BROADWATER

RESOURCE REPORT NO. 4

CULTURAL RESOURCES

FOR A

PROJECT TO CONSTRUCT AND OPERATE A

LIQUEFIED NATURAL GAS RECEIVING TERMINAL

IN

LONG ISLAND SOUND

LONG ISLAND, NEW YORK

UNITED STATES OF AMERICA

JANUARY 2006

Privileged Information has been removed from the Public Volume and is contained in the Privileged Volume.

PUBLIC

Minimum Filing Requirement	Location in Cultural Resources Report
See § 380.14 and "OPR's Guidelines for Reporting on Cultural Resources Investigations" for further guidance.	
• • Initial cultural resources consultation and documentation, and documentation of consultation with Native Americans. (§ 380.12 (f) (1) (ii) & (2)).	Section 4.4 and Appendix A
• • Overview/Survey Report(s). (§ 380.12 (f) (1) (iii) & (2)).	Section 4.5 and Appendix C.

Environmental Information Request October 19, 2005	Location in Cultural Resources Report
10. Draft Resource Report 4 (RR 4), as submitted, does not comport with the FERC's "Guidance Manual for Environmental Report Preparation", August 2002. RR 4 is a public document containing a summary of the consultations undertaken to date, a description of the area of potential effect, the areas surveyed, areas not yet surveyed and the reason for the lack of survey, a summary of the number and type of cultural resources identified, any resources requiring additional work, and an unanticipated discoveries plan. The cultural resources survey itself, and all material filed with the Commission containing location, character, or ownership information about cultural resources must have the cover and any relevant pages therein clearly marked 'Contains privileged information - Do not release' and should be filed separately from RR 4.	Resource Report 4 and the Overview/ Survey Report (Appendix C) have been revised to comply with the FERC's *Guidance Manual for Environmental Report Preparation* (August 2002).
11. State whether or not the surveys have been conducted in accordance with NTL-98-06, as required by FERC Guidelines.	Appendix C: Overview/Survey Report: pg. 1-5

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Environmental Information Request October 19, 2005	Location in Cultural Resources Report
12. Provide the FERC and the NY SHPO with the following:	
a. An analysis of the project's consistency with New York State's coastal zone management policies relating to cultural resources; and	SHPO approval of the Survey and Overview will demonstrate consistency with the NYS Coastal Zone Management policies.
b. Copies of the primary remote sensing survey data (reports prepared by TESLA Offshore, LLC) for the APE.	Appendix D
13. Provide copies of all SHPO correspondence not previously filed with the Secretary and state in RR 4 whether or not the SHPO has indicated, in writing, that the survey methods employed were acceptable.	Appendix A
14. RR 4 states that the absence of pre-contact archeological sites "is largely attributable to the negligible amount of underwater archeological research on the pre-contact period conducted thus far in the region, rather than a conclusive indicator for such sites to exist." However, RR 4 concludes, based on this undocumented opinion and the experience of Broadwater's consultant, "that the archeological sensitivity of the project area for containing pre-contact period archeological resources is generally considered to be low." Provide documentation supporting the basis for this conclusion.	Appendix C: Overview/Survey Report: pp. 2-10; 3-5 to 3-9; 5-1; 5-2;
15. Provide the following information regarding the anomalies noted in the survey:	Appendix C: Overview/Survey Report: pp. 2-3 to 2-9; 5-5; Table C-1; Appendix C of Overview/Survey Report
a. State what criteria were used to identify the 88 (of 750) anomalies selected for detailed analysis;	
b. Describe the specifics of the "in-depth interpretation" that was used to reduce the number of anomalies considered from 88 to 9; and	
c. Provide data comparable to that in Table 4-1 for all 88 anomalies.	

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Environmental Information Request October 19, 2005	Location in Cultural Resources Report
16. Provide the following information regarding the vibratory core information and interpretations:	Appendix C: Overview/Survey Report: pp. 2-2; 2-3; 2-6; 2-8; 2-9; 2-10; Figure 2-1; pp. 5-6; 5-8; Appendix D of Overview/Survey Report
a. State whether vibratory core samples were physically examined by qualified geoarcheologists, or if Broadwater relied on an analysis of core logs; and	
b. Describe the criteria that were used to support the statement that vibratory cores contained "no physical evidence of archeologically sensitive areas."	
17. RR 4 states that discussions of seabed disturbance were based "on the anticipated installation method of using a subsea plow." Provide a comparable analysis of the potential seabed disturbance that would occur using a jet-sled to install the pipe.	Appendix C: Overview/Survey Report: pg.1-6
18. In Table A-1, list the estimated distance of the reported shipwrecks to the project's APE.	Appendix C: Overview/Survey Report: Table 5-1; Appendix A of Overview/Survey Report
19. Indicate whether or not the results of the archeological surveys for the underwater electrical transmission cables (e.g., cross-sound cable) and natural gas pipeline crossings (e.g., Iroquois and Islander East) of Long Island Sound were reviewed as a part of the cultural resources investigation.	Appendix C: Overview/Survey Report: pg. 2-10
20. Provide the reference for Wick (2005), cited in Section 4.4.1.1.	Reference has been removed.

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Environmental Information Request October 19, 2005	Location in Cultural Resources Report
21. With regard to the procedures for unanticipated finds presented in Appendix C, address the following: a. Appendix C cites the outdated (1994) version of FERC's Guidelines. Procedures related to unanticipated finds should follow the 2002 Guidelines. Revise either the text or the citation to State why this version was used or revise the references cited accordingly; b. Provide the procedures or criteria that would be used to determine if an unanticipated shipwreck is uncovered during construction; and c. Provide a list of laws and regulations referred to as "applicable laws and regulations pertaining to the cultural resources of New York State resources."	Appendix B

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List of Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
APE	area of potential effect
AWOIS	Automated Wreck and Obstruction information System
bcf	billion cubic feet
bcfd	billion cubic feet per day
CFR	Code of Federal Regulations
FERC	Federal Energy Regulatory Commission
FSRU	Floating Storage and Regasification Unit
IGTS	Iroquois Gas Transmission System
km	kilometer
LNG	liquefied natural gas
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
m	meter
m^2	square meter
m^3	cubic meter
OCS	Outer Continental Shelf
OPRHP	Office of Parks Recreation and Historic Preservation
SHPO	State Historic Preservation Office
STV	shell and tube vaporization
YMS	yoke mooring system

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4. CULTURAL RESOURCES

4.1 INTRODUCTION

Broadwater Energy, a joint venture between TCPL USA LNG, Inc., and Shell Broadwater Holdings LLC, is filing an application with the Federal Energy Regulatory Commission (FERC) seeking all of the necessary authorizations pursuant to the Natural Gas Act to construct and operate a marine liquefied natural gas (LNG) terminal and subsea pipeline for the importation, storage, regasification, and transportation of natural gas. The Broadwater LNG Project (the Project) will increase the availability of natural gas to the New York and Connecticut markets through an interconnection with the Iroquois Gas Transmission System (IGTS). The FERC application for the Project requires the submittal of 13 Resource Reports, with each report evaluating Project effects on a particular aspect of the environment.

Resource Report 4 presents the results of the marine archaeological resources survey (Phases IA and IB) conducted in April and May 2005 within the proposed Project area. The report (1) identifies the regulatory requirements and the Area of Potential Effect (APE) of the Project; (2) presents the results of the remote-sensing surveys, agency and Native American consultations, and the marine archaeological resources survey; and (3) presents proposed mitigation measures. Appendix A contains correspondence with regulatory agencies and Native American tribes; Appendix B contains a plan for unanticipated discoveries of cultural resources during construction; Appendix C presents the Overview/Survey Report; and Appendix D presents the Proposed Pipeline Route Survey.

The proposed Broadwater LNG terminal will be located in Long Island Sound (the Sound), approximately 9 miles (14.5 kilometers [km]) from the shore of Long Island in New York State waters, as shown on Figure 4-1. The LNG terminal facilitates the sea-to-land transfer of natural gas. It will be designed to receive, store, and regasify LNG at an average throughput of 1.0 billion cubic feet per day (bcfd) and will be capable of delivering a peak throughput of 1.25 bcfd. The Project will deliver the regasified LNG to the existing interstate natural gas pipeline system via an interconnection to the IGTS pipeline. Onshore facilities are discussed in a separate document.

The proposed LNG terminal will consist of a floating storage and regasification unit (FSRU) that is approximately 1,215 feet (370 meters [m]) in length, 200 feet (60 m) in width, and rising approximately 80 feet (25 m) above the water line to the trunk deck. The FSRU's draft is approximately 40 feet (12 m). The freeboard and mean draft of the FSRU will generally not vary throughout operating conditions. This is achieved by ballast control to maintain the FSRU's trim, stability, and draft. The FSRU will be designed with a net storage capacity of approximately 350,000 cubic meters [m^3] of LNG (equivalent to 8 billion cubic feet [bcf] of natural gas) with base vaporization capabilities

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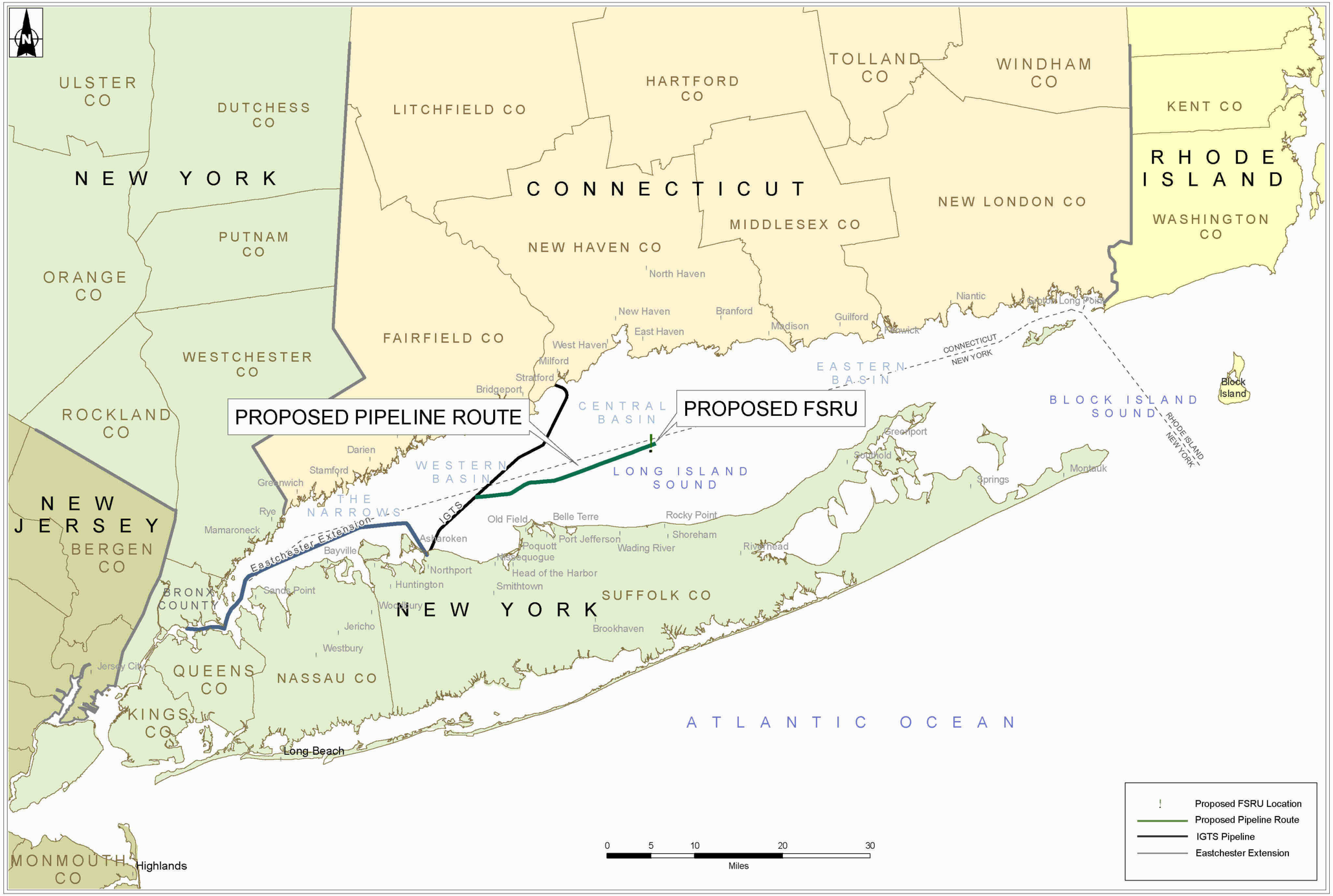

Source: ESRI StreetMap, 2002.

Figure 4-1
Proposed Broadwater Project
Location in Long Island Sound

of 1.0 bcfd using a closed-loop shell and tube vaporization (STV) system. The LNG will be delivered to the FSRU in LNG carriers with cargo capacities ranging from approximately 125,000 m^3 up to a potential future size of 250,000 m^3 at a frequency of two to three carriers per week.

The FSRU will be connected to the send-out pipeline, which rises from the seabed and is supported by a stationary tower structure. In addition to supporting the pipeline, the stationary tower also serves the purpose of securing the FSRU in such a manner to allow it to orient in response to prevailing wind, wave, and current conditions (i.e., weathervane) around the tower. The tower, which is secured to the seabed by four legs, will house the yoke mooring system (YMS), allowing the FSRU to weathervane around the tower. The total area under the tower structure, which is of open design, will be approximately 13,180 square feet (1,225 square meters [m^2]).

A 30-inch-diameter natural gas pipeline will deliver the vaporized natural gas to the existing IGTS pipeline. It will be installed beneath the seafloor from the stationary tower structure to an interconnection location at the existing 24-inch-diameter subsea section of the IGTS pipeline, approximately 22 miles (35 km) west of the proposed FSRU site. To stabilize and protect the operating components, sections of the pipeline will be covered with engineered back-fill material or spoil removed during the lowering operation. Figure 4-1 presents the proposed pipeline route.

4.2 REGULATORY REQUIREMENTS

The proposed Project will be carried out in accordance with the conditions of an authorization issued by FERC under the Natural Gas Act. The granting of an Authorization is conditional on the Applicant's compliance with the 1966 National Historic Preservation Act (NHPA) (16 USC 470) as amended in 1976, 1980, and 1992.

Section 106 of the NHPA requires all federal agencies to take into account the effects of any undertaking on cultural resources prior to an undertaking. Project sponsors proposing to execute a project under FERC jurisdiction must assist FERC in meeting its obligations under Section 106 of the NHPA.

Section 106 of the NHPA requires federal agencies with jurisdiction over a proposed federal project to take into account the effect of the undertaking on cultural resources listed, or eligible for listing, on the National Register of Historic Preservation (NRHP) and afford the State Historic Preservation Offices (SHPOs) and the Advisory Council on Historic Preservation (ACHP) an opportunity to comment with regard to the undertaking. The NRHP eligibility criteria have been defined by the Secretary of the Interior's Standards for Evaluation (36 CFR 60). The procedures for compliance with Section 106 of the NHPA are contained in the Code of Federal Regulations (36 CFR 800).

The Section 106 process is coordinated at the state level by the SHPO, represented in New York State by the Office of Parks Recreation and Historic Preservation (OPRHP). The issuance of FERC's authorization will depend, in part, on obtaining comments from the New York State OPRHP.

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The principal goals for archaeological investigations conducted as part of the Section 106 review are to:

- Locate, document, and evaluate buildings, structures, objects, landscapes, and archaeological sites that are listed, or eligible for listing, in the NRHP;
- Assess potential impacts of the Project on those resources; and
- Provide recommendations for subsequent treatment to assist with compliance with Section 106.

The Public Archaeology Laboratory, Inc. (PAL), a cultural resources management firm, was contracted to address Project responsibilities under the NHPA. In addition to Section 106, the cultural resources investigation, which was conducted within state waters, was also conducted in accordance with FERC's Office of Energy Project's *Guidelines for Reporting on Cultural Resources Investigations* (2002), the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (48 Fed. Reg. 44716-42, September 29, 1983), the New York State Historic Preservation Act of 1980, the Abandoned Shipwreck Act of 1987, the New York Archaeological Council's *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State* (1994), and the New York SHPO's May 2005 revised *State Historic Preservation Office Phase I Archaeological Report Format Requirements*. Because the Project area is located within state waters, the survey was not conducted under NTL-98-06 (Notices to Lessees and Operators of Federal Oil and Gas Leases in the Outer Continental Shelf, Gulf of Mexico OCS Region).

Cultural resources survey information is considered confidential, and all site-specific information included as Appendix C and Appendix D has been filed under a separate cover and labeled "CONTAINS PRIVILEGED INFORMATION – DO NOT RELEASE."

4.3 AREA OF POTENTIAL EFFECT

The Area of Potential Effect (APE) is the "geographic area or areas within which an undertaking may directly or indirectly cause changes in the character of or use of historic properties, if any such properties exist" (36 CFR 800.16(d)). The APE is defined based upon the *potential* for effect, which may differ for aboveground resources (historic structures and landscapes) and subsurface resources (archaeological sites). The APE may include all areas where the ground may be disturbed, where land use (i.e., traffic patterns, drainages, etc.) may change, or any locations from which the undertaking may be visible.

The APE for the Project area was determined in consultation with the OPRHP prior to initiation of survey work. The potential for impacting archaeological resources along the proposed 21.7-mile (35-km) pipeline route is limited to the 300-foot-wide (91-m-wide) temporary construction right-of-way and an approximately 4,000-foot-wide (1,219-m-

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wide) (i.e., 2,000 feet [610 m] to either side of the pipeline route) temporary anchor right-of-way. The vertical APE within the pipeline's excavated trench is 8 feet (2.4 m). Based on the anticipated installation methods of using a subsea plow, the actual width of disturbance will be considerably less than 300 feet (91 m). By considering both a 300-foot-wide (91-m-wide) pipeline construction corridor, and a 4,000-foot-wide (1,219-m-wide) anchor right-of-way APE, the archaeological evaluations accommodate both the pipeline and the additional workspaces required for the IGTS and FSRU tie-ins and cable crossings, each of which will require excavation.

The APE for the YMS mooring system that will anchor the FSRU encompasses approximately 13,180 square feet (1,225 m^2), with four corner pilings being installed to a depth of approximately 230 feet (70 m), depending on existing soil and geological conditions.

4.4 AGENCY/NATIVE AMERICAN CONSULTATION

Broadwater and its cultural resource consultant met on February 10, 2005, with representatives of the New York SHPO, which operates within the OPRHP, to initiate consultation regarding survey methodologies prior to beginning fieldwork. During this meeting, Broadwater presented to the SHPO information on the proposed methodology and scope of underwater surveys. On February 21, 2005, Broadwater provided the SHPO with the written scope for the proposed surveys, and on February 25, 2005, the SHPO concurred with proposed methodology. On April 1, 2005, the SHPO provided Broadwater with additional guidance regarding the minimum distance buffers (100 feet [30.3 m]) required for avoidance of historic shipwrecks. All agency correspondence is provided in Appendix A.

Broadwater, through its archaeological consultants, has prepared this cultural resources survey report for this Project. On August 29, 2005, Broadwater submitted the a draft of this report to the SHPO. On October 13, 2005, the OPRHP provided Broadwater with its comments, and on October 19, 2005, FERC also provided its comments. These comments are addressed in this report and in the Survey/Overview Report (*see* Appendix C).

Due to the sensitive nature of material within the report, the copy of the report will be submitted under separate cover labeled "*Contains Privileged Information – Do Not Release.*"

In compliance with Section 106, on July 27, 2005, Broadwater initiated consultation with appropriate Native American groups in order to provide them with the opportunity to identify their concerns about properties of traditional religious or cultural importance that may be affected by this undertaking. The following Native American Groups were contacted:

- Wampanoag Tribe of Gay Head (Aquinnah),

- Shinnecock Indian Nation,
- Poospatuck Indian Nation,
- Narragansett Indian Tribe,
- Delaware Tribe of Indians,
- Mashantucket Pequot Tribal Nation, and
- Mohegan Tribal Nation.

Due to lack of response, on November 8, 2005, Broadwater resubmitted consultation requests to these Native American groups (*see* Appendix A).

4.5 CULTURAL RESOURCE INVESTIGATIONS

Cultural resources investigations were conducted in accordance with the protocol approved by the SHPO on February 25, 2005. Mr. David Robinson, MA, RPA, served as the principal investigator for all aspects of the Section 106 process and directed the Overview and Survey investigation.

4.5.1 Known Archaeological Resources

Assessment of the archaeological sensitivity of the APE involved consideration of previously documented offshore (and adjacent onshore) archaeological resources. The following sources were consulted as part of the archival research:

- The NRHP listing for Suffolk County, New York,
- SHPO's New York State Shipwrecks Report,
- The National Oceanic and Atmospheric Administration's (NOAA's) Automated Wreck and Obstruction Information System (AWOIS), and
- Northern Maritime Research's Northern Shipwreck Database (Version 2002).

It was determined that the general area of the Project contains 105 reported shipwrecks/obstructions, of which 18 have known locations. Four of these known locations fall within the Project's APE.

No offshore prehistoric archaeological resources have been identified to date within the study area.

4.5.2 Survey Results: Historic Archaeological Resources

A remote-sensing geophysical survey conducted between April 2 and May 11, 2005, provided complete coverage of the Project's APE. The survey was designed to collect

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data that, upon analysis, would allow for a determination of whether post-Contact archaeological sites, typically shipwrecks, were potentially present within the APE. PAL inventoried 750 anomalous events while these data were being recorded in the field during the geophysical survey. From this total, 88 anomalies were determined to have characteristics suggesting the need for closer analysis. Selection of these anomalies was made based on their individual intensity, size, duration, and distribution, as well as their correlations with other nearby anomalies distributed across the different data sets (i.e., from the magnetometer, side-scan sonar, and sub-bottom profiler). Based on detailed analysis of each of the 88 anomalies, a final list of 13 anomalies was compiled. These 13 anomalies comprise nine discrete targets with moderate to high potential to be post-Contact Period archaeological deposits. All nine of the targets are located within the temporary anchor construction right-of-way; none were identified within the 300-foot-wide (91-m-wide) pipeline APE. These targets are identified in Table 4-1.

Table 4-1 Archaeological Resources Within the APE

Target No.	Magnetometer Anomaly (signature/duration)	Sub-bottom Profiler and Side-scan Sonar Correlate	CHIRP Sub-bottom Profiler Correlate
529	+32 g/100 feet (30 m)	Y	Y
577	-250 g/130 feet (40 m)	N	Y
SSS Tgt. No. 10	Y	Y	N
SSS Tgt. No. 9	Y	Y	N
SSS Tgt. No. 8	Y	Y	N
473	-152 g/150 feet (46 m)	Y	Y
SSS Tgt. No. 6	Y	Y	N
SSS Tgt. No. 5	N	Y	N
SSS Tgt. No. 2	N	Y	N

Key:

SSS = Side-scan sonar

4.5.3 Survey Results: Prehistoric Archaeological Resources

The marine archaeological survey also addressed the issue of potential prehistoric archaeological resources on the bottom of the Long Island Sound that may have resulted from human habitation of the area prior to the Holocene marine transgression. The thrust of the investigation was to determine whether soils that were at one time part of the exposed landscape remain intact beneath modern marine sediment. Possible evidence of these paleosols (i.e., contextually intact elements of the inundated paleolandscape) can be detected through sub-bottom profiler surveys and in vibratory core samples.

Sub-bottom reflectors (i.e., acoustic reflective characteristics) resulting from changes in the densities of marine sediments were observed in two broad areas along the Project

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pipeline APE. No such reflectors were observed within the proposed APE of the YMS mooring system for the FSRU terminal.

Examination of the vibratory core data associated with the 14 samples taken from within and around the two areas with the sub-bottom reflectors resulted in no physical evidence for the existence of archaeologically sensitive intact paleosols. The cores' contents, which included trace amounts of organic material (i.e., decomposing vegetation) mixed throughout marine sediment deposits, indicated that these areas are disturbed erosional or reworking marine sedimentary environments, rather than the distinct, stratified, and submerged paleosol deposits that have been observed elsewhere in the Northeast and in Scandinavia. Examination of the geotechnical data associated with the remaining 24 vibratory coring specimens recovered at regular 1-mile (1.6-km) intervals along the route also yielded no physical evidence of archaeologically sensitive paleosols.

4.5.4 Evaluation Report and Treatment Plan

All nine potentially post-Contact Period targets identified within the Project's APE lie within the temporary anchor construction right-of-way and, therefore, are vulnerable to impacts from construction-related anchoring and/or "sweep" from anchor cables. Consequently, construction of the pipeline will be designed as necessary, and in consultation with the SHPO staff, to avoid impacts on these targets by establishing and maintaining a minimum buffer zone of 100 feet (30.48 m) in all directions around the detectable limits of each target. Avoidance of these nine targets will be accomplished during construction through the use of midline buoys on anchor cables. Since Broadwater will mitigate potential impacts on these nine targets through avoidance, no further archaeological work is recommended.

Analysis and correlation of the geophysical and geotechnical data provided no compelling evidence for the presence of paleosols along the proposed pipeline route within the 8-foot (2.4-m) Project depth or within the proposed footprint of the FSRU terminal. No further investigation to identify the locations of the archaeologically sensitive paleosols and submerged pre-Contact and Contact Period settlements is recommended.

As all known cultural resources in the APE will be avoided, no Evaluation Report or Treatment Plan was prepared for this report. In case of the unexpected discovery of cultural resources, Broadwater will use the *Procedures for Discovery of Unanticipated Cultural Resources and Human Remains* (*see* Appendix B).

APPENDIX A

AGENCY AND NATIVE AMERICAN CORRESPONDENCE

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New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189 518-237-8643

Bernadette Castro
Commissioner

February 25, 2005

Sandra Barnett
Environmental Affairs Manager
Broadwater Energy
777 Walker Street
Houston, TX 77002

Re: Broadwater LNG Terminal
Suffolk Co.
FERC, CORPS
05PR00342

Dear Ms. Barnett:

Thank you for meeting with us at our office on February 10 and for your letter of February 22 initiating the Section 106 consultation process for the Broadwater terminal facility and pipeline. We have reviewed your proposed approach for addressing underwater archaeology issues and find your methodology to be an acceptable means for identifying potentially significant archaeological resources and avoiding or mitigating project effects. Frequent and continuing consultation between your cultural resources consultants and our office at each stage of the investigations will help to ensure full compliance with the requirements of the National Historic Preservation Act and will lead to its satisfactory conclusion.

Please don't hesitate to contact me at 518-237-8643 ext. 3258 or Doug Mackey at ext. 3291 if either of us can be of any further assistance in the review of this project.

Sincerely,

Mark L. Peckham
Historic Preservation
Program Coordinator

Cc: E. Armbruster, FERC
L. Shmookler, E&E
D. Robinson, PAL

An Equal Opportunity/Affirmative Action Agency

From: Mark.Peckham@oprhp.state.ny.us
Sent: Friday, April 01, 2005 11:49 AM
To: Shmookler, Leonid
Cc: Donnelly, Mike
Subject: RE: Broadwater, shipwreck avoidance
That is correct, based on the assumptions that the trenching is limited in depth and disruption and that we are not dealing with steep, unstable slopes.
Mark Peckham

From: Shmookler, Leonid [mailto:LShmookler@ene.com]
Sent: Friday, April 01, 2005 11:23 AM
To: Peckham, Mark (PEB)
Cc: Donnelly, Mike
Subject: Broadwater, shipwreck avoidance

Mark:

Thank you for a quick and effective consultation regarding avoidance of submerged historical resources during construction of the Broadwater project in the Long Island Sound.

Your instruction to us is that pipeline and anchor cables should avoid shipwrecks by a distance of not less the 100 feet and debris field by distance of not less then 100 feet.

Please confirm that our understanding is correct.

Leonid Shmookler, RPA

Chief Archaeologist,

Ecology&Environment Inc.,

368 Pleasant View Drive,

Lancaster, NY 14086.

tel: 716-684-8060

fax: 716-684-0844

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368 Pleasant View Drive, Lancaster, New York 14086
Tel: 716/684-8060, Fax: 716/684-0844

July 27, 2005

Wampanog Tribe of Gay Head (Aquinnah)
Chairman Donald Widdiss
20 Black Brook Road
Aquinnah, MA 02535-1546

Re: Broadwater LNG project: Consultation under Section 106 of the 1966 National Historic Preservation Act.

Dear Chairman Widdiss:

Broadwater Energy, a joint venture between TCPL USA LNG Inc. and Shell US Gas & Power LLC, is filing an application with the Federal Energy Regulatory Commission (FERC) seeking all of the necessary authorizations pursuant to the Natural Gas Act to construct and operate a marine liquefied natural gas (LNG) terminal and interconnected subsea pipeline for the importation, storage, regasification, and transportation of natural gas. The Broadwater LNG Project (the Project) will increase the availability of natural gas to the New York and Connecticut markets through an interconnection with the Iroquois Gas Transmission System (IGTS). The FERC application for the Project requires the submittal of 13 resource reports, with each report evaluating project effects on a particular aspect of the environment.

The proposed Broadwater LNG terminal will be located in Long Island Sound (the Sound), approximately 9 miles (14.5 km) from the shore of Long Island in New York State waters, as shown on Figure 1. It will be designed to receive, store, and regasify LNG at an average throughput of 1.0 billion cubic feet per day (bcf/d) and will be capable of delivering a peak day throughput of 1.25 bcf/d. The Project will deliver the regasified LNG to the existing natural gas pipeline system via a subsea interconnection to the IGTS pipeline.

The proposed LNG terminal will consist of a floating storage and regasification unit (FSRU) that is approximately 1,250 feet (380 meters [m]) in length, 200 feet (60 m) in width, and rising approximately 80 feet (25 m) above the water line to the deck. The FSRU's draft is approximately 43 feet (13 m). The FSRU will be designed to accommodate storage of approximately 8 billion cubic feet (bcf)

(350,000 cubic meters [m^3]) of LNG, with base vaporization capabilities of 1.0 bcf/d using a closed-loop shell and tube (STV) vaporization system. The LNG will be delivered to the FSRU in LNG carriers with cargo capacities ranging from 125,000 m^3 to 250,000 m^3 at the frequency of two to three carriers per week.

The FSRU will be moored in place using a yoke mooring system (YMS) that allows the FSRU to pivot around the mooring tower base. The YMS includes a stationary tower structure, secured to the seafloor by multiple legs. The total area under the tower structure, which houses the connection between the FSRU and the proposed new subsea connecting pipeline, is of open design and will be approximately 7,000 square feet.

A 30-inch-diameter subsea natural gas pipeline will deliver the vaporized natural gas to the existing IGTS pipeline. It will be installed beneath the seafloor from the FSRU mooring structure to an interconnection location at the existing 24-inch-diameter subsea section of the IGTS pipeline, approximately 22 miles (35 km) west of the proposed FSRU site. Figure 1 presents the proposed pipeline route.

We would like to provide you with the opportunity to identify your concerns about properties of traditional religious or cultural importance that may be affected by this undertaking.

If you have any questions, please contact us at 716-684-8060.

Sincerely,

LShmookler

Leonid Shmookler, RPA
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Tel: 716/684-8060, Fax: 716/684-0844

July 27, 2005

Shinnecock Indian Nation Tribal Council
Chairman Randy King
P.O. Box 5006
Southampton, NY 11969

Re: Broadwater LNG project: Consultation under Section 106 of the 1966 National Historic Preservation Act.

Dear Chairman King:

Broadwater Energy, a joint venture between TCPL USA LNG Inc. and Shell US Gas & Power LLC, is filing an application with the Federal Energy Regulatory Commission (FERC) seeking all of the necessary authorizations pursuant to the Natural Gas Act to construct and operate a marine liquefied natural gas (LNG) terminal and interconnected subsea pipeline for the importation, storage, regasification, and transportation of natural gas. The Broadwater LNG Project (the Project) will increase the availability of natural gas to the New York and Connecticut markets through an interconnection with the Iroquois Gas Transmission System (IGTS). The FERC application for the Project requires the submittal of 13 resource reports, with each report evaluating project effects on a particular aspect of the environment.

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The proposed LNG terminal will consist of a floating storage and regasification unit (FSRU) that is approximately 1,250 feet (380 meters [m]) in length, 200 feet (60 m) in width, and rising approximately 80 feet (25 m) above the water line to the deck. The FSRU's draft is approximately 43 feet (13 m). The FSRU will be designed to accommodate storage of approximately 8 billion cubic feet (bcf)

(350,000 cubic meters [m^3]) of LNG, with base vaporization capabilities of 1.0 bcf/d using a closed-loop shell and tube (STV) vaporization system. The LNG will be delivered to the FSRU in LNG carriers with cargo capacities ranging from 125,000 m^3 to 250,000 m^3 at the frequency of two to three carriers per week.

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A 30-inch-diameter subsea natural gas pipeline will deliver the vaporized natural gas to the existing IGTS pipeline. It will be installed beneath the seafloor from the FSRU mooring structure to an interconnection location at the existing 24-inch-diameter subsea section of the IGTS pipeline, approximately 22 miles (35 km) west of the proposed FSRU site. Figure 1 presents the proposed pipeline route.

We would like to provide you with the opportunity to identify your concerns about properties of traditional religious or cultural importance that may be affected by this undertaking.

If you have any questions, please contact us at 716-684-8060.

Sincerely,

LShmookler

Leonid Shmookler, RPA
Chief Archaeologist,
Ecology&Environment Inc.,
368 Pleasant View Drive,
Lancaster, NY 14086.
tel: 716-684-8060
fax: 716-684-0844
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BUFFALO CORPORATE CENTER
368 Pleasant View Drive, Lancaster, New York 14086
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July 27, 2005

Poospatuck Indian Nation
Chief Harry Wallace
P.O. Box
Mastic, NY 11950-0086

Re: Broadwater LNG project: Consultation under Section 106 of the 1966 National Historic Preservation Act.

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July 27, 2005

Narragansett Indian Tribe
Chief Cachem Matthew Thomas
P.O. Box 268
Charlestown, RI 02813

Re: Broadwater LNG project: Consultation under Section 106 of the 1966 National Historic Preservation Act.

Dear Chief Thomas:

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July 27, 2005

Delaware Tribe of Indians
Chief Joe Bricks
220 N.W. Virginia Avenue
Bartlesville, OK 74003

Re: Broadwater LNG project: Consultation under Section 106 of the 1966 National Historic Preservation Act.

Dear Chief Bricks:

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July 27, 2005

Mashantucket Pequot Tribal Nation
Chairman Michael Thomas
1 Matt's Place
Mashantucket, CT 06339

Re: Broadwater LNG project: Consultation under Section 106 of the 1966 National Historic Preservation Act.

Dear Chairman Thomas:

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July 27, 2005

Mohegan Tribal Nation
Chairman Mark F. Brown
5 Crow Hill Road
P.O. Box 488
Uncasville, Connecticut 06328

Re: Broadwater LNG project: Consultation under Section 106 of the 1966 National Historic Preservation Act.

Dear Chairman Brown:

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PAL

PRESERVATION PLANNING
ARCHAEOLOGY
ARCHITECTURAL HISTORY
EDUCATION

August 23, 2005

Douglas P. Mackey
Historic Preservation Program Analyst
New York Office of Parks, Recreation, and Historic Preservation
Historic Preservation Field Services Bureau
1 Delaware Avenue
Cohoes, New York, 12047

Re: Broadwater LNG Project, Long Island Sound
Unanticipated Discovery Plan
OPRHP No. 05PR00342; PAL No. 1733; FERC Docket No. PF05-4-000

Dear Mr. Mackey:

Enclosed for your review and comment is a draft document entitled "*Procedures Guiding the Discovery of Unanticipated Cultural Resources and Human Remains*." This document has been prepared for the proposed Broadwater LNG Project as per Section 106 of the National Historic Preservation Act and Federal Energy Regulatory Commission (FERC) environmental reporting requirements.

If you have any questions, please do not hesitate to contact me at your convenience.

Sincerely,

William Brett
Project Manager

/dg

Enclosure

cc: Mike Donnelly, Ecology & Environment (w/o encl.)

Public Archaeology Laboratory

210 Lonsdale Avenue
Pawtucket, RI 02860
TEL 401.728.8780
FAX 401.728.8784

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SECOND REQUEST

November 8, 2005

Beverly M. Wright, Chairperson
Wampanog Tribe of Gay Head (Aquinnah)
20 Black Brook Road,
Aquinnah, MA 02535-1546

Re: Broadwater LNG project: Consultation under Section 106 of the 1966 National Historic Preservation Act.

Dear Chairperson Wright:

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recycled paper

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SECOND REQUEST

November 8, 2005

Shinnecock Indian Nation Tribal Council
Mr. Randy King, Chairman
P.O. Box 5006
Southamntpon, NY 11969

Re: Broadwater LNG project: Consultation under Section 106 of the 1966 National Historic Preservation Act.

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SECOND REQUEST

November 8, 2005

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The proposed LNG terminal will consist of a floating storage and regasification unit (FSRU) that is approximately 1,250 feet (380 meters [m]) in length, 200 feet (60 m) in width, and rising approximately 80 feet (25 m) above the water line to the deck. The FSRU's draft is approximately 43 feet (13 m).

recycled paper

The FSRU will be designed to accommodate storage of approximately 8 billion cubic feet (bcf) (350,000 cubic meters [m^3]) of LNG, with base vaporization capabilities of 1.0 bcf/d using a closed-loop shell and tube (STV) vaporization system. The LNG will be delivered to the FSRU in LNG carriers with cargo capacities ranging from 125,000 m^3 to 250,000 m^3 at the frequency of two to three carriers per week.

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We would like to provide you with the opportunity to identify your concerns about properties of traditional religious or cultural importance that may be affected by this undertaking.

If you have any questions, please contact us at 716-684-8060.

LShmookler

Leonid Shmookler, RPA
Chief Archaeologist,
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Lancaster, NY 14086.
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SECOND REQUEST

November 8, 2005

Narragansett Indian Tribe
Chief Cachem Matthew Thomas
Post Office Box 268
Charlestown,
Rhode Island 02813

Re: Broadwater LNG project: Consultation under Section 106 of the 1966 National Historic Preservation Act.

Dear Mr. Thomas:

Broadwater Energy, a joint venture between TCPL USA LNG Inc. and Shell US Gas & Power LLC, is filing an application with the Federal Energy Regulatory Commission (FERC) seeking all of the necessary authorizations pursuant to the Natural Gas Act to construct and operate a marine liquefied natural gas (LNG) terminal and interconnected subsea pipeline for the importation, storage, regasification, and transportation of natural gas. The Broadwater LNG Project (the Project) will increase the availability of natural gas to the New York and Connecticut markets through an interconnection with the Iroquois Gas Transmission System (IGTS). The FERC application for the Project requires the submittal of 13 resource reports, with each report evaluating project effects on a particular aspect of the environment.

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SECOND REQUEST

November 8, 2005

DELAWARE TRIBE OF INDIANS
Chief Joe Bricks
220 N.W. Virginia Avenue
Bartlesville, OK 74003
(918) 336-5272

Re: Broadwater LNG project: Consultation under Section 106 of the 1966 National Historic Preservation Act.

Dear Mr. Bricks:

Broadwater Energy, a joint venture between TCPL USA LNG Inc. and Shell US Gas & Power LLC, is filing an application with the Federal Energy Regulatory Commission (FERC) seeking all of the necessary authorizations pursuant to the Natural Gas Act to construct and operate a marine liquefied natural gas (LNG) terminal and interconnected subsea pipeline for the importation, storage, regasification, and transportation of natural gas. The Broadwater LNG Project (the Project) will increase the availability of natural gas to the New York and Connecticut markets through an interconnection with the Iroquois Gas Transmission System (IGTS). The FERC application for the Project requires the submittal of 13 resource reports, with each report evaluating project effects on a particular aspect of the environment.

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L Shmookler

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SECOND REQUEST

November 8, 2005

Mashantucket Pequot Tribal Nation
Chairman Michael Thomas
1 Matt's Place
Mashantucket
Connecticut 06339

Re: Broadwater LNG project: Consultation under Section 106 of the 1966 National Historic Preservation Act.

Dear Chairman Thomas:

Broadwater Energy, a joint venture between TCPL USA LNG Inc. and Shell US Gas & Power LLC, is filing an application with the Federal Energy Regulatory Commission (FERC) seeking all of the necessary authorizations pursuant to the Natural Gas Act to construct and operate a marine liquefied natural gas (LNG) terminal and interconnected subsea pipeline for the importation, storage, regasification, and transportation of natural gas. The Broadwater LNG Project (the Project) will increase the availability of natural gas to the New York and Connecticut markets through an interconnection with the Iroquois Gas Transmission System (IGTS). The FERC application for the Project requires the submittal of 13 resource reports, with each report evaluating project effects on a particular aspect of the environment.

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SECOND REQUEST

November 8, 2005

Mohegan Tribal Nation
Chairman Mark. F. Brown
5 Crow Hill Road
P.O. Box 488
Uncasville
Connecticut 06328

Re: Broadwater LNG project: Consultation under Section 106 of the 1966 National Historic Preservation Act.

Dear Chairman Brown:

Broadwater Energy, a joint venture between TCPL USA LNG Inc. and Shell US Gas & Power LLC, is filing an application with the Federal Energy Regulatory Commission (FERC) seeking all of the necessary authorizations pursuant to the Natural Gas Act to construct and operate a marine liquefied natural gas (LNG) terminal and interconnected subsea pipeline for the importation, storage, regasification, and transportation of natural gas. The Broadwater LNG Project (the Project) will increase the availability of natural gas to the New York and Connecticut markets through an interconnection with the Iroquois Gas Transmission System (IGTS). The FERC application for the Project requires the submittal of 13 resource reports, with each report evaluating project effects on a particular aspect of the environment.

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MASHANTUCKET
PEQUOT
MUSEUM
& RESEARCH CENTER

1-6-06

Mr. Leonid Shmookler, RPA
Chief Archaeologist,
Ecology & Environment, Inc.
368 Pleasant View Dr.
Lancaster, NY 14086

Re: Broadwater LNG Project: Consultation under Section 106 of the 1966 National Historic Preservation Act.

Dear Mr. Shmookler,

We acknowledge receipt of your letter dated November 8, 2005 regarding the Broadwater LNG Project and properties of traditional religious and cultural importance to the Mashantucket Pequot Tribe.
After reviewing the information provided, we have no knowledge of properties of religious and cultural importance to the Mashantucket Pequot Tribe, however we strongly recommend a Phase I Archaeological Reconnaissance Survey be conducted to identify previously unknown properties of cultural and religious importance. We would appreciate a copy of any work performed on this project.

Respectfully,

Kathleen Knowles

Kathleen Knowles,
Tribal Historic Preservation Officer
Mashantucket Pequot Tribe

110 Pequot Trail, Post Office Box 3180
Mashantucket, CT 06339-3180
Phone: 860-396-6800

The remainder of Appendix A contains Privileged Information that has been removed from this Public Volume and is contained in the Privileged Volume.

APPENDIX B

UNANTICIPATED DISCOVERY PLAN

BW001720

PROCEDURES GUIDING THE DISCOVERY OF UNANTICIPATED CULTURAL RESOURCES AND HUMAN REMAINS

BROADWATER ENERGY LNG PROJECT
LONG ISLAND SOUND, NEW YORK

Prepared for:

Broadwater Energy, LLC
30 West Main Street
Suite 301
Riverhead, NY 11901

Prepared by:

PAL Inc.
210 Lonsdale Avenue
Pawtucket, Rhode Island 02860

November 2005

BW001721

Introduction

Broadwater Energy, LLC (Broadwater) is committed to the protection and preservation of cultural resources, in accordance with federal and state legislation, and is continuing that commitment as part of the proposed Broadwater Energy LNG Project (the Project). Broadwater recognizes that despite intensive cultural resource field investigations that are typically performed prior to project construction, or a determination that a particular area exhibits low archaeological sensitivity, it is nonetheless possible that cultural resource deposits such as shipwrecks could be discovered during project construction or maintenance activities, particularly during excavation. Broadwater also recognizes the requirement for compliance with federal and state regulations and guidelines regarding the treatment of human remains, if any are discovered.

The procedures guiding the unanticipated discovery of cultural resources and human remains detailed herein were developed on behalf of Broadwater and in direct consultation with the New York Office of Parks, Recreation and Historic Preservation (OPRHP), which consults on behalf of the State Historic Preservation Office (SHPO). The procedures represent the basis of the approach that Broadwater will use to address emergency discoveries of archaeological cultural resources during construction activities within the Project Area of Potential Effect.

The purpose of archaeological investigations during the planning of natural gas projects is to determine the presence or absence of historic properties within a project area. These archaeological investigations are conducted under Federal Energy Regulatory Commission (FERC) guidelines (2002) pursuant to 18 CFR 157.206 and Appendix II of Subpart F, which require actions taken under sections 3 and 7 of the Natural Gas Act (Part 380, Appendix A) to comply with the National Environmental Policy Act of 1969 (NEPA) and Section 106 of the National Historic Preservation Act of 1966 (16 USC 470f), as amended (1976, 1980, 1992, 1999), and implementing regulations of the Advisory Council on Historic Preservation (36 CFR 800). All work is undertaken pursuant to the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (48 Fed. Reg. 44716-42, Sept. 29, 1983), and the following New York laws and regulations:

- New York State Historic Preservation Act of 1980
- New York Archaeological Council's *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State* (1994)
- the New York SHPO's revised "State Historic Preservation Office Phase I Archaeological Report Format Requirements" (May 2005)
- the New York State Environmental Quality Review Act (6 NYCRR Part 617 of the New York State Environmental Conservation Law).

Procedures

Below are steps that will be followed in the event that potential shipwreck sites and/or human remains are discovered during the construction process. Human remains are not usually considered when conducting remote-sensing surveys for shipwrecks; however, passengers and crew often die in shipwrecks and for each possible shipwreck identified there are possibly human remains associated.

1. Previously undetected geophysical targets that could be shipwrecks may be discovered by Broadwater or contractor construction personnel during construction. In the event that such a target is uncovered during a construction activity, that activity shall immediately be halted until it can be determined whether the target is a shipwreck and if it represents a potentially significant site.

2. Upon the suspension of work activities in the area of the find, the contractor construction manager will be notified immediately. The manager, in turn, will notify Broadwater's Project Manager. Notification will include the specific location along the centerline or within the anchor spread in which the potential site is located.

3. Broadwater will contact its cultural resource management consultant to review the information. On-site personnel will inform the marine archaeologist of the location and any discernable characteristics of the wreck. Prior to commencement of pipelay operations, the corridor will be resurveyed by Broadwater to identify any recent bottom activities or previously undetected hazards. The vessel will be fully equipped with side-scan sonar, sub-bottom profiler and, for the pre-installation, a magnetometer. The archaeologist will analyze the data collected from this equipment and review the data collected during the initial survey to determine whether any newly identified target is cultural. The same criteria used during the initial Phase IB survey will be employed for this task.

4. If the archaeologist determines that the site is not potentially cultural, the contractor will be notified by the Broadwater Project Manager that work may resume.

5. If it is determined, based upon both previously acquired and any current remote-sensing survey data, that the new target is possibly a shipwreck, the archaeologist will inform the Project Manager, who will inform the contractor that work may not resume at the given location until notified in writing by the Broadwater Project Manager.

6. A visual ROV inspection will be conducted to determine whether the site is potentially eligible for listing in the National Register of Historic Places (National Register). The results of the survey will be submitted to the OPRHP and FERC for final comment. OPRHP will endeavor to respond with a determination within 24 hours.

7. If it is determined that the target does not represent a potentially significant resource, and Broadwater is in receipt of written comment from the review agency(ies), work may resume in the area of the target.

8. If agency review concludes that the site is potentially eligible for listing in the National Register, Broadwater will develop avoidance measures to eliminate the site from the Area of Potential Effect.

Human Remains Discoveries

The treatment of any human remains encountered during Broadwater projects is guided by the policy statement adopted by the Advisory Council on Historic Preservation ([Advisory Council]; see *Consulting About Archaeology Under Section 106*, Advisory Council 1990); and by relevant state laws. The Advisory Council policy statement recommends that, to the extent allowed by law, treatment of human remains should adhere to the following principles:

- Human remains and grave goods should not be disinterred unless required in advance of some kind of disturbance, such as construction;

- Disinterment, when necessary, should be done carefully, respectfully, and completely, in accordance with proper archaeological methods;

- In general, human remains and grave goods should be reburied in consultation with the descendants of the dead;

- Prior to reburial, scientific studies should be performed as necessary to address justified research topics;

- Scientific studies and reburial should occur according to a definite, agreed-upon schedule; and

- Where scientific study is offensive to the descendants of the dead, and the need for such a study does not outweigh the need to respect the concerns of such descendants, reburial should occur without prior study. Conversely, where the scientific research value of human remains or grave goods outweighs any objections that descendants may have to their study, they should not be reburied but should be retained in perpetuity for study.

In the event that human remains are encountered during construction of the Broadwater LNG project, the SHPO requires that the following protocol be implemented:

- Should human remains be encountered, construction in the general area of the discovery will stop immediately and the location will be immediately secured and protected from damage and disturbance.

- Human remains or associated artifacts will be left in place and not disturbed. No skeletal remains or materials associated with the remains will be collected or removed until appropriate consultation has taken place and a plan of action has been developed.

- The county coroner and local law enforcement, as well as the SHPO and the involved agency, will be notified immediately. The coroner and local law enforcement will make the official ruling on the nature of the remains, being either forensic or archeological. If the remains are archeological in nature, a bioarchaeologist will confirm the identification as human.

- If human remains are determined to be Native American, the remains will be left in place and protected from further disturbance until a plan for their protection or removal can be generated. The involved agency will consult SHPO and appropriate Native American groups to determine a plan of action that is consistent with the Native American Graves Protection and Repatriation Act (NAGPRA) guidance.

- If human remains are determined to be Euro-American, the remains will be left in place and protected from further disturbance until a plan for their avoidance or removal can be generated. Consultation with the SHPO and other appropriate parties will be required to determine a plan of action.

List of Contacts

Federal

Federal Energy Regulatory Commission
Office of Energy Projects
888 First Street, NE
Washington, DC 20426
Contact: Ellen Arnbruster
(202) 502-8700; FAX (202) 219-0205

State

New York Office of Parks, Recreation, and Historic Preservation
New York State Historic Preservation Office
Peebles Island Resource Center
Delaware Avenue
Cohoes, NY 12047
Contact: Douglas Mackey, State Archaeologist/Deputy State Historic Preservation Officer
(518) 237-8643
Mark Peckham, National Register Unit Coordinator
(518) 237-8643 ext. 3258

Suffolk County Office of the Chief Medical Examiner
Forensic Science Building No. 487
725 Veteran's Memorial Highway
Hauppauge, New York 11787-4311
Contact: Dr. Charles V. Wetli, M. D., Chief Medical Examiner
(631)-853-5555

Troop "L" Headquarters
7140 Republic Airport
East Farmingdale, NY 11735-1597
Contact: (631)756-3300

APPENDIX C

THE OVERVIEW/SURVEY REPORT

This appendix contains Privileged Information that has been removed from the Public Volume and is contained in the Privileged Volume.

APPENDIX D

PROPOSED PIPELINE ROUTE SURVEY

This appendix contains Privileged Information that has been removed from the Public Volume and is contained in the Privileged Volume.

BW001727