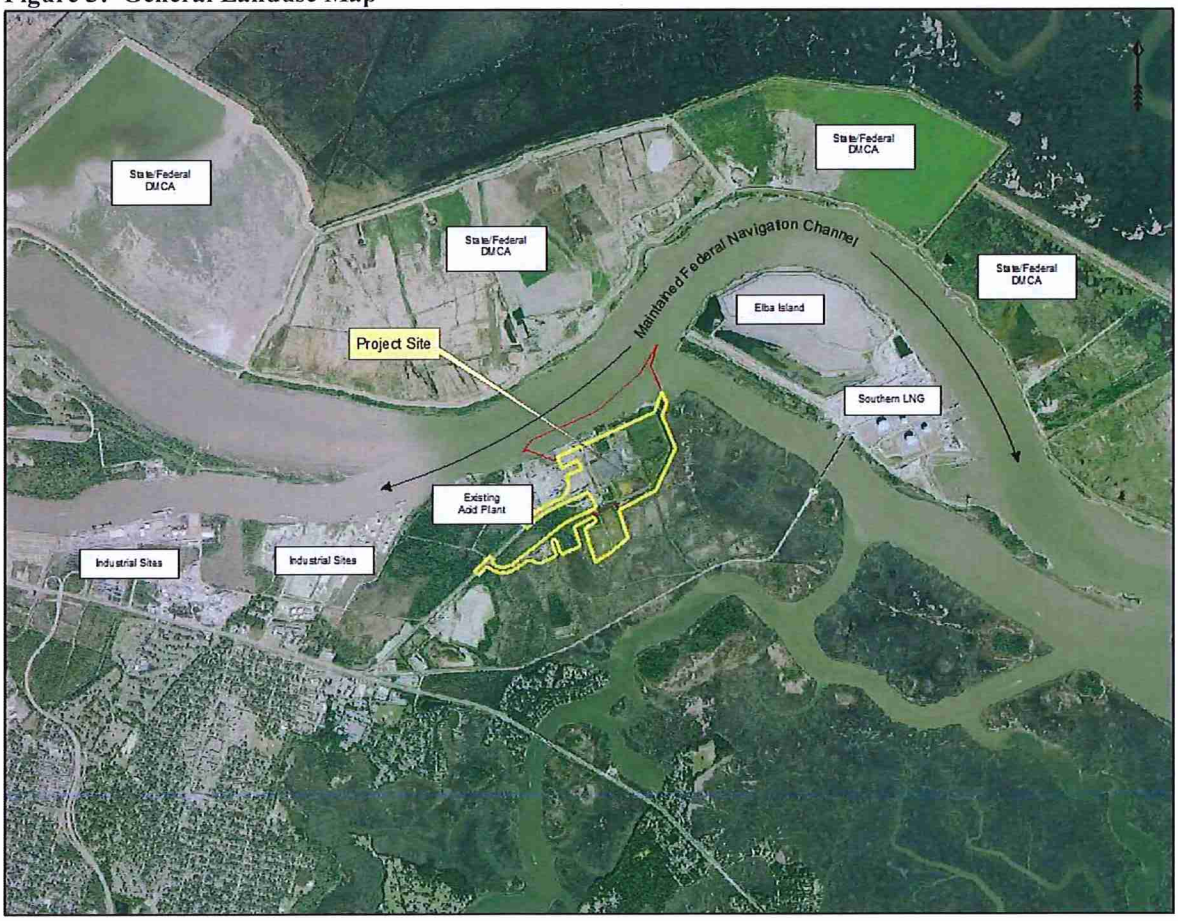
In compliance with the Magnuson-Stevens Fishery Conservation and Management Act of 1996 (Act), unavoidable adverse impacts to EFH must be identified. The Act mandates the identification of EFH for managed species, as well as measures to conserve and enhance fish habitat. The Act requires cooperation

among the NMFS, fishing participants, and federal and state agencies. The Act established Regional Fishery Management Councils to identify EFH. The NMFS coordinates with the South Atlantic Fishery Management Council (SAFMC) and Atlantic States Marine Fisheries Commission (ASMFC) to minimize impacts to EFH in the southeast region of the United States.

EFH as defined by the Act includes waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 U.S.C. 1802, 50 CFR 600.10). Waters designated as EFH contain habitat that is essential to long term health and survival of the nation's fisheries, and includes the water column to the seafloor. Assessing EFH requires the applicant to consider water quality issues such as nutrient level, dissolved oxygen (DO) concentration, and turbidity of open waters, wetlands, estuarine habitats, riverine habitats, and freshwater wetlands that are directly adjacent to Section 10 wetlands. EFH includes habitats that support all life stages of each managed species (breeding, spawning, nursery, feeding, and survivability).

The SAFMC manages eight fisheries made up of approximately 89 species that include red drum, snapper grouper complex, coastal migratory pelagic species, dolphin and wahoo, golden crabs, shrimp, spiny lobster, sargassum, and coral/live bottom habitat. The ASMFC manages 24 species or species groups that include red drum, spotted sea trout, spot, summer flounder, herring, and Atlantic sturgeon. NMFS manages the highly migratory species that includes sharks, tuna, swordfish, and all billfish species.

Figure 3: General Landuse Map



A. EFH Description

The project site is located on the Savannah River which is part of the inner Savannah Harbor. This area of the river experiences wide fluctuations in salinity and tide. The average tide is approximately eight feet, and spring tide currents are approximately three to five feet per second (MGA, 2011). The river experiences heavy commercial and industrial ship traffic from the various industrial facilities located on the river as well as two port terminals. At the project site, the river varies from 2,000 to 2,400 feet wide, and the federal navigation channel is currently maintained to a depth of -42 feet MLW with an allowable overdraft of two feet. Suspended sediment concentrations are high in the river due to multiple sources such as extensive upstream wetland systems, stream bank erosion, and sediment transported from the ocean (MGA, 2011). In order to maintain adequate depths required for ship traffic in the river, annual maintenance dredging of the harbor is required. Each year, approximately five million cubic yards of sediment are dredged from the federal navigation channel by the U.S. Army Corps of Engineers (USACE) (MGA, 2011). An additional 900,000 cubic yards are dredged from the Southern LNG berth on Elba Island and the turning basin on the river, and 400,000 cubic yards are dredged from the berths in the middle and upper harbor (MGA, 2011). In order to accommodate the new larger Panamax container ships at the Savannah Port, future plans call for deepening the Savannah Harbor to -47 feet with two feet of allowable overdraft. This work is on-going and dredging of the inner harbor has begun. The project would result in the initial removal of 23.6 million cubic yards of material from the harbor with annual maintenance dredging required over the 50-year period of analysis (USACE, 2012). All of these factors contribute to the existing and future condition of the EFH located within the project footprint.

B. Managed Species

The habitat that provides EFH for managed species associated with the proposed project includes the Savannah River and adjacent intertidal wetlands. A review of the NOAA Fisheries Essential Fish Habitat Mapper shows that EFH for federally managed species of the snapper and grouper complex and spiny lobster is located within the marshes of the Savannah River. No Habitat Areas of Particular Concern (HAPC), as indicated by the NOAA Fisheries Essential Fish Habitat Mapper are located within or adjacent to the project site. Additionally, the estuarine marsh serves as habitat for panaeid shrimp as well as oysters and other shellfish species.

i. Snapper and Grouper Complex

The snapper and grouper complex is managed by the SAFMC and includes 73 species found in 10 different family groups including black seabasses, snapper, wreckfish, porgies, grunts, tilefishes, triggerfishes, jacks, wrasses, and spadefishes. The fishes of the snapper and grouper complex use pelagic and benthic habitats throughout their life cycle. Throughout the life cycle of the species within the snapper and grouper complex, there is considerable variation between the life history and habitat use. EFH of the snapper and grouper complex includes areas inshore of the 100-foot contour such as attached macroalgae, submerged rooted vascular plants (seagrasses), estuarine emergent vegetated wetlands (saltmarshes and brackish marsh), tidal creeks, estuarine scrub/shrub (mangrove fringe), oyster reefs and shell banks, unconsolidated bottom (soft sediments), artificial reefs, coral reefs, and live/hard bottom.

ii. Spiny Lobster

EFH for spiny lobster includes nearshore shelf, oceanic waters, shallow subtidal bottom, seagrass habitat, unconsolidated bottom, coral and live/hard bottom habitat, sponges, algal communities, and mangrove prop roots. In addition, the Gulf Stream is an EFH because it provides a mechanism to disperse spiny lobster larvae. Specifically, EFH related to spiny lobster for the proposed project is unconsolidated bottom. Spiny lobsters begin their lives in the Florida Keys as larvae that arrive via oceanic currents. Adults move to offshore reefs to

spawn, and larvae are swept up the East Coast by the Florida Current.

iii. Penaid Shrimp

There are three species of penaeid shrimp that inhabit the coastal inshore and nearshore waters of Georgia. These three commercially important shrimp species include white shrimp (*Litopenaueus sectiferus*), brown shrimp (*Farfantepenaeus aztecus*), and pink shrimp (*Penaeus duorarum*). EFH associated with penaeid shrimp life cycles includes inshore estuarine nursery areas and offshore marine habitats that are used for spawning and growth. Adult shrimp spawn just offshore of Georgia and deposit the eggs into the ocean current. Within 24 hours of spawning, the eggs enter into the planktonic larval stage where they molt 10 different times before becoming post-larval shrimp which resemble the adult shrimp. Approximately three weeks after spawning, the post-larval shrimp move into inshore nursery habitats by currents generated by tides and the wind. The vegetative marshes and tidal creeks of Georgia serve as nursery habitat, protective cover, and feeding grounds for the juvenile shrimp. SAFMC estimated in 1998 that the major factor controlling the growth and production of penaeid shrimp is the availability of nursery habitat. Once the penaeid shrimp become adults, they favor more saline rich environments and migrate back to deeper offshore waters to spawn.

III. EFFECTS ANALYSIS

A. Potential Effects

Impacts to EFH from the proposed project are associated with dredging within the waterway. Six primary effects of dredging in the upper harbor (ATM, 2009) have been recognized as the most important. A discussion of each effect in regards to the proposed project is discussed below. Other potential EFH effects from shading and loss of habitat were also assessed for this project.

i. Release of Contaminants that were Bound to Bottom Sediments

A Sediment Sampling Analysis Plan has been submitted by Terracon Consultants, Inc. for approval prior to sediment testing. Once approved, Terracon will conduct borings within the proposed dredge area to determine the chemical composition of the sediments proposed for dredging. It is expected that the sampling analysis report will conclude that the proposed dredging and sediment disposal in the proposed upland disposal area will not release contaminants into the Savannah River that could negatively impact water quality. The report will be provided to the review agencies upon receipt.

ii. Suspension of Sediments in the Water Column which Abrades Gills and Affects Foraging

The Terracon report will also analyze the sediment settling rate and physical composition of the sediments. Based on previous data throughout much of the upper harbor, sediments in the water column settle relatively quickly. It is also expected that the upland disposal site, in conjunction with the proposed construction methodology, will allow the suspended solids to settle prior to the water being discharged through the engineer-designed weir and back into the estuary waters. Previous studies on particulate size in the Savannah River concluded that the organic material and fine grain size of the sediments proposed to be dredged could cause damage to fish gills (O'Connor et al.), but the small size of these particulates within this section of the Savannah River will be less damaging than if the sediments were comprised of more angular mineral particles. O'Connor et al. also states that most fish species are capable of avoiding or temporarily leaving a hostile environment (e.g. during construction). With respect to total suspended solids (TSS) and the effect on foraging by a temporary increase in TSS from the proposed dredging, TSS may reduce feeding ability on species that find prey species by sight (MGA, 2011). Many juvenile stages of fish species use the lower visibility in the Savannah River Estuary to help them avoid predation from larger piscivorous fish (MGA, 2011).

Tolerance to TSS and turbidity by each of the species is greater than the background conditions in the Savannah River Harbor, which are greater than the conditions created temporarily by maintenance dredging (ATM, 2009). Additionally, large hydraulic cutterhead dredging with upland disposal has no observable effect on dissolved oxygen or turbidity (MGA, 2011). While the proposed dredging and future maintenance dredging will increase TSS near the bottom of the water column for a short duration, it is expected that the sediments will settle to the bottom quickly. Based on available literature and previous studies, it is not expected that there would be an appreciable effect on fish species or EFH from the suspension of sediments in the waterway, but a copy of the Terracon report will be provided to the review agencies upon receipt.

iii. Relocation of Fine Sediments that Settle on Downstream Habitat

The Savannah River bottom is a soft sediment habitat and subject to continual disturbance from on-going maintenance dredging, vessel activity, and other natural forces including spring tidal exchange and up-stream storm events. Over six million cubic yards of sediment are removed from the harbor each year, and the on-going harbor expansion project will remove an additional 23.6 million cubic yards from the harbor. Large hydraulic cutterhead dredging with upland disposal has no observable effect on DO or turbidity (MGA, 2011), and the upland disposal area for this project can be managed to minimize any impacts associated with TSS through the outfall. Due to the on-going disturbance of the habitat within the Savannah River, the benthic community productivity is low (MGA, 2011). Based on these known facts, the proposed dredging operation to support the new wharf will have minimal impacts to the downstream EFH when considered in context of the constant maintenance dredging in the harbor and the future SHEP dredging requirements.

iv. Removal of Existing Benthic Soft Bottom Communities

Estuarine subtidal unconsolidated substrate ranges in grain size from sand to fine mud/clay (MGA, 2011). Upstream of the harbor and in areas that have not been dredged recently, unconsolidated substrates may support benthic fauna. Entrainment of organisms and burial of such foraging habitat is a potential impact from dredging. Based on previous findings, the benthic community is likely to remain an early successional stage because of the natural and anthropogenic sediment disturbance within the harbor and proposed berth (MGA, 2011). Within these areas, the benthic productivity is low, and pioneer species will re-colonize quickly within a few weeks to six months after dredging (Van Dolah et al. 1984). While there is the chance of entrainment from the initial dredging operations, the impact should be temporary and minimal, and pioneer species are expected to colonize the area within a short time (Van Dolah et al. 1984). No significant permanent adverse effects to the benthic community are expected.

v. Entrainment of Fish from the Water Column

Fish entrainment during dredging is a concern, but generally, fish are mobile and can leave an area during construction. Of all dredging methods, hydraulic cutterhead dredging and clamshell dredging are considered the least impactful. Other dredging operations (i.e. hopper dredging) are known to entrain more fish. The applicant proposes to use hydraulic and/or clamshell dredging for the proposed project. While there is potential to entrain fish, it is likely that fish will leave the area during operations. The applicant also understands they must monitor for potential fish kills downstream of the project site, and the applicant will cease all work on the project in the unlikely event a sturgeon (*Acipenser spp.*) fish kill or injury is found during construction.

vi. Generation of Loud Noises

With respect to noise, driving pilings with an impact hammer can have a negative effect on fish

when noise levels from the pile driving exceed 150 decibels (Illinworth and Rodkin, 2007). The effects of noise in the Savannah River are primarily focused on sturgeon and striped bass (*Marone saxatillis*). The project design places all pile driving in the existing upland area prior to it being opened to the waterway. There will therefore be no impact noise propagation into the waterway. The dredge could be expected to produce noise in the waterway, but this noise is constant and low in frequency, and when considered with the other ambient noise levels and sources in the river, will not affect EFH.

vii. Shading

The proposed wharf will be constructed out of upland. A sheetpile wall will be driven in the upland and will essentially serve as the channelward face of the dock. Additional small sections of dock will extend past the bulkhead to support the fendering system, but all of these structures will be constructed within the existing upland area. No shading of existing EFH will occur as part of this project, so the project will have no effect to EFH from shading.

viii. Loss of Habitat

Adverse impacts to EFH from the introduction of fill material include (1) loss of habitat function and (2) changes in hydrologic patterns (NMFS, 2009). The discharge of dredged or fill material can modify current patterns and water circulation by obstructing flow, changing the direction or velocity of water flow and circulation, or otherwise changing the dimensions of a water body (NMFS, 2009). As a result, adverse changes can occur in the location, structure, and dynamics of aquatic communities, shoreline and substrate erosion and deposition rates, the deposition of suspended particulates, the rate and extent of mixing of dissolved and suspended components of the water body, and water stratification (NMFS, 2009). The proposed project would alter the existing configuration of the shoreline by excavating into the upland and creating a new shipping berth but no fill of aquatic area will occur. While some minor changes in flow pattern in the immediate vicinity of the berth could be expected, these effects will be localized and minor. No alteration to the flow of the Savannah Harbor would occur. The majority of dredging activities will occur in deep open water, but the dredging will convert shallow intertidal habitat (6.6 acres including 1.24 acres of marsh) to deep open water. The loss of intertidal habitat from dredging would be offset by the creation of much more open water habitat out of existing upland (19.63 acres). Though the values and benefits of open water are not the same as intertidal habitat or saltmarsh, a creation to impact ratio of nearly 3:1 is proposed. No fill or permanent loss of aquatic area is required by this project.

B. Measures to Avoid Adverse Effects

The applicant understands the importance of EFH and has taken multiple measures to avoid and minimize impacts to the greatest extent practicable. The following avoidance and minimization measures will ensure there will be no significant adverse effect to EFH.

- The applicant chose an alternative to construct the wharf outside of existing EFH so no shading will occur.
- The applicant chose an alternative to avoid pile driving in the waterway so no impacts will occur from loud noises. The dredge will produce a constant, low frequency noise that will not impact EFH.
- The applicant will utilize a hydraulic or clamshell dredge and will avoid use of a hopper dredge.
- No filling of aquatic habitat will occur. Impacts will convert shallow intertidal habitat to open water.
- Best Management Practices (BMP's) will be employed during construction to ensure

no downstream siltation or on-site erosion occurs which could cause water quality and/or EFH impacts.

IV. MITIGATION

The potential effects to EFH as a result of the project will be minimal given the existing condition of the EFH and the adjacent land uses. The avoidance and minimization measures to be utilized during construction will prevent any long term or significant adverse effects to EFH. As mitigation for the conversion of shallow intertidal habitat and saltmarsh to open water, the applicant will create nearly 3x the acreage of deep open water habitat out of upland. The applicant will also avoid any construction activities in the waterway during the spring striped bass spawning season. It is not anticipated that any further mitigation measures above and beyond the described measures would be warranted for the project.

V. CONCLUSION

Based on the scientific literature and detailed studies previously completed within the Savannah Harbor, the applicant has taken all available steps to minimize and avoid impacts to EFH and has demonstrated that the proposed project will have only a minimal effect to EFH. Based on much research conducted within the harbor over the past 10 years, the ongoing harbor maintenance dredging, ship traffic, extreme tides, and storm events all contribute to the background water quality baseline. The proposed project, when considered in conjunction with the heavy commercial use of the waterway and adjacent industrial and commercial land uses, would not significantly contribute to EFH degradation. Although the project would result in a minor loss of intertidal habitat, this loss is unavoidable and is the most practicable and least environmentally damaging alternative. The loss will only occur directly adjacent to the existing site. No shading of vegetated marsh or shallow water is required. The applicant has utilized all the scientific data with respect to the presence of protected fish species utilizing the river and designed a specific construction schedule and methodology to avoid impacts to protected fish species and to mitigate the unavoidable effects to EFH. This report provides the necessary documentation to address all of the concerns with respect to EFH and provides site specific information to demonstrate that the proposed project is not likely to adversely affect EFH within this portion of the Savannah River.

VI. LITERATURE REVIEW

SECI utilized the following references and reports to compile and present this report with respect to the proposed project. SECI was able to find all reports/abstracts cited below, although some of the reports were only in readable format and not reproducible, or only abstracts/executive summaries were available for review. Much of the information utilized was compiled in the two MG Associates reports which are listed below. All specific references utilized in this report are cited below.

1. ATM, 2009. Georgia Ports Authority Deepening Project Essential Fish Habitat Assessment. Report to US Army Corps of Engineers, Savannah District.

2. Illinworth and Rodkin, 2007. Compendium of Pile Driving Sound Data. Report Prepared for the California Department of Transportation. September 27, 2007.

3. MG Associates, December 22, 2011. Essential Fish Habitat Assessment, Maintenance Dredging in the Upper Savannah River Estuary, Georgia, Prepared for Georgia Ports Authority.

4. MG Associates, October 12, 2012. Biological Assessment for Shortnose and Atlantic Sturgeons, Maintenance Dredging in the Upper Savannah Estuary, Georgia. Prepared for Georgia Ports Authority.

5. O'Connor, J.M., and Neumann, D.A., and J.A. Sherk, Jr. December, 1976. Lethal Effects of Suspended Sediments on Estuarine Fish. Technical Paper No. 76-20. U.S. Army Corps of Engineers Coastal Engineering Research Center, Fort Belvoir, Va. 38 pp.

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9. CZR Incorporated, November 2009. Mid-Currituck Bridge Study Essential Fish Habitat Technical Report. Report prepared for the North Carolina Turnpike Authority.

10. Alexander, C., and M. Robinson. 2006. Quantifying the Ecological Significance of Marsh Shading: Impact of Private Recreational Docks in Coastal Georgia. Coastal Resources Division, Georgia Department of Natural Resources, Brunswick, Georgia.

11. Able, K. W., J. P. Manderson, and A. Studholme. 1999. Habitat Quality for Shallow Water Fishes in an Urban Estuary: The Effects of Man- Made Structures on Growth. Marine Ecology Progress Series, 187: 227-235.

12. Nightingale, B., and C. Simenstad. 2001. Overwater Structures: Marine Issues. Submitted to Washington Department of Fish and Wildlife, Washington Department of Ecology, and Washington Department of Transportation.

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14. National Marin Fisheries Service, April 2005. Appendix G Non Fishing Impacts to Essential Fish Habitat and Recommended Conservation Measures. Appendix to the Alaska Essential Fish Habitat Environmental Impact Statement.

15. National Marine Fisheries Service, May 6, 2010. Final Comment Letter - Indian Street Bridge. Palm City, Florida. Letter sent via electronic mail to Florida Department of Transportation

16. Clark, Douglas, and Tina Miller-Way. July 1992. An Environmental Assessment of the Effects of Open Water Disposal of Maintenance Dredged Material on Benthic Resources in Mobile Bay, Alabama. Department of the Army, Waterways Experiment Station, Corps of Engineers, Vicksburg Mississippi. 173 pp.

17. Van Dolah, R.F., Calder, D.R., Knott, D.M. 1984. Effects on Dredging and Open Water Disposal on Benthic Macroinvertebrates in a South Carolina Estuary. Estuaries 7:28-37.