



March 10, 2021

Attn: Consistency Review Unit
New York State Department of State, Office of Planning and Development
One Commerce Plaza-Suite 1010, 99 Washington Avenue
Albany, New York, 12231

**Re: Request for Coastal Consistency Certification
Sediment and Benthic Sampling for Light & Power Development, LLC
Hudson River, New York, New York State Waters
ESS Project No. R366-005**

Dear Sir/Madam,

ESS Group, Inc. (ESS), on behalf of Light & Power Development, LLC (f/k/a Ravenswood Development, LLC), submits this request for an individual consistency concurrence determination for sediment and benthic sampling activities to be performed in the Hudson River under Nationwide Permit No. 6 (NWP 6).

Description of Proposed Activity

The proposed activity is a vessel-based sediment and benthic sampling program in the Hudson River, which will take place after the completion of a geophysical survey to obtain swath bathymetry, side scan sonar, magnetometer, and sub-bottom profiler data. The sampling program will have different survey corridor widths based on the location along the proposed 100 to 120 mile-long submarine cable route between upstate New York and New York City (Manhattan). The survey corridor will be 200-feet wide for the majority of the Hudson River, with possibility of widening the corridor in places to route around obstructions identified during the survey. At its ends, the survey corridor will be 400-feet wide to provide flexibility for the locations of the transitions to the cable landfall HDD. The planned survey corridors are illustrated on the attached figure and the vibracore and benthic sample locations will be within these corridors.

The proposed sediment sampling activities include the collection of vibracores and benthic grab samples at approximately 100 to 120 locations in New York State waters for laboratory testing and analysis. The sample locations will be spaced at approximately 1 mile intervals with closer spacing near potential cable landfall alternatives. The exact positions of the sample locations will be determined based on the results of the geophysical survey. Vibracores will be advanced 15-20 feet below the sediment water interface, or until refusal is encountered. Multiple vibracores will be collected at approximately 20% of the locations to support additional types of analysis. Benthic samples will be collected using a gravity dredge (Eckman, Ponar, Shipek, VanVeen, or other similar dredge). Vibracore and benthic sample collection will take place over approximately three to four weeks.

The geophysical survey is planned to begin in April 2021 with the vibracoring and benthic survey likely beginning in May/June 2021. Vessel activities will be coordinated with the United States Coast Guard Sector New York. A sediment sampling plan will be provided to NYSDEC for review and approval of target analytes prior to survey operations. This activity will not have significant coastal impacts (see attached Federal Consistency Assessment for supplement on specific policy compliance information).





Purpose and Need of Proposed Activity

This survey is required to obtain data necessary to prepare Hudson River environmental characterizations as part of preparation of a Public Service Law Article VII application and a USACE Individual Permit application to support siting and permitting of a proposed submarine electric cable between upstate New York and New York City (Queens) to be known as the Catskills Renewable Connector. The 2019 Climate Leadership and Community Protection Act (CLCPA) calls for a transition to 100% renewable energy by 2040, and 70% by 2030. To achieve those goals new transmission is needed to connect New York City to the upstate New York grid to overcome existing congestion and bottlenecks. This project is intended to address a portion of that need. In addition to helping to meet Governor Cuomo's nation-leading goal, this new project is expected to result in billions of dollars of in-state investments and significant local job creation. At full output, the proposed line is expected to supply up to approximately 15 percent of New York City's electricity needs with clean, renewable, homegrown energy.

Alternatives Analysis

The proposed activity is necessary to provide required information for a Public Service Law Article VII application and a USACE Individual Permit application. No viable alternatives to the proposed activity are available as sediment quality and benthic habitat are an essential portion of the applications. The cable route, and therefore the survey location, are being designed to most efficiently enable an electrical interconnection between upstate New York and Queens via a submarine cable in the Hudson River. The proposed survey route is located adjacent to existing submarine cables and is situated so as to minimize impacts to navigation and other marine activities including utility pipelines, drinking water intakes, vessel anchorage and mooring areas, and avoid or minimize potential impacts to aquatic resources or water quality, including Significant Coastal Fish and Wildlife Habitats. The location and spacing of the vibracore and benthic sampling locations will be chosen to best represent the biological community and the physical sediment characteristics along the proposed cable route based on survey data obtained during the geophysical survey.

Owners of Abutting Upland Properties and Underwater Lands

This activity will take place in the waters of the Hudson River. There are no abutting property owners.

If you have any questions about this request or the work planned to be performed, please contact Michael Phillips at 781-419-7718 or mphillips@essgroup.com.

Sincerely,

ESS GROUP, INC.

A handwritten signature in blue ink, appearing to read "Payson R. Whitney, III".

Payson R. Whitney, III
Vice President





C: Stephan Ryba -- USACE New York District Regulatory Branch

Attachments: Completed Federal Consistency Assessment Form
Description of Compliance with Applicable State or Local Coastal Policies
Figures



NEW YORK STATE DEPARTMENT OF STATE
COASTAL MANAGEMENT PROGRAM

Federal Consistency Assessment Form

An applicant, seeking a permit, license, waiver, certification or similar type of approval from a federal agency which is subject to the New York State Coastal Management Program (CMP), shall complete this assessment form for any proposed activity that will occur within and/or directly affect the State's Coastal Area. This form is intended to assist an applicant in certifying that the proposed activity is consistent with New York State's CMP as required by U.S. Department of Commerce regulations (15 CFR 930.57). It should be completed at the time when the federal application is prepared. The Department of State will use the completed form and accompanying information in its review of the applicant's certification of consistency.

A. **APPLICANT** (please print)

1. Name: Light & Power Development, LLC
2. Address: c/o ESS Group, Inc., 404 Wyman Street, Suite 375, Waltham, MA 02451
3. Telephone: Area Code () (781) 419-7718

B. **PROPOSED ACTIVITY:**

1. Brief description of activity:

Vessel-based sediment and benthic sampling activities in the Hudson River.
Samples will be collected for laboratory testing and analysis.

2. Purpose of activity:

The results will be used to support siting and permitting of a proposed
submarine electric cable within the Hudson River.

3. Location of activity:

<u>Multiple (11 total)</u>	<u>Multiple (35 total)</u>	<u>In NY state waters</u>
County	City, Town, or Village	Street or Site Description

4. Type of federal permit/license required: USACE Nationwide Permit 6

5. Federal application number, if known: N/A

6. If a state permit/license was issued or is required for the proposed activity, identify the state agency and provide the application or permit number, if known:

N/A

C. **COASTAL ASSESSMENT** Check either "YES" or "NO" for each of these questions. The numbers following each question refer to the policies described in the CMP document (see footnote on page 2) which may be affected by the proposed activity.

1. Will the proposed activity result in any of the following: YES/NO
 - a. Large physical change to a site within the coastal area which will require the preparation of an environmental impact statement? (11, 22, 25, 32, 37, 38, 41, 43) ☐ ☒
 - b. Physical alteration of more than two acres of land along the shoreline, land under water or coastal waters? (2, 11, 12, 20, 28, 35, 44) ☐ ☒
 - c. Revitalization/redevelopment of a deteriorated or underutilized waterfront site? (1) ☐ ☒
 - d. Reduction of existing or potential public access to or along coastal waters? (19, 20) ☐ ☒
 - e. Adverse effect upon the commercial or recreational use of coastal fish resources? (9,10) ☐ ☒
 - f. Siting of a facility essential to the exploration, development and production of energy resources in coastal waters or on the Outer Continental Shelf? (29) ☐ ☒
 - g. Siting of a facility essential to the generation or transmission of energy? (27) ☒ ☐
 - h. Mining, excavation, or dredging activities, or the placement of dredged or fill material in coastal waters? (15, 35) ☐ ☒
 - i. Discharge of toxics, hazardous substances or other pollutants into coastal waters? (8, 15, 35) ☐ ☒
 - j. Draining of stormwater runoff or sewer overflows into coastal waters? (33) ☐ ☒
 - k. Transport, storage, treatment, or disposal of solid wastes or hazardous materials? (36, 39) ☐ ☒
 - l. Adverse effect upon land or water uses within the State's small harbors? (4) ☐ ☒

2. Will the proposed activity affect or be located in, on, or adjacent to any of the following: YES/NO
 - a. State designated freshwater or tidal wetland? (44) ☒ ☐
 - b. Federally designated flood and/or state designated erosion hazard area? (11, 12, 17) ☐ ☒
 - c. State designated significant fish and/or wildlife habitat? (7) ☒ ☐
 - d. State designated significant scenic resource or area? (24) ☒ ☐
 - e. State designated important agricultural lands? (26) ☐ ☒
 - f. Beach, dune or Barrier Island? (12) ☐ ☒
 - g. Major ports of Albany, Buffalo, Ogdensburg, Oswego or New York? (3) ☒ ☐
 - h. State, county, or local park? (19, 20) ☒ ☐
 - i. Historic resource listed on the National or State Register of Historic Places? (23) ☒ ☐

3. Will the proposed activity require any of the following: YES/NO
 - a. Waterfront site? (2, 21, 22) ☐ ☒
 - b. Provision of new public services or infrastructure in undeveloped or sparsely populated sections of the coastal area? (5) ☐ ☒
 - c. Construction or reconstruction of a flood or erosion control structure? (13, 14, 16) ☐ ☒
 - d. State water quality permit or certification? (30, 38, 40) ☒ ☐
 - e. State air quality permit or certification? (41, 43) ☐ ☒

4. Will the proposed activity occur within and/or affect an area covered by a State-approved local waterfront revitalization program, or State-approved regional coastal management program? (see policies in program document*) ☒ ☐

D. ADDITIONAL STEPS

1. If all of the questions in Section C are answered "NO", then the applicant or agency shall complete Section E and submit the documentation required by Section F.

2. If any of the questions in Section C are answered "YES", then the applicant or agent is advised to consult the CMP, or where appropriate, the local waterfront revitalization program document*. The proposed activity must be analyzed in more detail with respect to the applicable state or local coastal policies. On a separate page(s), the applicant or agent shall: (a) identify, by their policy numbers, which coastal policies are affected by the activity, (b) briefly assess the effects of the activity upon the policy; and, (c) state how the activity is consistent with each policy. Following the completion of this written assessment, the applicant or agency shall complete Section E and submit the documentation required by Section F.

E. CERTIFICATION

The applicant or agent must certify that the proposed activity is consistent with the State's CMP or the approved local waterfront revitalization program, as appropriate. If this certification cannot be made, the proposed activity shall not be undertaken. If this certification can be made, complete this Section.

"The proposed activity complies with New York State's approved Coastal Management Program, or with the applicable approved local waterfront revitalization program, and will be conducted in a manner consistent with such program."

Applicant/Agent's Name: ESS Group, Inc. (Agent)
Address: 404 Wyman Street, Suite 375, Waltham, MA 02451
Telephone: Area Code () (781) 419-7718
Applicant/Agent's Signature:  2021.03.10 15:58:24
-05'00' Date: _____

F. SUBMISSION REQUIREMENTS

1. The applicant or agent shall submit the following documents to the **New York State Department of State, Office of Planning and Development, Attn: Consistency Review Unit, One Commerce Plaza-Suite 1010, 99 Washington Avenue, Albany, New York 12231.**

- a. Copy of original signed form.
- b. Copy of the completed federal agency application.
- c. Other available information which would support the certification of consistency.

2. The applicant or agent shall also submit a copy of this completed form along with his/her application to the federal agency.

3. If there are any questions regarding the submission of this form, contact the Department of State at (518) 474-6000.

*These state and local documents are available for inspection at the offices of many federal agencies, Department of environmental Conservation and Department of State regional offices, and the appropriate regional and county planning agencies. Local program documents are also available for inspection at the offices of the appropriate local government.



Description of Compliance with Applicable State or Local Coastal Policies Identified on the Federal Consistency Assessment Form

Sediment and Benthic Sampling for Catskills Renewable Connector Hudson River, New York

Coastal Policy 3: The proposed activity will be coordinated with the US Coast Guard Sector New York and will not impair the use of the waterway for commercial or industrial purposes.

Coastal Policy 7: The proposed activity will pass through multiple state-designated Significant Coastal Fish and Wildlife Habitat areas within the Hudson River. It is consistent with the above policy, as the activity of obtaining sediment samples will not impair the viability of the habitat. The activity will not result in changes in chemical, biological, and physical parameters within the habitat more than anchoring the vessel and removal of a small quantity of sediment. A very limited area of riverbed habitat will experience temporary disruption during benthic grab sampling and vibracore collection. Only a small amount of sediment and benthic organisms will be removed from the habitat, and recolonization of disturbed areas is expected to be rapid. The collection of grab and vibracore samples will have little or no effect on turbidity in the immediate area of the survey when compared to the natural range of variability in turbidity in the Hudson River.

Coastal Policy 19: The proposed activity will not affect access to public water for recreation or any public facilities, such as parking lots and access paths, and will not affect any parks.

Coastal Policy 20: The activity will not impact access to the publicly owned foreshore, lands adjacent to said foreshore, or the water's edge. All activity will take place in the water away from any local or state parks and their access to the coastal area.

Coastal Policy 23: The activity will not impact any structures, districts, areas, or sites of historical significance, as all work will be in the water away from the shoreline. Sampling locations will not be located near side-scan sonar targets identified during the geophysical survey that could have the potential to be culturally significant.

Coastal Policy 24: There will be no impact to scenic resources of statewide significance since the activity is short-term.

Coastal Policy 27: The results of the activity will be used to prepare a Public Service Law Article VII application and a USACE Individual Permit application to support siting and permitting of a proposed submarine electric cable between upstate New York and New York City (Queens) to be known as the Catskills Renewable Connector. The 2019 Climate Leadership and Community Protection Act (CLCPA) calls for a transition to 100% renewable energy by 2040, and 70% by 2030. To achieve those goals new transmission is needed to connect New York City to the upstate New York grid to overcome existing congestion and bottlenecks. This project is intended to address a portion of that need. In addition to helping to meet Governor Cuomo's nation-leading goal, this new project is expected to result in billions of dollars of in-state investments and significant local job creation. At full output, the proposed line is expected to





supply up to approximately 15 percent of New York City's electricity needs with clean, renewable, homegrown energy.

Coastal Policy 30: Although no hazardous substances or waste will be generated or used, the activity will follow the applicable federal and state guidelines for incidental spill of vessel-related materials.

Coastal Policy 38: The activity will not impact drinking water sources as the activity will take place within the Hudson River. Sampling activities will avoid drinking water intakes in the Hudson River.

Coastal Policy 40: This policy is not affected. The activity does not include the construction of an electric generating facility or the change in effluent discharge from an existing electric generating facility.

Coastal Policy 44: The activity will have no effect on state designated freshwater or tidal wetlands, as all work will be in the water away from the shoreline.

401 Water Quality Certification: The proposed sediment and benthic sampling meets all general and special conditions set by the New York Department of Environmental Conservation for US Army Corps of Engineers Nationwide Permit (NWP) 6. Therefore, this project falls under the blanket Section 401 Water Quality Certification issued by the NYSDEC in 2017.

City of New York Local Waterfront Revitalization Program: As this activity will take place within the area of the City of New York Local Waterfront Revitalization Program (WRP), the following section addresses the compliance of the sediment and benthic sampling with the WRP policies. The proposed activity is not expected to affect any of the NYC WRP policies.

- Policy 1: The proposed activity will not impede commercial or residential coastal development.
- Policy 2: This activity will be coordinated with the US Coast Guard Sector New York and will not impair the use of the waterway for industrial purposes.
- Policy 3: The activity will not impede commercial and recreational boating or transport.
- Policies 4, 5: The activity will not impair water quality or biological and ecological functioning within the Lower Hudson Reach.
- Policy 6: The activity will have no effect on coastal flooding and erosion.
- Policy 7: There will be no discharge of any hazardous or toxic material during the activity. The activity will follow the applicable federal and state guidelines for incidental spill of vessel-related materials
- Policy 8: The activity will not impact public access to New York waterfront areas.
- Policy 9: There will be no impact to scenic coastal resources.
- Policy 10: This activity will not alter cultural, architectural, or archaeological resources.

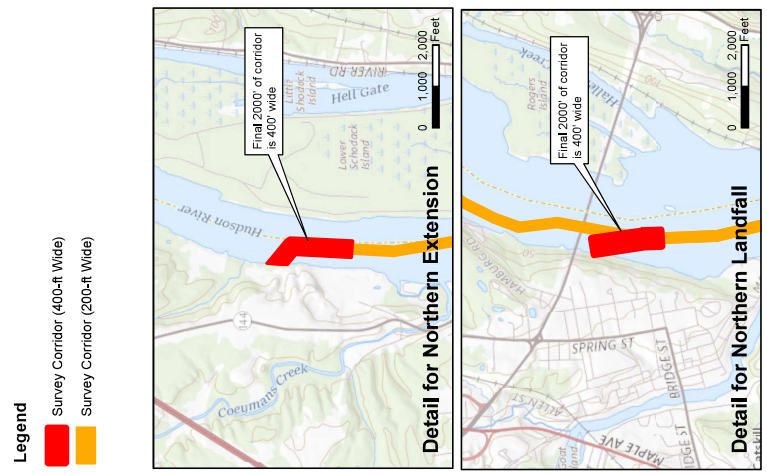
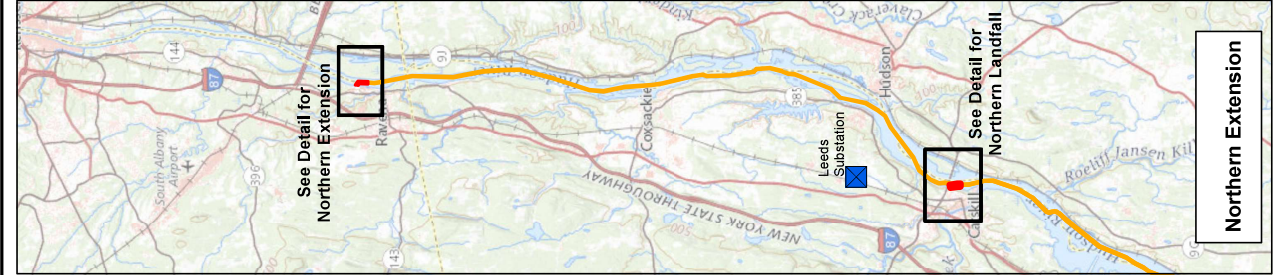
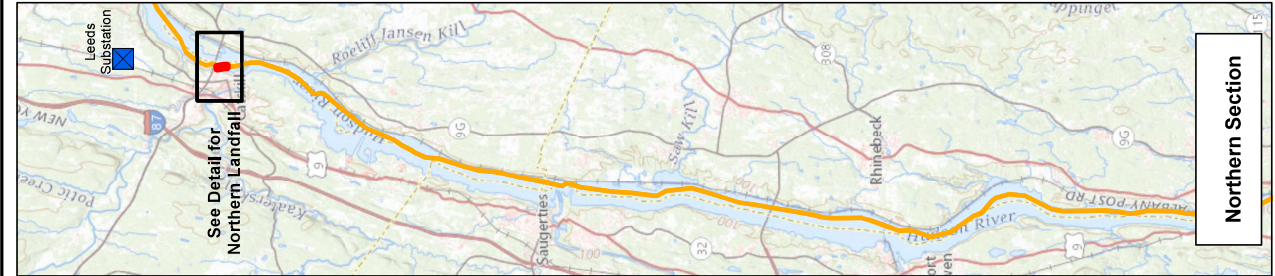
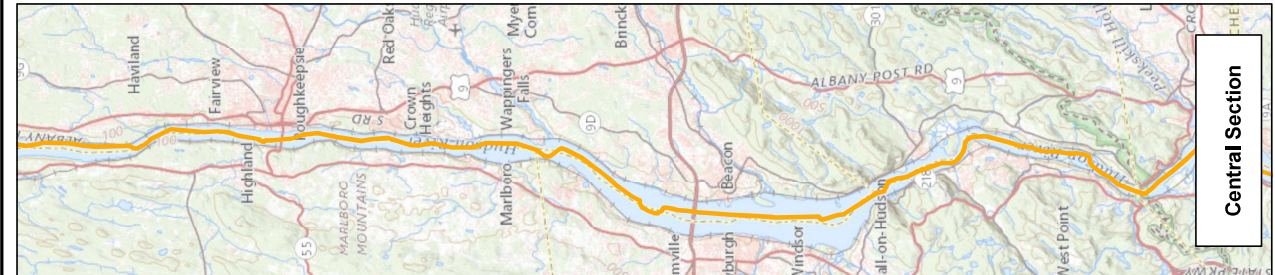
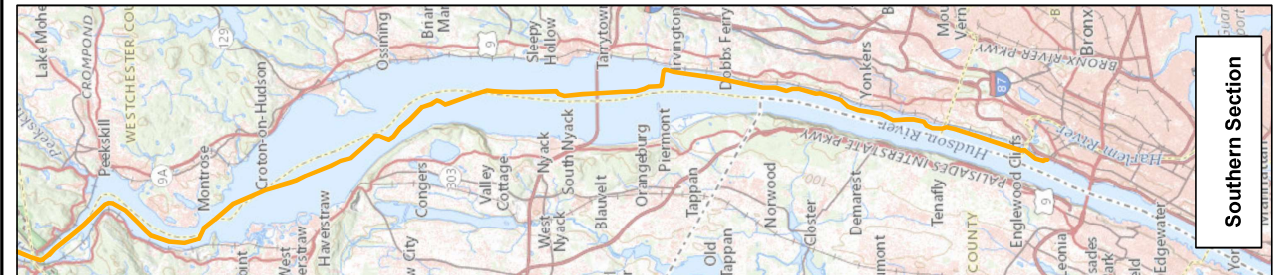
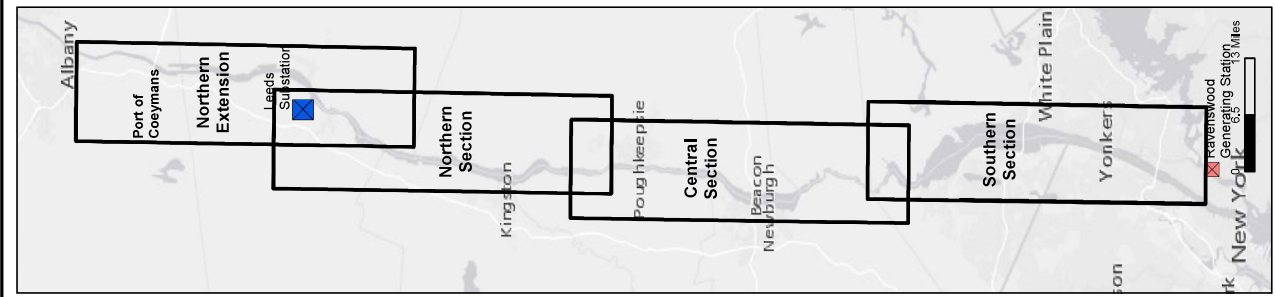




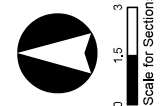
Additional Local Waterfront Revitalization Programs: The proposed activity will occur within the following Local Waterfront Revitalization Programs (LWRP). As the proposed activity will occur within state waters and not on land, the activity is not expected to affect any of the policies in the various LWRPs. The applicable LWRP coastal policies would correspond to the state policies addressed in first section of this document, with the exception of those state policies that are not included within the respective LWRP.

- Town of Esopus
- Town of Lloyd
- Town of Poughkeepsie
- Town of Red Hook
- Town of Rhinebeck
- Town of Schodack
- Town of Stony Point
- Village of Athens
- Village of Saugerties





- Legend**
- Survey Corridor (400-ft Wide)
 - Survey Corridor (200-ft Wide)



Source:
1) ESRI/USGS, National Map, 2021

Marine Survey Corridors
Hudson River Routes
Light & Power Development, LLC
Catskills Renewable Connector Project

Figure 1

ess group
environmental consulting
& engineering services



404 Wyman Street, Suite 375, Waltham, Massachusetts 02451 • 781.419.7696
10 Hemingway Drive, 2nd Floor, East Providence, Rhode Island 02915 • 401.434.5560
780 Lynnhaven Parkway, Suite 400, Virginia Beach, Virginia 23452 • 757.821.3095

environmental consulting & engineering services

March 10, 2021

Stephan A. Ryba
USACE New York District Chief, Regulatory Branch
NY District U.S Army Corps of Engineers
26 Federal Plaza, Room 16-406
New York, New York, 10278

**Re: NWP 6 New York State Coastal Management Program Consistency Request
Sediment and Benthic Sampling for Light & Power Development, LLC
Hudson River, New York, New York State Waters
ESS Project No. R366-005**

Dear Mr. Ryba,

ESS Group, Inc. (ESS), on behalf of Light & Power Development, LLC (f/k/a Ravenswood Development, LLC), will be performing a marine survey to support routing and permitting of a proposed submarine electric cable between upstate New York and New York City (Queens) to be known as the Catskills Renewable Connector. Following a geophysical survey to obtain swath bathymetry, side scan sonar, magnetometer, and sub-bottom profiler data, sediment and benthic sampling will take place in the survey corridor under USACE Nationwide Permit 6.

ESS submitted a request for Coastal Consistency Certification from the New York State Department of State, Office of Planning and Development. A copy of the submitted request is attached for your use.

If you have any questions about this request or the work planned to be performed, please contact Michael Phillips at 781-419-7718 or mphillips@essgroup.com.

Sincerely,

ESS GROUP, INC.

Payson R. Whitney, III
Vice President

C: NYSDOS Coastal Zone Consistency Review

Attachments: Individual Consistency Certification Request submitted to NYSDOS





404 Wyman Street, Suite 375, Waltham, Massachusetts 02451 • 781.419.7696
10 Hemingway Drive, 2nd Floor, East Providence, Rhode Island 02915 • 401.434.5560
780 Lynnhaven Parkway, Suite 400, Virginia Beach, Virginia 23452 • 757.821.3095

environmental consulting & engineering services

April 2, 2021

Matthew Maraglio
Attn: Office of Planning, Development and Community Infrastructure
New York State Department of State
One Commerce Plaza-Suite 1010, 99 Washington Avenue
Albany, New York, 12231

**Re: *Response to Request for Necessary Data and Information
Sediment and Benthic Sampling for Light & Power Development, LLC
Hudson River, New York, New York State Waters
ESS Project No. R366-005***

Dear Mr. Maraglio,

ESS Group, Inc. (ESS), on behalf of Light & Power Development, LLC (f/k/a Ravenswood Development, LLC), submits the following information and Joint Application Form for sediment and benthic sampling activities to be performed in the Hudson River under Nationwide Permit No. 6 (NWP 6). This information is being submitted in response to your March 25, 2021 letter requesting this information.

Joint Application Form

The attached Joint Application Form has been completed to the extent possible given the proposed survey work is not specifically addressed as an activity on the form. This packet will be forwarded to the required state and federal agencies at the time of submission to the New York State Department of State.

Approximate Locations of Proposed Sample Locations

The collection of vibracores and benthic grab samples will occur at approximately 100 to 120 locations in New York State waters for laboratory testing and analysis. The sample locations will be spaced at approximately 1 mile intervals with closer spacing near potential cable landfall alternatives. Preliminary locations for these sampling activities are shown in the attached Figure 1. The exact positions of the sample locations will be determined based on the results of the geophysical survey.

Process for Obtaining Vibracores and Benthic Grab Samples

The proposed sediment sampling work will be limited to advancing vibracores and benthic grab devices from an anchored vessel. No drilling fluids or muds will be utilized for obtaining vibracores and benthic grab samples. The type of activities to be performed are the same as those that received a General Concurrence letter under NWP 6 for a different ESS project (Case No. F-2017-0464) in 2017. Descriptions of the planned activities are provided below.

Vibracore Collection

The survey vessel is equipped with a mounted A-frame and winches capable of deploying and recovering the 20-foot Pneumatic Vibratory Corer rig with a 4-inch inner diameter core barrel. The core barrel will be fitted with a 3.5-inch Lexan liner in which a continuous sediment core will be recovered. All vibratory cores are to be attempted to a penetration of 15 feet below the river bottom with the exception of those cores proposed within the federal navigation channel. Any vibratory core proposed within the navigation channel





will be attempted to a penetration of 20 feet below the bottom. Recovered vibracores will either be split, logged, and sampled on board the survey vessel or brought to an onshore facility for sampling.

Benthic Grab Collection

Benthic grabs will be collected with a 0.04 m² Double Salish (Young-modified) Van Veen grab sampler or similar device. The target penetration depth will be 0.1 m, which is the nominal limit of the grab sampler. Grab sample acceptance criteria will be used for quality assurance purposes. The grab sampler will be deployed and recovered via the A-frame and winches mounted to the vessel. Recovered benthic grabs will be initially processed onboard the survey vessel and the prepared sample will be brought to ESS offices for further processing, sorting, and benthic identifications.

We look forward to completion of your review. The project is still on schedule for a planned May 2021 start of the sediment sampling activities. If you have any further questions about this request or the work planned to be performed, please contact Michael Phillips at 781-419-7718 or mphillips@essgroup.com.

Sincerely,

ESS GROUP, INC.

Payson R. Whitney, III
Vice President

C: Stephan Ryba -- USACE New York District Regulatory Branch
Karen Gaidasz -- New York State Department of Environmental Conservation
New York State Office of General Services

Attachments: Joint Application Form
Figure 1





JOINT APPLICATION FORM

For Permits for activities affecting streams, waterways, waterbodies, wetlands, coastal areas, sources of water, and endangered and threatened species.

You must separately apply for and obtain Permits from each involved agency before starting work. Please read all instructions.

1. Applications To:

>NYS Department of Environmental Conservation

☐ Check here to confirm you sent this form to NYSDEC.

Check all permits that apply:

☐ Stream Disturbance

☐ Dams and Impoundment Structures

☐ Tidal Wetlands

☐ Water Withdrawal

☐ Excavation and Fill in Navigable Waters

☐ 401 Water Quality Certification *

☐ Wild, Scenic and Recreational Rivers

☐ Long Island Well

☐ Docks, Moorings or Platforms

☐ Freshwater Wetlands

☐ Coastal Erosion Management

☐ Incidental Take of Endangered / Threatened Species

* See Instructions Page 3

>US Army Corps of Engineers

☐ Check here to confirm you sent this form to USACE.

Check all permits that apply: ☐ Section 404 Clean Water Act

☐ Section 10 Rivers and Harbors Act

Is the project Federally funded? ☐ Yes ☐ No

If yes, name of Federal Agency:

General Permit Type(s), if known:

Preconstruction Notification: ☐ Yes ☐ No

>NYS Office of General Services

☐ Check here to confirm you sent this form to NYSOGS.

Check all permits that apply:

☐ State Owned Lands Under Water

☐ Utility Easement (pipelines, conduits, cables, etc.)

☐ Docks, Moorings or Platforms

>NYS Department of State

☐ Check here to confirm you sent this form to NYSDOS.

Check if this applies: ☐ Coastal Consistency Concurrence

2. Name of Applicant

Taxpayer ID (if applicant is NOT an individual)

Mailing Address

Post Office / City

State

Zip

Telephone

Email

Applicant Must be (check all that apply): ☐ Owner ☐ Operator ☐ Lessee

3. Name of Property Owner (if different than Applicant)

Mailing Address

Post Office / City

State

Zip

Telephone

Email

For Agency Use Only

Agency Application Number:

4. Name of Contact / Agent

<input type="text"/>		<input type="text"/>		<input type="text"/>	<input type="text"/>
Mailing Address		Post Office / City	State	Zip	
<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	
Telephone	<input type="text"/>	Email	<input type="text"/>		

5. Project / Facility Name

Property Tax Map Section / Block / Lot Number:

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Project Street Address, if applicable	Post Office / City	State	Zip
<input type="text"/>	<input type="text"/>	NY	<input type="text"/>

Provide directions and distances to roads, intersections, bridges and bodies of water

☐ Town ☐ Village ☐ City County Stream/Waterbody Name

<input type="text"/>	<input type="text"/>	<input type="text"/>
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Project Location Coordinates: Enter Latitude and Longitude in degrees, minutes, seconds:

Latitude: ° ' " Longitude: ° ' "

6. Project Description: Provide the following information about your project. Continue each response and provide any additional information on other pages. **Attach plans on separate pages.**

a. Purpose of the proposed project:

b. Description of current site conditions:

c. Proposed site changes:

d. Type of structures and fill materials to be installed, and quantity of materials to be used (e.g., square feet of coverage, cubic yards of fill material, structures below ordinary/mean high water, etc.):

e. Area of excavation or dredging, volume of material to be removed, location of dredged material placement:

f. Is tree cutting or clearing proposed? ☐ Yes If Yes, explain below. ☐ No

Timing of the proposed cutting or clearing (month/year):

Number of trees to be cut: Acreage of trees to be cleared:

g. Work methods and type of equipment to be used:

h. Describe the planned sequence of activities:

i. Pollution control methods and other actions proposed to mitigate environmental impacts:

j. Erosion and silt control methods that will be used to prevent water quality impacts:

k. Alternatives considered to avoid regulated areas. If no feasible alternatives exist, explain how the project will minimize impacts:

l. Proposed use: ☐ Private ☐ Public ☐ Commercial

m. Proposed Start Date: Estimated Completion Date:

n. Has work begun on project? ☐ Yes If Yes, explain below. ☐ No

o. Will project occupy Federal, State, or Municipal Land? ☐ Yes If Yes, explain below. ☐ No

p. List any previous DEC, USACE, OGS or DOS Permit / Application numbers for activities at this location:

q. Will this project require additional Federal, State, or Local authorizations, including zoning changes?

☐ Yes If Yes, list below. ☐ No

7. Signatures.

Applicant and Owner (If different) must sign the application. If the applicant is the landowner, the **landowner attestation form** can be used as an electronic signature as an alternative to the signature below, if necessary. Append additional pages of this Signature section if there are multiple Applicants, Owners or Contact/Agents.

I hereby affirm that information provided on this form and all attachments submitted herewith is true to the best of my knowledge and belief.

Permission to Inspect - I hereby consent to Agency inspection of the project site and adjacent property areas. Agency staff may enter the property without notice between 7:00 am and 7:00 pm, Monday - Friday. Inspection may occur without the owner, applicant or agent present. If the property is posted with "keep out" signs or fenced with an unlocked gate, Agency staff may still enter the property. Agency staff may take measurements, analyze site physical characteristics, take soil and vegetation samples, sketch and photograph the site. I understand that failure to give this consent may result in denial of the permit(s) sought by this application.

False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the NYS 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.

Signature of Applicant



Date

Applicant Must be (check all that apply): ☐ Owner ☐ Operator ☐ Lessee

Printed Name

Title

Signature of Owner (if different than Applicant)

Date

Printed Name

Title

Signature of Contact / Agent

Date

Printed Name

Title

For Agency Use Only

DETERMINATION OF NO PERMIT REQUIRED

Agency Application Number

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

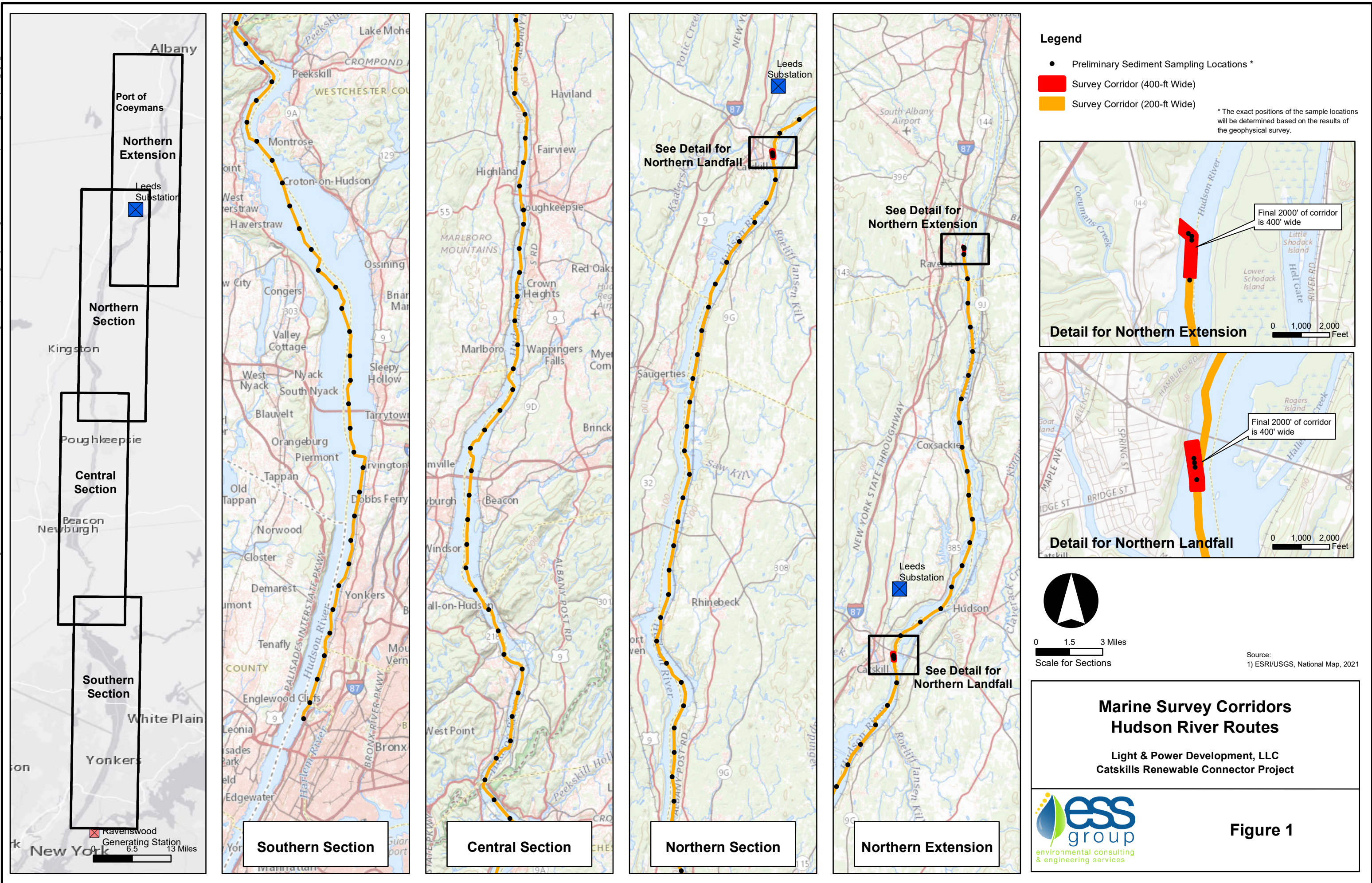
Agency Representative:

Printed
Name

Title

Signature

Date





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environmental consulting & engineering services

April 16, 2021

New York State Department of Environmental Conservation
Bureau of Energy Project Management
Offshore Wind and Hydroelectric Section Chief
c/o Karen M. Gaidasz
625 Broadway, 4th Floor
Albany, New York 12233-1750

**Re: *Sediment and Benthic Sampling Plan – Catskills Renewable Connector
Hudson River, New York, New York State Waters
ESS Project No. R366-005***

Dear Ms. Gaidasz,

Please find our Sediment Sampling and Analysis Plan (SSAP) submittal for review and approval by the New York State Department of Environmental Conservation on behalf of Light & Power Development, LLC. This SSAP describes the proposed sediment and benthic sampling, testing, and analysis that will be performed within the survey corridor to support routing and permitting of a proposed submarine electric cable in the Lower Hudson River between New York City and Coeymans, NY, covering approximately 120 statute miles.

Light & Power Development, LLC is proposing a submarine electric cable between upstate New York and New York City (Queens) to be known as the Catskills Renewable Connector. The 2019 Climate Leadership and Community Protection Act (CLCPA) calls for a transition to 100% renewable energy by 2040, and 70% by 2030. To achieve those goals new transmission is needed to connect New York City to the upstate New York grid to overcome existing congestion and bottlenecks. This project is intended to address a portion of that need. In addition to helping to meet Governor Cuomo's nation-leading goal, this new project is expected to result in billions of dollars of in-state investments and significant local job creation. At full output, the proposed line is expected to supply up to approximately 15 percent of New York City's electricity needs with clean, renewable, homegrown energy.

The field program described in the SSAP is planned to begin in the first half of June 2021. Vibracore and benthic sample collection is expected to take approximately 26 days along the proposed survey route. The field work will continue daily once the program begins until completion.

We welcome any input NYSDEC can provide on SSAP and the proposed testing analytes. If you have questions about the project or SSAP, please contact me at mphillips@essgroup.com or 781-419-7718.

Sincerely,

ESS GROUP, INC.

Project Scientist IV





Sediment Sampling and Analysis Plan

CATSKILLS RENEWABLE CONNECTOR PROJECT- NEW YORK STATE WATERS

PREPARED FOR:

Light & Power Development, LLC
1700 Broadway
35th Floor
New York, NY 10019

PREPARED BY:

ESS Group, Inc.
404 Wyman Street, Suite 375
Waltham, Massachusetts 02451

Project No. R366-005

April 2021



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FIGURES

Figure 1 Proposed Sampling Locations

APPENDIX

Appendix A Benthic Sampling Protocol



1.0 PROJECT DESCRIPTION

Light & Power Development, LLC is proposing a submarine electric cable between upstate New York and New York City (Queens) to be known as the Catskills Renewable Connector. The 2019 Climate Leadership and Community Protection Act (CLCPA) calls for a transition to 100% renewable energy by 2040, and 70% by 2030. To achieve those goals new transmission is needed to connect New York City to the upstate New York grid to overcome existing congestion and bottlenecks. This project is intended to address a portion of that need. In addition to helping to meet Governor Cuomo's nation-leading goal, this new project is expected to result in billions of dollars of in-state investments and significant local job creation. At full output, the proposed line is expected to supply up to approximately 15 percent of New York City's electricity needs with clean, renewable, homegrown energy.

The sediment sampling activities described herein are designed to support the overall design of the project and preparation of permit applications that are planned to be submitted by the end of 2021. The sediment sampling activities are scheduled to begin in early June 2021. The Survey Area will be located in the Lower Hudson River from New York City (confluence of Hudson and Harlem Rivers) to Coeymans, NY (approximately 120 statute miles).

The field program is divided into three primary categories: geophysical, sediment investigation and benthic investigation. The geophysical investigation will provide a three-dimensional perspective for evaluating the physical characteristics of the Survey Area and will begin in early May 2021. The sediment sampling investigation will ground truth aspects of the geophysical survey and will provide detailed information regarding sediment characteristics including bulk physical, chemical and thermal resistivity properties at various locations throughout the Survey Area. The benthic investigation will provide insight into the biologic communities in the Survey Area.

2.0 PROJECT ORGANIZATION

ESS Group, Inc. (ESS), and Ocean Surveys, Inc. (OSI) will conduct this field investigation work. OSI will be responsible for field operations (i.e., advancing vibracores, benthic sample collection) and establishing horizontal/vertical controls during the field program. ESS will be responsible for observing field activities; splitting, logging, sampling sediment vibracores, containerizing the benthic samples; and coordinating all activities with the subcontractor and the selected analytical laboratories. Sediment samples will be analyzed by our current proposed laboratory Alpha Analytical. Alpha Analytical is approved by the New York State Department of Health Environmental Laboratory Approval Program (NYSDOH ELAP) for the particular analytical methods to be performed. Benthic samples will be catalogued and processed by ESS personnel.

3.0 FIELD INVESTIGATIONS

The sediment sampling field investigation will consist of collecting vibracores from sediment along the proposed cable route for field logging and laboratory analysis. The investigation will be conducted in accordance with the New York State Department of Environmental Conservation (NYSDEC) Division of Water's Technical & Operational Guidance Series 5.1.9 In-Water Riparian Management of Sediment and Dredge Material (TOGS 5.1.9, November 2004, revised 9/25/06). Cores will be located at pre-selected locations across the Hudson River and near the proposed landfalls (Figure 1).

Collect benthic macroinvertebrate samples before initiation of coring or other bottom-disturbing activity. This is necessary to minimize prior disturbance to the sampled benthic community.

It is anticipated that vibracores will be collected from approximately 114 locations within the Survey Area in New York waters. The volume and location of cores was determined based on a review of existing information and sediment data specific to the proposed cable corridor, in conjunction with ESS's

professional judgment based on our experience. The number of vibracores may increase or decrease and the locations may be adjusted depending on the specific results obtained from the geophysical survey.

Potential cable installation depths are 15 feet below the authorized federal channel depths when crossing or within a federally maintained navigation channel, and 10 feet below present bottom outside the federal channel. These potential installation depths were used to design the penetration depths for the vibracores.

Vibracore Target Penetration Depths – The target vibracore penetration depth will be approximately 20 feet below the authorized navigation channel depths inside the Federal Channel, and approximately 15 feet below the sediment-water interface outside the Federal Channel. The additional one foot of core penetration, as specified in TOGS 5.1.9 to allow for characterization of material that would represent a new sediment surface, will not be performed in areas of proposed jet-plow installation because deeper sediments will not be exposed as a result of installation activities. In the cofferdam/dredge landfall locations, where there is a potential for the sediment to be exposed after the dredging activity, the 15 foot target penetration depth takes into account the additional foot of penetration required to allow for characterization of material that would represent a new sediment surface in the temporary cofferdam. Core penetrations may be completed deeper than proposed cable burial depths to evaluate cable installation feasibility.

The sediment cores will be collected to the target penetration depth or until refusal is encountered. Refusal shall be defined as a penetration rate of less than one (1) foot in three (3) minutes. Should refusal occur prior to reaching the target depth, the coring device will be recovered, serviced, re-deployed at an offset station proximal to but outside the area disturbed by the first attempt, and a second attempt shall be made to reach the target depth. The core with greater penetration/recovery will be maintained for sub-sampling. One retry will be attempted if sediment recovery from a core that achieves target depth is less than 80% of penetration. No more than two (2) cores will be collected at any location. Core locations will be named sequentially, as VC-01, VC-02, VC-03 or in some sensible modification thereof.

Upon recovery, cores may be cut into shorter sections and capped at both ends. When sub-sampling the core, care will be taken not to include any sediment from this cut surface, or any plastic chips from the saw cut. Prior to cutting cores into more manageable sections, cores will be visually examined through the core liner to ensure that no core is cut in a manner that precludes individual horizons from being sampled separately.

The cores will be marked with identification information (i.e., core ID, date, top/bottom) using an indelible marker. If cores are cut into sections, the bottom section of a core will be designated as section “A” and section letters will increase up the core. The markings will be located on both end caps (to denote top and bottom) and midway along the core liner. If necessary, a piece of plastic sheeting or a plastic bag will be secured over the bottom cap of each section to protect the label. After labeling, the cores will be kept upright and cool until they are split, photo-logged, described, and sub-sampled at the core processing location.

3.1 Vibracore System and Survey Control

Vibracores will be obtained from a vessel equipped with a vibracoring system capable of collecting standard 3.5-inch diameter cores up to 20 feet deep below the sediment-water interface. OSI will be responsible for locating the vibracores to within 10 feet of the target position, and will utilize the following survey and navigational controls:

- Horizontal survey control will be through Differential Global Positioning System DGPS and will be referenced to New York State Plane Coordinate System, East Zone (3101), North American Datum (NAD) 83 in International Feet. Vertical data will be referenced to North American Vertical Datum (NAVD) 88.

- Two independent DGPS systems will be applied, a primary and a secondary system. Independence between DGPS systems implies that both the base station segment and the survey platform segment are two independent systems. The secondary system will be available both as a backup for the primary system and for onboard quality assurance.
- Riverbed elevation will be established at all sampling locations at the time of vibracore advancement.
- Survey data will be archived in digital format.

3.2 Vibracore Field Notes

Legible notes will be taken daily during vibracore operations by the ESS representative on the vessel in dedicated field notebooks, using an indelible writing instrument, and will include the following information:

- Date/time
- Author of field notes
- Vessel name, captain, and daily port
- Daily objective
- Names and roles of all other personnel on the vessel (including visitors)
- Descriptions of the wind and sea conditions, noting changes throughout the day and weather limitations
- Descriptions of the tide and current, noting changes throughout the day and limitations
- Arrival/departure times from port and at locations
- Core identification number
- Core location recorded electronically via DGPS
- Water depth at core locations
- Penetration length
- Recovery length
- Problems encountered during the coring, including results of additional coring attempts required due to poor penetration or recovery and which core attempt was retained for sub-sampling
- Visual description of the core material recovered (i.e., sand, silt, organics, etc.), including description of the material observed at the bottom of the core/core cutting shoe
- Summaries of communications with others
- Additional notes provided by the subcontractor, as applicable

Information in field books, logs and chains-of-custody should not be erased. Use single line cross-outs only and initial changes.

3.3 Benthic Sampling Protocol

The benthic sampling protocol has been prepared to meet the specific needs of the project for characterizing the macroinvertebrate community in New York waters. This sampling protocol was designed with the objective of collecting benthic habitat data at approximately 114 locations within the planned survey corridor, which will be analyzed to provide an assessment of the macroinvertebrate community in this area. Specifically, this protocol will include the collection of surface sediment samples

using a benthic grab sampling device. Please see Appendix A for additional details and the Benthic Sampling Protocol.

3.4 Protection of Sturgeon

Sturgeon is a protected species that are present in the Hudson River. Both the Atlantic Sturgeon and the Shortnose Sturgeon are listed Endangered Species. During sediment sampling activities, OSI will employ the following methods to aid in the protection of sturgeon that may be present in the area of operations.

- Vessel operators and crews shall maintain a vigilant watch for sturgeon, and slow down or stop the vessel to avoid striking an observed sturgeon.
- Lower coring equipment and benthic grab through the water column in a controlled manner and pause briefly before contacting the riverbed to provide time for any sturgeon that may be below the equipment to move.

4.0 CORE PROCESSING AND LOGGING

Cores will be processed and logged either at a designated upland facility or on the coring vessel, depending on capacity. Details on core splitting, visual descriptions and logging methodologies are presented in the following sections. Any deviation from these methodologies should be discussed with the Project Manager and noted accordingly in field notes.

4.1 Core Processing Area

The core processing area will be under cover and protected from rain or water, be well-lit, have electric outlets and running water, and be of sufficient size to allow full lengths of at least one core to be laid out on the core processing surface. Sufficient storage must be available for unprocessed vibracores, coolers, boxes of sample jars, refrigerator(s), freezer, core processing tools, and other supplies. A broom, dust pan or shovel, and trash container are also necessary.

If an upland area is used, the processing area should be on the first floor of a building proximal to a garage-type doorway where the core delivery vehicle can back up to the space or a designated area at the marina's property. Unprocessed cores need to be stored vertically and kept at temperatures between 0 to 4 degrees C (32 to 39 degrees F). DOT-approved 55-gallon open-top drums should be available for disposal of excess sediments (see Section 5.10). A solid waste dumpster is also necessary on site for disposal of core liners (with sediment removed) and other solid waste generated during core processing.

4.2 Splitting of Cores

Each core will be split at the core processing facility and the previously labeled caps will be saved for photo logging purposes. Sediment within the cores will be assumed to be contaminated, and therefore dedicated disposable nitrile gloves will be worn at all times when handling samples. Gloves will be changed and properly disposed of as necessary to prevent cross contamination of separate laboratory samples. At a minimum, gloves shall be changed between each sampling location.

The lexan core liner will be cut lengthwise, on two opposing sides, with decontaminated power shears or circular saw. Clean stainless-steel wire will be used to separate the core lengthwise into two half-cylinders, so that the center of the core is visible.

4.3 Photo Logging of Cores

The core will be photo logged. Photo logging will proceed as follows:

- A tape measure (divided into 0.10-foot units) will be placed next to the core for reference. The tape measure will be positioned so that the zero mark is located at the top of the core (i.e, the sediment-water interface) and oriented so it appears at the left side of the photographs.
- During photo logging, the core and the tape measure will not be moved. This will provide consistency in core measurements.
- The end caps from the core will be used as markers for the photo logging and will appear in each photograph of the core material.
- Each core photo will be taken in a uniform manner, with the two caps at the top of the photo and lined up with the upper and lower foot mark. The two halves of the core will be positioned at the bottom of the photo and the tape measure will be located between the two core halves. The photos will be taken for each foot of sediment as shown below:



4.4 Visual Examination of Cores and Core Logging

Each core will be visually examined and logged using a standard vibracore field logging sheet. The following information will be included on each core log:

1. Project number, site, and client/project name.
2. Core identification and collection date.
3. ESS field personnel on boat during coring.
4. Date/time of core logging/sub-sampling.
5. Core logging/sampling personnel (*ex situ*).
6. Depth of water during collection.

7. Core penetration length (to the nearest 0.1 foot).
8. Core recovery length (to the nearest 0.1 foot).
9. Unified Soils Classification System (USCS) classification.
10. Distinct changes in stratigraphy, including color, grain sizes, density, and organic material. Percent composition of materials within each core will be estimated and noted as well.
11. The presence and size of larger gravels and clasts, and foreign man-made material such as metal, brick, etc. Photographs will be taken of any man-made materials.
12. Materials that may have been cut by the vibracore (i.e., cobbles, stones, etc.). Fresh fractured surfaces may be evidence of such vibracore cutting.
13. Any indications of contamination, including odors and visual staining.

4.5 Field Analysis of Cores

The shear strength of cohesive sediments will be measured in the field using a hand-held Torvane. The Torvane will be capable of measuring a stress range from zero to 2.5 kilograms per square centimeter (kg/cm^2). For each cohesive stratum measuring at least two (2) feet in thickness, Torvane readings will be taken every two (2) feet beginning near the top of the stratum, with a minimum of two (2) measurements per stratum. To avoid cross contamination, sediment used for Torvane field testing will not be used for chemical sample analysis. One half of the core will be used for Torvane and physical sample collection and the other half for chemical analysis.

5.0 SEDIMENT SAMPLING AND LABORATORY ANALYSIS

Sediment sampling, handling, storage/preservation, and analysis will be consistent with accepted industry standard field and laboratory procedures, and pursuant to the TOGS 5.1.9. Visual assessments of cores will be completed as detailed above in Section 4.4. Following visual assessment and logging, each core will be sub-sampled for physical and chemical characteristics depending on sediment type and stratification observed in the cores.

If no stratification is observed throughout the length of a core, one homogenized sample of the core will be selected for laboratory analysis. If the grain size, total organic carbon (TOC) or likelihood of contamination based on core lithology or known contamination history indicates that individual horizons within the core may be significantly different in sediment quality, each distinct stratum with a depth of two feet or greater will be sampled separately.

If a core sample is observed to be comprised of greater than 90 percent sand and gravel, chemical laboratory analyses will not be performed, *provided the core was not collected from an area of known present or historical contamination*. Visual observations used to make the determination that a sample is greater than 90 percent sand and gravel will be documented by a laboratory grain size analysis. Samples from these locations will be collected and held at the laboratory for chemical analysis pending the results of the laboratory grain size analysis.

For cores collected from potential cofferdam/dredge landfall locations, the bottom one foot of the core will be sampled separately for chemical analysis. This sample will represent the top six inches of the sediment to be exposed after dredging activities. This sample will be analyzed at the same time as other samples.

5.1 Physical Analysis

Each sample will be analyzed for the following physical parameters:

- Grain size with hydrometer (ASTM D 422)
- Moisture, Ash and Organic Matter (ASTM D 2974)
- Atterberg Limits (ASTM D 4318)
- Specific Gravity (ASTM D 854)

5.2 Chemical Analysis

Each homogenized sample will be analyzed for the parameters listed on the TOGS 5.1.9 Table 1, revised 9/25/06 (presented below), with the following exceptions:

- Samples will not be analyzed for the site-specific constituents, including copper, BTEX, mirex or chlordane.
- The 10 (10) samples with the highest total PCB aroclor concentrations will also be analyzed for the NOAA list of PCB congeners and dioxins/furans.
- Grain size will be performed as indicated in Section 5.1, above.
- Additional sample volumes may be collected from each sample location for freezer archive purposes.

Table 1 - revised 9/25/06

Method Detection Limits and Suggested Analytical Methods

Parameter Sediment/Soil	EPA Method CLP/RCRA	Required Method Detection Limits (mg/kg, ppm)	No Appreciable Contamination (Threshold Values (mg/kg, ppm)
Metals			
Arsenic	Metals - EPA 6010B	3.0	<14
Cadmium	Metals - EPA 6010B	1.0	< 1.2
Copper*	Metals - EPA 6010B	5.0	< 33
Lead	Metals - EPA 6010B	2.0	< 33
Mercury *	Metals - EPA 6010B, 7470	0.2	< 0.17
PAH's and Petroleum-Related Compounds			
Benzene	EPA 8021, 8260B	0.0003	< 0.59
Total BTX*	EPA 8021, 8260B	0.0008	< 0.96
Total PAH	EPA 8270	0.33	< 4
Pesticides			
Sum of DDT+DDE+DDD *	EPA 8081A	0.0033	< 0.003
Mirex **	EPA 8081A	0.189	< 0.0014
Chlordane *	EPA 8081A	0.0017	< 0.003
Dieldrin	EPA 8081A	0.0033	< 0.11
Chlorinated Hydrocarbons			
PCBs (sum of aroclor)	EPA 8082	0.033	< 0.1
Dioxin (Toxic Equivalency Total)*	EPA 1613B	0.000002	< 0.0000045
Physical Properties			
Grain Size	ASTM D41/D42		
Total Organic Carbon	EPA 9060A		

* Note: Threshold values lower than the Method Detection Limits are superseded by the Method Detection Limit.

* Indicates case specific analytes.

5.3 Sample Containers

Appropriate pre-cleaned and unused sample containers will be provided by the laboratories. Container quality will be visually checked prior to placing sediments into containers.

5.4 Sample Labeling

Laboratory-supplied pre-printed sample labels will be used to appropriately identify sample containers, and will be placed on the containers prior to filling with sediment. Samples collected during the sediment sampling investigation will be labeled with a sample identification code. Sample labels will reference both the vibracore identification number (VC-01, VC-02, and so on) and sample number (i.e., VC-01-S1, VC-01-S2, VC-01-S3, and so on). The following information will be recorded on each sample label, and sample labels will be checked twice to ensure accuracy and consistency with field records:

- Company name
- Project number
- Project/site name
- Sample identification code
- Analyses to be performed
- Preservation method
- Date/time of sampling from the core
- Initials of person collecting the sample
- Pertinent comments, if applicable

5.5 Sample Collection and Handling

Any water which separates from the raw sediment sample during transport/storage (i.e., pore water) will be re-mixed with the solid components of the sediments prior to forming the composite samples. This pore water will not be decanted from the sediment sample.

Sediment adjacent to core cross-cuts or sediment adjacent to the liner walls that was disturbed by the lengthwise cutting process will not be sampled. Collection of plastic chips or shards that may be present as a result of the cutting process will be avoided. Sampling will be limited to the interior of the split core.

Samples will be homogenized prior to placement in sampling containers to ensure that representative samples are obtained. Homogenization will proceed by mixing the sample in a clean stainless-steel bowl with a clean stainless-steel spoon until the sample is visibly uniform in color and consistency. Only sampling equipment designed for environmental sampling will be used. Any water that has separated from the sediment will be mixed back into the sample. For chemical samples, material larger than one-quarter inch will be removed and noted, including twigs, leaves, shells, and gravel. For physical samples, all materials will be maintained in the sample unless it is too large for the sample container or misrepresents the sample (i.e., a composite would not statistically contain this piece of material). Materials that are too large or unrepresentative will be documented.

Homogenized sediment will be transferred into the appropriate clean containers using a stainless-steel spoon and the containers closed securely. Care will be taken to prevent sediment from collecting on the exterior of sample containers. Sediment that accumulates on the container exterior and top, including jar threads, will be wiped off with a clean paper towel prior to securing the lid.

If chemical samples are to be frozen by the laboratory to suspend holding times, the jars will only be filled two-thirds to allow room for expansion of wet sediments and prevent container breakage.

Chemical sample containers will be placed in laboratory-supplied bubble-wrap bags and into an ice-packed cooler or refrigerator immediately after sampling. Large, heavy-duty zip-loc bags will be used to contain ice within coolers, which will prevent water from seeping into sample containers, damaging sample container labels and/or leaking from coolers during transport. Physical sample containers will be placed in coolers or other appropriate shipping containers, without ice.

5.6 Sample Tracking and Chain of Custody

The samples submitted for laboratory analysis will be preserved, stored, handled, and transmitted to the laboratory within allowable hold times. Laboratory-supplied chain-of-custody forms will be used to track sample custody for both physical and chemical samples. The chain-of-custody forms will be completed immediately after each sample is processed to minimize potential for errors. Chain-of-custody forms will be double-checked prior to releasing the samples, and laboratory personnel advised on the proper signature, date, and time of release information required. Chain of custody forms will include all information required by the laboratory including the following, at a minimum:

- Project name
- Project number
- Sample identification (e.g., Station location number)
- Company name
- Date (e.g., date = YYMMDD)
- Time (e.g., 4-digit, 24-hour)
- Sample matrix indicating type of sample (composite or grab)
- Initials of personnel performing the sampling
- Analyses to be performed and required method reporting limits
- Preservation technique
- Container type
- Number of containers for each sample
- Pertinent comments or special requests (e.g., archive, hold, freeze)
- Release signature with date and time

The samples will be delivered to the appropriate laboratories via overnight priority shipping or courier so that hold times and temperature preservation requirements will be met. If shipped overnight, the chains of custody will be placed in plastic bags and taped inside the cooler lid. Additionally, custody seals will be properly secured over the lid of each cooler (i.e., double-wrapped with filament tape). If transported via courier, chain of custody forms must be signed by the courier with the date and time of release and do not need to be secured inside the coolers.

5.7 Sampling Equipment Decontamination Procedures

Every effort will be made to avoid cross-contamination of samples. Proper methods will be followed, including using dedicating sample equipment whenever possible. When equipment is to be reused, such as the re-use of plastic or stainless-steel spoons, trowels, or bowls, the following decontamination procedure will be followed before use with each new sample:



1. Distilled/deionized Water and Non-phosphate Detergent Rinse/Scrub – A non-phosphate laboratory-grade detergent will be added to distilled or deionized water and mixed in spray bottles per manufacturer's recommendations. The water/detergent solution will be sprayed onto equipment in quantities sufficient to promote formation of bubbles/foam when scrubbed with a scrub brush. Scrubbing shall continue until the absence of soil, sediment and foreign material on the equipment is confirmed visually.
2. Distilled/deionized Water Rinse – Distilled or deionized water will be either poured or sprayed over the equipment following the tap water/detergent rinse/scrub. The water rinse shall continue until the bubbles/foam generated from the water/detergent rinse/scrub has been purged from the equipment.
3. Isopropyl Alcohol Rinse – Following the water rinse, pesticide-grade isopropyl alcohol will be sprayed onto the equipment in sufficient quantities to coat the entire surface area of the equipment.
4. Distilled/deionized Water [Triple] Rinse – Following the isopropyl alcohol rinse, distilled or de-ionized water will be sprayed onto the equipment no fewer than three times to coat the entire surface of the equipment.
5. Dry – Equipment shall be dried with clean paper towels or allowed to air dry (preferred, if time allows).
6. Storage – Once dry, to prevent contamination in between uses, items will be wrapped with dedicated sheets of tin foil and/or zip-loc plastic bags or stored in an area not subject to cross-contamination from windblown sediment and/or water.

To keep transport to a minimum and prevent cross-contamination, the decontamination activities should occur in a designated area that is separate from, but close to, the sample handling location. Decontaminated sampling equipment will be stored in a location and manner that prevents cross-contamination. Storage and working areas, including the coolers, will be cleaned regularly.

5.8 Quality Assurance/Quality Control Program

The goal of this Sediment Sampling and Analysis Plan (SSAP) is to provide sediment data which are accurate, representative, and legally defensible. The Quality Assurance/Quality Control (QA/QC) measures in sampling sediments to be employed will include: use of proper containers and appropriate methods of sample collection and preservation; providing strict sample identification and chain-of-custody documentation; and decontamination and cross-contamination prevention procedures.

The NYSDEC Analytical Services Protocol (ASP), dated June 2000, provides the in-laboratory QA/QC requirements that will be utilized for this Project. Only ELAP-certified laboratories that will perform the appropriate laboratory QA/QC procedures will be used for this project. Data will be reported via ASP Category B deliverables.

In addition to the QA/QC procedures described above, the following QA/QC sampling protocol, from Appendix C of the TOGS 5.1.9, will be followed for this sediment sampling field program:

Table C-1 QC SAMPLES FOR SEDIMENTS			
Sample Type	Purpose	Collection	Documentation
Duplicate	Check laboratory and field procedures	1 sample per week or 10% of all field samples, whichever is greater	Assign two separate sample numbers, submit blind to the lab
Equipment (Rinseate) Blank	Check field decontamination procedures	Collect when sampling equipment is decontaminated and reused in the field.	Assign separate sample number
Matrix Spike and Matrix Spike Duplicate (MS/MSD)*	Required by laboratory protocols.	1 sample per twenty sediment samples	Assign both samples the same sample number. Indicate MS/MSD on chain-of-custody form.

*This is not necessary with PCB congener method or high resolution pesticide method or dioxin/furan analyses.

Table C-1 above, will be followed with the following conditions:

- Duplicate samples will not be counted as “field samples” or “sediment samples” for the purposes of calculating frequency of Duplicate and MS/MSD sample collection.
- Field duplicate and MS/MSD samples will be collected from cores/strata which are observed in the field to contain greater than 10% fines (silt/clay) (i.e., less than 90% sand).
- Field duplicate samples will be analyzed for the same chemical parameters as the primary sample.
- MS/MSD samples will be analyzed for the same chemical parameters as the primary sample except PCB congeners, pesticides and dioxin/furans which are not required.
- Field duplicate and MS/MSD samples will not be analyzed for physical parameters.
- Equipment (Rinseate) Blank: analyte-free, laboratory-supplied deionized water will be used to rinse clean sampling equipment and will be collected into sample containers after sampling and completion of decontamination. One rinseate blank will be collected early in the sampling program and submitted to the laboratory on a separate chain-of-custody. The rinseate blank results will be evaluated by the Project Manager as soon as the results are available, and corrective action taken if warranted by the results.
- Rinseate Blank analysis will include all of the chemical parameters specified in this plan except for PCB congeners and dioxin/furans.

5.9 Archived Sediments

If needed, ESS will request that the chemical analytical laboratory freeze/archive, for one year, any additional sample aliquots collected for archive purposes and/ or any extra sediments remaining in sample containers following the requested analyses.



5.10 Excess Sediment Management

If an upland location is utilized for core processing/sampling, excess sediment remaining after sample collection will be transferred to DOT-approved 55-gallon open-top drums for temporary storage at the sample processing location. This sediment will be properly managed based on its chemical disposition.

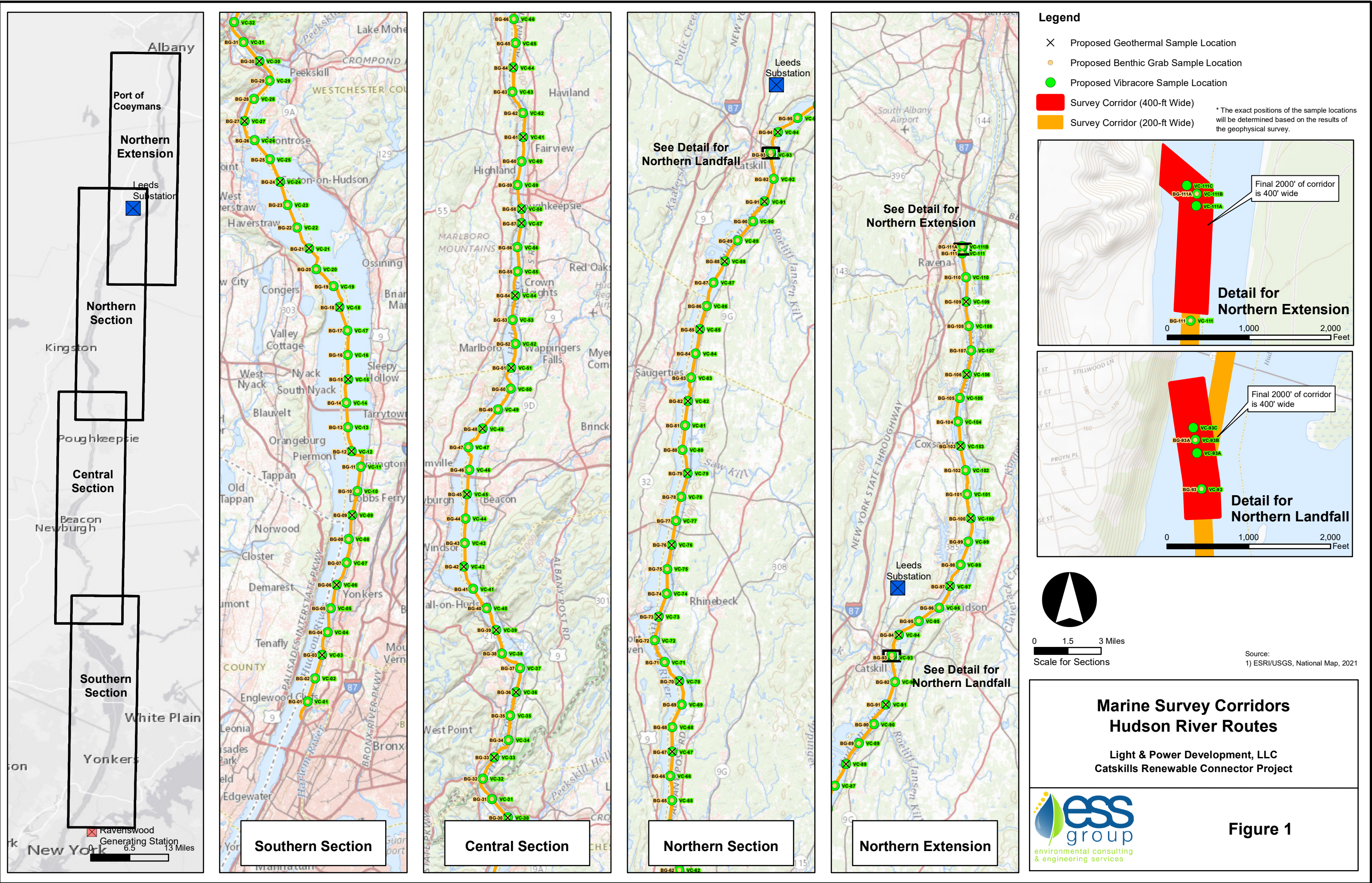
6.0 NOTIFICATIONS

A request for a Local Notice to Mariners for the planned sampling operations must be emailed to LNM@uscg.mil with a copy to Jeff Yunker at Coast Guard Sector New York Waterways Management (Jeff.M.Yunker@uscg.mil) two weeks before work is to begin. The LNM form should be accompanied by a chart showing the proposed sample locations with their number designations.

The sampling activities proposed for the Catskills Renewable Connector are not located in the the USCG Vessel Traffic Service New York area of responsibility.

Figures





Appendix A

Benthic Sampling Protocol





Benthic Sampling Protocol

CATSKILLS RENEWABLE CONNECTOR PROJECT – NEW YORK STATE WATERS

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FIGURES

Figure 1 Proposed Sampling Locations



1.0 INTRODUCTION

Light & Power Development, LLC is proposing a submarine electric cable between upstate New York and New York City (Queens) to be known as the Catskills Renewable Connector. The 2019 Climate Leadership and Community Protection Act (CLCPA) calls for a transition to 100% renewable energy by 2040, and 70% by 2030. To achieve those goals new transmission is needed to connect New York City to the upstate New York grid to overcome existing congestion and bottlenecks. This project is intended to address a portion of that need. In addition to helping to meet Governor Cuomo's nation-leading goal, this new project is expected to result in billions of dollars of in-state investments and significant local job creation. At full output, the proposed line is expected to supply up to approximately 15 percent of New York City's electricity needs with clean, renewable, homegrown energy.

In preparation for state and federal permit requirements, this Benthic Sampling Protocol has been prepared to meet the specific needs of the Catskills Renewable Connector Project for characterizing the macroinvertebrate community in New York waters. This sampling protocol was designed with the objective of collecting benthic habitat data at approximately 114 locations within the planned survey corridor, which will be analyzed to provide an assessment of the macroinvertebrate community in this area. Specifically, this protocol will include the collection of surface sediment samples using a benthic grab sampling device.

2.0 PROJECT ORGANIZATION

ESS and the selected marine survey contractor personnel will conduct this field investigation work. The marine survey contractor will be responsible for field operations (e.g., survey vessel and dredge sampler operation) and establishing horizontal/vertical control. ESS will be responsible for observing field activities, sieving and preserving benthic samples, and coordinating activities with the marine contractor.

ESS will provide benthic macroinvertebrate laboratory services. This includes sample logging, and the sorting, identification, and enumeration of benthic macroinvertebrates from each sample. ESS will produce a benthic macroinvertebrate community assessment report, detailing the results of the benthic sampling field program.

3.0 BENTHIC SAMPLING AND ANALYSIS

The following guidelines are to be used for quantitative benthic macroinvertebrate sample collection and analysis. Sampling will be conducted using a benthic grab sampling device deployed from the vessel.

3.1 Macroinvertebrate Collection Protocols

3.1.1 Equipment and Materials

The following field equipment and materials may be necessary for this procedure:

- Benthic grab sampling device and cable – typically supplied by marine survey contractor
- 10% neutral buffered formalin
- Plastic sample jars (quart size or larger) – a minimum of one per sample
- Field notebook or field datasheets and pen
- Pre-printed labels and permanent markers for sample jars
- Large plastic tubs (at least two)
- Large durable spoon or scoop

- Nitrile gloves
- Measuring stick or tape measure
- 0.5-millimeter sieve bucket
- Digital camera
- Five-gallon buckets (optional)
- Wash bottle or similar device (optional)
- Forceps (optional)

3.1.2 Collection Methods

The following details assume that macroinvertebrate collection work will be conducted from a coring vessel or other similar research vessel. The proposed benthic sampling locations are shown in Figure 1. Benthic sampling results from these locations are expected to provide representative data for the survey corridor.

Detailed Procedures

1. Prior to collecting the first sample, document the type of grab sampler to be used. This should include, at a minimum, photographs of the sampler in the open and closed positions, as well as a measurement of the sampling area dimensions.
2. ***Collect benthic macroinvertebrate samples before initiation of coring or other bottom-disturbing activity.*** This is necessary to minimize prior disturbance to the sampled benthic community.
3. Prepare the benthic grab sampling device for deployment. Prior to lowering dredge, ensure that jaws or bucket are in the ready, or safety, position. Check that all flaps and screens are in the appropriate position for minimizing shockwaves and loss of material upon retrieval. Ensure that the marine survey contractor lowers the benthic grab sampling device at a moderate and consistent speed (i.e., the dredge should not be allowed to freefall or start and stop repeatedly) and that the dredge is vertically aligned (i.e., not strongly angled to one side). The objective is to have the dredge enter the seafloor material orthogonally and penetrate deeply enough that a representative, undisturbed sample of the top layer of sediment is collected. To prevent disturbance to the sample, ensure that the marine survey contractor retrieves the sampler at a moderate and steady rate.
4. Upon retrieval to the vessel, set the dredge directly in a plastic tub. Alternatively, the dredge sampler may be placed on a sampling table with a plastic tub secured in an appropriate location for collecting sample material once the dredge has been opened.
5. Remove or pull back the screens and/or flaps covering the top of the sampler. Examine the contents of the sampler to make sure that an acceptable sample has been collected. If the sample is deemed acceptable, place a large label on or adjacent to the sampler for sample identification and photograph the collected material. ***Acceptable samples are those with recovery of at least three inches of material that do not show signs of washout or uneven penetration. Samples that***

show signs of over penetration (e.g., sample material oozing through top screen or flap) are not desirable.

6. If the sample **does not** meet acceptability criteria, the collected material should be temporarily retained in a plastic tub, bucket or other container on board. Resampling at an offset location of at least one meter from the initial location will be required to collect a more representative sample. If modifications such as adding or removing weights would be likely to result in collection of a more representative sample, make those modifications prior to deploying the benthic grab sampling device again. If, after two attempts, an acceptable sample has not been collected, the **most representative** sample of the two samples should be retained for return to the laboratory. The other sample may be discarded. ***Note: this guideline does not apply if the dredge sampler simply failed to trigger, or jamming of the jaws/bucket resulted in sample washout. In these situations, the dredge sampler should be redeployed until sediment has successfully been collected.***
7. Record sample details in field log. These include water depth, sediment type, sample recovery, and whether sample was accepted or rejected. Record any other pertinent information and ensure that sample coordinates have been appropriately logged by the responsible party onboard. Also note and photograph any large or unusual organisms (e.g., shellfish or deep-burrowing polychaetes).
8. Gently rinse the retained sample material in the 0.5-millimeter sieve bucket with pumped water (if available) or in a tub full of water. Take care not to damage organisms in the sample through rough handling or directing strong water flow into the sample material. Rinse until fines are no longer observed passing through the sieve.
9. Carefully transfer the sample from the sieve bucket to a sample jar. Use a spoon, forceps, or a wash bottle to dislodge any coarse material or organisms that remain attached to the sieve or bucket interior.
10. Add enough neutral buffered formalin solution to bring the sample ratio to 90% sample/seawater and 10% preservative. Make sure that the buffered formalin solution is mixed well within the sample by gently swirling (**do not shake**) the material in the sample jar. If proper preservation is not possible in the field, the samples may be stored in a refrigerator or on ice for up to 24 hours, at which time they must be preserved.
11. Label the sample inside and out. Use permanent marker to label the exterior of the sample jar. ***Internal paper labels are also required*** as a failsafe identification method should the external label be washed or worn off. Each label should include project name, site identification code, date of sample collection, initials of sample collector, preservative, and number of jars used (if needed—e.g. 1 of 3, 2 of 3, etc.).
12. Rinse sieves between samples by backwashing with clean surface water. It is important to rinse thoroughly to avoid cross-contamination of samples.
13. Return preserved samples to ESS's East Providence, Rhode Island office for laboratory analysis.

3.2 Laboratory Analysis Protocols

3.2.1 Equipment and Materials

The following laboratory equipment and materials may be necessary for this procedure:

- Laboratory log-in sheet
- Bench sheets
- Minimum 70 % ethanol for long-term preservation
- Disposable plastic pipettes
- Sieve with screen mesh size of 0.5 millimeters or less
- Funnel and plastic waste container
- Sorting pans (Petri dishes)
- Forceps – fine gauge for sorting and ultrafine gauge for identification
- Assortment of appropriately sized sample vials
- Dissecting microscope
- Compound microscope
- Slide mounting supplies (slides, cover slips, and CMC-9 or CMC-10 mounting medium)
- Fiber-optic or halogen gooseneck lamps for sorting
- Regionally appropriate taxonomic keys
- Whirl-pak bags (optional)
- Rose Bengal (dye) solution (optional)

3.2.2 Laboratory Analysis Methods

Macroinvertebrate identification will be conducted by qualified ESS staff in an offsite laboratory.

Detailed Sorting Procedures

1. Samples should be logged-in on arrival at the lab and checked for adequate preservation. If additional or alternative preservative is necessary for sample storage, it should be added or switched at this time.
2. Prior to sorting, empty the sample jar contents into a 0.5-millimeter sieve and gently rinse with tap water to remove preservative and fines. Rinseate should be temporarily captured in a tub of sufficient volume. Once each sample has been adequately rinsed, transfer the rinseate into an appropriately labeled waste container. Use a funnel, if needed, to assist with transfer of the rinseate.

3. In order to facilitate the sorting procedure, a small amount (usually one or two drops) of Rose Bengal stain and ethanol solution may be added to each sieved sample using a plastic pipette. This will stain soft tissues pink and enhance sorting efficiency in samples that consist primarily of sand or other coarse mineral sediments. Addition of Rose Bengal is less useful for samples consisting mainly of organic matter.
4. Once the sample has been rinsed, float the remaining material by immersing the sieve in water and evenly distribute sample material throughout the sieve. Lift the sieve straight up out of the water to maintain the distribution of the sample over the sieve.
5. Samples characterized by very high abundances or large sample volume may be sub-sampled using a known fraction of the sample and a random selection process. However, the final number of organisms sorted must sufficiently represent the sampled community. This should be determined on a case-by-case basis in consultation with the senior lab taxonomist.
6. If sub-sampling, use a random number sheet to select one portion of the grid cell to sort. If not sub-sampling, skip to Step 7.
7. Remove a small amount of material from the sieve and place it onto a Petri dish. Make sure not to remove too much material at once, as this will make sorting more difficult and less efficient. Add water or 70% ethanol as necessary to prevent the sample from drying out during sorting.
8. Samples will be sorted under a dissecting microscope into the following broad taxonomic groups: mollusks, crustaceans, and “others.” Sorted debris will be saved in a container identified with a label including the terms “sorted residue” in addition to all other sample information. Remaining unsorted sample debris will be saved in a separate container, and labeled as “sample residue.” Whirl-pak bags may be used to separate sorted and unsorted residue within one storage container. All containers with sample material will be preserved in 70% ethanol and will be labeled as such.
9. The sorter will record results on an electronic bench sheet for each sample, noting their initials, the date of sorting, effort (in hours), and total counts of individuals in each of the three organism groups.

Detailed Taxonomy Procedures

1. Select a sample for taxonomic processing and enumeration. Empty each vial into a separate Petri dish (or separate well, if using a divided Petri dish).
2. Using regionally appropriate taxonomic keys, a high-powered dissecting microscope (a minimum of 45X magnification), and a gooseneck lamp for oblique lighting, identify each individual organism sorted from the sample to the lowest practicable taxonomic level (typically genus/species). Record the total number of individuals from each taxon on an electronic bench sheet. Add notes regarding any reduction in taxonomic resolution due to damaged specimens, immature specimens, inadequate taxonomic resources, etc.
3. Oligochaete worms, chironomid midges, and small polychaete worms may need to be slide mounted for identification. In some cases, temporary mounting in water will be sufficient. However, if the organism needs to be cleared for identification, use CMC-9 or CMC-10 mounting medium to create a semi-permanent slide. Refer to Epler (2001) for guidance on slide mounting. Make sure

that any slides prepared for viewing under the compound microscope are labeled with sample ID, collection date, and number of slides (e.g., 1 of 3, 2 of 3, etc.).

3.2.3 Quality Assurance/Quality Control

The Quality Assurance/Quality Control (QA/QC) protocol for the benthic monitoring program will be comparable to procedures outlined for other similar assessment programs. ESS will perform a quality check on randomly selected samples. The number of samples checked will constitute at least 10% of the samples analyzed. This quality check will cover both the sorting and the identification phases of the analysis.

For the sorting phase, if more than 10% error (calculated by dividing the number of organisms found in the quality check by the total number of organisms sorted from the sample) is found between the sorter and the quality assurance check, an additional sample by this same sorter will undergo the quality assurance check. If the percent error in that sample is also more than 10%, then all samples sorted by that individual will be reprocessed. At the discretion of the senior lab taxonomist, exceptions to this threshold may be made for samples with very low total organism counts (typically less than 100 organisms per sample). In all cases where sorting error is greater than 10%, the senior lab taxonomist will review the organisms missed with the sorter and recommend any further corrective actions, such as addition of Rose Bengal, to improve sorting efficiency. A record of quality assurance checks will be maintained as part of the laboratory bench sheets for the project.

For identification, a second ESS staff member trained in benthic macroinvertebrate identification will randomly check a minimum of 10% of the samples analyzed. The purpose of this check will be to validate the identifications of organisms within the sample and rectify taxonomic disagreements. In addition, ESS may confirm identifications made by ESS with other regional experts as necessary. Alternatively, a reference collection of voucher specimens may be maintained and checked for taxonomic accuracy. Records of the results of each of the various quality assurance checks described above will be maintained in an electronic laboratory analysis log.



4.0 REFERENCES

Epler, J.H. 2001. Identification Manual for the Larval Chironomidae (Diptera) of North and South Carolina. Special Publication SJ2001-SP13. Raleigh, NC: North Carolina Department of Environment and Natural Resources and Palatka, FL: St. Johns River Water Management District.

Figures

