

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY OF THE STAFF'S ENVIRONMENTAL ANALYSIS OF THE PROPOSED ACTION AND ALTERNATIVES

We have determined that construction and operation of the Islander East Pipeline Project would result in limited adverse environmental impacts, based on information provided by Islander East and data developed from data requests; field investigations by Commission staff; literature research; alternatives analysis; comments from Federal, state, and local agencies; and input from public groups and individual citizens. These limited impacts would be most significant during the construction period. The establishment of new and expanded rights-of-way would result in long-term, unavoidable impacts. Loss of forests in the construction right-of-way would require from 25 to 150+ years for full recovery from preconstruction levels. Offshore impacts to live bottom would generally be long term.

As part of our review, we developed measures that we believe would appropriately and reasonably avoid, minimize, or mitigate environmental impacts resulting from construction and operation of the proposed project. We believe that if this project is constructed and operated in accordance with these mitigation measures, it would be an environmentally viable enterprise. We are therefore recommending that our mitigation measures be attached as conditions to any authorization issued by the Commission. Included below is a summary of the impacts and our conclusions.

Geology

Construction and operation of the proposed Islander East gas pipeline would not significantly alter geologic conditions in the project area, and impacts on geologic resources would be minimal. We have not identified any geologic hazards that would not be surmounted by proper pipeline design and construction methods.

Although the Islander East Pipeline is proposed to be built in an area that is not highly seismically active and we believe that the seismic risk for this project is minimal, seismic hazards pose the largest potential geological impact to operation of the proposed pipeline. Impacts from transient ground motions and soil liquefaction resulting from seismic activity would be incorporated into Islander East's and Algonquin's facility designs. The risk of permanent ground displacements resulting from active faulting along the pipeline route is minimal because the pipeline crosses no known active faults.

The most likely impact on the environment would result from blasting. Islander East proposed blasting and pre- and post-blast construction inspection procedures that would minimize the potential blasting impacts to structures, water supplies, and marine water quality.

Soils and Sediment

Construction would disturb soils and offshore sediments. Onshore construction would increase the potential for erosion and soil compaction and could result in increased rock content in some surface soils. Islander East and Algonquin would minimize impacts on soils by using the

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measures included in the ESC Plan. Although agricultural drain tiles have not been identified along the proposed pipeline route, any such tiles damaged by construction would be restored, repaired, or replaced according to its ESC Plan.

Impacts on soil productivity that may result from construction of the pipeline could continue over a period of several growing seasons, despite implementation of all of the measures contained in Islander East's and Algonquin's ESC Plan. Islander East and Algonquin would be responsible for ensuring the correction of such long-term impacts in accordance with the ESC Plan. To document mitigation activities, Islander East and Algonquin would file quarterly reports describing any problems related to restoration of agricultural land and corrective actions taken. These reports would be filed with the Secretary for a period of at least 2 years. We believe the use of the ESC Plan, and our recommendations would adequately minimize impacts on soils resulting from this project.

Most of the offshore sediments disturbed by pipeline construction would be those disturbed by trenching the sea floor. In water 12-feet deep or greater, Islander East's preferred method of trenching is the seaplow with midline buoys. Midline buoys reduce the area of sea floor affected by cable sweep by approximately 50 percent and plowing causes the least amount of sediment to be released to the water column. We believe that employing these measures would adequately minimize impacts to sediments of the Sound.

Water Use and Quality

Groundwater

The proposed Islander East Pipeline route would be located above the Nassau-Suffolk Sole-Source Aquifer and the Central Pine Barrens Special Groundwater Protection Area in New York, and Algonquin's Cheshire Compressor Station would be located within the North Cheshire Wellfield Aquifer Protection Area. The greatest potential for impacts on groundwater would be from hazardous material spills during construction. To address this issue, Islander East and Algonquin have prepared a general SPCC Plan to address preventative and mitigative measures that would be used onshore to minimize the potential impact of a hazardous material spill during construction and operation. In addition, Islander East and Algonquin would prepare construction spread-specific SPCC plans in conjunction with the construction contractor. Islander East and Algonquin are in the process of identifying wells and springs within 150 feet of the construction work area.

We believe that Islander East and Algonquin have proposed mitigation measures to adequately protect water supplies during construction and measures to restore water supplies if they are damaged.

Surface Water

The proposed Islander East Pipeline route would cross two water supply watersheds in Connecticut and none in New York. The greatest potential for impacts to these watersheds would be the same as discussed above for groundwater. We believe that Islander East and Algonquin have proposed mitigation measures to adequately protect surface water supplies during construction.

The proposed Islander East Pipeline route would cross nine perennial and three intermittent waterbodies in Connecticut, and one perennial and one intermittent waterbody in New York. All but one of these waterbodies have bank widths of 15 feet or less. The Carmans River in New York has a bank width of 20 feet. Islander East proposes to cross all 12 waterbodies in Connecticut using the flume method (if dry at the time of crossing, may be open cut), and the Peconic River (intermittent) and Carmans River (perennial) in New York using wet trench and HDD, respectively. In general, the potential effects of pipeline construction would be mitigated by adherence to the ESC Plan with our additional recommendations. Other state and Federal regulatory agencies that review waterbody crossing permits may require additional mitigation measures.

Long Island Sound

The proposed Islander East Pipeline route would extend 22.6 miles across the Sound from the landfall in Connecticut to the shore of Long Island, New York. Offshore water quality would be affected primarily by suspension of sediments during offshore trenching. Islander East is in the process of quantifying impacts through collection of site-specific data and computer modeling. We recommend that Islander East submit the results of these studies, including an impact analysis, before issuance of the final EIS. We anticipate that we will receive and analyze this information in time to review it and incorporate our analysis into the final EIS.

Marine pipeline construction also has some potential to contribute additional pollutants to the marine environment because of fuel or other chemical spills or as a result of an inadvertent release of drilling mud. To avoid or minimize these impacts, Islander East would develop an Offshore SPCC Plan. Other state and Federal regulatory agencies may require additional measures to mitigate potential impacts on marine water quality.

Fish, Benthic Communities, and Wildlife

Fisheries Resources

Surface waterbodies crossed by the Islander East Pipeline route in both Connecticut and New York consist of coldwater streams supporting important recreational (trout) and diadromous (trout and eel) fish species. Islander East would adhere to the construction criteria and mitigation measures implemented in their ESC Plan to minimize impacts to the resources in the waterbodies crossed by the pipeline route.

The Carmans River, MP 43.2, in New York is known to support natural spawning trout. Islander East proposes the use of the HDD construction method to avoid any in-stream construction activities and minimize any potential impacts to fishery resources in the Carmans River. In addition, the nearshore coastal waters of the Connecticut shore of the Long Island Sound contains rocky habitats and leased shellfish beds. Islander East proposes the use of the HDD construction method to avoid impacts to both rocky habitats and shellfish beds and minimize the amount of sediment released into the waterbody. We recommended Islander East file with the Secretary the final plan for crossing the shellfish lease area, L-555 at MP 12.6, and document consultation with the lease holder on the final plan, before construction.

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Construction of the pipeline through the Sound would impact NMFS's EFH-designated species. Islander East has begun consultation with the NMFS to minimize potential impacts on EFH-designated species. In addition, Islander East has prepared a *Long Island Sound Sampling, Analysis, and Study Plan* to collect EFH-designated food sources, living habitat, and water quality data of the Long Island Sound. We have recommended Islander East file with the Secretary copies of all correspondence with the NMFS regarding measures to minimize potential impacts to EFH-designated species. We are in the process of submitting an EFH Assessment to the NMFS to initiate formal EFH consultation.

Marine Invertebrates

The placement of the pipeline across the Sound would result in a short-term, one time impact to the benthic macroinvertebrate species at and near the footprint of the proposed project. Recolonization would depend upon the sediment, current, and recruitment rate in the project area, but due to the abundance of larger areas with a similar habitat in the Sound, a full recovery is expected upon completion of the proposed project. The overlying of the pipeline on top of utility lines and half-buried pipes would also hinder recruitment and recolonization of benthic macroinvertebrate species, and provide obstacles for EFH-designated species and important commercial species (e.g., American lobster and blue crab). However, the fish and shellfish species would swim over or go around the obstacles. In addition, stone riprap protections would be beneficial to both fish and shellfish species in providing shelter and food source.

Significant increase in sedimentation and turbidity could potentially lead to gill damage and cause suffocation to fish and shellfish species as well as hinder predation efficiency of sight-feeding fish at or adjacent to the project area. Although sedimentation is expected to settle quickly out of the water column, we recommend Islander East use the subsea plow construction method to minimize sedimentation for pipeline construction near the shellfish lease beds and through sensitive areas of the Sound designated by the state and Federal agencies. In addition, we recommend Islander East file with the Secretary the results of the sediment deposition studies, including an assessment of impacts to shellfish beds and other fisheries, before issuance of the final EIS.

Wildlife Resources

Wildlife species occurring along the proposed pipeline route are typically those occurring in deciduous, coniferous, and mixed forest, early successional, wetland, riparian, and marine habitat. The proposed facilities would cross the Sound, an important resource for marine mammals and offshore birds. These species are expected to avoid this area during construction of the proposed facilities.

Vegetation

A total of 270.8 acres of land would be affected by the proposed pipeline facilities. Of this total, about 139.3 acres of forested lands would be cleared for construction of the proposed pipeline facilities and approximately 59.7 acres of this total would be allowed to revegetate as forest. Impact from forest clearing would be minimized by collocating the pipeline with existing cleared areas, including existing pipeline and utility rights-of-way. Approximately 83 percent of the land route would be adjacent to existing rights-of-way.

The impact on forested land would be greatest within the Central Pine Barrens. Approximately 133.8 acres of Central Pine Barrens communities would be affected by construction of the proposed facilities. We believe the use of Islander East's proposed alignment reasonably reduces tree clearing and would minimize construction-related impacts to the Central Pine Barrens. However, we have recommended a route variation in order to further reduce impact on the Core Protection Area. Impact on other vegetative cover types such as shrub, agricultural, pasture, and cultivated grassland would be relatively short term.

Threatened and Endangered Species

We determined that six federally-listed endangered and threatened species could potentially occur in the vicinity of the proposed pipeline facilities. On the basis of information in Islander East's proposed avoidance and minimization procedures, subsequent filings received from Islander East, and our informal consultation with the FWS and NMFS, we conclude that implementation of the Islander East Pipeline Project would not adversely impact the Loggerhead, Leatherback and Kemp's Ridley sea turtles, bald eagle, piping plover and roseate tern.

Wetlands

Approximately 32.5 acres of wetland, including 26.3 acres of forested wetland, would be disturbed by construction of the proposed pipeline facilities. Approximately 3.5 acres of forested wetland would be permanently converted to herbaceous or shrub wetland as part of the maintained permanent right-of-way. In general, impact on wetlands would be temporary and minor since Islander East and Algonquin would implement the ESC Plan during construction and operation of the facilities. Islander East and Algonquin propose to implement the majority of our Procedures; however, one exception specifically regarding forested wetland revegetation was identified by Islander East and Algonquin as a deviation from our Procedures. Islander East and Algonquin stated that reestablishment of native species on temporary and permanent rights-of-way would occur naturally from seed stock, and that planting programs would not be necessary or cost effective. We concur that Islander East's and Algonquin's plan to allow natural revegetation is a reasonable approach to achieve revegetation of forested wetlands given that the original surface elevation is restored and tree stump-root complexes are preserved.

Land Use, Recreation, and Visual Resources

Approximately 83 percent of the total length of the onshore portion of the new pipeline would be located adjacent to and partially overlap existing corridors such as existing pipeline, road, powerline, and railroad rights-of-way. The project would generally be installed within a 75-foot-wide construction right-of-way and in additional workspace areas where necessary. For operation, Islander East would acquire between 10 and 50 feet for a new permanent right-of-way along the new pipeline facilities depending on the amount of overlap with adjacent rights-of-way, and would generally maintain a 50-foot-wide operational right-of-way.

The Islander East Pipeline would directly disturb about 536 acres of land and water during construction of the new pipeline and aboveground facilities (including construction and use of access roads), of which 41 percent constitutes the Sound crossing, 26 percent is forested, 17 percent is open land, 8 percent is agricultural land, 5 percent is commercial/industrial land, and 3 percent is

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residential land. Most of this land would be allowed to return to its previous use after construction is completed, but an estimated 79.6 acres^{1/} of forest land would be permanently converted to open land uses. Construction of aboveground facilities would affect 15.5 acres, and operation of these facilities would require 9.5 acres of forested, agricultural, open, and commercial/industrial land. In addition, permanent access roads would require about 4.3 acres in commercial/industrial, agricultural, and forested areas. In total, about 209 acres of land would be permanently retained as right-of-way, aboveground facilities, and new access roads. Of this, 27.4 acres would be permanent right-of-way underwater in the Sound.

Commercial Fishing

The Long Island Sound pipeline segment would cross seven shellfish lease areas. Of these, two are unlisted, unproductive shellfish beds, and four would be avoided by using HDD crossing methods at the Connecticut shore. One shellfish lease area would be directly disturbed by trench excavation, and 25 shellfish lease areas are located within 0.25 mile of the pipeline route and may be subject to potential sedimentation impacts resulting from construction. To avoid or minimize impacts on commercial fishing, Islander East would construct the offshore pipeline during winter months; conduct sediment deposition modeling to further define the impacts of construction on shellfish beds and other commercial fishing areas, and determine whether additional impact minimization measures are warranted; coordinate with and notify impacted groups, including the affected Lobstermen's Associations, of the exact location of the pipeline before construction, the size of the lay barge and support vessels, and the schedule for construction; and enlist lobstermen to act as spotters during construction. We believe that these measures would effectively reduce and minimize impacts on commercial fishing activities.

Residential and Commercial Areas

There are 39 existing residences within 50 feet of the construction work areas, primarily in Connecticut. Approximately 26 of these are located within 25 feet of the construction work areas. In addition, 15 existing commercial/industrial buildings are located within 50 feet of the construction work areas. Eleven of these are within 25 feet of the construction work areas, including two buildings within the proposed work area. The pipeline would cross one planned commercial development and the Calverton Lateral would cross one planned residential development. Islander East is investigating alternative routes to determine the feasibility of avoiding and/or minimizing impacts to the proposed residential development.

Islander East would reduce the temporary construction impacts to residential and commercial areas by avoiding removal of trees and landscaping as much as possible; developing site-specific construction plans for residences within 50 feet of the work area; restoring all lawns and landscaping promptly after backfilling; fencing the edge of the construction area in residential areas; controlling construction-related dust; coordinating road closures with nearby businesses and law enforcement agencies; attempting to complete pipeline installation across closed roads within 24 hours;

^{1/} 79.6 acres of permanent forested impact is based on a 50-foot-wide permanent right-of-way; however, actual operational impacts may be less because of Islander East's maintenance practices which restrict clearing to a 10-foot-wide mowed strip and a 30-foot-wide area over the pipe where trees greater than 15 feet in height may be selectively cut.

establishing temporary bridges or other by-passes on small roads and driveways; and, keeping the roads clean of mud and soil from construction equipment and vehicles.

Permanent impacts would result from the prohibition of future development within the 50-foot-wide operational right-of-way, where structures (e.g., house additions, garages, barns, pools) and large, deep-rooted landscaping would be prohibited. However, Islander East states that they would allow fences, driveways, roads, parking lots, and shrubs less than 4 feet in height spaced more than 10 feet from the pipeline to be placed on the permanent right-of-way.

We believe that Islander East's proposed measures to reduce impacts are adequate to address the major impact issues typically associated with construction in residential areas. However, due to the potential for unanticipated issues to arise during construction, we have recommended that Islander East establish a landowner complaint resolution procedure and report all landowner complaints in its weekly progress report to the Commission.

Special Use Areas

The project would cross or be located near numerous special land use areas (as listed in table 3.8.3-1), including a school yard, several public land trust properties, the Central Pine Barrens of New York, and other areas. Islander East continues to consult with the agencies and organizations that administer these areas to develop appropriate impact minimization and mitigation measures. Impacts on these areas are expected to be minimal due to effective routing, use of existing corridors, minimizing the width of construction right-of-way, timing of construction activities, and Islander East's ongoing consultations with the appropriate administering agencies and organizations. We have recommended that any revised construction and restoration plans developed for crossing land trust lands be submitted to the Secretary for review prior to construction.

Hazardous Waste Sites

Several areas of known hazardous wastes were identified adjacent to or near the proposed pipeline route. Based on Islander East's consultations with the landowners and its field reviews, Islander East believes it is unlikely that soil or groundwater contamination would be encountered during construction. However, if soil or groundwater contamination is encountered, Islander East would notify the appropriate Federal, state, and local authorities.

Visual Impacts

Visual impacts would be negligible to minor overall as a result of new pipeline construction. The pipeline would cross one designated scenic road (Connecticut State Highway 146) in Connecticut and two designated scenic rivers (Peconic and Carmans rivers) in New York. In addition, the pipeline would traverse or parallel areas identified as scenic resources in the Central Pine Barrens Comprehensive Land Use Plan, including the William Floyd Parkway, Brookhaven State Park, and Southaven County Park. Based on Islander East's use of existing rights-of-way to route the proposed project through most of these areas and their proposed HDD crossing method for the Carmans River, we believe that impacts from the pipeline on scenic resources would be minor and short term.

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The most visible features constructed would be the new aboveground facilities in areas where no energy facilities currently exist. However, we believe that the aboveground facilities (including Algonquin's Cheshire Compressor Station, the meter stations, and the mainline valves), with landscaping as proposed, are adequately sited and would not introduce significant visual intrusions on the landscape.

Cultural Resources

To date, Islander East's cultural resources consultants have identified and recorded 12 cultural resource sites within the area of potential effect in Connecticut and New York. Eleven of the sites have been recommended as potentially eligible to the NRHP.

The New York and Connecticut SHPOs reviewed the initial survey reports and recommend testing and evaluation of the sites to determine their NRHP eligibility. Right-of-way segments to which access has been denied, historic buildings, currently undefined workspaces, and access roads also need to be surveyed.

The offshore portion of the project was surveyed by a qualified marine archaeologist using remote sensing equipment and follow-up diver surveys of seven potential shipwreck sites were conducted. Islander East's cultural resource consultant did not recommend these targets as significant. Survey methodology was approved by both the New York and Connecticut SHPOs. Surveying of anchor spread areas and shallow area surveys are scheduled for Spring 2002.

We recommend that construction be deferred until Algonquin and Islander East file with the Secretary all additional required cultural resource surveys and evaluation reports, and any necessary treatment plans. The applicants would be provided with written notification from FERC when they may proceed with mitigation programs or construction.

Islander East's consultants contacted the Indian Affairs coordinator for the state of Connecticut and initiated consultation with the Shinnecock Nation of New York. No traditional cultural properties have been identified within the area of potential effect.

Socioeconomics

Construction and operation of the project would result in some short-term and long-term socioeconomic impacts. The temporary influx of the construction workforce would cause a short-term increase in population, which may have minor effects on the availability of temporary housing and public services. Temporary and permanent fiscal benefits in the form of additional tax revenues at the state and county level would result from construction and operation of the pipeline. Project construction would have little impact on local road, rail, and vessel traffic. No environmental justice issues have been identified for this project.

Air Quality and Noise

Air Quality

Algonquin's Cheshire Compressor Station would have operational emissions of 2.07 tons per year of VOCs, 38.68 tons per year of NO_x , 1.32 tons per year of SO_x , 47.88 tons per year of CO, 2.62 tons per year of PM_{10} , 43,621 tons per year of CO_2 , 3.35 tons per year of CH_4 , and 1.18 tons per year of N_2O . State permit review would ensure that Algonquin's Cheshire Compressor Station meets BACT requirements. No Federal or state emissions limits would be exceeded by these emissions, and no significant ambient air quality impacts are anticipated. Consequently, operation of the Cheshire Compressor Station would not have a significant impact on air quality.

Noise

Construction activity at Algonquin's Cheshire Compressor Station would produce noise levels of about 60 dBA at the closest NSAs. This noise level would be about the same as existing daytime ambient noise levels. Construction activity would be limited to daytime periods, further reducing the disturbance potential from station construction. Compressor station construction noise impacts are not considered significant.

During the noisier stages of pipeline construction, average construction activity noise levels would probably exceed 70 dBA for locations within 300 feet of the construction site, and would be about 80 dBA for locations 100 feet from the active construction area. Construction activity noise levels should drop below 60 dBA at distances of 800 feet or more. There are 39 residential buildings and 15 commercial buildings within 50 feet of the pipeline construction work areas. Pipeline construction would result in short periods of high daytime noise levels at these properties. Because of the short duration of construction activities at any one location and because construction plans would be coordinated with individual property owners, pipeline construction noise impacts are not considered significant.

Algonquin's Cheshire Compressor Station would be designed to minimize noise impacts on nearby properties. The gas turbine and compressor equipment would be housed in an acoustically treated structure, with noise silencers provided on both the exhaust stack and the air inlet. Operation of Algonquin's Cheshire Compressor Station would produce small noise level increases at some of the closest NSAs. NSA #2 would experience a 2 dBA increase in L_{dn} levels and NSA # 4 would experience a 1 dBA increase in L_{dn} levels. There would be no noticeable increase in noise levels at the other NSAs. In all cases, the incremental L_{dn} level attributable to Algonquin's Cheshire Compressor Station would be less than 55 dBA. In addition, the hourly average noise levels produced by Algonquin's Cheshire Compressor Station would be less than the 51 dBA limit set by the state noise standards. Consequently, noise impacts from operation of Algonquin's Cheshire Compressor Station are not considered significant.

Reliability and Safety

The pipeline and aboveground facilities associated with the Islander East Pipeline Project would be designed, constructed, operated, and maintained in accordance with the DOT's *Minimum Federal Safety Standards* in 49 CFR 192. These regulations are intended to ensure adequate

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protection for the public and to prevent natural gas facility accidents and failures. Part 192 specifies material selection and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion. The DOT's regulations do not however address concerns related to siting, routing, or bond issues. These items, in part, are a matter of private negotiation between pipeline companies and landowners and/or local government zoning boards. Siting and routing are also the responsibility of the FERC and are part of this EIS.

Alternatives

We evaluated alternatives to the Islander East Pipeline Project to determine whether they would be reasonable and environmentally preferable to the proposed action. These alternatives include the following:

- A no action or postponed action alternative;
- Four system alternatives that could possibly deliver the proposed volumes to eastern Long Island (i.e., the one-Pipe System Alternative and the ELI System Alternative, both of which are based on Iroquois' ELI Extension Project; Long Island System Alternative; and Tennessee's planned Connecticut-Long Island Lateral Project);
- Eight route alternatives to the proposed route; and
- Nine route variations to avoid residences and landowner impacts, Branford Land Trust property, and shellfish lease beds in Long Island Sound.

We recommend that Islander East adopt two of the route variations to minimize impacts on Branford Land Trust property in Connecticut and the Core Protection Area of the Central Pine Barrens in New York.

5.2 FERC STAFF RECOMMENDED MITIGATION

If the Commission issues a Certificate for the proposed project, we recommend that the Commission's Order include the following measures. We believe that these measures would further mitigate the environmental impacts associated with the construction and operation of the proposed project.

1. Islander East and Algonquin shall follow the construction procedures and mitigation measures described in its application, supplemental filings, and as identified in the EIS, unless modified by this Order. Islander East and Algonquin must:
 - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
 - b. justify each modification relative to site-specific conditions;
 - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
 - d. receive approval in writing from the Director of the OEP **before using that modification.**

2. The Director of OEP has delegation authority to take whatever steps necessary to ensure the protection of all environmental resources during construction and operation of the project. This authority shall allow:
 - c. the modification of conditions of this Order; and
 - d. the design and implementation of any additional measures deemed necessary (including stop work authority) to assure continued compliance with the intent of the environmental conditions as well as the avoidance or mitigation of adverse environmental impacts resulting from project construction and operation.
3. **Prior to any construction**, Islander East and Algonquin shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, environmental inspectors, and contractor personnel will be informed of the environmental inspector's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.
4. The authorized facility locations shall be as shown in the EIS, as supplemented by filed alignment sheets, and shall include the staff's recommended facility locations. **As soon as they are available, and before the start of construction**, Islander East and Algonquin shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by this Order. All requests for modifications of environmental conditions of this Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

Islander East's and Algonquin's exercise of eminent domain authority granted under NGA section 7(h) in any condemnation proceedings related to this Order must be consistent with these authorized facilities and locations. Islander East's and Algonquin's right of eminent domain granted under NGA section 7(h) does not authorize it to increase the size of its natural gas pipeline to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. Islander East and Algonquin shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that will be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, and documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction** in or near that area.

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This requirement does not apply to route variations recommended herein or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

- a. implementation of cultural resources mitigation measures;
- b. implementation of endangered, threatened, or special concern species mitigation measures;
- c. recommendations by state regulatory authorities; and
- d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

6. **Within 60 days of the acceptance of this Certificate and before construction begins,** Islander East and Algonquin shall file an initial Implementation Plan with the Secretary for review and written approval by the Director of OEP describing how Islander East and Algonquin will implement the mitigation measures required by this Order. Islander East and Algonquin must file revisions to the plan as schedules change. The plan shall identify:

- a. how Islander East and Algonquin will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction inspection personnel;
- b. the number of environmental inspectors assigned per spread, and how the company would ensure that sufficient personnel are available to implement the environmental mitigation;
- c. company personnel, including environmental inspectors and contractors, who will receive copies of the appropriate material;
- d. what training and instructions Islander East and Algonquin will give to all personnel involved with construction and restoration (initial and refresher training, as the project progresses and personnel change), with the opportunity for OEP staff to participate in the training session(s);
- e. the company personnel (if known) and specific portion of Islander East's and Algonquin's organization having responsibility for compliance;
- f. The procedures (including use of contract penalties) Islander East and Algonquin will follow if noncompliance occurs; and
- g. For each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:
 - (1) the completion of all required surveys and reports;
 - (2) the mitigation training of onsite personnel;
 - (3) the start of construction; and
 - (4) the start and completion of restoration.

7. Islander East and Algonquin shall employ at least one environmental inspector per construction spread. The environmental inspector shall be:
 - b. responsible for monitoring and ensuring compliance with all environmental mitigative measures required by this Order, Islander East's and Algonquin's ESC Plan, and other grants, permits, certificates, or other authoring documents;
 - c. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see recommendation 6 above) and any other authorizing documents;
 - d. empowered to order correction of acts that violate the environmental conditions of this Order, and any other authorizing document;
 - e. a full-time position separate from all other activity inspectors;
 - f. responsible for documenting compliance with the environmental conditions of this Order, as well as any environmental conditions/permit requirements imposed by other Federal, state, or local agencies; and
 - g. responsible for maintaining status reports.

8. Islander East and Algonquin shall file updated status reports prepared by the head environmental inspector with the Secretary on a weekly basis **until** all construction-related activities, including restoration and initial permanent seeding, are complete. On request, these status reports will also be provided to other Federal and state agencies with permitting responsibilities. Status reports shall include:
 - a. the current construction status of each spread, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;
 - b. a listing of all problems encountered and each instance of noncompliance observed by the environmental inspectors during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirement imposed by other Federal, state, or local agencies);
 - c. corrective actions implemented in response to all instances of noncompliance, and their cost;
 - d. the effectiveness of all corrective actions implemented;
 - e. a description of any landowner/resident complaints which may relate to compliance with the requirements of this Order, and the measures taken to satisfy their concerns; and
 - f. copies of any correspondence received by Islander East or Algonquin from other Federal, state or local permitting agencies concerning instances of noncompliance, and Islander East's and/or Algonquin's response.

9. Islander East and Algonquin must receive written authorization from the Director of OEP **before commencing service** from the project. Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way is proceeding satisfactorily.

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10. **Within 30 days of placing the certificated facilities in service**, Islander East and Algonquin shall file an affirmative statement with the Secretary, certified by a senior company official:
 - a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
 - b. identifying which of the certificate conditions Islander East and Algonquin have complied with or will comply with. This statement shall also identify any areas along the right-of-way where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.
11. For residential areas where Islander East or Algonquin do not test for soil compaction, Islander East and Algonquin shall monitor the progress of revegetation annually for 3 years following construction and file a report on the level of revegetation success each year with the Secretary. If revegetation is unsuccessful in a residential area, Islander East and Algonquin shall identify in the report the measures they plan to implement to restore the area. If an area continues to be unsuccessfully restored after 3 years, Islander East and Algonquin shall file a restoration plan for the area and the landowner's comments on it for the review and written approval of the Director of OEP **prior to its use**. Page 3-16.
12. **Before construction**, Islander East and Algonquin shall file with the Secretary the location by milepost of all private wells within 150 feet of pipeline construction activities. The proposed pre- and post-construction monitoring shall include well yield and water quality for both private and public wells. Water quality testing shall be conducted using testing criteria for new water wells in each state as dictated by each state's Department of Health. **Within 30 days of placing the facilities in service**, Islander East and Algonquin shall file a report with the Secretary discussing whether any complaints were received concerning well yield or water quality and how each was resolved. In addition, Islander East and Algonquin shall file a report with the Secretary identifying all potable water supply systems damaged by construction and how they were repaired. Page 3-26.
13. In the event that the HDD of the Carmans River fails, Islander East shall file with the Secretary an updated plan including site-specific drawings identifying all areas that would be disturbed by construction using the dry flume crossing method at the Carmans River on Long Island. Islander East shall file this plan concurrent with its application to the COE for a permit to construct using this plan. The Director of OEP must review and approve this plan in writing **before construction** of the crossing. Page 3-30.
14. Islander East shall file with the Secretary a plan for the crossing of the Connecticut shore if the directional drill is unsuccessful. This shall be a site-specific plan that includes scaled drawings identifying all areas that would be disturbed by construction. Islander East shall file this plan concurrent with its application to the COE for a permit to construct using this plan. The Director of OEP must review and approve this plan in writing **before construction** of the crossing. Page 3-31.

15. Islander East shall submit a site-specific Directional Drill Contingency Plan for each of the proposed directional drill crossings. Each Directional Drill Contingency Plan shall address how Islander East will:
- a. handle any inadvertent release of drilling mud into the waterbody or areas adjacent to the waterbody, including procedures to contain inadvertent releases;
 - b. seal the abandoned drill hole; and
 - c. clean up any inadvertent releases.

Islander East shall file each plan with the Secretary for review and written approval by the Director of OEP, **before construction**. Page 3-31.

16. Islander East shall file the completed site-specific contaminated sediment studies in the Sound with the appropriate Federal or state agencies with regulatory authority, and consult with these agencies, to determine which, if any, known or suspected contaminated sites require further investigation and what mitigation may be employed to minimize impact in the event that contaminated areas are crossed. Islander East shall file with the Secretary any comments received from regulatory agencies, **before construction**, for review and written approval from the Director of OEP. Page 3-36.
17. Islander East shall file the data from the site-specific Sound sedimentation investigations and computer modeling results with the Secretary, **before the issuance of the Final EIS**. Page 3-44.
18. Islander East shall use the subsea plow construction method for pipeline installation near the shellfish lease beds and through any sensitive areas of the Long Island Sound designated by state and/or Federal agencies. Page 3-54.
19. **Before construction**, Islander East shall file with the Secretary the final plan for crossing shellfish lease area L-555 at MP 12.6, and documentation of consultation with the lease holder on the final plan. Page 3-54.
20. Islander East shall file with the Secretary, **prior to issuance of the final EIS**, the results of the offshore sediment deposition studies as described in the Study Plan, including an assessment of potential impacts to shellfish beds and other fisheries. Provide an estimate of the locations, types, duration, and quality of the identified impacts. Page 3-55.
21. **Prior to construction**, Islander East shall file with the Secretary copies of all correspondence with the NMFS regarding measures to minimize potential impacts to EFH-designated species. Page 3-57.
22. Islander East shall continue consultation with the NYSDEC regarding the tiger salamander and any other requirements for surveying, monitoring, or avoiding tiger salamanders and their habitats. The results of these consultations, including copies of all correspondence shall be filed with the Secretary. Page 3-71.

5.0 CONCLUSIONS AND RECOMMENDATIONS

23. Islander East shall file with the Secretary any wetland revegetation plans that are developed with FWS, COE, and appropriate state agencies for the project, **prior to construction**. Page 3-75.
24. Islander East and Algonquin shall file with the Secretary an annual summary monitoring report documenting the revegetation status of each wetland affected by construction.

Post-construction reports shall be filed for the first three years or until each wetland is successfully revegetated. The reports shall include an inventory of exotic nuisance plant species present on the construction right-of-way. For any wetlands that have not been restored by the third growing season, Islander East and Algonquin shall file with the Secretary a site-specific plan to restore these problem areas for review and written approval by the Director of OEP. Page 3-76.
25. Islander East shall consult with the CTDEP, Marine Fisheries Division to update its list of potentially affected lobster/fishermen, and provide construction notifications and information to all affected lobster/fishermen, **before construction**. Page 3-82.
26. Islander East shall file with the Secretary for review and written approval by the Director of OEP **prior to construction** a revised ESC Plan that incorporates storm contingency and harbor of refuge plans during construction of its offshore facilities. Page 3-83.
27. Islander East shall complete and file with the Secretary for review and written approval by the Director of OEP, **prior to construction** a site-specific construction plan for the Rose family property at MP 5.8 in North Branford, Connecticut (Tract NHV-133) that includes minimizing clearing impacts on the family fruit trees. Page 3-84.
28. Islander East and Algonquin shall develop and implement an environmental complaint resolution procedure. The procedure shall provide landowners with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction of the project and restoration of the right-of-way. **Prior to construction**, Islander East and Algonquin shall mail the complaint procedures to each landowner whose property would be crossed by the project. In a letter to affected landowners, Islander East and Algonquin shall:
 - a. provide a local contact that the landowner should call first with their concerns; the letter should indicate how soon a landowner should expect a response;
 - b. instruct the landowner that if they are not satisfied with the response to call Islander East and Algonquin's Hotline, the letter should indicate how soon a landowner should expect a response; and
 - c. instruct the landowner that if they are still not satisfied with the response from Islander East and Algonquin's Hotline, they should contact the Commission's Enforcement Hotline at (877) 303-4340.

In addition, Islander East and Algonquin shall include in weekly/bi-weekly status reports a copy of a table that contains the following information for each problem/concern:

- the date of the call;
 - the identification number from the certified alignment sheets of the affected property;
 - the description of the concern/problem; and
 - an explanation of how and when the problem was resolved, will be resolved, or why it has not been resolved. Page 3-88.
29. **Before construction**, Islander East shall inspect Mr. Nargi's property at MP 8.9 to determine the feasibility of reconstructing this septic system to code on the land available outside of the proposed pipeline right-of-way and file this information with the Secretary. Page 3-89.
30. Islander East shall develop a site specific plan for crossing Mr. Ghiroli's property. The plan shall include reduction of the construction right-of-way and specific construction methods. Islander East shall also explain how it plans to avoid infringing on Mr. Ghiroli's ability to conduct business during and after construction. This plan shall be filed with the Secretary for review and written approval by the Director of OEP **prior to construction**. Page 3-90.
31. Islander East shall file with the Secretary a description of how it would control or limit potential all-terrain vehicle use and damage on its right-of-way. Page 3-90.
32. **Before construction**, Islander East shall file with the Secretary any revised construction and restoration plans for crossing the properties administered by North Haven Land Trust (MP 0.3), the North Branford Land Trust (MP 4.2), and the Branford Land Trust (MPs 8.1, 8.5, 8.9, and 9.7). Page 3-103.
33. Islander East shall continue to consult with the Pine Barrens Commission concerning construction through the Central Pine Barrens. If mitigation is required by any agency for the construction in the Central Pine Barrens, Islander East shall file copies of the final mitigation plan and any related correspondence **prior to construction**. Page 3-104.
34. **Prior to construction**, Islander East shall prepare and file with the Secretary for review and written approval by the Director of OEP, a site-specific Central Pine Barrens Crossing Plan to minimize construction clearing through the Central Pine Barrens. This plan shall include:
- a. measures to minimize tree clearing;
 - b. any revised construction procedures or reductions in workspace;
 - c. a restoration plan, including planned revegetation techniques and species; and
 - d. updated alignment sheets that reflect the above measures.

For the forested areas where tree clearing is required in the Central Pine Barrens, provide a detailed vegetation map that shows the location and types of arboreal species that would be removed, including any Federal or state protected species or local species of concern. Page 3-105.

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35. Islander East shall file documentation of concurrence from the New York and Connecticut agencies for its Certification of Consistency with the New York and Connecticut CZMP with the Secretary, **before construction**. Page 3-106.
36. Islander East and Algonquin shall defer construction and use of the proposed project facilities together with the use of related ancillary areas for staging, storage, and temporary work areas and new or to-be-improved access roads, until:
- Islander East and Algonquin file with the Secretary all additional required cultural resources inventory and evaluation reports, and any necessary treatment plans;
 - Islander East and Algonquin file the appropriate SHPO and any other appropriate parties' comments on all cultural resources requests, investigation reports, and plans;
 - The ACHP has been given an opportunity to comment if any historic properties would be affected; and
 - The Director of OEP reviews and approves all cultural resources reports and plans, and notifies Islander East and Algonquin in writing that they may proceed with mitigation programs or construction.

All material filed with the Secretary containing **location, character, and ownership** information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: "CONTAINS PRIVILEGED INFORMATION - DO NOT RELEASE." Page 3-112.

37. Algonquin shall file a noise survey with the Secretary **no later than 60 days** after placing the Cheshire Compressor Station in service. If the noise attributable to the operation of the station at full load exceeds an L_{dn} of 55 dBA at any nearby NSAs, Algonquin shall install additional noise controls to meet the level **within 1 year of the in-service date**. Algonquin shall confirm compliance with this requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls. Page 3-126.
38. Islander East shall incorporate the Pond Variation into the proposed route. Islander East shall also file with the Secretary for review and written approval by the Director of OEP, **prior to the start of construction**, a site-specific plan for the crossing of the pond. This plan should include, at a minimum: construction methods; extra workspace location, size, and purpose; erosion control methods and placement; restoration and revegetation specifics; and a monitoring plan. Page 4-40.
39. Islander East shall incorporate the William Floyd Parkway Variation into the proposed route between MPs 41.4 and 41.8. Page 4-43.