ONE COMPANY | *Many Solutions*

December 6, 2010

Naomi Handell
U.S. Army Corps of Engineers, New York District
Jacob K. Javits Federal Building
26 Federal Plaza, Regulatory Br., Rm 1937
New York, NY 10278-0091

Subject: Section 404 / Section 10 Permit Application for the Champlain Hudson Power Express Project

Dear Ms. Handell:

As you know, Champlain Hudson Power Express Inc. and CHPE Properties Inc (collectively the "Applicants") have proposed to develop the Champlain Hudson Power Express Project (Project) to bring renewable sources of power generation in Canada to the New York City region via underwater and underground high-voltage direct current (HVDC) transmission cables. On behalf of the Applicants, please find enclosed an application to obtain construction permits pursuant to Section 404 of the Clean Water Act (Section 404) and Section 10 of the Rivers and Harbors Act of 1899 (Section 10) .

The Applicants have utilized the Joint Application Form developed by the U.S. Army Corps of Engineers (USACE) in cooperation with the New York State Department of Environmental Conservation (DEC), New York State Office of General Services (OGS), and New York State Department of State (DOS). The state level environmental review of the project will be conducted under Article VII of New York State Public Service Law. Considering that the aforementioned state agencies have received copies of the Applicants' application for a Certificate of Environmental Compatibility and Public Need, the Applicants will submit this application to the New York agencies on a CD disc while providing each with the option to receive hard copies.

The proposed Project is located within the New York State's coastal area requiring a coastal consistency evaluation pursuant to the Federal Coastal Zone Management Act and the New York State Waterfront Revitalization of Coastal Areas and Inland Waterways Act. A copy of the required coastal zone consistency assessment and accompanying forms is included with this application package. These will be provided to the New York State Department of State under separate cover.

In addition, pursuant to the Federal Water Pollution Control Act, Section 401 (33 U.S.C. §1341), an applicant filing for a Federal permit or license must obtain a 401 Water Quality Certification from the state of New York. On March 30, 2010 the Applicants applied under the New York State Article VII process for a water quality certificate. A copy of this request is

HDR | DTA
HDR Engineering, Inc

970 Baxter Boulevard
Suite 301
Portland, ME 04103-5346

Phone: (207) 775-4495
Fax: (207) 775-1031
www.hdrinc.com

provided as Appendix C of this document. Also included in Appendix C is a copy of the Notice of Public Statement Hearings for the Project stating that the Applicants has requested that the New York State Public Service Commission issue a 401 Water Quality Certificate.

We look forward to speaking with you in the near future about this application. Please feel free to contact me at any time if you have any questions about the materials presented.

Regards,

Sean Murphy
Project Manager

Enclosure

HDR | DTA
HDR Engineering, Inc

NEW YORK STATE / U.S. ARMY CORPS OF ENGINEERS
JOINT APPLICATION FORM
FOR THE
CHAMPLAIN HUDSON POWER EXPRESS PROJECT
SECTION 404 / 10 PERMIT

Submitted by:
CHAMPLAIN HUDSON POWER EXPRESS INC.
AND
CHPE PROPERTIES INC.
Pieter Schuyler Building
600 Broadway
Albany NY 12207

DECEMBER 6, 2010

Champlain Hudson Power Express Project
U.S. Army Corps of Engineers
Application for a Section 10/404 Permit

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JOINT APPLICATION FORM

New York State

For Permits/Determinations to undertake activities affecting streams, waterways waterbodies, wetlands, coastal areas and sources of water supply.

Separate Permits/Determinations must be obtained from each involved agency prior to proceeding with work. Please read all instructions.

US Army Corps of Engineers (USACE)

1. **Check All That Apply:**

NYS Department of Environmental Conservation /DPS

- [x] Stream Disturbance
- [x] Excavation and Fill in Navigable Waters
- [ ] Docks, Moorings or Platforms
- [ ] Dams and Impoundment Structures
- [x] 401 Water Quality Certification
- [x] Freshwater Wetlands
- [x] Tidal Wetlands
- [x] Coastal Erosion Management
- [ ] Wild, Scenic and Recreational Rivers
- [ ] Water Supply
- [ ] Long Island Well
- [ ] Aquatic Vegetation Control
- [ ] Aquatic Insect Control
- [ ] Fish Control

US Army Corps of Engineers

- [x] Section 404 Clean Water Act
- [x] Section 10 Rivers and Harbors Act
- [ ] Nationwide Permit(s) - Identify Number(s): ______

Preconstruction Notification - [ ] Y / [ ] N

NYS Office of General Services
(State Owned Lands Under Water)

- [x] Utility Easement (pipelines, conduits, cables, etc.)
- [ ] Docks, Moorings or Platforms

NYS Department of State

- [x] Coastal Consistency Concurrence

2. **Name of Applicant** (use full name)
Champlain Hudson Power Express Inc. & CHPE Properties

Applicant must be (check all that apply): [x] Owner [ ] Operator [ ] Lessee

Street Address
Pieter Schuyler Building, 600 Broadway

Taxpayer ID (If applicant is NOT an individual):

Post Office City	State	Zip Code	Telephone (daytime)	Email
Albany	NY	12207-2283	(518) 465-0710	Bill.helmer@transmissiondevelopers.com

3. **Name of Facility or Property Owner**, if different than Applicant
(same)

Street Address

Post Office City	State	Zip Code	Telephone (daytime)	Email

4. **Contact/Agent Name**
Sean Murphy – HDR|DTA

Company Name
HDR|DTA

Street Address
970 Baxter Blvd., Suite 301

Post Office City	State	Zip Code	Telephone (daytime)	Email
Portland	ME	04103	(207) 239-3877	Sean.f.murphy@hdrinc.com

5. **Project / Facility Name**
Champlain Hudson Power Express Project

Property Tax Map Section / Block / Lot Number
Not Applicable

Project Location - Provide directions and distances to roads, bridges and bodies of waters:
See Attachments

Street Address, if applicable
Not Applicable

Post Office City	State	Zip Code	Telephone, if applicable	Email
	NY			

Town / Village / City
See Attachments

County
See Attachments

Name of USGS Quadrangle Map
See Attachments

Stream/Water Body Name
See Attachments

Location Coordinates: Enter NYTMs in kilometers, **OR** Latitude/Longitude in degrees, minutes, seconds

NYTM-E	NYTM- N	Latitude	Longitude

6. If applicant is not the owner, both must sign the application. I hereby affirm that information provided on this form and all attachments submitted herewith is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law. Further, the applicant accepts full responsibility for all damage, direct or indirect, of whatever nature, and by whomever suffered, arising out of the project described herein and agrees to indemnify and save harmless the State from suits, actions, damages and costs of every name and description resulting from said project. In addition, Federal Law, 18 U.S.C., Section 1001 provides for a fine of not more than $10,000 or imprisonment for not more than 5 years, or both where an applicant knowingly and willingly falsifies, conceals, or covers up a material fact; or knowingly makes or uses a false, fictitious or fraudulent statement.

	Printed Name	Title	Date
Signature of Applicant [signature]	Donald Jessome	President/CEO	Dec. 6, 2010
Signature of Owner			
Signature of Agent			

For Agency Use Only DEC Application Number: USACE Number:

Reset

Submit this completed page as part of your Application.

7. **Project Description and Purpose:** Provide a complete narrative description of the proposed work and its purpose. Attach additional page(s) if necessary. Include: description of current site conditions and how the site will be modified by the proposed project; structures and fill materials to be installed; type and quantity of materials to be used (i.e., cubic yds or square ft of fill material below ordinary high water, or of structures below mean high water); area of excavation or dredging, volumes of material to be removed and location of dredged material disposal or use; work methods and type of equipment to be used; pollution control methods and mitigation activities proposed to compensate for resource impacts; and where applicable, the phasing of activities.

See Attachments

Proposed Use: ☐ Private ☐ Public ☑ Commercial

Will Project Occupy Federal, State or Municipal Land? ☒ Yes ☐ No
If yes, please specify. See Attachments

Has Work Begun on Project? ☐ Yes ☒ No If Yes, explain.

Proposed Start Date: September 29, 2011

Estimated Completion Date: 2014

8. List Previous Permit / Application Numbers (if any) and Dates:
Not Applicable

9. Will this project require additional Federal, State, or Local Permits including zoning changes? ☒ Yes ☐ No If Yes, please list:
See Attachments

10. Based on the permits and determinations requested and project location, check all the boxes corresponding to each of the Agencies and Offices to which you are filing an application. For Agency addresses and areas covered, refer to the Agency Contact Information on the Application Instructions - Page 2.

☑ **NYS Department of Environmental Conservation**

☐ REGION 1 Stony Brook
☐ REGION 2 Long Island City
☐ REGION 3 New Paltz
☐ REGION 4 Schenectady
☐ REGION 4 Stamford Sub-Office
☐ REGION 5 Ray Brook
☐ REGION 5 Warrensburg Sub-Office
☐ REGION 6 Watertown
☐ REGION 6 Utica Sub-Office
☐ REGION 7 Syracuse
☐ REGION 7 Cortland Sub-Office
☐ REGION 8 Avon
☐ REGION 9 Buffalo
☐ REGION 9 Allegany Sub-Office

☑ **US Army Corps of Engineers**
☑ NY District, NYC ☐ NY District, Watervliet ☐ Buffalo District

☑ **NYS Department of State**

☑ **NYS Office of General Services**

For Agency Use Only

DETERMINATION OF NO PERMIT REQUIRED

Agency Project Number ____________

____________ (Agency Name) has determined that No Permit is required from this Agency for the project described in this application.

Agency Representative: Name (printed) ____________ Title ____________

Signature ____________ Date ____________

Champlain Hudson Power Express Project

SUPPLEMENT

Section 404 / 10 Permit
Joint Application for
New York State and US Army Corps of Engineers

QUESTION 5:

Property Tax Map Section / Block / Lot Number
Not Applicable due to the project nature and size.

Project Location
Two HVDC cables extend from the U.S./Canada Border through Lake Champlain, exit the water in Whitehall, NY and follow along 89.7 miles of railroad rights-of-way around Albany to Coeymans where they enter the Hudson River. Upon entering the Hudson River, the route extends through the Hudson River to a converter station in Yonkers, NY. After converting the HVDC technology to HVAC technology, HVAC cables reenter the Hudson River and continue south into the Harlem River and East River before making landfall to connect to a substation in Astoria, Queens, NY.

Town/Village/City
The submarine portion of the Project is in waters of the state of New York, which are managed by the New York State Office of General Services. The municipalities for the upland portion of the Project are as follows: Whitehall, Comstock, Fort Ann, Kingsbury, Fort Edwards, Moreau, Northumberland, Wilton, Greenfield, Saratoga Springs, Milton, Ballston, Clifton Park, Glenville, Schenectady, Rotterdam, Guilderland, New Scotland, Voorheesville, Bethlehem, Yonkers and Queens.

County
The Project is located in the following counties of New York: Clinton, Essex, Washington, Saratoga, Schenectady, Albany, Rensselaer, Greene, Columbia, Ulster, Duchess, Orange, Putnam, Rockland, Westchester, Bronx, New York, and Queens.

USGS Quadrangle Maps
See Attachment A.

Stream/Water Body Name
The Project's transmission cable route is sited within Lake Champlain, the Hudson River, the Harlem River, and the East River. Additionally, between Whitehall and Coeymans, NY the transmission cable route is sited within railroad rights-of-way and crosses the following waterbodies: 17 unnamed tributaries to the Champlain Canal, Halfway Creek, Bond Creek, Hudson River, 6 unnamed tributaries to the Hudson River, North Branch Snook Kill, 1 unnamed tributary to North Branch Snook Kill, Snook Kill, 1 unnamed tributary to Snook Kill, 2 unnamed tributaries to Rice Brook, Delegan Brook, 4 unnamed tributary to Loughberry Lake/Spring Run,

Geyser Brook, 2 unnamed tributaries to Geyser Brook, Kayaderosseras Creek, 3 unnamed tributaries to Kayaderosseras Creek, Mourning Kill, 5 unnamed tributaries to Mourning Kill, 3 unnamed tributaries to Ballston Creek, 13 unnamed tributaries to Ballston Lake, Alplaus Kill, 11 unnamed tributaries to Alplaus Kill, Mohawk River, 3 unnamed tributaries to the Mohawk River, Poentic Kill, Normans Kill, 7 unnamed tributaries to Normans Kill, 4 unnamed tributaries to Watervliet Reservoir, 2 unnamed tributaries to Black Creek, Vly Creek, 2 unnamed tributaries to Vly Creek, Vloman Kill, 9 unnamed tributaries to Vloman Kill, 2 unnamed tributaries to Coeymans Creek, and 9 unnamed tributaries.

Location Coordinates
The proposed Project is a more than 300 mile linear project; therefore, this does not apply.

QUESTION 7:

Will project occupy Federal, state, municipal land?
Yes, State

The majority of the project will be located within state-owned lands. The Applicants are currently negotiating a utility easement with the New York State Office of General Services.

Project Description and Purpose
See Supplemental Document.

QUESTION 9:

Other permits?
Yes

Federal Permits

The Applicants have submitted an application for a Presidential Permit to the US Department of Energy (PP-362).

The Applicants also will be submitting a Coastal Zone Consistency Assessment pursuant to the Federal Coastal Zone Management Act and the New York State Waterfront Revitalization of Coastal Areas and Inland Waterways Act.

New York State

The Applicants have submitted an application for a Certificate of Environmental Compatibility and Public Need (CECPN) under Article VII of the Public Service Law (Case 10-T-0139).

In accordance with New York Public Service Law, Article 7 §130, the Applicants expect that all state permits will be issued by the New York Public Service Commission in conjunction with the approval/issue of the CECPN, with the exception of the Stormwater Management Permit (which will be issued by the New York State Department of

Environmental Conservation) and Use and Occupation of Lands Underwater Easement (which will be issued by the New York State Office of General Services).

Local Permits

The Applicant expects to apply to the local governments for a building permit and certificate of occupancy for the converter station.

CHAMPLAIN HUDSON POWER EXPRESS PROJECT

PROJECT DESCRIPTION AND PURPOSE

CHAMPLAIN HUDSON POWER EXPRESS PROJECT
PROJECT DESCRIPTION AND PURPOSE

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CHAMPLAIN HUDSON POWER EXPRESS PROJECT
PROJECT DESCRIPTION AND PURPOSE

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QUESTION 7:

Project Description and Purpose

1.0 PROJECT PURPOSE

The Project consists of a 1,000 megawatt (MW) underwater/underground HVDC electric transmission system extending from the International border between Canada and the United States to Queens, New York. CHPEI proposes to develop the CHPE Project to deliver clean and renewable sources of power to New York City.

The stated purposes of the Project include the following:

- Provide 1,000 MW of primarily carbon-neutral source electricity to New York City without contributing to additional congestion on the electric grid entering the city;
- Provide significant new transmission infrastructure into New York City without the aesthetic impacts associated with traditional overhead transmission projects;
- Place downward pressure on the price of electricity in the Location Marginal Price (LMP) spot markets operated by New York ISO in the New York City area;
- Reduce air pollution and greenhouse gas (GHG) emissions within the New York City;
- Improve stability of the electric grid serving the New York City area due to the highly reliable and controllable nature of HVDC technology; and
- Reduce the dependency of the New York City region on fossil fuels, such as imported oil.

2.0 PROJECT DESCRIPTION

The transmission system is comprised of two solid state (no fluids) HVDC electric cables, each approximately 6 inches in diameter, extending from the International border to a converter station in Yonkers, New York. From the Yonkers, NY converter station, two HVAC transmission cable bundles (two bundles of three cables) will continue to a Con Edison substation (currently under construction) located in Queens, NY. The transmission cables will be buried underwater or underground along the entire Project route. The route is depicted on a series of aerial imagery maps included as Attachment B. Additionally, the submarine and upland portions of the Project route are shown on a series of maps included as Attachment C and D, respectively.

The Project originates at the International border between the United States and Canada and continues south into Lake Champlain to the east of the Town of Champlain, NY. Two cables would extend south through Lake Champlain for approximately 111 miles entirely within the jurisdictional waters of New York State. At the southern end of Lake Champlain, the cables would exit the water just north of Lock C12 of the Champlain Canal in the Town of Whitehall, NY.

The New York State Canal Corporation (NYSCC) staff raised concerns over its ability to establish a long-term agreement providing the Applicants with the authority to locate its cables in the Champlain Canal (particularly from Lock C12 to the Federal Dam at Troy). Additionally, the Upper Hudson River portion of the Hudson River polychlorinated biphenyl (PCB) site

(USEPA Identification Number NYD980763841) stretches from Hudson Falls, New York, to the Federal Dam at Troy, New York.

To avoid installing and burying HVDC cables within the Champlain Canal and the Upper Hudson River PCB site, the cables would be buried along 65.7 miles of an existing railroad right-of-way owned by Canadian Pacific Railway (CP) from Whitehall to Rotterdam. In the Town of Rotterdam, NY, the buried route would transfer to the CSX Railroad (CSX) right-of-way and proceed south for approximately 23.7 miles before entering the Hudson River at the Town of Coeymans, NY.

Upon entering the Hudson River, the two cables would be buried for 118 miles until they reach the City of Yonkers, NY, where they would terminate at the proposed converter station located on Wells Avenue in Yonkers for a total length of approximately 319 miles from the U.S. border with Canada to Yonkers, NY. From the Yonkers HVDC converter station, two 345-kV HVAC circuits will enter the Hudson River and travel south through the Harlem River into the East River. These circuits will interconnect with Consolidated Edison's substation currently under development by the New York Power Authority near the former site of the Charles Poletti Power Project in Queens, NY (approximately 16.2 miles from the Yonkers converter station).

The Project includes an HVDC converter station in order to convert the direct current power to alternating current power to connect to the NYISO electricity grid. The Yonkers, NY HVDC converter station will be installed on properties located in an industrial zone on Wells Avenue. The HVDC converter station will be a "compact type" with a total footprint (i.e., building and associated equipment) of approximately 5 acres.

3.0 CURRENT SITE CONDITIONS

3.1 Transmission Cable Route - Aquatic Portions

The submarine portions of the Project route are located within Lake Champlain, the Hudson River (from Coeymans to the Harlem River), the Harlem River, and the East River.

The Applicants have conducted extensive research of existing data to evaluate site conditions along the entire Project route. This information has been submitted to the New York State Department of State in an application for a Certificate of Compatibility and Public Need pursuant to Article VII of the New York Public Service Law (Case No. 10-T-0139).

Additionally, current conditions along the aquatic portions of the Project's transmission cable route were further evaluated by performing a marine route survey during the spring of 2010. The marine route survey included geophysical, sediment and benthic surveys. The information collected during the spring 2010 marine route survey has been summarized in a Marine Route Survey Report, which is included as Attachment E.

3.2 Transmission Cable Route - Terrestrial Portions

To determine the potential for wetland impacts from construction of the Project, the terrestrial portions of the Project area were surveyed in the field for the presence of federal and state jurisdictional wetlands. Wetland scientists conducted wetland delineations from October to December 2009 and April to June 2010. The delineations were performed in accordance with the United States Army Corps of Engineers (USACE) wetland delineation criteria and methodology, and the *New York State Freshwater Wetlands Delineation Manual* (Browne et. al., 1995).

The Yonkers, NY converter station site was surveyed on September 2, 2009; no wetlands were observed at the site. A field survey was not conducted for the upland cable route extending from the East River to a substation under construction by the New York Power Authority (NYPA) on land owned by Con Edison in Queens, NY. Preliminary analysis of aerial photography and natural resource mapping suggests that no wetlands or watercourses are present along this short upland route section or at the substation connection site. Landfall of the cables adjacent to the East River in Queens, NY will be constructed via HDD methods, which will avoid any surface impacts at the shoreline along the East River estuary. Additionally, the upland connection route to the substation in Queens, NY is located in an urbanized environment; therefore, construction within this area is not likely to affect any wetlands or nearby tidal/estuarine waters.

Wetland delineations were conducted along the majority of the underground route on the existing CP railroad right of way from October to December 2009. The area surveyed included approximately 9.5 miles from Whitehall to Fort Ann in Washington County, and approximately 46.2 miles from Fort Edward in Washington County to Rotterdam in Schenectady County. The survey area includes the municipalities of Whitehall, Fort Ann, Kingsbury, and Fort Edward in Washington County; Moreau, Northumberland, Wilton, Saratoga Springs, Milton, and Ballston in Saratoga County; and Glenville, Schenectady, and Rotterdam in Schenectady County. The remaining sections of the underground transmission cable route, which include an additional 10.5 miles along the CP railroad in Washington County and approximately 23.7 miles along the CSX railroad right-of-way from the Town of Rotterdam in Schenectady County to the Hudson River, were surveyed from April to June 2010. The Wetlands Delineation Report is included as Attachment F and is briefly summarized below.

Wetlands identified along the terrestrial portions of the Project route include shallow emergent marshes, deep emergent marshes, reedgrass/purple loosestrife marshes, scrub-shrub wetlands, and forested wetlands such as red maple-hardwood swamps, floodplain forests and silver maple-ash swamps. These wetlands can provide one or more functions, including wildlife habitat, groundwater recharge and/or discharge, sediment and shoreline stabilization, flood storage, nutrient removal, sediment and toxicant retention and production export, and in some cases, aesthetic and recreational value. Small ponds, artificial ditches, and watercourses, including small intermittent streams to large rivers such as the Hudson River, Mohawk River, and Snook Kill, occur within the study area of the Project.

Land use in the study area is diverse, ranging from rural, agricultural, and forested areas to highly urbanized environments in and around the City of Schenectady. In general, because the Project is routed along existing railroad corridors, many wetlands within the study area are characterized by previous anthropogenic disturbance and/or the presence of invasive plant species. The Project corridor frequently is located along the edge between the disturbed railroad corridor and more natural vegetated wetland communities that are present adjacent to the railroad rights-of-way. The wetland boundaries in the study area are most often defined by the edge of the soil fill for the railroad embankment.

Subsequent to the wetland delineation surveys, a Wetlands Functions and Values Assessment was performed of the freshwater wetland resources that may be impacted by construction and/or operation of the proposed Champlain Hudson Power Express Project (Project) in Washington, Saratoga, Schenectady and Albany Counties, New York (included as Attachment G). This functional assessment was conducted in accordance with the *Wetlands Functions and Values: Descriptive Approach* described in the September 1999 (NAEEP-360-1-30a) supplement to *The Highway Methodology Workbook* (Supplement) by the New England Division of the USACE. The assessment was designed to address impacts to on-site wetlands not only in terms of disturbance area, but also by evaluating the potential for the alteration of the functions and values of the those wetlands that currently provide a public benefit. The Wetlands Functions and Values Assessment includes all the impacted wetlands that are potentially under federal and/or state jurisdiction.

Impacts to wetlands and watercourses along the underground transmission cable corridor will primarily be temporary, since the cable will be installed below ground. At this time, permanent fill or loss of vegetated wetlands is not anticipated. Since wetland impacts will be temporary, and located along the edge of an existing, disturbed railroad corridor, it is expected that the Project will not result in any significant adverse impacts to the functions and values of the wetlands identified during the surveys. Additional information regarding construction techniques is included below.

4.0 CONSTRUCTION METHODS

Given the length of the proposed Project (approximately 335 miles) and the diversity of landforms and water areas that are crossed by the proposed Project route, a variety of construction methods and equipment will be employed. Avoidance of cable damage from external causes will be accomplished primarily by burying the cable to suitable depths. Besides burial to an appropriate depth, other means of protection that are likely to be employed along the cable route are rip-rap, articulated concrete mats, or armored conduit sections. Cable protection measures will vary along the cable route and will be designed on a site specific basis by the EPC contractor during the engineering design phase of the Project. Cross-section diagrams of construction methods are included as Attachment H.

4.1 Underground Installation Methods (Terrestrial Portions)

The underground portion of the Project route is located within or immediately adjacent to the existing Canadian Pacific Railroad (CP) and the CSX Railroad (CSX) rights-of-way. The objective of the underground trenching operations for the Project is to safely and efficiently install the HVDC cable within the overland portions of the route (i.e., railroad right-of-way), minimize the use of land outside of the railroad right-of-way and minimize environmental impacts. Over the length of the underground portion of the Project the railroad right-of-way varies in width, grade, and number of rails which will require a variation of the installation methods. The three primary installation methods will be traditional trench and spoil method, series trenching method and trenchless installation method (i.e., HDD). The traditional trench and spoil method as well as the series trenching method are further described in this section. The HDD installation method is further described in a subsequent section.

A minimum separation distance is required from the centerline of the outermost track to the cables by each railroad: CP requires a minimum separation of 10 feet and CSX requires a minimum separation of 25 feet. A work corridor ranging from twenty (20) feet to more than fifty (50) feet, where right-of-way widths allow, would first be cleared, grubbed and graded to establish an access path for subsequent steps. The width of the work corridor prepared will vary based on the selected installation method for a given section of the underground cable route. Multiple installation methods and variations of each method will be developed to facilitate installation of the Project in areas with limiting right-of-way widths. This area will include the area needed for excavation of the trench, installation of erosion and sediment control measures, installation of the two cables and stockpiling of excavated material.

Each of the two underground cables will require a number of slices/joints. The number of joints will be kept to a minimum and will be determined either by the maximum length of cable that can be transported in a single piece or by the maximum length of cable that can be pulled, whichever is the least. For land installation, typical segment lengths range from 0.3 to 0.6 miles. Joints may also be required where trenching methods change and where there are transitions from underwater to underground cable. Jointing and termination will be performed by skilled jointers in a temporary jointing enclosure supported on a stable work base of crushed stone, concrete or suitable native soil. The bedding, backfill, and protection of the splice joints will be the same as for the other portions of the cable.

The general construction sequence for routine cable installation along the underground portion of the Project includes the following and is briefly discussed below:

- Initial clearing operations and storm water and erosion control installation;
- Trench excavation;
- Cable installation;
- Backfilling; and
- Restoration and revegetation.

4.1.1 Initial Clearing Operations & Stormwater and Erosion Controls

Initial clearing operations will include the removal of vegetation within the cable trench area and within any temporary additional construction workspace (e.g., HDD workspace) either by mechanical or hand cutting. Vegetation will be cut at ground level, leaving existing root systems intact except for the immediate ditch area, and the aboveground vegetation will be removed for chipping or disposal. Tree stumps and rootstock will be left in the temporary workspace wherever possible to encourage natural re-vegetation. Brush and tree limbs will be chipped and spread in approved locations or hauled off-site for disposal. Timber will be removed from the right-of-way to approved locations.

The cleared width within the right-of-way and temporary construction workspace will be kept to the minimum that will allow for spoil storage, staging, assembly of materials, and all other activities required to safely install the cable.

Closely following initial disturbance of the soil, erosion controls will be properly installed as required. Stormwater and erosion controls may include measures such as silt fences, haybales, temporary mulching, etc.

4.1.2 Trench Excavation

Traditional trench and spoil procedures are typically the most efficient for underground cable installation. The trench and spoil method involves excavation of the trench by traditional back hoe or bulldozer from an access road established adjacent to the trench area, segregating and stockpiling the excavated trench material next to the trench. Although typically the most efficient, this method requires the widest construction corridor.

The excavated trench will be four (4) feet wide and four (4) or five (5) feet deep (depending upon individual railroad requirements). Material removed from the trench will be stockpiled next to the trench and segregated as ballast, cinders, topsoil, and subsoil, as appropriate. Geotextile fabric or similar material may be used where space constraints require layering of various materials. In locations where the right-of-way limits stockpiling next to the trench, trench material may be removed from the immediate construction area and stockpiled in an approved location until backfilling and restoration. Excavated materials stockpiled away from the immediate excavation will be set back at least one hundred (100) feet from streambanks and wetlands and will be protected with appropriate erosion and sedimentation controls.

Subsequent to trench excavation, the cable spools will be delivered to the immediate trench vicinity and the cables will be pulled from the spools into the trenches. Subsequent to cable laying, the trenches will be backfilled (see below for further description).

Series installation involves specialized equipment that excavates and lays the cable in one step. Depending on the results of preconstruction studies, backfilling may be accomplished in the same step if native material is suitable for low thermal resistive fill. The series installation method utilizes the trench area as the access for installation equipment, minimizing the construction work space needed. Following preparation of the work corridor, the cable would be unreeled and laid along the surface of the corridor by equipment moving along the corridor, or pulled over blocks along the ground surface. A specialized excavator straddles the cable and lifts and passes it overhead while excavating the trench; placing the excavated material on one or both sides of the trench. The cable is then lowered into the trench in one pass. Series operations can also backfill the trench as the work progresses, but this is most readily accomplished in areas where the native soil does not have to be replaced with thermal fill.

Areas where rock or ledge may be encountered during construction will be identified during future pre-construction studies. Rock and ledge encountered above the minimum cable installation depth will be removed by mechanical equipment if possible. Where mechanical removal is not possible, three options exist: evaluation of a more shallow cable installation with enhanced concrete or steel cover protection, an increase in the amount of cover (if the changed topography is not problematic), or blasting to achieve the standard depth.

Mechanical removal would be the preferred method of achieving the required burial depth; however if any blasting is required it will be performed by licensed professionals pursuant to

NYS Department of Labor's regulations 12 NYCRR Part 39, Possession, Handling, Storage and Transportation of Explosives, and in strict accordance with guidelines designed to control energy release. Charges will be kept to the minimum required to break up the rock. Where appropriate, mats made of heavy steel mesh or other comparable material will be utilized to prevent the scattering of rock and debris. Blasting will strictly adhere to all industry standards applying to controlled blasting and blast vibration limits with regard to structures and underground utilities. No fly rock will be allowed to leave the right-of-way. Blasting in the vicinity of nearby utilities will be coordinated with the owner, as necessary. Blasted rock will be hauled off-site and disposed of in an appropriate manner.

Dewatering of the trench may be required in areas with a high water table or after a heavy rain. All trench water will be discharged into well-vegetated upland areas or properly constructed dewatering structures to allow the water to infiltrate back into the ground, thereby minimizing any long-term impacts on the water table. If trench dewatering is necessary in or near a waterbody or wetland, the trench water will be discharged into sediment filter bags or retention/filtering structures located away from the waterbody to prevent silt-laden water from flowing into the waterbody.

4.1.3 Backfilling

Subsequent to laying the cables, the trenches will be backfilled with low thermal resistivity material. Because the operation of the cables results in the generation of heat, and heat reduces the electrical conductivity of the cables, it is important to backfill with this material to prevent heat from one cable affecting the other. There will be a protective concrete cover or a layer of weak concrete directly above the low thermal resistive backfill material. The whole assembly will have a marker tape placed 1 to 2 feet above the cables. The top of the trench may be slightly crowned to compensate for settling.

In areas of wetlands or perched water tables, trench plugs or other methods to prevent draining of wetlands or surface waters down the trench will be used. In areas of wetland soils, the organic surface layer will be backfilled over the subsoil backfill to reestablish an adequate soil profile for wetland restoration objectives. Another component of the backfilling process that will be assessed and addressed is soil compaction. Soil compaction is a small concern if the trenching, stockpiling, cable installation and backfilling is conducted from the railroad, as heavy equipment operation on the ground surface along the cable trenches will be minimal. In addition, location of the construction corridor within the railroad right-of-way (and not on adjacent fields or agricultural lands) further reduces the likelihood of soil compaction concerns.

4.1.4 Restoration and Re-vegetation

A cleanup crew will complete the restoration and re-vegetation of the rights-of-way and temporary construction workspace. In conjunction with backfilling operations, any remnant woody material and construction debris will be removed from the rights-of-way. The temporary construction area will be seeded with an approved seed mix for the area and allowed to re-vegetate naturally.

4.2 Underwater Installation Methods (Aquatic Portions)

The cable will be transported from the manufacturer by a special cable transport vessel and transferred onto the cable installation vessel. The linear cable machines onboard the installation vessel will pull the cables from coils on the transport vessel onto the installation vessel and into prefabricated tubs. After the cable has been transferred, the installation vessel will travel to the construction commencement location. This process will be repeated as required to deliver and install all the required cable along the length of the various waterways.

Deep draft vessels equipped with dynamic positioning thrusters are proposed for deep water locations. Dynamically positioned cable installation vessels do not contact or directly disturb the bottom. In relatively shallow water depths (typically less than 15 feet), shallow draft vessels/barges, which typically use anchors for positioning, may be used for installation. Additionally, depending on navigation limitations along the route, it is possible that a tugboat positioned vessel or an anchor-positioned vessel may be used for portions of the deep water locations. An anchor-positioned vessel will propel itself along the route with forward winches while letting out on aft winches with other lateral anchors holding the side-to-side alignment during the installation. The 4-to-8 point anchor mooring system will require an anchor handling tug to move anchors while the installation and burial proceeds.

The installation method for the underwater cable will be a post-lay embedment operation for the majority of the route. Based on existing sediment types and water depths, cable installation technique will vary along the route. The methods for cable installation will follow the guidelines below. In addition, depending on the final engineering design of the cable, cables may be buried:

- On top of each other in a single trench;
- Side by side in a single trench; or
- Separately in two trenches.

Along the underwater cable route, cable burial depths will vary by location, existing utilities, substrate type and regulatory requirements. The cables will typically be buried four (4) feet below the waterbody bed and fifteen (15) feet below authorized depths when crossing or within a federally maintained navigation channel. This will allow for a certain amount of future dredging of the channel without disrupting the cable.

For each cable installation technique, cable laying activities will be constantly monitored and adjusted during cable laying operations to ensure the cable is being laid and buried properly. The cable laying machine operators will be in constant communication with the cable laying technicians to ensure the cable rotating and delivery speed is synchronized with the cable laying linear speed.

4.2.1 Water Jetting

The proposed method for laying and burial of the majority of the underwater cable is by the water jetting embedment process using a CAPJET 50 or CAPJET 650-1 MW system or a similar type of system. This method involves the use of either a dynamically or anchor positioned cable vessel and a hydraulically-powered water jetting device that simultaneously lays and embeds the underwater cable in one continuous trench.

Water jetting equipment uses pressurized water to fluidize the sediment. The pre-determined deployment depth of the jetting blades controls the cable burial depth using adjustable hydraulics on the water jetting device. The water jetting device is equipped with horizontal and vertical positioning equipment that records the laying and burial conditions, position, and burial depth. This information is monitored continually on the installation vessel.

Burial can be performed by either a towed or self-propelled burial machine. The self-propelled water jetting device moves forward by the reaction of the backward thrust of the hydraulic jetting power that is fluidizing the soil and keeping the created trench open for the cable to sink into. The forward rate of progress is regulated by the varying types of soil and the water pressure applied through the jets. The towed water jetting device is tethered to a surface craft, which then applies the pulling force as it moves forward. A skid or pontoon-mounted water jetting device or wheeled, frame-mounted water jetting device, deployed and operated in conjunction with the cable laying vessel, will be used.

Due to the various sediment types and significant resources found along the cable route, water jetting pressure will vary. In the unlikely event that the minimum burial depth is not met during water jetting embedment, additional passes with the water jetting device or the use of diver-assisted water jet probes will be utilized to achieve the required depth. Typical water jet pressures include: Sand and Silt 400-600 psi, Soft Clay 600-800 psi and Hard Clay 800-1,000 psi.

4.2.2 Hydro-Plowing

Based on sediment type or location or both (i.e., within navigation channels) a hydro-plow may be used for cable installation. The hydro-plow used will be similar to the Hydroplow III or the CMI Jet Plow. The hydro-plows can be operated with a variety of blade lengths to achieve cable burial depth.

For the plowing technique, a trench is made for the cable by towing a plow, and the cable settles into the trench, either at the same time or in a subsequent pass of the cable laying vessel. There are pre-lay and post-lay plows and the type of plow will be determined by the sediment composition, bathymetric contours, navigation constraints, and the characteristics of adjacent habitat areas. For a pre-lay plow, the cable is simultaneously fed into the trench as it is created by the plow. For a post-lay plow, the cable has already been laid, the plow is lowered on the bottom and the cable placed inside the plow device, which then embeds it into the bottom as the plow is pulled forward. In either situation, the plow is not self-propelled, but is instead tethered to a surface support vessel which supplies the pulling power. Usually, the bottom sediment is allowed to naturally backfill the trench over the cable by slumping of the trench walls, wave action, or bed load transport of sediments.

4.2.3 Conventional Dredging

While it is intended that the use of conventional underwater trench excavation methods will be limited, there may be some locations where conventional dredging may be necessary. These circumstances may include instances where the cable route is located within or crosses an existing navigation channel.

Within navigation channels, it is anticipated that the cables will be buried 15 ft beneath the authorized project depth of the navigation channel. In these locations, cables will be installed via hydro plow/jet plow. In the event that sediment has accumulated within the navigation channel, the cable trench area within the navigation channel will be dredged to the authorized channel depth and the cables will be subsequently installed via a hydro plow/jet plow.

Where dredging is necessary, either a clam-shell dredge or a barge-mounted excavator will be used to pre-dredge a trench into which the cable will be laid. The trench will typically be over-excavated by approximately 20 percent to allow for slumping of trench sidewalls prior to cable installation. Trench spoil will be brought to the surface and placed on barges, either for re-use as backfill or for approved disposal. This work will most likely occur from spud barges, although anchor-moored or jack-up barges may also be employed, depending upon equipment availability and site conditions. Once a segment of trench is excavated, cable will be laid, and the clam-shell dredge or excavator will place sediment back into the trench for adequate cable protection.

4.2.4 Non-Burial Protection

In limited areas along the Project route, surficial geology may not permit adequate cable burial depths to ensure adequate cable protection. In these areas, the cables will be laid on the lake/riverbed with protective coverings, such as rip-rap, articulated concrete mats, grout/stone filled mattresses, or within a protective duct. Areas where these methods may occur are at existing pipeline or cable crossings, small unavoidable bedrock areas, and potentially in areas of highly contaminated sediments. In these locations, the plow or water jetting device will be lifted off the bottom, moved forward past the obstacle, and then re-deployed to the bottom once safely across. Final cable protection methods will be chosen during further engineering design of the Project.

Articulated concrete mats are made of small pre-formed blocks of concrete that are interconnected by cables or synthetic ropes in a two dimensional grid. The concrete mats are lifted off barges and lowered into the water over the cable using a crane. Positioning is monitored by divers. Rip-rap will be sized to remain in place under current and wave conditions expected at the site. Rip-rap will be lowered from a supply barge using either a clamshell dredge or an excavator. Rip-rap thickness will be monitored by divers to prevent over- or under-placement of material. Grout filled mattresses can be placed in layers to provide protection. A grout-filled mattress typically contains a number of pockets that can be filled with concrete grout. Protective ducts, such as Uraduct®, may be another option for non-burial cable protection. The protective duct is comprised of cylindrical half shells molded from a range of marine grade polyurethanes. The half shells overlap and interlock to form close fitting protection around the cables.

4.3 Horizontal Directional Drilling Installation Methods

Horizontal directional drilling (HDD), also known as directional boring, provides a trenchless method of installing conduits, and is often the preferred method for transitioning submarine cables from land to water. It is also used to install cables beneath existing infrastructure (i.e., roads) or sensitive resources (i.e., waterbodies, wetlands, etc) to avoid potential impacts. HDD is used when trenching or excavation is not practical or environmentally desirable.

4.3.1 HDD Cable Installation - Land to Water Transitions

HDD cable installation techniques will be utilized where the cable route transitions from land to water in order to minimize disturbances to the bank and near shore areas. Locations of proposed HDD cable installation areas at land to water transition points along the Project route are depicted in the figures included as Attachment C.

The HDD unit will be staged at the onshore landfall area and involve the drilling of the boreholes from land toward the offshore exit point. The offshore exit point will be prepared from a barge. A steel casing pipe will be installed from the sea bottom to an offshore barge, which will minimize any slurry discharge and facilitate reaming of the pilot hole and conduit installation. After the steel casing pipe is installed, the onshore HDD unit drills the borehole into the end of the steel casing pipe and onto the barge, where the reamer and conduit are added. Conduits will then be installed the length of the boreholes and the transmission cable will be pulled through the conduits from the submarine end toward the land.

In order to install an HVDC cable that has an outside diameter of 6 inches, a conduit with an internal diameter of 9 inches is required. At this time, the Applicants anticipate that a high density polyethylene (HDPE) pipe will be used for each conduit, each with an outside diameter of approximately 10.75 inches. The HDD bore diameter required to install each of these conduits is approximately 16 inches.

Typically, an area up to 100 feet by 150 feet would be required to set up the drilling rig and associated equipment. A drill rig will be setup onshore behind a bentonite pit, where a drill pipe with a pilot-hole drill bit will be set in place to begin the horizontal drilling. Drilling fluid will then be pumped into the hole as the cutting head is advanced into the soil. The HDD construction process will involve the use of drilling fluid in order to transport drill cuttings to the surface for recycling, aid in stabilization of the *in situ* soil/sediment to keep the hole open, and to provide lubrication for the HDD drill string and down-hole assemblies. This drilling fluid is composed of a carrier fluid and solids. The selected carrier fluid will consist of water (approximately 95 percent) and inorganic bentonite clay (approximately 5 percent). The bentonite clay is a naturally occurring hydrated aluminosilicate composed of sodium, calcium, magnesium and iron that is environmentally benign.

The drilling fluid system will recycle drilling fluids (made up of a combination of water, bentonite, and the material being excavated) and contain and process drilling returns for offsite disposal. The discharge or release of drilling fluids to the water will be minimized by including a drilling fluid overburden breakout (frac-out) monitoring plan.

4.3.2 HDD Cable Installation - Land to Land

Where the proposed upland cable route intersects with existing roads, railroads, or certain sensitive habitats (i.e., wetlands, rivers, or streams), the cables will be placed within protective conduits that are installed under the infrastructure or watercourses utilizing HDD techniques. Locations of proposed HDD cable installation areas along the upland portion of the Project route are depicted in the figures included as Attachment D. The proposed HDD cable installation areas along the upland Project route are based on preliminary evaluations and have not undergone engineering design; therefore, this information is subject to change based on additional Project design and evaluation.

5.0 DESCRIPTION OF SITE MODIFICATIONS BY PROPOSED PROJECT

The proposed Project consists of a 1,000 MW HVDC transmission system comprised of two HVDC transmission cables extending approximately 319 miles connecting to a converter station (approximately 5 acres in size) in Yonkers, NY. Additionally, two bundles of three HVAC cables will extend approximately 16 miles from the Yonkers converter station to the Queens substation for connection to the existing electric power grid.

The 5 acre converter station will be built on a previously disturbed property in Yonkers, NY. The converter station will be built according to the existing ordinances and codes of Yonkers, NY and will be designed to blend with the current architectural surroundings of the area.

The transmission cables will be buried along the entirety of the proposed Project route. Subsequent to installation, the cable area will be allowed to re-vegetate and/or restore to its original condition, with the exception of reforestation directly above the cables along the upland portions of the route. For the majority of the route, the only structure(s) that will be installed for the proposed Project include the transmission cables themselves. However, short sections of the route may require the use rip-rap or concrete mattresses for cable protection. A description of the various types of cable installation techniques is included in Section 4.0.

No fill or permanent alteration to wetlands will result from the Project along the upland portion of the Project route and it is anticipated that wetland hydrology, vegetation, and water quality will return to pre-construction conditions following restoration of the construction area. In a select few areas (~2.7 acres), forested wetland cover may be converted to a scrub-shrub community. However, overall wetland benefits will not be lost or adversely impacted.

To minimize potential adverse impacts to wetlands and ensure successful restoration, the Applicants will be implementing several protective measures. Specifically, the Applicants will segregate topsoil in wetlands, except when standing water or saturated soils are present, to prevent the mixing of topsoil with subsoil. This facilitates wetland re-vegetation by maintaining physical and chemical characteristics of the surface soil and preserving the native seed bank. The Applicants anticipate that construction equipment will operate primarily from the railroad bed, railroad access road, embankment or other upland areas. If any construction equipment needs to operate within saturated wetlands that are likely to be affected by soil compaction or rutting, based on conditions at the time of construction, Applicants will use equipment mats or low-ground-pressure tracked vehicles to minimize impacts to wetland soils. If dewatering is required within the excavated trench, water will be discharged to a well-vegetated upland area, a properly constructed dewatering structure, or a filter bag.

Original surface hydrology in disturbed wetland areas will be re-established by backfilling the trench and grading the surface to original contours, as needed. The Applicants will seed the right-of-way to establish temporary cover and stabilize soils. Wetlands will then be allowed to re-vegetate naturally. Wetlands will be backfilled with native wetland soils that were segregated during construction to speed recruitment of existing native wetland vegetation from the seed bank. Emergent wetland vegetation is expected to return quickly following construction and woody species will return more slowly. Forested wetlands, where not maintained, are expected to go through several stages of successional vegetation before returning to the pre-construction vegetation cover type. To assist in the recovery of woody species, Applicants will avoid removing roots and stumps in cleared areas outside of the cable trench, unless required for safety, in order to allow re-sprouting of woody species. Other protective measures are described below.

- Sediment/erosion control devices will be installed across the right-of-way on any slopes leading into wetlands and along the edge of the construction right-of-way, as necessary, to prevent spoil from flowing off the right-of-way into a wetland.
- Construction equipment operating within wetlands will be limited primarily to those needed to dig the trench, install the cable, backfill, and restore the right-of-way. All other construction equipment will use access roads in upland areas to the extent practicable.
- To minimize disturbance and compaction in wetlands with saturated soils or standing water, either wide-tracked or balloon-tired equipment operating from timber corduroy or timber mats will be used. Imported rock, stumps, brush, or off-site soil as temporary or permanent fill will be prohibited. Following construction, all materials used to stabilize the right-of-way will be removed.
- Construction materials, including fuels, will not be stored within 100 feet of any surface water or wetland system, unless no alternative is available. If no alternative is available, appropriate protection measures for spill prevention and control will be implemented.
- Construction equipment will not be refueled within 100 feet of any surface water or wetland system.
- Construction equipment will not be washed in any wetland or within 100 feet of any wetland unless specified to minimize the spread of invasive species.
- The construction right-of-way will be inspected periodically during and after construction until final restoration is complete. Erosion control or restoration features will be repaired as needed in a timely manner until permanent revegetation is successful.
- Where the cable trench may drain a wetland, a trench breaker will be constructed.

Within the preferred route, the Applicants have and will continue to examine practical alternatives to avoid wetland crossings.

6.0 AREA OF EXCAVATION & VOLUMES OF MATERIAL REMOVED

At this time, there are numerous areas along the submarine Project route where the cable crosses federally designated navigation channels (Attachment C). Additionally, there is one (1) location, Haverstraw Bay, where the cable is proposed to be installed within the navigation channel or along the side slopes (Attachment C).

At this time, the Applicants propose to install the HVDC cables 15 feet beneath the navigation channel authorized project depth via hydro plow/jet plow methods. However, in the event that sediment has accumulated within the navigation channel atop the authorized project depth, dredging will be performed within the navigation channel to remove accumulated sediment atop the channel authorized project depth. Subsequently, the HVDC cables will be buried via hydro plow/jet plow to the required depth of 15 ft beneath the navigation channel authorized project depth.

The volumes of material anticipated to be dredged from within the federal navigation channels are unknown at this time.

7.0 DREDGED MATERIAL DISPOSAL/USE

Prior to dredging, the selected EPC contractor will acquire the necessary dredging permits, to the extent necessary. In support of the permitting process, the EPC contractor will work with regulatory agencies to develop a dredging plan in accordance with state and federal regulations.

Sediment testing is required to determine the physical and chemical characteristics of the dredged material to evaluate the most beneficial/suitable placement of the dredged material. Physical and chemical characterization of sediments along the centerline of the proposed route was conducted in the spring of 2010 (Attachment E) to support the Application for a Certificate of Environmental Compatibility and Public Need pursuant to Article VII of the New York State Public Service Law. The data collected during the spring 2010 hydrographic survey provides a basis for developing a pre-dredge sediment sampling and analysis plan to meet regulatory requirements.

8.0 MITIGATION ACTIVITIES PROPOSED FOR RESOURCE IMPACTS

The Applicants will work cooperatively with the USACE to consider mitigation options for resource impacts caused by the Project, which may include restoration, conservation or enhancement of wetlands within New York.

9.0 PHASING OF ACTIVITIES

An overall construction schedule will be developed that will optimize efficiency while minimizing impacts to natural resources. Objectives will include avoiding significant spawning and breeding seasons for fish and wildlife to the greatest extent possible and other seasonally dependant construction variables.

Project sequencing and construction sequencing will proceed in a logical progression based on the availability of construction materials and right-of-way access. The construction sequencing for the Project will be established early in the Project planning process and incorporate seasonal restrictions and construction windows, material fabrication schedule, and overall timeline requirements to complete each segment of the Project.

The following construction windows for work along the underground portion of the Project are proposed:

a) Work that must occur within any identified NYSDEC-protected streams (Class C/Standard T or higher Class/Standard streams or regulated adjacent area) will be highly restricted to avoid or minimize impacts to stream banks, water quality, and wildlife. More specifically, most designated trout streams are anticipated to be crossed using the HDD method thereby avoiding disturbance of these streams. If a dry crossing is proposed for any of these streams, CHPEI will adhere to the proposed timing restrictions or will discuss and develop, as necessary, mitigation measures with the appropriate agencies.

b) CHPEI will avoid construction within or immediately adjacent to occupied Karner blue butterfly. Because adult flight periods may vary from year to year, CHPEI will contact NYSDEC prior to starting construction within any identified habitat areas to confirm that adults have not emerged.

It is anticipated that construction windows associated with in-water construction activities (i.e., dredging, cable laying, splicing, and burial activities) will be required by federal and state regulatory agencies in order to protect and minimize the potential impact on different species and on certain life stages. Within the Hudson River, the New York State Department of State (DOS) has identified recommended work windows associated with Significant Coastal Fish and Wildlife Habitats (SCFWH), which are summarized in Table 1.

TABLE 1
AGENCY RECOMMENDED WORK WINDOWS ASSOCIATED WITH SIGNIFICANT COASTAL FISH AND WILDLIFE HABITATS WITHIN THE HUDSON RIVER

Name	Recommended Closed Work Window
Habitats Crossed	
Kingston Deepwater Habitat	N/A
Esopus Estuary	Mid April - May (Osprey)
	April-July (Warmwater fish spawning)
Poughkeepsie Deepwater Habitat	N/A
Hudson River Mile 44-56	May - July (striped bass spawning)
Haverstraw Bay	March - April, September - November (waterfowl)
	April - August (Fish spawning and development)
Lower Hudson Reach	Mid-November - Mid-April (Striped bass)
Adjacent Habitats	
Norman's Kill	April - June
Papscanee Marsh and Creek	April-July (warmwater fish and wildlife)
Shad and Schermerhorn Islands	April - June (Fish)
Hannacroix Creek	April - July (Fish species)
Schodack and Houghtalin Islands and Schodack Creek	April - July (Warmwater Fish)
Coxsackie Creek	April - June (Fish)
Stockport Creek and Flats	April - July (Warmwater Fish)
Catskill Creek	April - July (Most fish species)
Roeliff-Jansen Kill	April - June (Fish)
Croton River and Bay	April through July (warmwater fish)
North and South Brother Islands	Mid March - August (nesting period)