

**APPENDIX O**  
**CASE 10-T-0189**  
**CULTURAL RESOURCES MANAGEMENT PLAN (C109)**

**SUPPLEMENTAL CULTURAL RESOURCES MANAGEMENT PLAN**  
**Champlain Hudson Power Express HVDC Transmission Line Project**  
**Part 1: Putnam to Whitehall (Segments 1 and 2)**

Lake Champlain to New York City  
Washington County, New York

HAA 4268-83  
SHPO 09PR03910

**Submitted to:**

CHA Consulting, Inc.  
575 Broadway, Suite 301  
Albany, NY 12207

**Prepared by:**

Hartgen Archeological Associates, Inc.

1744 Washington Avenue Ext.  
Rensselaer, New York 12144  
p +1 518 283 0534  
f +1 518 283 6276  
e [hartgen@hartgen.com](mailto:hartgen@hartgen.com)

[www.hartgen.com](http://www.hartgen.com)

An ACRA Member Firm  
[www.acra-crm.org](http://www.acra-crm.org)

## MANAGEMENT SUMMARY

SHPO Number: 09PR03910  
Involved Agencies: U.S. Department of Energy, U.S. Army Corps of Engineers, NYSHPO  
Phase of survey: Cultural Resources Management Plan (Updated)

## LOCATION INFORMATION

Municipality: Towns of Putnam, Dresden, Whitehall, and Village of Whitehall  
County: Washington County

## CULTURAL RESOURCE MANAGEMENT PLAN OVERVIEW

Objective: *The purpose of this Supplemental Cultural Resources Management Plan is to synthesize data sets into one document, and to provide OPRHP/DPS contact information for identified roles within the original Cultural Resource Management Plan drafted by TRC and finalized in 2021.*

Report Authors: Danielle Duguid, Matt Lesniak, and Matthew Kirk, MA RPA  
Date of Report: August 2022 (Redacted Version)

## TABLE of CONTENTS

CULTURAL RESOURCES MANAGEMENT PLAN.....	1
1 Introduction.....	1
2 Project Information.....	1
2.1 Description of the Project.....	2
2.1.1 Segment 1 .....	2
2.1.2 Segment 2 .....	4
2.1.3 Laydown Area and Temporary Work Area.....	7
2.1.4 Summary of Recommendations.....	7
2.2 Construction Timeline.....	7
3 Cultural Resource Management Plan.....	8
3.1 Objective.....	8
3.2 Project Preservation Officer (PPO).....	8
3.3 Protective Measures .....	8
4 Communication.....	8
5 Deliverables.....	9
5.1 Periodic Updates.....	9
5.2 Annual Report.....	9
6 Bibliography.....	10

## Appendix 1: Champlain Hudson Power Express Cultural Resources Management Plan (TRC)

### Table List

Table 1. Project contacts.....	8
--------------------------------	---

## LIST OF ACRONYMS

ACHP – Advisory Council on Historic Preservation  
 APE – Area of Potential Effect  
 CA – Consulting Archeologist  
 CHPE, LLC – Champlain Hudson Power Express, LLC  
 CRMP – Cultural Resources Management Plan  
 DOE – U.S. Department of Energy  
 GIS – Geographic Information System  
 Hartgen – Hartgen Archeological Associates, Inc.  
 HDD- horizontal directional drilling  
 HVAC – high-voltage alternating current  
 HVDC – high-voltage direct current  
 MP – mile post, railroad  
 MW – megawatt  
 NHPA – National Historic Preservation Act  
 NYAC – New York Archaeological Council  
 NYSHPO – New York State Historic Preservation Officer  
 NYSM – New York State Museum  
 PPO – Project Preservation Officer  
 ROW – Right-of-Way  
 TRC – TRC Companies, Inc.

## CULTURAL RESOURCES MANAGEMENT PLAN

### 1 Introduction

Hartgen Archeological Associates, Inc. (Hartgen) has been retained provide a Supplemental Cultural Resources Management Plan (CRMP) to the Final CRMP developed by TRC and finalized in 2021 (Appendix 1) for the proposed Champlain Hudson Power Express (Project) located over multiple counties through New York. The current phase of work focuses on the overland portion in Washington County between the Town of Putnam and the Village of Whitehall.

The Project has received approvals by the U.S. Department of Energy (DOE), the U.S. Army Corps of Engineers, with consultation from the NYSHPO. The goal of the Supplemental CRMP is to provide a framework in which potential impacts to all relevant historical properties and archeological sites (determined to be eligible for or listed in the National Register of Historic Places) known to exist or may be discovered are to be managed during construction. This management plan will also create a comprehensive framework for identifying and undertaking any additional archeological work that may be required prior to and during the construction of the Project.

TRC Companies, Inc. (TRC) created a draft comprehensive Management Plan in 2015, finalized in 2021 to include three additional reports. This management plan is referred to throughout the current document (Appendix 1), with this document serving to fully incorporate all the relevant information for Phase I of construction into one succinct document. In the event of a conflict between this document and that provided in Appendix 1, the TRC CRMP will prevail.

This plan was enacted to comply with Section 106 of the National Historical Preservation Act and will be reviewed by the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) as well as the aforementioned national agencies. This plan was established according to the New York Archaeological Council's *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections* (1994), which are endorsed by OPRHP.

### 2 Project Information

The Project involves the construction of approximately 339 miles of a high voltage direct current underground and underwater transmission line, running from Montréal, Canada to Queens, New York. This transmission line will bring 1,250 megawatts of hydropower to replace the use of fossil fuels, reducing carbon emissions and helping achieve renewable and clean energy in New York State. This proposed project will provide enough power for more than 1 million homes through New York State. Installation of this transmission line will occur primarily beneath the ground within roadway and railroad right of way. Direct impacts to streams and waterbodies are avoided through means such as attaching to existing infrastructures (bridges and culverts) or incorporating the use of hydraulic directional drilling (HDD).

Several archeological reports by Hartgen and TRC examined and detailed the sensitivity and potential of the APE. These resources have been utilized in the creation of the Cultural Resource Management Plan.

The bolded report includes portions of the most current Project (Segments 1 and 2) and provide relevant background information.

- Hartgen. 2010a. Pre-Phase IA Archeological Screening: Champlain Hudson Power Express.
- Hartgen. 2010b. Phase IA Literature Review and Archeological Sensitivity Assessment: Champlain-Hudson Power Express.
- **Hartgen. 2012. Phase IB Archeological Field Reconnaissance and Phase II Archeological Site Evaluation: Champlain Hudson Power Express, Canadian Pacific Railway Segment.**
- Hartgen. 2013a. GIS Analysis: Archeological Sites within APE Archeological Sites Intersected by a 50-ft wide Construction Corridor Along the November 2012 CHPE/TDI Centerline.

- Hartgen. 2013b. GIS Analysis NRHP Properties within APE National Register of Historic Place Eligible (NRE) and Listed (NRL) Properties Intersected by a 50-ft wide Construction Corridor along the November 2012 CHPE/TDI Centerline.
- Hartgen. 2013c. GIS Analysis Underwater Resources within APE Underwater Anomalies and Sites within Lake Champlain and the Hudson River Intersected by a 50-ft wide Construction Corridor along the November 2012 CHPE/TDI Centerline.
- **TRC. 2020a. Phase IA Archeological Assessment of Champlain-Hudson Alternative Routes, New York.**
- TRC. 2020b. Phase IA Archeological Assessment of Champlain Hudson Astoria Converter Station and Astoria Preferred Alternative Route, Boroughs of Queens, New York.
- TRC. 2020c. Phase IA Archeological Assessment of Champlain-Hudson Power Express Project, Harlem Rail Yard Preferred Alternative, Boroughs of Queens, New York.
- TRC. 2021. Phase IA Archaeological Assessment of the Champlain-Hudson New Scotland Converter Station, New Scotland, Albany County, New York.
- TRC. 2022. Phase IA Archaeological Survey letter for the Stony Point Horizontal Directional Drill (HDD), Stony Point, Rockland County, New York.

## 2.1 Description of the Project

The area of potential effects (APE) includes all portions of the Project that will be directly altered by the proposed undertaking. The overall APE encompasses 339 linear miles.

This Project is divided into several Phases, with this Supplemental CRMP addressing Phase I, covering only the overland portion of route in Washington County. This initial Phase covers the northernmost portion of the Champlain Hudson Power Express, as it exits Lake Champlain. Segment 1 includes Putnam to Dresden (7.3 miles) and Segment 2 from Dresden to Whitehall (10.2 mi), totaling 17.5 miles.

### 2.1.1 Segment 1

This segment extends from the town of Putnam to the town of Dresden. The construction activities in this segment include the exit of the cable from Lake Champlain onto land via HDD. Once on land, the vast majority of the cable will be installed via duct banks within or immediately alongside public roadways. The trenches will typically range from 3 feet 11 inches to 6 feet 6 inches in depth, and from 28 to 36 inches wide at base (Figures 1 and 2).

#### 2.1.1.1 Splice Boxes

Various splice boxes/joint bays will also be installed to connect the cable segment together into an integrated whole. The splice boxes will generally be about 15 by 40 feet in size. In all, 13 splice boxes/joint bays will be installed in this portion of the Project.

Seven of the splice boxes will be constructed just off the side of the roadways, but still within the highways' rights-of-way. These are Splice Locations 6 to 10, 12, and 13. Only one of the splice boxes that will be off to the side of the roadways was in an area of moderate archeological sensitivity – Splice Location 6 at Stations 10179+50 to 10181+50 (Sheet C-113). The other six splice boxes that will be off to the side of the roadways are in areas of low archeological sensitivity. No further archeological work or monitoring is recommended for the splice boxes.

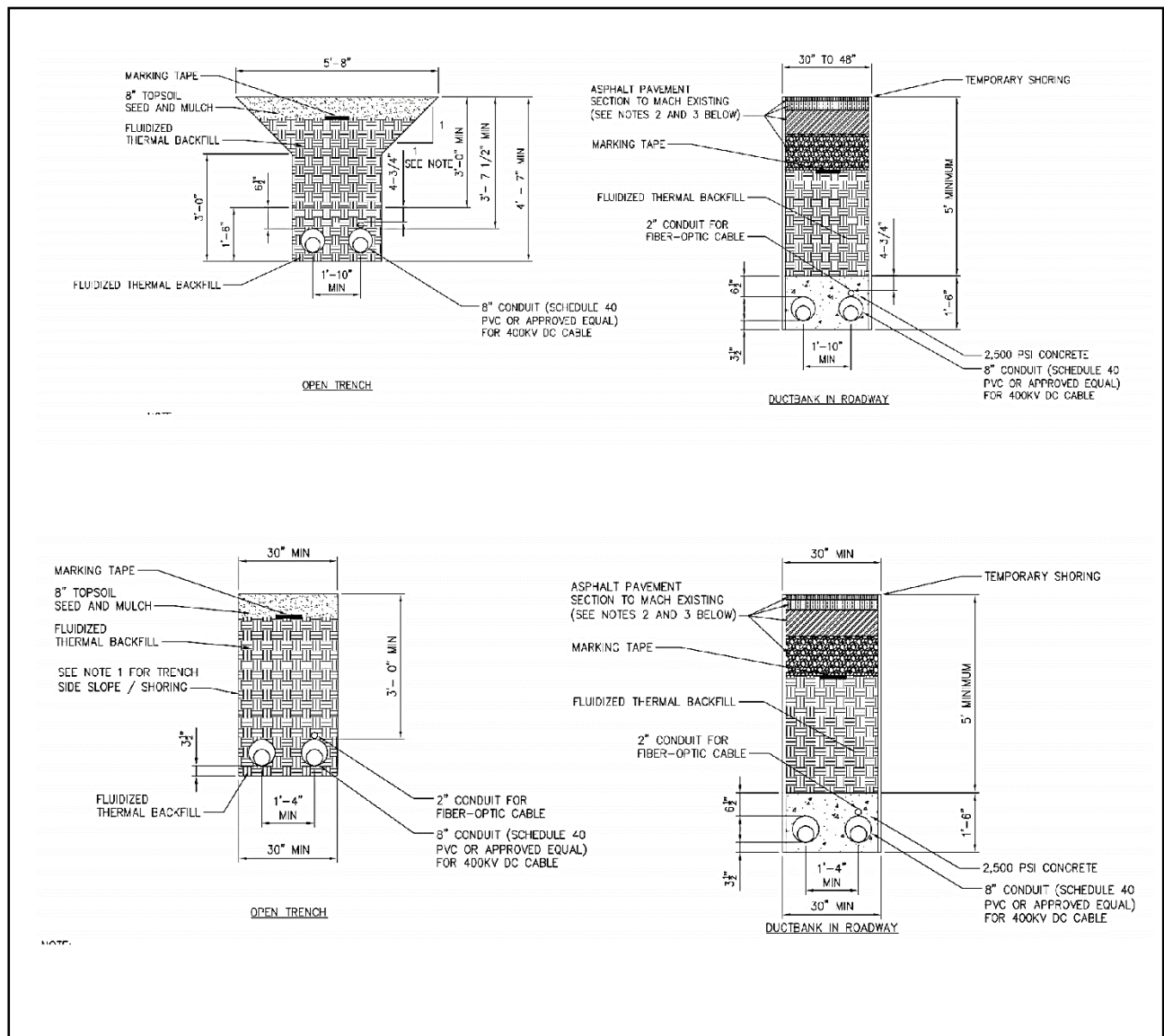


Figure 1 Typical open trench and duct bank (roadway) installation of the cable in the Putnam to Dresden portion of the Project, or Segment 1. Upper drawings are 36-inch-wide excavations; lower drawings are 30-inch-wide excavations.

#### 2.1.1.2 Horizontal Directional Drilling (HDD)

In this segment, a single HDD will be utilized to cross under a small drainage between about Station 10145+00 to 10154+00. The entry and exit pits will generally be 80 by 20 feet with shoring, located in an agricultural field adjacent to the road and outside of the deviation zone. Additional construction activities outside of the deviation zone include the duct bank installation of the cable (Figure 1) at the northern end from about Station 10142+00 to 10145+00, and at the southern end Station 10154+00 to 10158+00. Temporary access roads will also be necessary at both ends of the HDD drill site.

Portions of the HDD extend beyond the originally defined deviation zone. No known archeological sites are in the vicinity and the area was generally deemed “not sensitive” during earlier archeological studies (TRC 2020a). The area is sloped towards the drainage and significant portions lie within the larger construction corridor of the highway. The TRC Phase 1A (2020a) recommended that no further archeological evaluation of this alternative for either Precontact- or Historic -period archeological resources and SHPO concurred on May 5, 2020.

No further archeological testing or monitoring is recommended for the HDD installation this this segment.

#### 2.1.2 Segment 2

This segment extends from the town of Dresden to the Village of Whitehall, primarily along NY State Route 22. The cable leaves the road near the Lake Champlain crossing and utilizes portions of the old County Route 7A corridor and then back along NY State Route 22 until its terminus at Bellamy Street.

Like the previous segment, much of the cable will be installed via duct banks within or immediately along the roadside. Between Stations 12737+00 to 12744+00 the trench will be placed within and along a parking area, east of the road ROW.

As the cable nears Lake Champlain from the north, it will be placed north of the road ROW. Between Stations 12914+00 and 12920+00 it will be placed alongside wetlands outside of the road shoulder. Archeological monitoring is recommended for this portion of the cable installation.

##### 2.1.2.1 Splice Boxes

Like the previous segment much of the cable will be installed via duct banks within or immediately along the roadside. In all, 15 splice boxes (Numbered 14-29) will be needed and also placed along the edge of the roadway.

Splice Box 27 will be on the east side of the Lake Champlain, South Bay crossing, at or near Station 12956+50 (see Sheet C-131). The splice involves a crane pad that will cause the limits of work to extend as far as 65 feet north of the edge of the Route 22 roadway. The location is in an area of high archeological sensitivity.

Archeological monitoring is recommended for Spice Location 27.



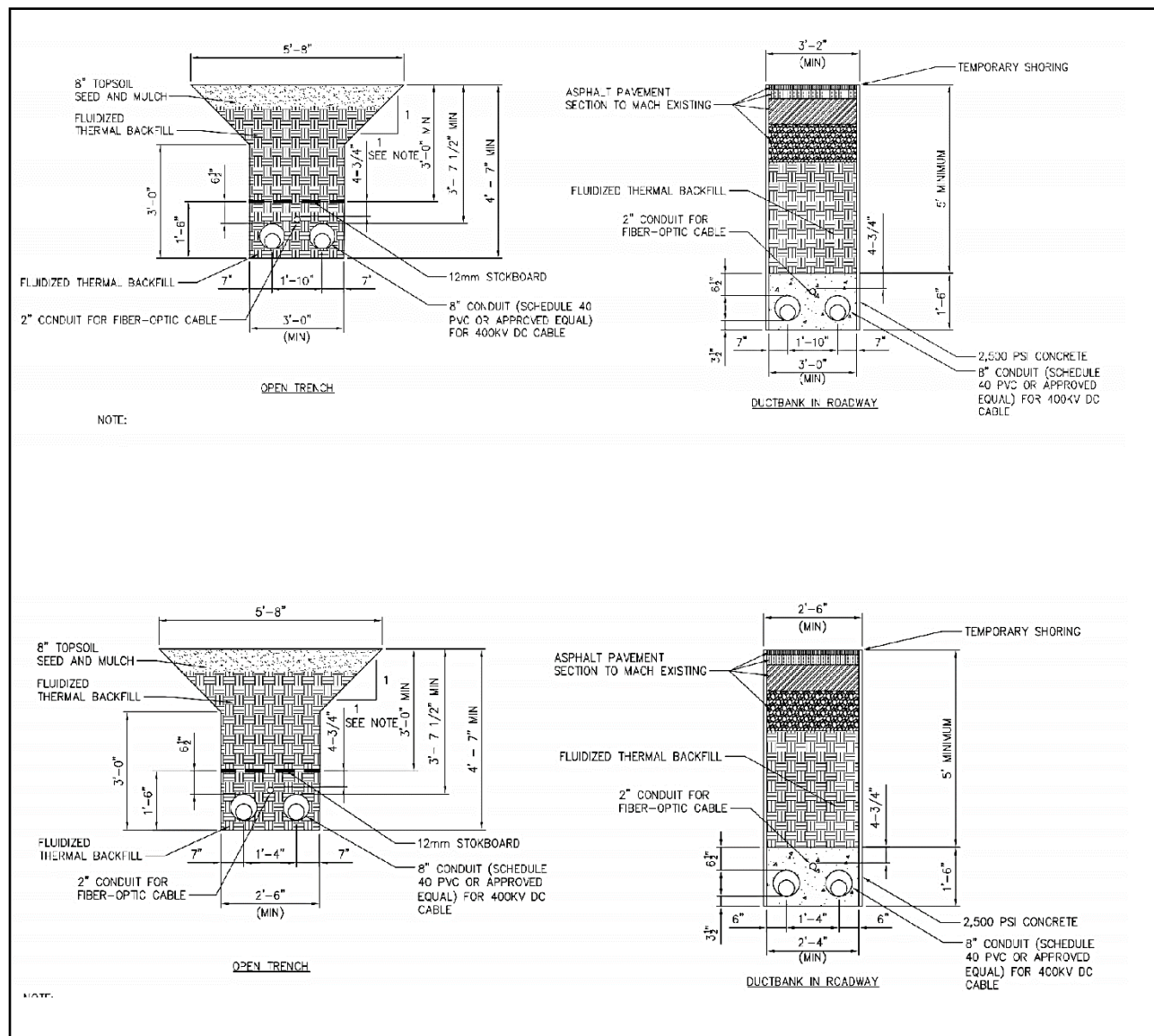


Figure 2 Typical open trench and duct bank (roadway) installation of the cable in the Dresden to Whitehall portion of the Project, or Segment 2. Upper drawings are 36-inch-wide excavations; lower drawings are 30-inch-wide excavations.

#### 2.1.2.2 Horizontal Directional Drilling (HDD)

The entry/exit pit on the east side of the lake will be located north of NY State Route 22 about 600 feet east of the lake. The cable will be directionally drilled along the south side of the current bridge approaches and span. The cable exit entry pit on the west side of the lake is also on the north side of NY State Route 22 adjacent to the now abandoned segment of NY State Route 7A.

In terms of underwater resources, three submerged resources have been identified in the vicinity of the proposed HDD cable route. LCMM 17, Wreck KKKKK; LCMM 11, Wreck EEEEE, and LCMM 13, Wreck GGGGG, all located well outside of the APE. The resources are summarized below.

1. LCMM 17, Wreck KKKKK, Easting: ; Northing:
  - a. Wreck KKKKK is part of the South Bay Canal Boat Graveyard, consisting of at least seven canal boats abandoned there in the early twentieth century. Although not dive verified, the sonar image shows a likely intact canal boat very close to the site of Wrecks HHHHH, JJJJJ, and IIIII, other standard canal boats. Site dimensions are unknown. This site is in shallow water (10 feet in depth), with a featureless mud plain lake bottom and heavy weed growth. Visibility at this site is near zero or less.
  - b. Wreck KKKKK was located during the 2003 Lake Survey and at that time was captured with sonar imagery. The site has not been dive verified and no artifacts have been recovered.
2. LCMM 11, Wreck EEEEE, NYSM11641, Easting: , Northing:
  - a. Wreck EEEEE is part of the South Bay Canal Boat Graveyard, consisting of at least seven canal boats abandoned there in the early twentieth century. Although not dive verified, the sonar image shows an intact canal boat with six deck beams visible. Site dimensions are unknown. This site is in shallow water, with a featureless mud plain lake bottom and heavy weed growth. Visibility at this site is near zero or less.
  - b. Wreck EEEEE was located during the 2003 Lake Survey and at that time was captured with sonar imagery. The sonar image clearly shows six deck beams. The site has not been dive verified and no artifacts have been recovered.
3. LCMM13, Wreck GGGGG, NYSM11643, Easting: , Northing:
  - a. Wreck GGGGG is part of the South Bay Canal Boat Graveyard, consisting of at least seven canal boats abandoned there in the early twentieth century. Although not dive verified, the sonar image shows a potentially partially broken-up canal boat very close to the site of Wreck FFFFF, another standard canal boat. Site dimensions are unknown. This site is in shallow water, with a featureless mud plain lake bottom and heavy weed growth. Visibility at this site is near zero or less.
  - b. Wreck GGGGG was located during the 2003 Lake Survey and at that time was captured with sonar imagery. The site has not been dive verified and no artifacts have been recovered.

The HDD portion of the cable south of the bridge will be of these submerged resources, identified during a sonar study in the 1990s. The two cables are to be drilled approximately 59 feet below the lake surface and approximately 44 feet below the assumed bottom, based on NOAA charts. The final alignment and depths will be determined following geotechnical studies and lake bottom bores.

While it is unlikely that larger submerged resources will be impacted, smaller more discrete resources on and below the lake bottom have yet to be determined. A geophysical survey will be conducted north and south of the Route 22 bridge, approximately 200 feet north of the abandoned Route 7A causeway, and within the area 300 feet south of the Route 22 bridge. This survey will involve multibeam bathymetry, side scan orthosonography, magnetic field mapping, reflection seismology, and seismic processing to analyze the integrity and viability of cable placement in these locations.

A maritime archeologist will review the geophysical information collected. The maritime archeologist will help determine the appropriate depth and alignment of the HDD installed cable. These measures would assist documentation of these submerged resources and ensuring that no direct impact will occur from the proposed HDD cable.

The borings conducted to date suggest that the sediment under the “lake bottom” at the depth of the proposed cable is fairly firm. The cable inside the casing is not likely to appreciably sink in these sediments unless the cable weight is greater than 55 lbs per foot. From the data currently in hand, the cable weighs about 35 lbs per foot.

The possibility of “frack out,” or loss of hydraulic fluid, during the boring process is unlikely, especially given the pressure directly under the lake. To mitigate potential frack-out in the near shore and terrestrial areas, steel conductor casing will be installed and both ends of the bore. They will be removed upon completion of the construction of the cable crossing. The length of the casings has yet to be determined.

The terrestrial portion of the HDD does not likely require any additional archeological testing or archeological monitoring.

### 2.1.3 Laydown Area and Temporary Work Area

Temporary work areas will be placed at various areas along Route 22, all will be within the existing ROW, and no further archeological investigation is warranted. These two segments will also utilize a laydown area planned for Segment 3 Package 1C (construction plans are still under development for the cable route). The Ryder Road laydown area is located in the Town of Whitehall, south of the village. The parcel is situated between the CP Rail tracks and Route 22, immediately south of Ryder Road. There are no reported sites in the immediate vicinity, the closest is an historic midden recorded about to the south. The proposed disturbance (a temporary laydown area) is consistent with the existing use. Following use as a laydown area the contractor will remove stone and fabric and restore to existing conditions, as specified in the construction documents.

### 2.1.4 Summary of Recommendations

The vast majority of Segments 1a and 1b will be placed within the Route 22 roadway corridor which has been extensively disturbed from construction. Many of the deviations from the certified route still lie within this area of disturbance.

The area near South Bay is a notable exception. On the west side of the lake, between Stations 12914+00 and 12920+00 the cable will be placed alongside wetlands outside of the road shoulder. This area may be filled, but there is the possibility of more deeply buried deposits in this location. Archeological monitoring is recommended for this portion of the cable installation.

Similarly, Splice Box 27, on the east side of the lake may be disturbed at the near surface, however, there is the possibility of more deeply buried cultural deposits, both historic and precontact in nature. As a result, archeological monitoring is recommended in this location.

## 2.2 Construction Timeline

The construction timeline is November 2022 to December 2025 for the entire project.

### 3 Cultural Resource Management Plan

#### 3.1 Objective

It is the objective of this CRMP to demonstrate a comprehensive plan for the encounter of cultural resources during the construction and installation of the transmission line, as well as the various other components affiliated with it.

TRC created a Final CRMP for the permitting process, with an overall permitting CRMP created in 2015, and subsequent revisions and addendums in 2021. This current report serves as the Supplemental CRMP for the now planned construction activities, tasked in synthesizing the previously reported data into one document and identifying roles and points of contact for communication ease. No areas of monitoring have been previously identified in the current Segment of the Project.

#### 3.2 Project Preservation Officer (PPO)

Hartgen will act as the Consulting Archeologists (CA) for the purpose of this effort. The CA will work closely with the Project Preservation Officer (PPO), who will be present for all ground disturbing activities, and will have “stop-work” authority. The PPO will be part of the prime construction management team, Kiewit Corporation.

It is the responsibility of the CA to train this individual as a Project Preservation Officer (PPO) and to provide a hands-on workshop for construction personnel, as designated by the PPO. The PPO and the construction team should have an understanding of cultural resources present in different areas, as well as understanding the potential for unknown cultural deposits. It is the responsibility of the PPO to implement the CRMP and ensure that all requirements and conditions of the CRMP are met. Table 1 includes all the necessary contact information.

The PPO will have the authority to cease excavation or construction work. In the event of encountering cultural materials or human remains, it is the responsibility of the PPO to halt construction activities and contact and coordinate with the CA to visit the location of the discoveries as quickly as possible.

In the event of these discoveries, the CA will have up to three workdays to excavate and remove cultural material from the APE before the construction continues. The CA, in consultation with the PPO and the NYSHPO, may request additional archeological field assistance to complete the necessary work in a timely manner. It is the responsibility of the PPO to work with the appropriately trained archeologists to ensure that the survey and assessment of any change in the APE is completed prior to construction taking place.

#### 3.3 Protective Measures

No additional protective measure with respect to cultural resources have been identified or requested by stakeholders for the current segments of the Project. If portions of the Project are altered, additional assessment will be required to determine the presence or absence of cultural resources.

### 4 Communication

Through the many moving parts of this Project, efficient and immediate contact and consultation will be vital. The Project contacts are listed in Table 1 below:

Table 1. Project contacts

Agency/Organization	Role	Contact person	Contact information
Kiewit Corporation	Project Preservation Officer	Phillip Tanedo	<a href="mailto:Phillip.tanedo@kiewit.com">Phillip.tanedo@kiewit.com</a> 703.309.2495
CHA Consulting, Inc.	Consulting Engineer	Chris Einstein	<a href="mailto:ceinstein@chacompanies.com">ceinstein@chacompanies.com</a> 518.453.4505

Agency/Organization	Role	Contact person	Contact information
U.S. Department of Energy	Stakeholder	Melissa Pauley	melissa.pauley@hq.doe.gov
U.S. Army Corps of Engineers	Stakeholder	Stephan Ryba	Stephan.a.ryba@usace.army.mil
New York State Historic Preservation Office (NYSHPO)	Stakeholder	Nancy Herter	<a href="mailto:Nancy.herter@parks.ny.gov">Nancy.herter@parks.ny.gov</a>
New York DPS	Stakeholder	Matthew Smith	matthew.smith@dps.ny.gov
Hartgen Archeological Associates	Consulting Archeologist	Matthew Kirk	<a href="mailto:mkirk@hargen.com">mkirk@hargen.com</a> 518.283.0534 518.300.5940
Transmission Developers Inc.	Applicants/Owner	Ayokunle "Kunle" Kafi, PE, CEM	<a href="mailto:Ayokunle.kafi@transmissiondevelopers.com">Ayokunle.kafi@transmissiondevelopers.com</a> 347.920.6550

## 5 Deliverables

### 5.1 Periodic Updates

The PPO in coordination and under the guidance of the CA will provide periodic (bimonthly) updates on the progress of cable installation via email to the stakeholders. The communication will include project progress, discussion of unanticipated cultural resources, and the schedule for future work.

### 5.2 Annual Report

The CA will provide an annual report detailing the activities completed under the CRMP to the DOE and NYSHPO for as long as the CRMP is in effect. This report will be completed and submitted on or before January 10<sup>th</sup> each year. This report will include a summary of all historic properties and archeological resources that may have been encountered during construction and how they were treated. Post construction reports will identify which cultural resources were monitored and provide a summary of resource conditions and whether forms of disturbance were noted.

## **6 Bibliography**

New York Archaeological Council (NYAC)

- 1994 *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State*. NYAC, n.p.

## **Appendix 1: Champlain Hudson Power Express Cultural Resources Management Plan (TRC)**

**CHAMPLAIN HUDSON POWER EXPRESS HVDC  
TRANSMISSION LINE PROJECT**

**Cultural Resources Management Plan**

*Confidential*

**FINAL**

**PREPARED BY**

**TRC**

**OCTOBER 2015**

**REVISED FEBRUARY 2021**



This Page Intentionally Left Blank.

# **CHAMPLAIN HUDSON POWER EXPRESS HVDC TRANSMISSION LINE PROJECT**

## **Cultural Resources Management Plan**

### **TABLE OF CONTENTS**

1.0	Introduction.....	4
2.0	Background information .....	6
2.1	Project APE .....	6
2.2	Precontact and Historic Synthesis of Project Area.....	1
2.3	Historic Properties and Archaeological Resources Located Within the APE.....	10
3.0	Project Management Goals and Standards For Historic Preservation .....	14
3.1	Management Goals for Historic Properties .....	14
4.0	Project Effects and Management Measures .....	16
4.1	Project Effects .....	16
4.2	Monitoring Plan for Ground Disturbances near Archaeological Sites or Unanticipated Discoveries Located in the APE .....	16
4.3	Curation of Archaeological Collections .....	18
4.4	Treatment of Human Remains .....	18
5.0	Implementation Procedures .....	19
5.1	Project Preservation Officer (PPO) .....	19
5.2	Training .....	19
5.3	Annual Reporting, Periodic Review and Revision of the CRMP .....	19
5.4	Education.....	20
5.5	Dispute Resolution Actions.....	20
6.0	References Cited .....	22

## **LIST OF FIGURES**

NO TABLE OF FIGURES ENTRIES FOUND.

## **LIST OF ACRONYMS**

ACHP – Advisory Council on Historic Preservation  
APE – Area of Potential Effect  
CA – Consulting Archaeologist  
CHPE, LLC – Champlain Hudson Power Express, LLC  
CRMP – Cultural Resources Management Plan  
DOE – U.S. Department of Energy  
GIS – Geographic Information System  
Hartgen – Hartgen Archaeological Associates, Inc.  
HVAC – high-voltage alternating current  
HVDC – high-voltage direct current  
MW – megawatt  
NHPA – National Historic Preservation Act  
NYAC – New York Archaeological Council  
NYSHPO – New York State Historic Preservation Officer  
NYSM – New York State Museum  
PPO – Project Preservation Officer  
ROW – Right-of-Way  
TRC – TRC Companies, Inc.

# CHAMPLAIN HUDSON POWER EXPRESS HVDC TRANSMISSION LINE PROJECT

## Cultural Resources Management Plan

### 1.0 INTRODUCTION

This document is intended to serve as the Cultural Resources Management Plan (CRMP or Plan) for the Champlain Hudson Power Express HVDC Transmission Line Project (Project). The Programmatic Agreement for the Project, which was signed by the New York State Historic Preservation Officer (NYSHPO) and the U.S. Department of Energy (DOE) as signatory parties and the Champlain Hudson Power Express, LLC (CHPE, LLC or Permittee<sup>1</sup>) and the U.S. Army Corps of Engineers as concurring parties, sets forth an outline for this Plan. The goal of the CRMP is to provide the framework within which potential impacts to all relevant historic properties (those properties eligible for or listed in the National Register of Historic Places) known to exist or may be discovered to exist within the Project are to be managed. It additionally establishes a framework for identifying and undertaking additional archaeological work that may be required prior to and during construction of the Project.

The development of the CRMP for the Project is authorized under Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. The CRMP takes into consideration the Advisory Council on Historic Preservation (ACHP) guidance on conducting archaeology under Section 106 (ACHP 2009); the ACHP's February 23, 2007 *Policy Statement Regarding the Treatment of Burial Sites, Human Remains, and Funerary Objects* (ACHP 2007); NYSHPO's *Human Remains Discovery Protocol* (NYSHPO 2021); the New York Archaeological Council's (NYAC) *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State* (1994, as adopted by the NYSHPO in 1995); the *Secretary of the Interiors Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716-44742, September 29, 1983; as amended and revised); the DOE's *American Indian and Alaska*

---

<sup>1</sup>In August 2020, Champlain Hudson Power Express, Inc. (CHPEI) converted from a corporation to a limited liability company (CHPE, LLC). For the purposes of this filing, "Permittee" represents both past and current holders of federal and state permits and approvals.

*Native Tribal Government Policy* (DOE 2006); and the DOE's *Policy 141.1: Management of Cultural Resources* (DOE 2011).

The CRMP is organized in the following manner: Section 2 provides general background information regarding the Project, including a description of the Project facilities, its location, and the definition of the Area of Potential Effect (APE). The historic context(s) within which all known historic properties are understood and evaluated are then presented. This is followed by a summary of past cultural resource studies for the Project and their results. Section 2 of the CRMP concludes with a description of known and potential historic properties and details their significance. Section 3 outlines the basic historic preservation standards and the project management goals which will guide the development and implementation of the CRMP. Section 4 outlines the range of Project effects upon historic properties known to fall or suspected of falling within the APE and measures that might be taken to manage those effects over the course of the construction period. It also provides details regarding the process by which consultation with the NYSHPO and Tribal Historic Preservation Officers and other consulting parties will take place; the manner in which any human remains encountered will be treated; and how provision will be made to foster public interpretation. The final section, Section 5, describes the CRMP implementation procedures, including the designation of a CRMP Coordinator and a consulting archaeologist (CA); periodic reporting requirements; periodic review of the CRMP; and dispute resolution procedures, all with a view towards facilitating consultation among the DOE, the NYSHPO, the ACHP, or other concurring parties.

## **2.0 BACKGROUND INFORMATION**

This section contains a brief description of the Project and a discussion of the APE. It is followed by an overview of the Precontact and Historic period understanding of the region, which, as a consequence of the extensive geographical scope of the Project, takes the form of a general survey. Finally, this section addresses cultural resources that have been identified to date for which existing data is insufficient to determine their eligibility for listing in the National Register of Historic Places (largely submerged cultural resources).

The Permittee proposes to develop the Project to connect renewable sources of power generation in Canada with load centers in and around New York City. The proposed Project includes the installation of a 1,250-megawatt (MW) underwater/underground high-voltage direct current (HVDC) bipole consisting of two 5-inch diameter cables. The bipole will connect an HVDC converter station in Canada with an HVDC converter station at the New York Power Authority's Astoria Annex in Astoria, Queens. From the Astoria converter station, high-voltage alternating current (HVAC) cables will travel through Queens approximately 3 miles (4.8 kilometers) to Con Edison's Rainey substation.

Approximately 333 miles (535 kilometers) of the Project will be located within the United States (see Figure 2.1). The Permittee will not own or operate the Canadian portion of the transmission cables. To the extent possible, the Permittee proposes to bury the transmission cable along existing waterways or transportation rights-of-way (ROW). The Permittee believes that this innovative approach will minimize the visual and landscape impacts associated with traditional overhead transmission lines, while simultaneously providing the additional capacity required to meet the increasing clean energy demands of the greater New York City metropolitan area.

### **2.1 Project APE**

36 CFR § 800.16(d) defines the APE as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. Project activities, both temporary and permanent, have the potential to impact cultural resources during the construction and operation phases of the Project.

Archaeological assessment of the Project was completed by Hartgen Archaeological Associates, Inc. (Hartgen) over several years and resulted in three reports that have been reviewed and accepted by the NYSHPO (Hartgen 2010a, 2010b, and 2012). In addition, Hartgen (2013a, 2013b, and 2013c) also produced a GIS analysis of submerged sites located in Lake Champlain, the Hudson River, and at other locations.

After receiving its federal and state approvals, the Permittee refined the design of the Project through detailed engineering and consultation and identified eight routing modifications and a relocation of the converter station. TRC Companies, Inc. (TRC) completed three Phase 1A assessments for these routes (TRC 2020a, 2020b, and 2020c).

As these reports contain confidential information related to cultural resources, and this CRMP may be made public, the following reports are incorporated by reference:

Hartgen. 2010a. Pre-Phase IA Archaeological Screening: Champlain Hudson Power Express.

Hartgen. 2010b. Phase IA Literature review and archaeological sensitivity assessment: Champlain-Hudson Power Express.

Hartgen. 2012. Phase IB Archaeological Field Reconnaissance and Phase II Archaeological Site Evaluation: Champlain Hudson Power Express, Canadian Pacific Railway Segment.

Hartgen. 2013a. GIS Analysis: Archeological Sites within APE Archeological Sites Intersected by a 50-ft wide Construction Corridor Along the November 2012 CHPE/TDI Centerline.

Hartgen. 2013b. GIS Analysis NRHP Properties within APE National Register of Historic Place Eligible (NRE) and Listed (NRL) Properties Intersected by a 50-ft wide Construction Corridor along the November 2012 CHPE/TDI Centerline.

Hartgen. 2013c. GIS Analysis Underwater Resources within APE Underwater Anomalies and Sites within Lake Champlain and the Hudson River Intersected by a 50-ft wide Construction Corridor along the November 2012 CHPE/TDI Centerline.

TRC. 2020a. Phase IA Archeological Assessment of Champlain-Hudson Alternative Routes, New York.

TRC. 2020b. Phase IA Archeological Assessment of Champlain Hudson Astoria Converter Station and Astoria Preferred Alternative Route, Boroughs of Queens, New York.

TRC. 2020c. Phase IA Archeological Assessment of Champlain-Hudson Power Express Project, Harlem Rail Yard Preferred Alternative, Boroughs of Queens, New York.



All of these reports are on file with the New York State Historic Preservation Office, Albany, New York. They provide the database to which the Project Preservation Officer (PPO; see below) and their designee and the CA (see below) will refer if questions about implementation or management of the CRMP arise.

**FIGURE 2-1  
PROPOSED PROJECT ROUTE**



For purposes of the CRMP, the term “APE” is used synonymously by Hartgen (2010a) with “Project corridor” or “Project route.” These terms were used universally in Hartgen (2010a) to describe the preliminary design of the project. “Study” or “Search Corridor” were terms used in Hartgen (2010a) to describe the buffer area around the Project corridor defined for a site file search. The Search Corridor was adjusted appropriately along the length of the Project based on the proposed impacts, installation techniques, and surrounding environment. It may be noted that other resources within the Project’s vicinity may be indirectly affected by Project activities, including construction of temporary access roads and construction yards. For this document, the APE encompasses the proposed construction corridor, as well as a deviation zone to facilitate minor changes to the cable alignment if necessary (Hartgen 2012).

If the alignment of the corridor is changed or if a construction zone wider than 55 feet (terrestrial) or 50 feet (in-water) is required to build the Project, then the APE will be adjusted accordingly. All additional efforts to identify, assess, and manage cultural resources shall use the same guidance as that stipulated in the CRMP. It shall be the responsibility of the PPO or his/her designee (see below) to work with the appropriately trained archaeologists to ensure that survey and assessment of new APE construction areas is completed before construction takes place.

## **2.2 Precontact and Historic Synthesis of Project Area**

This section is divided into two parts that briefly describe the cultural history of the Project area by focusing first on the Precontact period Native occupation and then describing European colonization and use of the area today. The sections are extracted from Hartgen (2010a). This discussion in no way intends to suggest that the Native American occupation of New York ended with European colonization. The division is drawn only to document the very different ways in which the land was used in these periods.

### **2.2.1 The Precontact Period**

The Native American history of this region extends back as far as 11,300 years. Near the end of the Pleistocene epoch, most of the Project corridor was blanketed with the Laurentide Ice Sheet that extended as far south as Long Island. The glacial ice began to retreat around 12,000 years ago, exposing a newly formed landscape. The first evidence of Native Americans moving into

this region is radiocarbon dated to 11,300 years ago (Laub 2002). Intact archaeological sites in the Northeast and in the New England-Maritimes suggest that Paleoindian populations favored rich ecological zones associated with swamps, rivers, and postglacial lakes (Pasquariello and Loorya 2006; Funk 1976, 1991). Paleoindian artifact assemblages within the Northeast are dominated by lithic technologies, particularly fluted projectile points, utilized flakes, and smaller bifacial tools, such as scrapers and burins (Carr and Adovasio 2002). Paleoindian populations also relied heavily on perishable technologies, such as textile, bone, and wooden tools. However, differential preservation of archaeological materials typically makes these technologies far less visible in the artifact assemblages from known sites in the region.

In general, Paleoindian sites are not common in the Northeast. A number of factors contribute to the lack of sites from this period. While several fluted points have been recovered along the proposed transmission cable corridor, the age of Paleoindian deposits, subsequent landscape modifications, and associated ground disturbance make the likelihood of encountering intact Paleoindian sites relatively low. Other significant factors that affect the visibility of intact sites include the low population densities during the Paleoindian period, the nature of material culture types common to hunter-gatherer groups, and the general environmental conditions in the region at the end of the Wisconsin glaciation. The paleoenvironmental landscape was also significantly altered by natural environmental conditions precipitated by a host of processes, including isostatic rebound, post-glacial eustatic sea level rise, and concomitant changes in characteristics of alluvial environments. These and other natural processes have further obscured the relationship between the paleoenvironmental environment and the modern landscape.

A warming climate and a greater ecological diversity following glacial retreat prompted changes in subsistence strategies and technologies (Ritchie 1965; Funk 1976). The Archaic period (10,000-3,000 years ago) saw the emergence of mixed deciduous-coniferous forests and the appearance of essentially modern fauna in the Northeast (Quinn et al. 1999; Brennan 1991). Native American groups adopted subsistence strategies that focused on hunting smaller, locally available fauna, such as white-tailed deer, turkey, waterfowl, and black bear. Seasonal availability of game animals, aquatic resources, and wild plant foods continued to make hunting and foraging successful resource procurement strategies, particularly in coastal areas. These strategies contributed to a population growth throughout the Northeast during the Archaic period

(Fagan 2000). Archeological sites dating from the Archaic period are most common in the Upper Hudson River drainage and in the southeastern portion of the state. However, Archaic sites have been identified throughout the region.

Although the Early Archaic is poorly understood in New York, sites from this period have been identified in the Upper Hudson River drainage and in the southeastern portion of the state.

Projectile points associated with the Early Archaic have been found along the Hudson River Valley, but single-component sites have not been excavated in this region.

Within the Project area, the Middle Archaic is characterized by an adaptive strategy that relied on a combination of hunting, fishing, and gathering (Pasquariello and Loorya 2006). Middle Archaic sites are typically associated with rivers, swamps, lakes, estuaries, and coastlines. The proximity of these sites to existing waterways suggests that Middle Archaic populations were exploiting seasonal fish runs and bird migrations along the Eastern Flyway (Pasquariello and Loorya 2006). The emergence of ground and polished stone tools during the Middle Archaic indicate that techniques to process nuts and edible plants were also becoming better refined during this stage (Ritchie 1965).

The Late Archaic saw the flourishing of a number of cultural manifestations across the Northeast. In the vicinity of the Project, Late Archaic sites from the Laurentian Tradition and the Lamoka phase have been identified. While the relationship between these two phases in New York is somewhat unclear, it is apparent that by the Late Archaic, cultural diversity was expanding rapidly (Quiggle 2008). The settlement patterns that developed in resource-abundant areas suggest the use of seasonal base camps to augment migratory resource procurement strategies. This semi-sedentary pattern is represented by an increase in the number of house structures, storage pits, and larger quantities of organic food remains (Quinn et al. 1999; Ritchie 1965). While typical Late Archaic sites in the vicinity of the Project continue to be relatively small, they are found on all landforms and environmental areas.

Archaeologists have long recognized a Terminal Archaic period that bridges the Archaic and Woodland periods in the Northeast (Ritchie 1965). Characteristics of the Terminal Archaic include the use of steatite cooking vessels and the appearance of Orient Fishtail projectile points. Orient Fishtail points are typically found throughout Long Island, southern New England, and

the Hudson River Valley, although morphological correlates have been identified throughout the Northeast (Justice 1987).

Changing settlement patterns and technology around 3,000 years ago characterized a new cultural period in Native American history. The Woodland period dated from around 3,000 years ago to around the time of contact with European explorers (c. AD 1600). Ceramic vessel manufacture began to appear in isolated areas in eastern North America during the Late Archaic, but became only regionally significant in the Northeast approximately 3,000 years ago (Quinn et al. 1999). Ceramic manufacture reflects increasingly sedentary settlement patterns and a growing dependence on domesticated plants, although evidence for cultigens is somewhat lacking for much of the Northeast until around 2,000 years ago. Marine resources, particularly shellfish, became increasingly important during the Middle Woodland, and researchers have identified an increase in coastal and riverine settlements during the period (Pasquariello and Loorya 2006; Kraft 2001).

While a variety of cultural manifestations continued to appear throughout the Woodland period, a regional assessment indicates that Middle Woodland populations continued a shift toward more sedentary communities. Marine resources—particularly shellfish—became increasingly important during the Middle Woodland, and researchers have identified an increase in coastal and riverine settlements during this period (Pasquariello and Loorya 2006).

Maize, bean, and squash agriculture became an important source of subsistence during the Late Woodland period (Quiggle 2005). Major sociopolitical changes accompanied the widespread adoption of cultivation practices, including increased territoriality and changes in residence patterns. These changes led to the emergence of the Iroquoian Tradition within western, central, and northern New York State by AD 1300.

Around the time of European contact, people speaking closely related Eastern Algonquian dialects occupied southern New England, eastern Long Island, and sections of the Hudson River Valley, near present-day Albany (Pasquariello and Loorya 2006; Ritchie 1965). Southeastern New York was occupied by people speaking a Munsee dialect of the Delaware language near the end of the Late Woodland. The Munsee cultural area encompassed the lower Hudson River

Valley across southeastern New York, northern New Jersey, and northwestern Pennsylvania and extended to western Long Island (Grumet 1995).

Iroquoian and Algonquian communities were oriented around maize, bean, and squash cultivation in fields near settlements. Large, nucleated semi-permanent Iroquoian settlements were originally located along floodplains, river terraces, or coastlines. However, by the 1300s, Iroquoian communities began to relocate villages to more defensible upland areas. In many cases, these villages were protected by stockade walls erected as an additional fortification. Conversely, Algonquian populations in the region generally occupied smaller, decentralized villages.

Sixteenth century Munsee, Iroquoian, and Algonquian-speaking populations apparently shared many common life-ways typical of Late Woodland peoples in the Northeast. However, there is little archaeological evidence to indicate that Munsee communities cultivated plants prior to European arrival in the Americas. The lack of arable soils, dearth of archaeological evidence of agriculture, and abundant marine resources in the region all suggest that the Munsee's primary resource procurement strategy emphasized hunting, fishing, and gathering practices (Grumet 1995). Archaeological evidence indicates that semi-sedentary Late Woodland Munsee communities were located along major drainages and coastlines, but it does not appear that they built fortified villages.

### **2.2.2 The Historic Period (AD 1609-Present)**

Ephemeral contact between Native Americans and Europeans along the Atlantic Coast of North America may have begun as early as the 1490s. Unverified evidence from archival records indicates that European fishing fleets may have made landfall along the coast of Newfoundland and the Gulf of St. Lawrence toward the end of the 15th century (Grumet 1995). In 1524, Italian explorer Giovanni da Verrazzano made the first documented contact with Native Americans along the Atlantic seaboard. Shortly after Verrazzano's encounter, French explorer Jacques Cartier traveled inland along the St. Lawrence River to present-day Montreal and made contact with St. Lawrence Iroquoian groups that occupied the region. Hostilities between Native Americans and the French limited trade relations and stifled European attempts to establish a

colony in the region during the 1500s (Grumet 1995). Notwithstanding these difficulties, archaeological evidence indicates that European trade items were obtained by indigenous coastal groups from European fishing and whaling fleets and made their way inland through trading intermediaries during the 16th century (Quiggle 2008).

The 17th century was a period of tremendous social and political upheaval across the entirety of Northeastern North America. Sustained contact in the vicinity of the Project corridor began with Samuel de Champlain's exploration of the region in 1609 (LCMM 2009a). The same year, Henry Hudson, explorer for the Dutch East India Company, navigated the river that now bears his name north to the present-day City of Albany (Grumet 1995). European settlers that soon followed these explorers encountered an indigenous population wracked by epidemic diseases brought from the Old World. Waves of epidemics killed thousands of Native Americans living in the Northeast during the early contact period. The epidemics were compounded by internecine hostilities among Native American groups fostered by competition for access to European trade goods (Quiggle 2006). Warfare among indigenous populations killed thousands of Native Americans and forced others to flee the region during the 17th century.

Territorial expansion also caused conflict between Native Americans and European settlers pushing inland via the Hudson, Connecticut, and St. Lawrence River valleys. Regional conflicts such as the Pequot War ravaged both Indian and colonial communities throughout the region. (Grumet 1995; Kraft 1991, 2001).

European settlers and their Indian allies also attacked other settlements in the Northeast in an attempt to establish political control of the region (Grumet 1995). These conflicts were primarily motivated by access to trade goods and Old World rivalries that spread to the colonies. In the 17th century, defensive developments appeared along the Champlain Valley as the French and British struggled for control of waterways that provided transportation for furs and other trade items (LCMM 2009b). Large Dutch settlements also developed in the mid- and lower Hudson River Valley at the places that would become Albany, Kingston, and New York City. By the second half of the 17th century, the British wrested control of the Hudson River Valley from the



Dutch. The struggle for military control over important waterways and ports would continue throughout most of the seventeenth and eighteenth centuries.

The Champlain Valley remained a contested area throughout the 18th century, and the French attempted to solidify control over the important transportation route provided by Lake Champlain through construction of a series of defenses at Crown Point (LCMM 2009b). In 1754, French attacks on a British fort along the Connecticut River reignited large-scale regional conflict. The Champlain and Lake George regions became hotbeds of military activity during the French and Indian War, as the colonial powers and their Indian allies fought a bloody and protracted battle for control of the continent. After the fall of Fort William Henry, France was able to exercise military control over the region through its naval forces on Lake Champlain and the French forts at Ticonderoga, Crown Point, and Chimney Point (LCMM 2009b). This control was short lived, as the British returned with a large naval flotilla in 1759. British troops and warships attacked French ships on Lake Champlain and the garrisons at Crown Point and Ticonderoga. Undersupplied and outnumbered, France lost control of its major fortifications in the region by 1760. The 1763 Treaty of Paris ended the French and Indian War and brought a temporary peace to the Champlain Valley (LCMM 2009b).

The American Revolution again brought conflict to the region from Lake Champlain to Long Island. At the outset of the conflict, American forces under Ethan Allen and Benedict Arnold captured the British fortifications at Ticonderoga and Crown Point in a daring surprise attack. Subsequent victories in the region gave the Americans control of the lake and access to Canada. Despite these early successes, the attempt to invade Canada ultimately failed, and the American Army was forced to retreat overland in early 1776 (LCMM 2009c). The Americans were able to command Lake Champlain with a small naval force that included captured British vessels and ships built at local American shipyards on the lake. This control ended in 1776, with the British defeat of the American naval forces at the Battle of Valcour Island. Notwithstanding this naval success, the British were unable to dislodge the American forces from the redoubts at Ticonderoga and Mount Independence during the 1776 campaign. Consequently, the British again returned to the Champlain Valley in 1777 (LCMM 2009c). British General John Burgoyne was able to secure the undefended Mount Defiance above the American garrisons and fired a

fusillade from cannons stationed on the high ground. The American forces were forced to retreat and to relinquish control of Lake Champlain throughout the remainder of the war (LCMM 2009c).

In the south, New York became an occupied city after the fledgling American Army fled north following the Battle of Long Island (Pasquariello and Loorya 2006). North of New York, present-day Westchester County was known as the “Neutral Ground” that separated the British and American forces. Despite this moniker, Westchester County was the scene of the battles of Pelham and White Plains in 1776 (Pasquariello and Loorya 2006). The region was home to both Tory sympathizers and revolutionaries, and it remained a hotbed of partisan activity throughout the war. Early in the conflict, both the American and British forces recognized the strategic importance of controlling traffic on the Hudson River. The Americans attempted to block the British fleet from gaining access to the interior by constructing an iron chain across the river near Fort Montgomery (USMA 2009). When this attempt failed, General George Washington sought to establish fortifications upstream from Fort Montgomery at a high plateau with commanding views of the river valley. In 1779, an American military garrison was established at West Point, near the present-day village of Highland Falls, New York. The fortifications included a 150-ton iron “Great Chain” strung across the Hudson to control river traffic. Although the Great Chain was never tested by the British fleet, the garrison nearly fell into British hands toward the end of the conflict (USMA 2009). In 1780, Benedict Arnold was given command of West Point. Arnold’s attempt to pass detailed plans of the fortifications to the British was discovered, and Arnold narrowly escaped down the Hudson on a British sloop. Today, the garrison at West Point is home to the U.S. Military Academy and is the oldest continuously occupied military outpost in the United States (USMA 2009).

A critical American victory took place upriver from West Point near Albany, New York. In 1777, American forces defeated Burgoyne’s army at the Battle of Saratoga, giving the Americans an important strategic victory. Often called the turning point of the American Revolution, the victory at Saratoga also convinced the French to ally themselves with the Americans (NPS 2010). With the assistance of the French, the American forces were able to

defeat the British at the Battle of Yorktown in 1781. The conflict was formally ended with signing of the Treaty of Paris in 1783.

The War of 1812 brought renewed conflict to the Champlain Valley as British and American forces again sought control of Lake Champlain. The defeat of the British Royal Navy in 1814 essentially ended the era of naval fleets on the lake and brought a sustained peace to the region (LCMM 2009d).

The 19th century was characterized by increased economic growth throughout the region. While raw materials such as timber, potash, and iron were becoming economically important, growth in the Champlain Valley was complicated by the difficulty in transporting raw goods and bulk materials south to processing and manufacturing centers (LCMM 2009e). The construction of the Champlain Canal between 1817 and 1823 provided a vital link between communities in the north and manufacturing centers along the Hudson River and the Atlantic seaboard (Hartgen 2009a). The canal underwent several realignments and improvements throughout the 1800s to accommodate increased traffic and larger vessels. Construction of railroads in eastern New York State also spurred growth in the small communities along the way. Many of these railroad hamlets are intersected by the Project.

Brick manufacturing, quarrying, iron smelting, and ice cutting became important industrial activities along the Hudson River Valley during the 19th century (Pasquariello and Loorya 2006). The growth of the railroads decreased the significance of the canal system but brought new economic benefits to the region. Although the northern sections of Manhattan had remained sparsely populated and primarily agrarian throughout the 18th century, the influx of immigrants into the New York City region provided an important stimulus for the growth of the city during the 19th century. Commercial shipping and manufacturing supported New York City's rise as a regional and national economic center. Similar activities along the coast of Long Island Sound allowed for the development of cities such as Stamford, Connecticut. The firearms industry was an important factor in the growth of Bridgeport, Connecticut, which saw the development of the largest munitions factory in the world during the 1800s.

The Champlain Canal was replaced by the modern Barge Canal in the early 20th century. Although the Barge Canal was an attempt to revitalize the canal system, commercial traffic peaked in the 1890s and has continued to decrease. Today, Lake Champlain and the Champlain Valley remain popular recreation destinations.

South of the canal, the eastern-central New York region is centered on the capital city of Albany. The Lower Hudson River Valley experienced increased suburban growth and development following World War II.

The New York City region continues to be one of the largest population centers in the United States, with an increasing dependence on the financial and service sectors. While the western section of the Long Island coastline is characterized by urban and suburban development associated with New York City, the eastern section presents a mix of rural, agricultural, and suburban development.

### **2.3 Historic Properties and Archaeological Resources Located Within the APE**

Both submarine and terrestrial resources are documented within the APE. To the extent possible, all of these archaeological sites will be avoided, as described in later sections. Avoidance is the primary objective for all of the archaeological sites, whether they are listed or eligible for listing in the National Register of Historic Places or if their eligibility status is unknown. In the discussion that follows, submarine resources are first discussed, and then information on terrestrial resources is presented. All of the information presented in this section is extracted from reports prepared by Hartgen (2010b, 2012, 2013a, 2013b, and 2013c) and TRC (2020a, 2020b, and 2020c).

#### **2.3.1 Submerged Resources**

Hartgen 2013a, 2013b, and 2013c in combination provide supplemental data and maps on underwater archaeological sites and anomalies that may be sites. Hartgen 2013a contains maps showing 48 archeological sites that are located within the 50 foot wide in-water construction

corridor. Fourteen of the sites are terrestrial sites. The NYSHPO records sites as single point locations; however, the sites may encompass more area, but they are not likely to extend into an adjacent waterbody. The New York State Museum (NYSM) typically records sites as polygonal areas that represent the approximate site boundaries. Occasionally the polygons used to indicate the general location of terrestrial sites extend into the adjacent waterbody and overlap with the APE. Since these terrestrial sites lie outside the boundaries of the APE, project construction activities will have no adverse effects on them.

Hartgen 2013b identifies National Register of Historic Places eligible or listed Historic Properties intersected by a 50 foot wide corridor located along the Project's centerline. Thirty six properties are recorded. Eighteen of them are terrestrial and 18 of them show a submarine route intersection with terrestrial sites. Only those sites listed in the water bodies will be avoided by submerging the cables.

Hartgen 2013c is a GIS analysis of resources located within the APE in Lake Champlain and the Hudson River. The resources consist of underwater sites and anomalies, which may be sites that are intersected by a 50 foot wide construction corridor on the Project's centerline. The data were gathered from the Lake Champlain Maritime Museum, which reported the sites and anomalies as single points. A 40 meter buffer was agreed upon with the NYSHPO for the purpose of determining whether a site or anomaly might intersect with the APE. Fourteen sites and anomalies are recorded: eight in Lake Champlain and six in the Hudson River. The Permittee will work to avoid these sites as well.

### **2.3.2 Terrestrial Resources**

Hartgen 2012 provides detailed documentation of the terrestrial archaeological work completed. A summary of that work is presented here as it pertains to the CRMP. Four archeological sites are recommended for avoidance, if feasible, or for further archeological work (CHPE Sites 4, 6, 10, and 21). The sites cover 2.42 acres (105,616 square feet) of the APE. These sites are summarized on page 72 of Hartgen 2012.

In addition, Hartgen recommended further exploratory work or archeological monitoring for the Fort Edward Yard, Rogers Island, and Schenectady, totaling 13,000 linear feet of the APE. Archeological monitoring of the Fort Edward Yard during construction was recommended for a 9,000-foot segment of the APE, between Feedertown Road and East Avenue, where it crosses through the Fort Edward rail yard. If the Project will impact potentially undisturbed soils on Rogers Island, then archeological monitoring was recommended for a 1,000-foot segment of the APE due to sensitivity for military sites, Precontact period sites, and historic burials. Last, Hartgen recommended archeological monitoring during construction for a 2,850-foot segment of the APE in Erie Boulevard in the City of Schenectady because of the likelihood of the Project encountering Erie Canal features below the pavement.

Monitoring may also be recommended in the Glenville Yards based on final construction plans. Finally, it appears that the Champlain Canal wall identified in Fort Edward will not be directly impacted by the proposed cable as it will be routed above the wall and placed under the nearby railroad bridge. A protection plan should be developed and accepted by the NYSHPO to avoid inadvertent impacts to the canal wall.

As appropriate, the Phase IB archeological survey for the remaining terrestrial segment of the APE (primarily within the CSX railway ROW) should include examination of those areas where the proposed 2012 APE deviates from the CSX railway ROW. These areas are listed in Table 1 of Appendix 3B:3 of Hartgen 2012. All of the archaeological sites and the areas identified for archeological monitoring are described in Table 24 (Appendix 3B:73-75) of Hartgen 2012. Based on the previous Phase II site evaluations, it is not anticipated that there will be a significant number of archeological sites that will be recommended for avoidance, if feasible, or for further archeological work, but this assumption will need to be field verified.

TRC (2020a, 2020b, and 2020c) completed Phase 1A analyses for the eight proposed route modifications, as well as the relocation of the converter station. A review of previous research and the New York Cultural Resources Information System documented the existence of numerous Precontact and Historic archaeological sites and Historic properties within a 1 kilometer radius of these locations. However, the APEs are narrow (50 feet), and the majority of

the APEs are within the ROWs of long-established railroad lines and roadways, and so no additional studies were recommended by the NYSHPO.

### **3.0 PROJECT MANAGEMENT GOALS AND STANDARDS FOR HISTORIC PRESERVATION**

This section defines the Permittee's management goals and standards for how historic properties will be addressed during and after construction.

#### **3.1 Management Goals for Historic Properties**

The Permittee has outlined the following goals for managing historic properties within the Project APE. These goals are reflected in management measures for archaeological resources and are consistent and complimentary with the guidance and goals identified in Section I, paragraph 2.

1. Ensure continued normal construction of the Project while making every effort to maintain and preserve the integrity of historic properties and archaeological sites within the APE.
2. Avoid or mitigate adverse effects of Project construction to historic properties and archaeological resources within the APE.

To the extent practical, the Permittee is committed to the preferred management policy of avoidance of adverse effects on historic properties and archaeological sites. If adverse effects cannot be avoided, the Permittee will minimize or mitigate the adverse effects to the extent practical in coordination and consultation with the NYSHPO.

3. Maintain confidentiality regarding archaeological site locations. The NHPA protects information regarding the location, character, or ownership of sensitive historic properties from public disclosure. The Permittee will continue to share information regarding archaeological sites with the NYSHPO and the DOE, and it will maintain confidentiality and will not disclose this information to the public, unless approved in advance by the NYSHPO and DOE.
4. Practice good stewardship of historic properties by providing training to appropriate Permittee personnel. The Permittee will identify and train a PPO (see below) who will



oversee all cultural resource management issues that may arise during the construction and post construction phases of the Project. The PPO will be identified to the NYSHPO, along with contact information, for the purposes of communication and coordination with the NYSHPO. The Permittee also recognizes the need to retain a CA during the construction and post construction phase to ensure that its management goals for historic properties and archaeological sites is undertaken. The CA shall work directly with the PPO, and their contact information will also be provided to the NYSHPO.

## **4.0 PROJECT EFFECTS AND MANAGEMENT MEASURES**

### **4.1 Project Effects**

Construction of the Project has the potential to affect the integrity of historic properties and archaeological resources as a result of ground disturbing activities located within its APE. While every effort will be made to avoid such properties and resources, the Permittee recognizes that occasions may arise when its activities could affect known resources and those that may be uncovered during the course of construction. This potential will be addressed with the use of a monitoring plan for both known resources and for the unanticipated discovery of resources described in the next subsection.

### **4.2 Monitoring Plan for Ground Disturbances near Archaeological Sites or Unanticipated Discoveries Located in the APE**

To address the management goals described in the Section above,

1. The Permittee will contract with a CA who meets or exceeds the Secretary of the Interior's standards for conducting such investigations to work with the PPO and consult with the NYSHO to monitor terrestrial properties identified in Table 1 (Appendix 3B:3) during ground-disturbing construction and maintenance of the Project.
2. In as much as it is practicable, the CA will be notified one week in advance of any ground disturbing activities occurring on or near terrestrial properties listed in Table 1 (Appendix 3B:3). In the event that an unanticipated discovery is made during construction in areas other than those in the vicinity of those listed in Table 1, then the PPO will be notified immediately. It will be up to the PPO to notify the CA that an unanticipated discovery has occurred.
3. During construction near the terrestrial properties identified in Table 1, if the CA identifies archaeological materials in the construction area, then they will have the discretion and authority to request that work be halted in that specific area immediately.

The CA will notify the PPO that archaeological materials have been uncovered. The CA will have up to three work days to excavate and remove cultural materials from the APE at that location before construction continues at that location. The CA, in consultation with the PPO and the NYSHPO, may request additional archaeological field assistance to complete the necessary work in a timely fashion.

4. Once the archaeological materials have been removed from the construction area, then construction may proceed. Construction will not be delayed at the location for a period exceeding three work days except for extraordinary circumstances. The CA and the PPO will consult with the NYSHPO to identify what extraordinary circumstances entail.
5. The CA will have up to 60 work days to analyze and file a report with the NYSHPO on archaeological materials recovered from the site location. The recovered artifacts and the records for their analysis and recovery will be curated as explained below in the next Section.
6. This plan will also be in effect for any unanticipated discovery of archaeological resources that may occur in the APE during Project construction. If an unanticipated discovery is made, then it shall be the responsibility of the PPO to halt construction activities and contact and coordinate with the CA to visit the location of the discovery as quickly as is practicable.
7. The locations of all historic properties as defined by the NHRP will be annually monitored for a period of three years after construction of the Project has been completed. These will include sites that were previously unknown or those that may be discovered during construction. The purpose of the post-construction monitoring is to confirm that historic properties were not inadvertently disturbed as a result of Project completion and to document whether any looting or defacement has occurred or is occurring at any of them. The monitoring archaeologist will record observations made at each historic property to file with the NYSHPO. If looting or defacement is detected, that

information will be immediately communicated to the NYSHPO to consult on appropriate measures to be taken.

#### 4.3 Curation of Archaeological Collections

There are no federal lands involved in the construction of the Project; however, state lands may be involved where archaeological materials may be uncovered. All artifacts recovered and all records made of those collections (and all other archaeological collections made during the construction of the Project) shall be curated using standards established by the NYSM (NYSM 2019). The Permittee will coordinate the submission of a curation application to the NYSM to permanently curate artifacts and records. If the NYSM elects not to accept the collection, then the Permittee will consult with the NYSHPO to identify a repository for the permanent curation of any archaeological collections that may have been made during the completion of the Project.

#### 4.4 Treatment of Human Remains

In the event that human remains are identified during Project construction, work will halt in the immediate area. Although no portion of the Project is being constructed on federal or tribal lands, the Permittee will take into account all state and local laws and will adopt the principals described in the Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001 et seq. and its implementing regulations at 43 CFR Part 10). Other relevant documents include the ACHP's 2007 *Policy Statement Regarding Treatment of Burial Site, Human Remains and Funerary Objects Grave Goods* (ACHP 2007) and the NYSHPO's *Human Remains Discovery Protocol* (NYSHPO 2021). **Error! Hyperlink reference not valid.** These same principles and guidance are also applicable to any funerary objects and/or grave goods that are found associated with the human remains.

## **5.0 IMPLEMENTATION PROCEDURES**

### **5.1 Project Preservation Officer (PPO)**

The Permittee will designate a PPO to oversee all cultural resources management issues related to the construction and post construction of the Project. The PPO will coordinate the implementation of the CRMP and ensure that all requirements and conditions of the CRMP are met. The PPO's responsibilities will include review of Project activities to determine the potential effect to historic properties and consultation with the NYSHPO regarding potential effect to historic properties. Other activities of the PPO will include CRMP updates and notifications, preparation of an annual monitoring report to the NYSHPO, and construction personnel training. As the PPO is not a technical position, it is not required that the PPO be a cultural resource professional; the PPO Coordinator, however, will receive training in the Section 106 process, and will work closely with the archaeologist whom the Permittee employs to assist the PPO in the execution of his/her responsibilities.

### **5.2 Training**

The PPO will work with the retained CA to monitor construction activities to provide training to construction personnel on the identification of archaeological remains and the procedures for notification of the PPO when archaeological remains have been discovered or are believed to have been uncovered. It shall be the responsibility of the CA to develop a hands-on workshop to familiarize construction personnel with examples of the types of artifacts that may be uncovered in the ground, including Precontact period and historic period specimens or replicas. The archaeologist and the PPO will coordinate their activities to identify a mutually agreed upon time when all construction personnel likely to be in a situation to observe ground disturbances have an opportunity to attend the workshop, which shall be considered mandatory.

### **5.3 Annual Reporting, Periodic Review and Revision of the CRMP**

The PPO will prepare an annual report to the DOE and the NYSHPO (and any of the other signatory or consulting parties listed in the Programmatic Agreement), which summarizes activities conducted under this CRMP on an annual basis for as long as this CRMP is in effect (i.e. through post-construction monitoring). The report will be completed and submitted on or

before January 10 of each year. The CRMP may be updated and/or revised as appropriate to improve its implementation so long as concurrence is reached by the parties involved is achieved. The annual report will include a summary of all historic properties and archaeological resources that may have been encountered during construction and how they were treated. Post-construction reports will identify which cultural resources were monitored and provide a summary of resource conditions and whether looting or other forms of ground disturbances were noted.

#### **5.4 Education**

The Permittee agrees to expend \$5,000 on educational initiatives that provide the public opportunities with to learn about the investigations and analyses of artifacts recovered during the pre-construction, construction, and post-construction Project phases that enhance understanding of Precontact and Native American and Europeans along the Project corridor. These funds may be used to prepare publications and/or lectures. The expenditure of funds on this public component shall be undertaken in consultation with the NYSHPO.

#### **5.5 Dispute Resolution Actions**

If at any time during the implementation of this CRMP, the Signatory or Concurring parties or the ACHP objects to any action, or any failure to act, pursuant to this CRMP, they may file written objections with the DOE.

**5.5.1** The DOE will consult with the objecting party, and with either Signatory and/or Concurring parties as appropriate, to resolve the objection. The DOE may initiate its own such consultation to resolve any of DOE's objections to actions taken or products produced by any party pursuant to this agreement.

**5.5.2** If the DOE determines that the objection cannot be resolved through consultation alone, then the DOE will forward all documentation relevant to the dispute to the ACHP and request that the ACHP comment. After receiving all pertinent documentation, the ACHP will either (a) provide the DOE with recommendations, which the DOE will take into account in reaching a final decision regarding the dispute; or (b) notify the DOE that it will comment

pursuant to 36 CFR Section 800.7(c)(1) through (c)(3) and Section 110(a)(1) of the NHPA, and then proceed to comment.

**5.5.3** The DOE will take into account any ACHP comments provided in response to such a request, with the reference to the subject of the dispute, and will issue a decision on the matter. The DOE's responsibility to carry out all actions under this CRMP that are not the subject of dispute will remain unaffected.

## 6.0 REFERENCES CITED

Advisory Council on Historic Preservation (ACHP)

2007 *Statement Regarding the Treatment of Burial Sites, Human Remains, and Funerary Objects*. <https://www.achp.gov/sites/default/files/policies/2018-06/ACHPPolicyStatementRegardingTreatmentofBurialSitesHumanRemainsandFuneraryObjects0207.pdf>.

2009 *Section 106 Archaeological Guidance*. [https://www.achp.gov/Protecting-Historic-Properties/Section\\_106\\_Archaeology\\_Guidance](https://www.achp.gov/Protecting-Historic-Properties/Section_106_Archaeology_Guidance).

Brennan, Louis A.

1991 *The Lower Hudson: The Archaic*. In *The Archaeology and Ethnohistory of the Lower Hudson Valley and Neighboring Regions: Essays in Honor of Louis A. Brennan*, Herbert C. Kraft, ed, pp. 11-22. Occasional Publications in Northeastern Anthropology, No. 11. Archaeological Services, Bethlehem, Connecticut.

Carr, K. and J. Adovasio

2002 *Paleoindians in Pennsylvania*. In *Ice Age People of Pennsylvania*, edited by K. Carr and James Adovasio, pp. 1-50. Recent Research in Pennsylvania Archaeology, No. 2, P. Raber, series ed., Pennsylvania Historical and Museum Commission, Harrisburg.

Fagan, Brian

2000 *Ancient North America*. Thames and Hudson, London.

Funk, Robert E.

1976 *Recent Contributions to Hudson Valley Prehistory*. New York State Museum Memoir 22. The University of the State of New York, State Education Department, Albany, New York.

1991 *Late Pleistocene and Early Holocene Human Adaptations*. In *The Archaeology and Ethnohistory of the Lower Hudson Valley and Neighboring Regions: Essays in Honor of Louis A. Brennan*, Herbert C. Kraft, ed, pp. 49-68. Occasional Publications in Northeastern Anthropology, No. 11. Archaeological Services, Bethlehem, Connecticut.

Grumet, Robert Steven

1995 *Historic Contact: Indian people and colonists in today's northeastern United States in the sixteenth through eighteenth centuries*. University of Oklahoma Press, Norman, Oklahoma.

Hartgen Archaeological Associates, Inc. (Hartgen)

2009 *Hudson River PCB Superfund Project, Alternative, Water Supply Transmission Main, City of Troy, Rensselaer County, New York*. Submitted to Ecology & Environment, Inc. (Available from the New York State Office of Parks, Recreation and Historic Preservation, Cohoes, New York.)



- 2010a *Pre-Phase IA Archaeological Screening: Champlain Hudson Power Express*. Report on file with the New York State Historic Preservation Office, Albany, New York.
- 2010b *Phase IA Literature review and archaeological sensitivity assessment: Champlain-Hudson Power Express*. Report on file with the New York State Historic Preservation Office, Albany, New York.
- 2012 *Phase IB Archaeological Field Reconnaissance and Phase II Archaeological Site Evaluation: Champlain Hudson Power Express, Canadian Pacific Railway Segment*. Report on file with the New York State Historic Preservation Office, Albany, New York.
- 2013a *March 2013 GIS Analysis: Archeological Sites within APE Archeological Sites Intersected by a 50-ft wide Construction Corridor Along the November 2012 CHPE/TDI Centerline*. Report on file with the New York State Historic Preservation Office, Albany, New York.
- 2013b *GIS Analysis NRHP Properties within APE National Register of Historic Place Eligible (NRE) and Listed (NRL) Properties Intersected by a 50-ft wide Construction Corridor along the November 2012 CHPE/TDI Centerline*. Report on file with the New York State Historic Preservation Office, Albany, New York.
- 2013c *GIS Analysis Underwater Resources within APE Underwater Anomalies and Sites within Lake Champlain and the Hudson River Intersected by a 50-ft wide Construction Corridor along the November 2012 CHPE/TDI Centerline*. Report on file with the New York State Historic Preservation Office, Albany, New York.
- Kraft, Herbert C.
- 1991 *European Contact and Trade in the Lower Hudson Valley*. In *The Archaeology and Ethnohistory of the Lower Hudson Valley and Neighboring Regions: Essays in Honor of Louis A. Brennan*, Herbert C. Kraft, ed, pp. 193-222. Occasional Publications in Northeastern Anthropology, No. 11. Archaeological Services, Bethlehem, Connecticut.
- 2001 *The Lenape-Delaware Indian Heritage: 10,000 B.C. – A.D. 2000*. Lenape Books, n.p.
- Lake Champlain Maritime Museum (LCMM).
- 2009a *History: Contact Period (1609-1664)*. Lake Champlain Maritime Museum, Vergennes, Vermont. <https://www.lcmm.org/explore/lake-champlain-history/contact-period-1609-1664/>.
- 2009b *History: French and British Military Conflict (1664-1763)*. Lake Champlain Maritime Museum, Vergennes, Vermont. <https://www.lcmm.org/explore/lake-champlain-history/french-british-military-conflict-1664-1763/>.
- 2009c *History: Revolutionary War (1775-1783)*. Lake Champlain Maritime Museum, Vergennes, Vermont. <https://www.lcmm.org/explore/lake-champlain-history/revolutionary-war-1775-1783/>.

- 2009d *History: War of 1812 (1812-1815)*. Lake Champlain Maritime Museum, Vergennes, Vermont. <https://www.lcmm.org/explore/lake-champlain-history/war-of-1812-1812-1815/>.
- 2009e *History: Commercial Era (1823-1945)*. Lake Champlain Maritime Museum, Vergennes, Vermont. <https://www.lcmm.org/explore/lake-champlain-history/commercial-era-1823-1945/>.
- Laub, R.
- 2002 *The Paleoindian Presence in the Northeast: A View from the Hiscock Site*. In *Ice Age People of Pennsylvania*, edited by K. Carr and James Adovasio, pp. 10–122. Recent Research in Pennsylvania Archaeology, No. 2, P. Raber, series editor, Pennsylvania Historical and Museum Commission, Harrisburg.
- National Park Service (NPS)
- 2010 *National Heritage Areas*. National Park Service, National Heritage Areas Program Office, Washington, DC. <http://www.nps.gov/history/heritageareas/INDEX.htm>.
- New York Archaeological Council (NYAC)
- 1994 *Standard for Cultural Resources Investigations and the Curation of Archaeological Collections*. The New York Archaeological Council, Albany.
- New York State Historic Preservation Office (NYSHPO)
- 2021 *Human Remains Discovery Protocol*. <https://parks.ny.gov/documents/shpo/environmental-review/HumanRemainsProtocol.pdf>. **Error! Hyperlink reference not valid.**
- New York State Museum (NYSM)
- 2019 *Policies and Procedures for the Curation of Archaeological Collections at the New York State Museum*. (Available from the NYSM, Albany, New York.)
- Pasquariello, R., and A. Loorya
- 2006 *Phase IA Cultural Resources Survey for the Proposed M29 Transmission Line Project, Westchester, Bronx, and New York Counties, New York*. TRC Environmental Corporation. Prepared for the Consolidated Edison Company of New York, Inc. (Available from TRC Environmental Corporation, Lyndhurst, New Jersey.)
- Quiggle, R.J
- 2005 *Cordage and Basketry Impressions on Ceramics from the Strickler Site (36La03), Lancaster County, Pennsylvania*. Unpublished Master's thesis, Department of Anthropology, State University of New York at Binghamton.
- 2006 *Phase IA Documentary Study and Site History: Red Hook Water Pollution Control Plant System Upgrade, Brooklyn, Kings County, New York City, New York*. New York Power Authority. Submitted to the Champlain Hudson Power Express, New York and Connecticut Pre-Phase IA Screening 35 City of New York Landmarks Preservation

- Commission. (Available from the New York City Landmarks Preservation Commission, New York, New York.)
- 2008 *Niagara Power Project (FERC No. 2216) Draft Historic Properties Management Plan*. Prepared for the New York Power Authority, White Plains, New York.
- Quinn, A., J. Adovasio, C. Pedler, and D. Pedler
- 1999 *Archaeological Investigation of the Elk Creek Site (36Er162), Girard Township, Erie County, Pennsylvania*. Mercyhurst Archaeological Institute Reports of Investigations No. 2. Mercyhurst Archaeological Institute, Erie, Pennsylvania.
- Ritchie, William
- 1965 *The Archaeology of New York State*. The Natural History Press, Garden City, New York.
- TRC Companies, Inc. (TRC)
- 2020a *Phase IA Archeological Assessment of Champlain-Hudson Alternative Routes, New York*. Report on file with the New York State Historic Preservation Office, Albany.
- 2020b *Phase IA Archeological Assessment of Champlain Hudson Astoria Converter Station and Astoria Preferred Alternative Route, Boroughs of Queens, New York*. Report on file with the New York State Historic Preservation Office, Albany.
- 2020c *Phase IA Archeological Assessment of Champlain-Hudson Power Express Project, Harlem Rail Yard Preferred Alternative, Boroughs of Queens, New York*. Report on file with the New York State Historic Preservation Office, Albany.
- United States Department of Energy (DOE)
- 2006 *U.S. Department of Energy American Indian & Alaska Native Tribal Government Policy*. <https://www.energy.gov/sites/prod/files/DOE%20American%20Indian%20and%20Alaska%20Natives%20Tribal%20Government%20Policy.pdf>.
2011. *DOE's Policy 141.1: Management of Cultural Resources*. <https://www.energy.gov/nepa/downloads/doe-policy-1411-management-cultural-resources-2011>.
- United States Military Academy (USMA)
- 2009 *A Brief History of the Academy*. United States Military Academy, West Point, New York. <https://www.westpoint.edu/about/history-of-west-point>.