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**FINAL
ENVIRONMENTAL STATEMENT**

**PROPOSED CON EDISON – LONG ISLAND LIGHTING COMPANY'S
POWER TRANSMISSION CABLE
LONG ISLAND SOUND, HEMPSTEAD HARBOR, NEW YORK**

U.S. Army Engineer District, New York, N.Y.

19 September 1975

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SUMMARY

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Con Edison - Long Island Lighting Company's Power Transmission Cable
Long Island Sound, Hempstead Harbor, New York

() Draft (X) Final Environmental Statement

Responsible Office: New York District, Corps of Engineers
26 Federal Plaza
New York, New York 10007
Telephone: (212) 264-4662

1. Name of Action: (X) Administrative () Legislative

2. Description of Action: The proposed action is the issuance of a construction permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Water Pollution Control Act to Long Island Lighting Company and Con Edison to dredge, excavate, dispose of dredged material, backfill, and install two steel conduits and associated cables across Long Island Sound, and to install five (5) steel conduits across Hempstead Harbor, Nassau County, New York. The entire project extends from Dunwoodie to Glenwood Landing then to Lake Success with a connection to Jamaica.

3.(a) Environmental Impacts

The improvement in reliability of electric service in the area will have no influence on existing or future land use. The only productive wetlands near the project route is the East Creek Salt Marsh at Sands Point. The staging area adjacent to the marsh is expected to reestablish its present state quickly after completion of construction. Marine life will be slightly and temporarily impacted by dredging and blasting during pipe installation. After pipe installation, the only possible impact on water quality as a result of the project would be the accidental release of low viscosity polybutene (LVP) to surrounding waters. Although the leakage potential is slight, tests have indicated that LVP produces no discernible effects on ducks, rats, or dogs when the material is ingested. Tests on fish and brine shrimp gave similar results.

9/29/80 07

The proposed pipeline will traverse one public recreational area on land; the Town of North Hempstead Park at Bar Beach. Adverse impacts will be avoided by limiting construction to the off-season between October and May. The route also passes near several parks in Queens: Alley Pond Park, Cunningham Park, and small Tilly Park. Construction noise may have some minimal, temporary impact on local recreational activities. During construction across the channel between Execution Rocks and Sand Point, Long Island Sound marine traffic may have to be rerouted to the channel between Execution Rocks and Pea Island. In Hempstead Harbor, where harbor traffic must pass through a narrow channel past Bar Beach, the channel may occasionally be blocked by dredging equipment for a period of several hours. Execution Rocks Light Station is the only designated historical site on the proposed line. However, the area northeast of Davenport Neck is a well known locus of Indian archeology. Consequently, during the trenching of Neptune and David's Islands, provision should be made for the salvaging of any archeological remains. Some negative impact will be experienced during construction operations through residential and commercial zones. This impact will primarily be traffic disruption and noise associated with ditching and pipelaying. there will be minimal impacts of the project on aesthetics or air pollution.

3.(b) Adverse Environmental Impacts

Temporary Impacts

The unavoidable adverse effects of construction along the land portion of the route will include traffic disruption associated with ditching and pipelaying, noise associated with rock removal and breaking concrete, and some aesthetic intrusion. Along the submarine portion of the proposed route, turbidity and some sedimentation will be generated during the dredging operation. The impact of this activity on the community of bottom living organisms will be very slight since the impact will be distributed more or less evenly over the Sound crossing, a distance of about 21,700 feet. Blasting of 600 feet of rock will remove these organisms on and immediately about that limited portion of the proposed trenching operation. Blasting will not permanently remove this area from recolonization after construction is finished. Some dredge material will be deposited at an approved disposal site. Dredging will require some temporary rerouting of maritime traffic within Long Island Sound during the construction process.

4. **Alternatives To The Proposed Action**

Excluding no action, there are several alternative means for meeting Con Edison's requirement for transmission reinforcement and LILCO's requirement for intertie capacity. These alternatives fall under the general categories of additional generating facilities, alternate routes, and transmission line technical alternatives. Within the proposed project there are alternatives regarding methods of dredging and disposal of spoils.

5. **Comments Received**

(a) **Federal Agencies**

Advisory Council on Historic Preservation
Department of Agriculture
Soil Conservation Service
Department of Commerce
Department of Health, Education and Welfare
Department of Interior
Department of Navy
Department of Transportation
Coast Guard
Federal Highway Administration
Environmental Protection Agency
Federal Power Commission

(b) **State of New York**

Public Service Commission

(c) **Local Agencies**

Nassau County Department of Health
New York City Environmental Protection Administration
New York City Municipal Service Administration
Queens County Borough – President

(d) Groups, Organizations and Individuals

The Ecology Group

Roslyn Environmental Association

Roslyn Heights Civic Association

Roy W. Moger

6. Draft Statement sent to CEO 7, February, 1975
Final Statement sent to CEO _____

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Review Agency comments to Draft EIS.

Appendix B

Applicants Environmental Report, prepared by Gruman Ecosystems Corporation for Consolidated Edison Company of New York, Inc. and Long Island Lighting Company, May 10, 1973, with comments dated March 12, 1974, and response dated April 15, 1974.

Appendix C

Toxicity Study Low Viscosity Polybutene (LVP) in White Pekin Ducks.

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Appendix K

Observed and Potential Birds — Hempstead Harbor and Long Island Sound.

Appendix L

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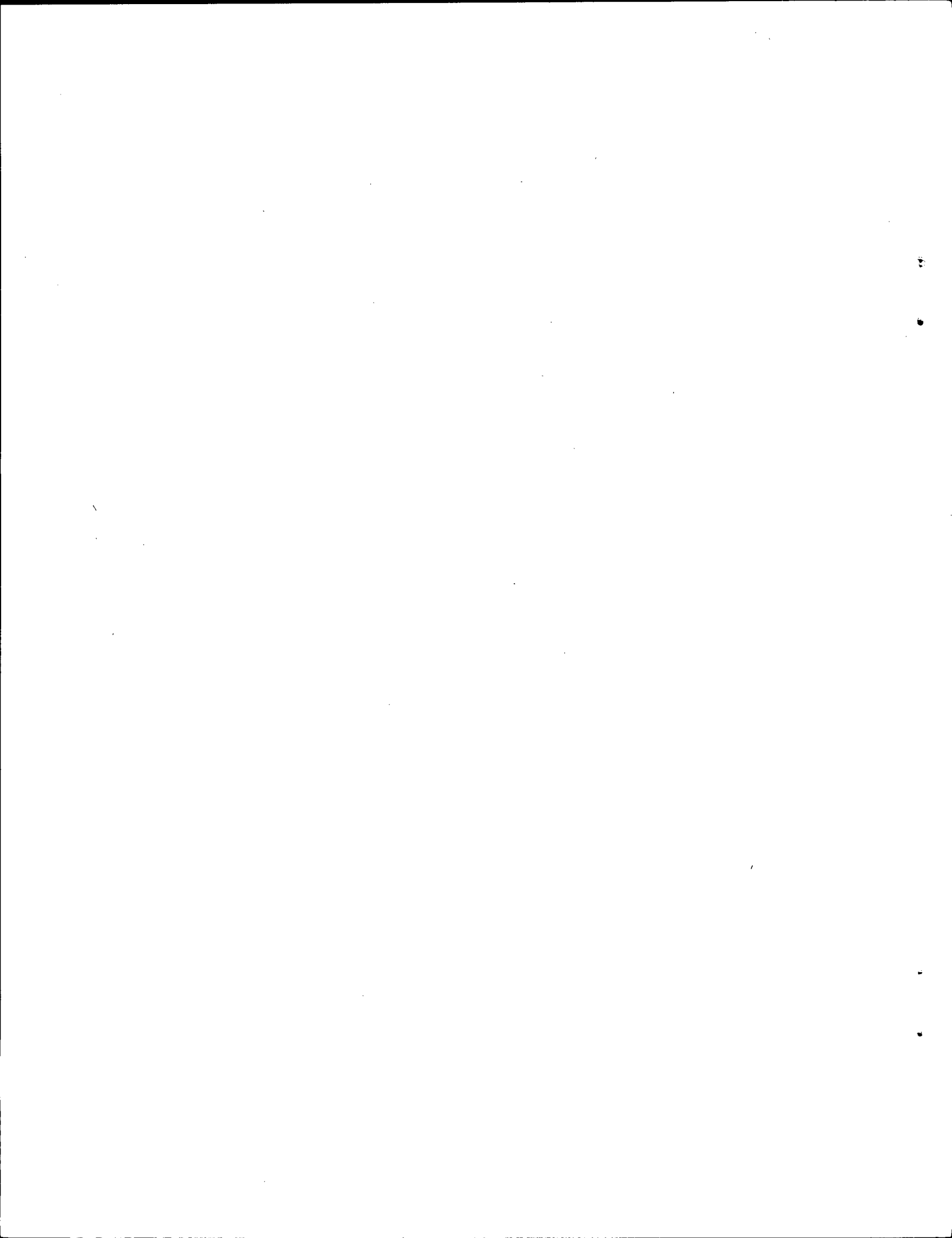
Correspondence with Federal and State Agencies and other organizations.

Appendix N

Population Projection – Westchester County

Appendix O

Findings and Recommendations: NOAA Technical Report ERL 321-MESA 2,
"Ocean Dumping in the New York Bight", March 1975.



1. PROJECT DESCRIPTION

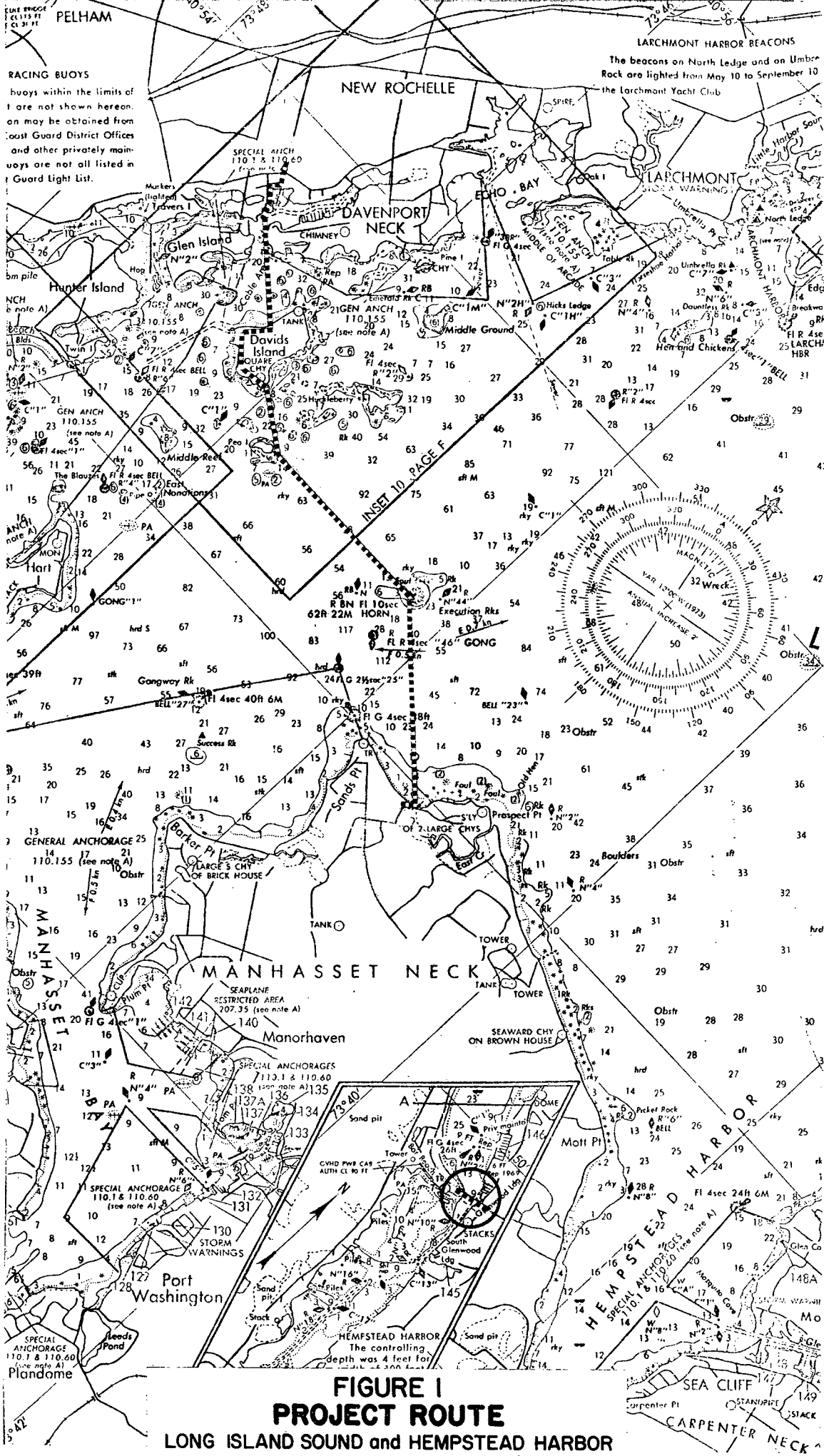
1.01 Overview The following Environmental Impact Statement¹ has been prepared as required by Section 102(2)(c) of the National Environmental Policy Act of 1969. Con Edison and Long Island Lighting Company (LILCO) have made application for permit to install submerged electrical transmission cables across Long Island Sound and Hempstead Harbor, New York (Figures 1 through 4). This installation is part of a total project involving the construction and operation of a 17.4 mile underground-underwater transmission line between a substation at Dunwoodie in the City of Yonkers, Westchester County, and a substation at Glenwood in the Town of Oyster Bay, Nassau County, two 8.5 mile underground transmission lines between the Glenwood substation and a substation at Lake Success in the Town of North Hempstead, Nassau County, and an 8.2 mile underground transmission line between the Lake Success substation and a substation in Jamaica in Queens County (Figures 5 and 6).

1.02 Project Purpose The proposed cables provide interconnection between Con Edison and LILCO for sharing and transmission of New York Power Pool (NYPP) electricity. The NYPP and LILCO engineers have confirmed that existing interconnection capacity between themselves is insufficient to permit LILCO to fully utilize the generating resources of the pool to maintain an adequate level of reliability. An interconnect capacity of 1200 MW is required by 1975 in order to maintain accepted standards of reliability.

1.03 Presently, LILCO has two interconnections, each of which is rated at 300 megawatt (MW) for a total of 600 MW of capacity. One of these interconnections is with Con Edison while the other is with the New England Power Pool which in turn is interconnected with the New York Power Pool. The proposed interconnection will raise the interconnection capacity to the 1200 MW level recommended by NYPP.

1.04 Con Edison has evidenced a need for the interconnection so that it may realize the benefits of the generation resources that will be available north of the New York City Load Center. Between 1972 and 1980, it is anticipated that an additional 3700 MW will be

¹Prepared by the Department of the Army, New York District Corps of Engineers; with the assistance of CE Maguire, Inc. of New Britain, Connecticut, Under Contract No. DACW-51-74-c-0063.



RACING BUOYS
 buoys within the limits of are not shown hereon, on may be obtained from Coast Guard District Offices and other privately main- buoys are not all listed in Guard Light List.

LARCHMONT HARBOR BEACONS
 The beacons on North Ledge and on Umbrella Rock are lighted from May 10 to September 10 the Larchmont Yacht Club

FIGURE I
PROJECT ROUTE
 LONG ISLAND SOUND and HEMPSTEAD HARBOR

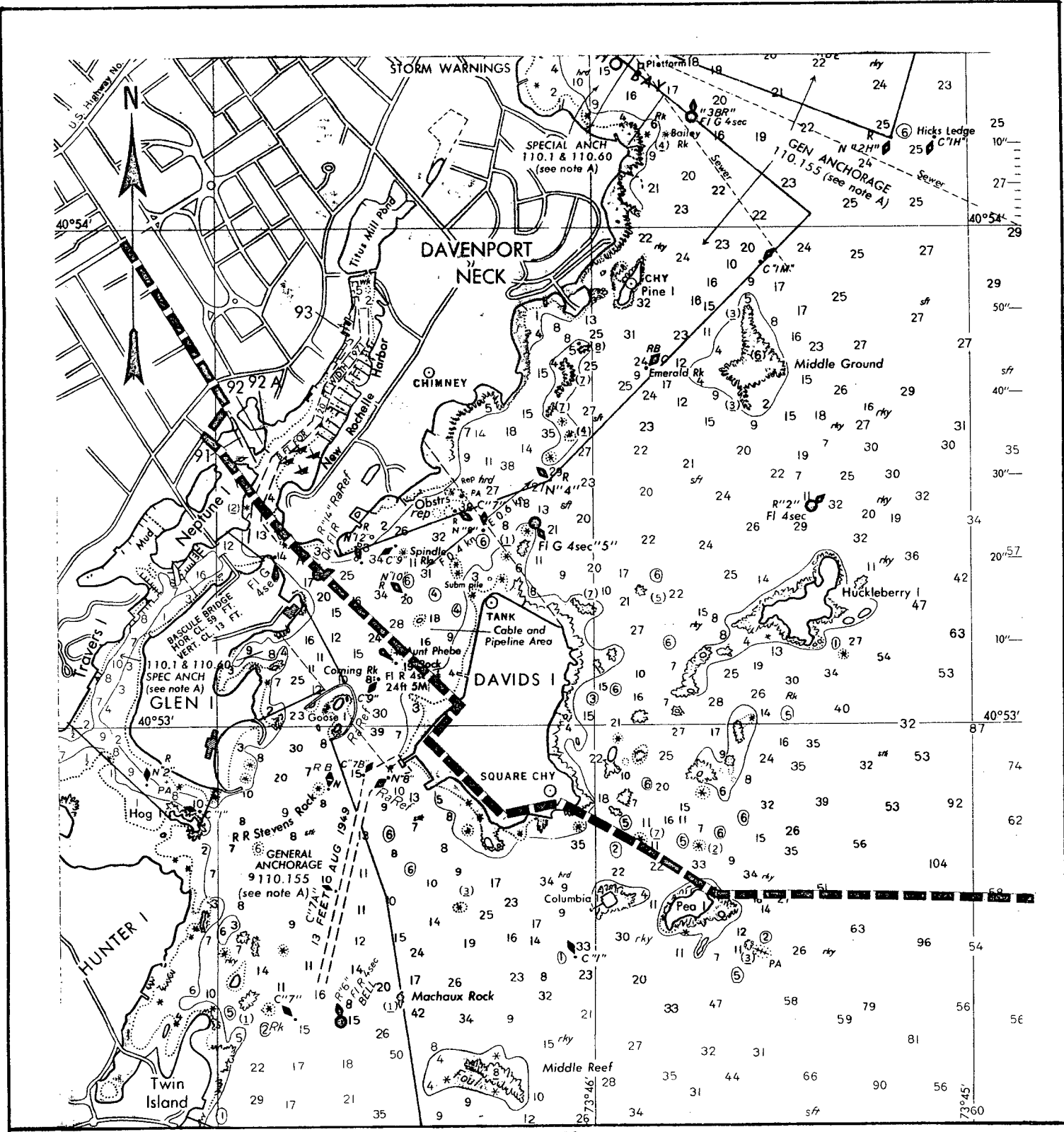


FIGURE 2
PROJECT DETAIL
 NEW ROCHELLE - LONG ISLAND SOUND

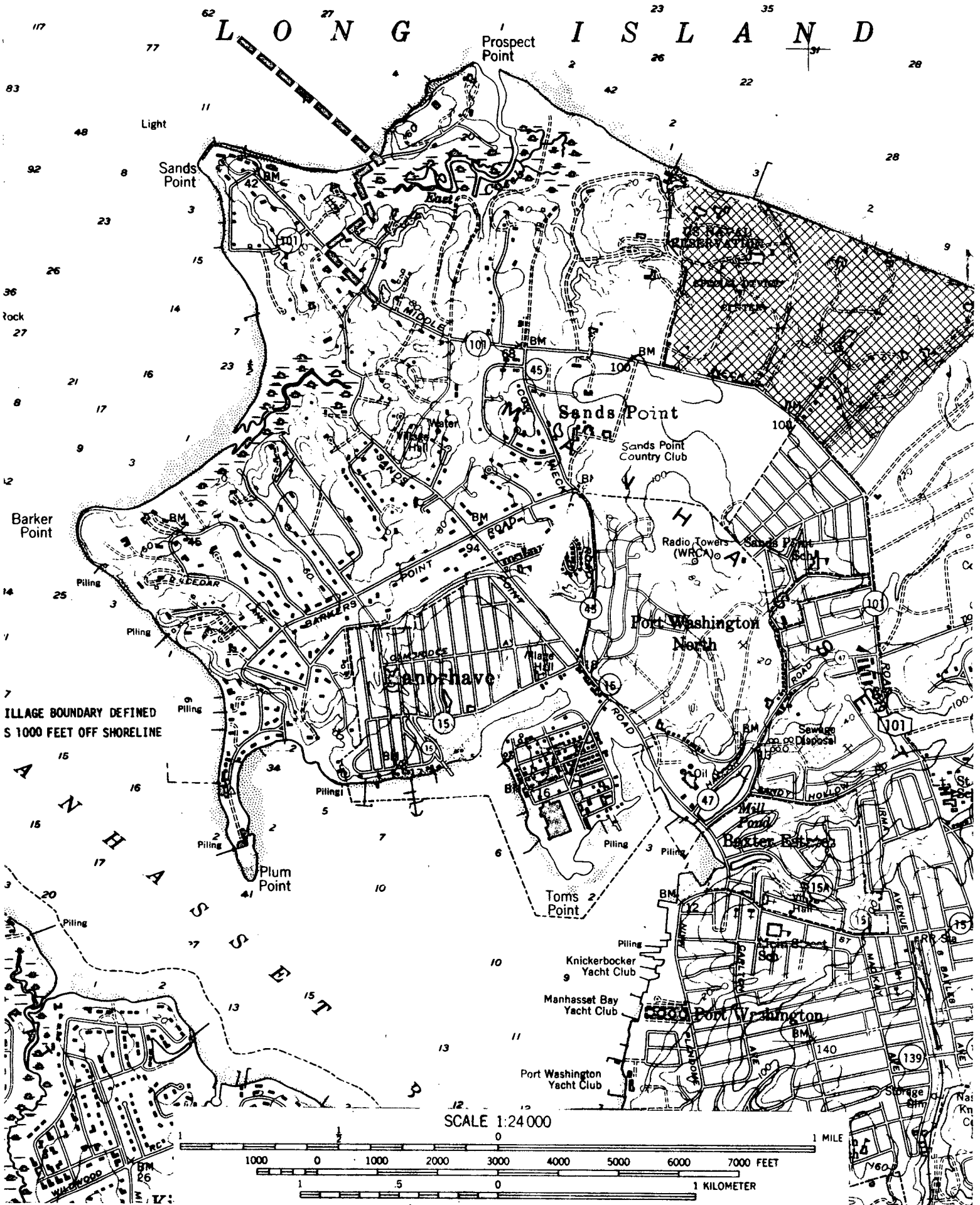


FIGURE 3
PROJECT DETAIL
 LONG ISLAND SOUND - MANHASSET NECK

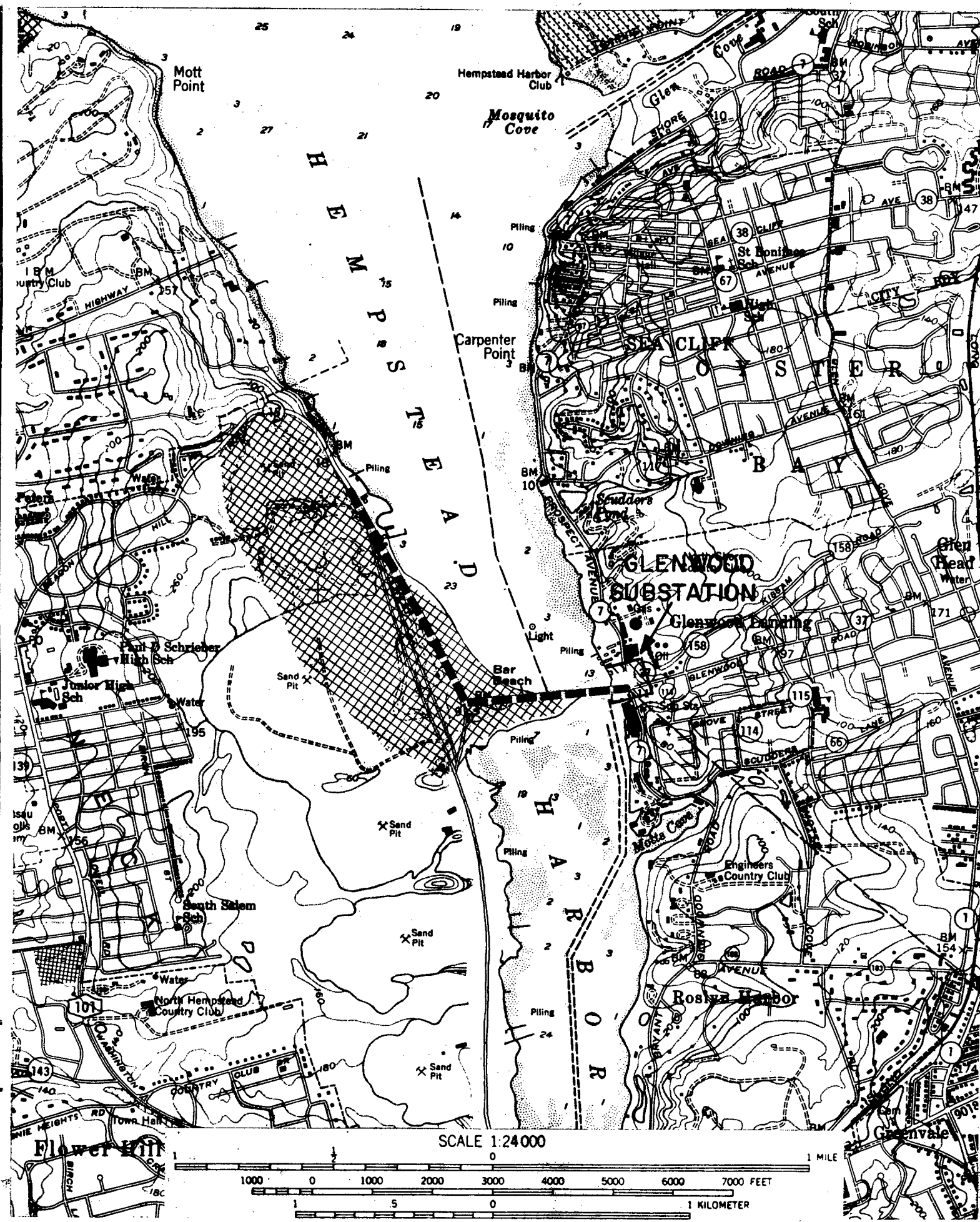
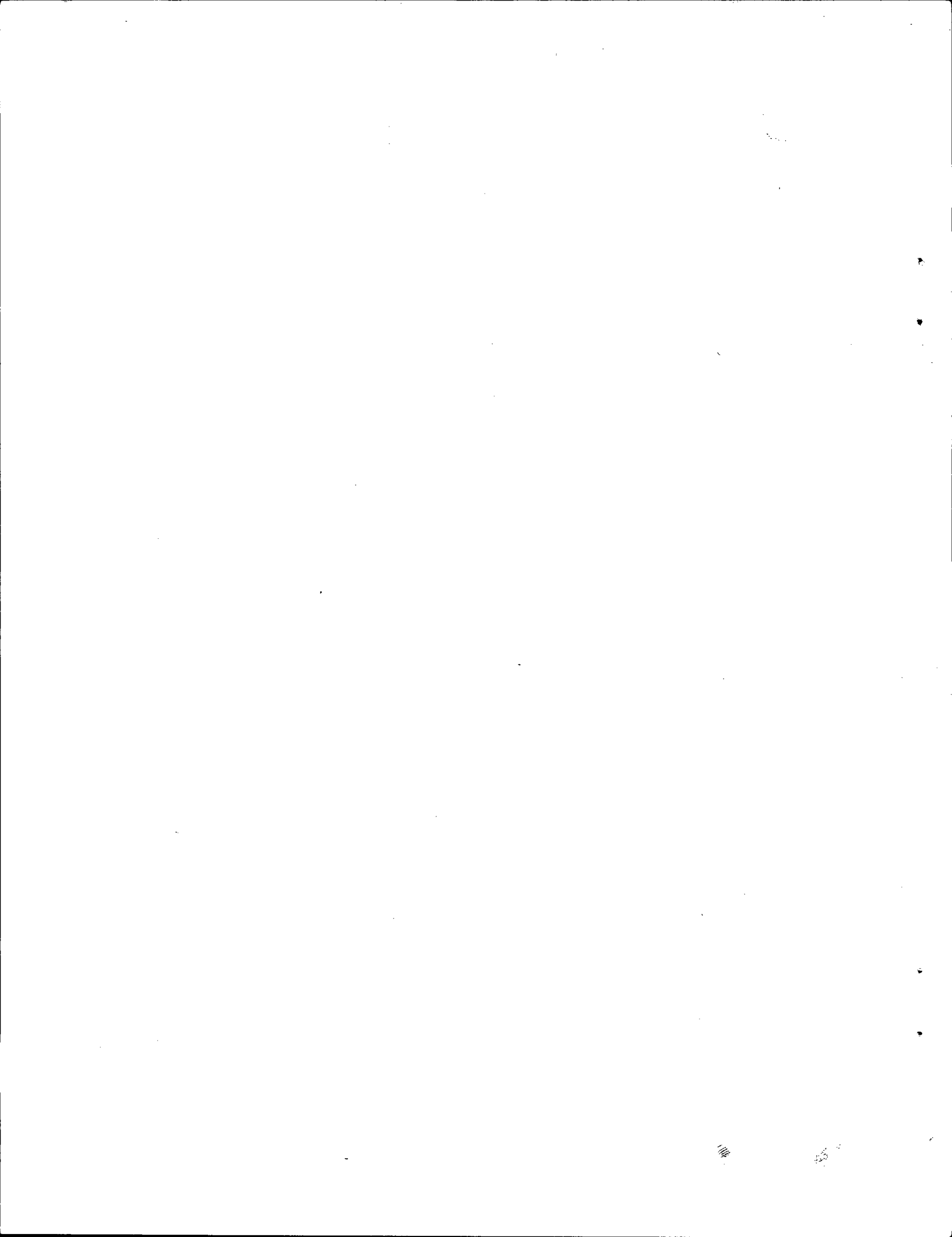


FIGURE 4
PROJECT DETAIL
HEMPSTEAD HARBOR



available for use in New York City from areas north of the City. Because the transmission system into the City has a 1972 capacity of about 1600 MW, the only way to supply City load requirements with these additional resources is by substantially expanding the transmission system into the City. The proposed tie with LILCO will provide a portion of the needed north-south transmission capacity, offer the advantage of route diversity, and provide transmission capacity to satisfy the anticipated load growth in East Queens.

1.05 In the East Queens area, Con Edison's projected future load requires the establishment of a new area substation in the late 1970's at a yet to be determined location. In order to supply the new area substation, Con Edison's 138 kV transmission system in East Queens will require reinforcement as necessary to maintain a satisfactory positive reserve status in this area. The proposed interconnection agreement will provide the required reinforcement for the East Queens area. Unused portions of the normal support of up to 300 MW would be available for use in the rest of New York City.

1.06 The currently proposed expansion program in the area is as follows:

<u>Location</u>	<u>Rating</u>	<u>Expected completion</u>
Astoria No. 6	800 MW	1976
Indian Point No. 3	873MW	1976
Cornwall (pump storage)	2000MW	late 1980's*
Northport	386MW	1977
Shoreham	820MW	1978
Jamesport	1150MW	1981

*The Cornwall pump storage project has been temporarily postponed.

1.07 The substantiation for projected electrical needs within affected communities of Westchester, Nassau and Queens Counties is evidenced by published population projections as follows:

POPULATION (in thousands)

<u>Year</u>	<u>Westchester *</u>	<u>Nassau</u>	<u>Queens</u>
1950	626	673	1550
1960	809	1300	1810
1970	894	1492	1987
1985	1050	1530	2100
2000	1150	1600	2200

*See Appendix N

These projections coupled with the attendant rise in housing, commercial and industrial facilities and a mandated requirement to provide reliable service commensurate with electric demand growth provides project substantiation.

1.08 Location of Project The Dunwoodie to Glenwood Landing transmission facility will originate in the City of Yonkers at the Dunwoodie Substation. It will proceed underground in a generally southeast direction across the City of Yonkers, across the City of Mount Vernon, across the Village of Pelham and across the City of New Rochelle to the shoreline of New Rochelle Creek, and a portion of Long Island Sound to Davids Island. It will continue across Davids Island, thence again beneath Long Island Sound, passing across Pea Island and Execution Rocks Light Station, and emerging in the Village of Sands Point in Nassau County. The facility will continue underground, across the Village of Sands Point, and through the Town of North Hempstead to the west shore of Hempstead Harbor. The facility will then cross beneath the Harbor emerging in the Town of Oyster Bay and will run through the Town of LILCO's Glenwood Landing Substation, the terminal of the line. The total length of the Dunwoodie to Glenwood Landing facility is approximately 91,600 feet (17.4 miles).

1.09 The Glenwood Landing to Lake Success transmission lines will originate at Glenwood Landing Substation, run underground through the Town of Oyster Bay and beneath Hempstead Harbor. The lines will emerge on the west shore of the Harbor and continue underground through the Town of North Hempstead to the Lake Success Substation, adjacent to the Nassau-Queens County line. The total length of the Glenwood Landing to Lake Success facility is approximately 8.5 miles.

1.10 The Lake Success to Jamaica transmission line will originate in the Lake Success Substation and run underground through the Town of North Hempstead, continue through the Queens County portion of New York City and terminate at the Jamaica Substation. The total length of the Lake Success to Jamaica facility is approximately 43,000 feet (8.2 miles), including 1000 feet in Nassau County.

11.1 Project Design The proposed transmission circuit between Dunwoodie and Glenwood Landing will be a 345 kilovolt (kV) pipe-type cable with forced cooling of the insulating fluid in the pipe and a power transmitting capability of 600 megawatts (MW) normal and 700 MW emergency. The land segments of the 345 kV circuit will consist of three 2500 thousand circular mil (kcmil) copper conductors of 4.11 inch nominal outside diameter (O.D.) in a 10-3/4 inch O.D. steel pipe, and a 5-9/16 inch O.D. steel heat exchange pipe to allow the insulating fluid in the pipes to be force cooled. The Hempstead Harbor segment of this circuit will be similar except that a spare 10-3/4 inch O.D. steel pipe will be used for insulating fluid return. Pipe wall thickness will be 1/4 inch, and both pipes will be installed in a common trench.

1.12 In the submarine crossing of Long Island Sound, two 12-3/4 inch pipes will be used so that the cooling return will also will serve as a spare cable pipe. Pipe wall thickness will be 1/2 inch for additional safety margin, which reduces the pipe I.D. and requires larger pipe than for the land portion of the 345 kV circuit. The submarine pipes will be coated with a 1-1/2 inch concrete coating prior to burial. In that portion of the crossing between Davids and Neptune Islands, three 13 kV submarine cables will be installed in the trench between the 12-3/4 inch pipes between Davids and Pea Islands, a single 13 kV submarine cable will be installed in the trench. These cables will be utilized for the power supply to the cooling plant on Davids Island and for construction power requirements.

1.13 The proposed circuit between Glenwood and Lake Success will consist of two 138 kV pipe-type cables generally buried in a common trench on two-foot centers, with self-cooling (no auxiliary cooling of the insulating fluid) and a maximum power capability of 300 MW each. These lines consist of three 3500 kcmil aluminum conductors of 3.31 inch nominal O.D. in 10-3/4 inch O.D. steel pipe with 1/4 inch wall thickness. Although the pipes will be filled with the same insulating fluid that will be used in the 345 kV line, there is no present intention of using forced cooling on these 138 kV circuits.

1.14 A single 138 kV pipe-type cable with forced cooling and a maximum power capability of 300 MW will extend from Lake Success to the Jamaica Substation and will consist of three 2500 kcmil copper conductors of 3.00 inch nominal O.D. in an 8-5/8 inch O.D. steel pipe and a 5-9/16 inch O.D. steel heat exchange pipe installed in a common trench. Pipe wall thickness will be 1/4 inch. (Appendix B).

1.15 Manholes will be located along the route to facilitate installation and splicing of the cable. Each manhole will be about 20 feet long, 9 feet wide, and about 9 feet deep, and located completely below grade. These will be located at each segment of the Long Island Sound crossing, i.e. New Rochelle, Davids Island, Pea Island, Execution Rocks, and Sands Point.

1.16 Insulating fluid is a low-viscosity polybutene or LVP which is broadly chemically classified as a short-chain polymer of low molecular weight unsaturated hydrocarbons (i.e. light weight oil).

1.17 Cooling plants to circulate and refrigerate the insulating fluid will be located at the Dunwoodie and Glenwood Landing Substations and on Davids Island. The system is designed specifically to circulate the fluid through the Long Island Sound crossing separately, and in the event of a break in this portion of the line, would result in preventing drainage from the land segments of the line to the break area. Pumping facilities will maintain a nominal line operating pressure of 200 psi. An accidental rupture of both cable pipe and fluid return pipe in the Long Island Sound could result in a maximum leakage of 24,000 gallons of LVP into the Sound waters. Similarly, simultaneous rupture of the 345 kV cable pipe, fluid return pipe, and both 138 kV cable pipes could theoretically result in as much as 59,500 gallons of LVP entering Hempstead Harbor. Massive spills in these areas would be expected to disperse fairly rapidly due to tidal currents and wind. Accidental spills into the Bronx or Hutchinson River could have a major impact, especially where LVP became trapped in stagnant pools. The rate of recovery would depend on the amount of LVP released, the time of year, and the amount removed by cleanup procedures. It is likely that for a major spill, no effects would be detectable after two growing seasons. The chances for major spills in any area, however, are extremely small.

1.18 Heat from the LVP will be dissipated into the air at the cooling stations. Slowly turning fans beneath horizontally mounted radiators produce a vertical column of warm air. The units will be roughly one story high, and meet the New York City residential zoning standards for noise. None of the stations are currently in use, so that no actual heat flow or noise data is available. A small amount of heat will be dissipated along the entire route by the thermal backfill. The effects of this heat are considered insignificant. Both Con Edison and LILCO have hundreds of miles of similar cable in service, and no problems have ever been attributed to heat flow from the pipes themselves.

1.19 The new Dunwoodie and Jamaica Substation facilities are to be located within existing substations on properties owned by Con Edison. The new Glenwood Landing Substation will be located on the easterly end of property currently owned by LILCO on Shore Road, which is partially developed with a gas compressor station and low pressure gas holder. The new substation at Lake Success will be located on a three-acre area of an unused parking lot in industrially zoned property that LILCO is negotiating to purchase from the Sperry-Rand Corporation on the north side of Union Turnpike near and east of Lakeville Road.

1.20 Construction Program The cable will be totally buried in its entire length with the depth of burial about 4-1/2 feet in the land segments, and 5 feet, for the Long Island Sound crossing. In the Hempstead Harbor crossing, the burial will be at least 10 feet below the bottom (25 feet below mean low water) to assure adequate clearance for anticipated future channel dredging.

1.21 The Bronx River crossing will utilize an existing ten-inch pipe for the cable conduit, and will require installation of a five-inch insulating fluid return pipe, planned to be by open cut. The river crossing will be made by installing two low dams of sandbags; one just upstream of the crossing and the other just downstream. This procedure allows the river to maintain its flow within existing banks by passing over the sandbag dams. At the same time, bottom currents are stopped between the dams and this allows removal of bottom material. The removal will be by clam shell or dragline. The crossing, including restoration of the river banks to their original state, is expected to take six to eight weeks. The return pipe will be 3 feet below the bottom of the river.

1.22 The Bronx River Parkway will be crossed by using an existing ten-inch pipe installed in a 24-inch sleeve. A five-inch fluid return pipe will be installed in the same sleeve. The Cross County Parkway will be crossed by installing a ten-inch and a five-inch pipe in an existing 24-inch casing. The Hutchinson River and Hutchinson River Parkway will be crossed by boring under them. The proposed cable will be 5 to 6 feet below the bottom of the river.

1.23 The land portions of the 345 kV line in Westchester will require the excavation of approximately 14,000 cubic yards of material, of which about 40 percent will be rock. The land portions of the 345 kV line between Sands Point and Glenwood Landing will require excavation of about 12,000 cubic yards of material. About one-half of the excavated material will be replaced by thermal backfill directly around and over the cable pipe. Thermal backfill is defined as a low thermal resistivity clean sand of specific grain size and density. It is used to surround the pipes and increase the heat dissipative properties of the system. The extra heat dissipation produced by the backfill material allows increased power transmission capability. Some of the excavated material may be used along with additional suitable material to fill the remaining portion of the trench. The surplus of excavated material will be removed by the excavation contractors, and will be taken to a suitable land-fill site. The land portions of the 138 kV lines between Glenwood Landing and Lake Success will require excavation of about 33,000 cubic yards of material, most of which will be replaced by thermal backfill. The total land excavated material to be disposed of is thus about 50,000 cubic yards, with about the same quantity of thermal fill brought to the project route.

1.24 The 138 kV line between Lake Success and Jamaica will require excavation of about 12,000 cubic yards of material, with the trench refilled with clean fill, some of which may come from the material excavated.

1.25 The marine portions of the line will require the removal of about 105,000 cubic yards of spoil from Long Island Sound and 24,000 cubic yards from Hempstead Harbor. Method of dredging will be by clam shell, drag line, or suction. The only available method of spoil disposal is marine dumping. Therefore, disposal of the 129,000 cubic yards of marine spoil will be at an offshore dumping area approved by the Army Corps of Engineers. Since there is a great increase in cost as the distance between dredge site and disposal area is increased, the most logical choice of approved site is the New York Bight dump site. Since some of the dredge material exceeds EPA Criteria for open water disposal (Section 2.27), Corps of

Engineers approval will be based on concurrence by the U.S. Environmental Protection Agency. In addition, 3600 cubic yards of rock will be excavated by blasting, but will be left in place as additional rock habitat if approved by the Corps of Engineers. The approval is dependent on whether or not the rock left in place reduces draft clearance for vessels to such an extent as to present a possible hazard to navigation. The backfill will replace excavated material, and inshore areas will consist of a series of layers of progressively larger grain sizes as the trench becomes filled. Portions of the trench at water-land transition points will be covered by an armor stone layer to prevent wave erosion.

1.26 Backfill Characteristics for Marine Crossing. Thermal backfill will be used for the offshore areas of the crossing. This material is identical to the thermal backfill to be used on the land portions of the route, and is defined as a clean sand, less than 3/8 in. in diameter, and of low thermal resistivity. Its purpose is to increase the load carrying capacity of the system by conducting heat away from the cables. After cable installation, bottom currents will redeposit more typical bottom sediment over the backfill and provide for the resettlement by benthic organisms.

1.27 Marine pipelaying will be done by pulling sections that have been preassembled on land, by lay barge, or by a combination of both. It is anticipated that pipe will be welded and the welds X-rayed and coated with coal tar enamel and concrete prior to pulling at staging areas on Davids Island, Neptune Island, Sands Point, and Bar Beach. Construction of the manhole at Execution Rocks will require extension of the barrier reef with additional rip rap.

1.28 Divers will be used to examine the marine trench and layed pipe prior to backfilling to assure that there are no high or low spots in the line.

1.29 In addition to all welds being X-rayed, all portions of both the marine and land segments of the pipe will be pressure-tested after installation. This test will consist of a 500 psi pressure applied for a half-hour minimum and then reduced to 250 psi for 72 hours.

1.30 Pipe installation will require about twelve months time with cable installation requiring an additional seven months. The submarine portion of the project will involve nine months of activity excluding cable pulling. Terminal substation construction will proceed

concurrently.

1.31. The total estimated cost to construct the proposed project, based on 1975 prices, is about \$71,000,000.

Major component costs are as follows:

	\$ Million
Dunwoodie Substation	3.7
Westchester County mainland and Davids Island lines	14.0
L.I. Sound submarine crossing	17.7
Sands Point to Glenwood Landing lines	7.5
Glenwood Landing Substation (345 kV)	4.0
Glenwood Landing Substation (138 kV)	0.5
Glenwood Landing to Lake Success lines	9.7
Lake Success Substation	2.9
Lake Success to Jamaica line	9.2
Jamaica Substation	0.4
Valley Stream Substation	1.4
Total	71.0

2. ENVIRONMENTAL SETTING WITHOUT PROJECT

2.01 Existing Land Use. The land use in Westchester, County through which the cable is planned to be installed, is primarily residential and commercial. The route passes through three cities adjacent to New York City: Yonkers, bordering the Hudson River; Mount Vernon, and New Rochelle. In addition, the line will pass through the Village of Pelham. Headquarters or policy-directing offices of national businesses such as General Foods, Nestles, Allstate, IBM, and Pepsico are currently located in the area. Land use along Westchester's Long Island Sound shore is largely directed towards recreation and boating (marinas, etc.) Educational institutions are also located in the area. The Regional Planning Association reports that for the period 1970 - 1971 there were over 2,000 students attending Westchester Colleges.

2.02 Several cemeteries and parks are located along the proposed route. In addition, the boulevard part of the route through Pelham is lined with stately trees. Neptune Island, through which the cable route will run at the Westchester shoreline, is no longer an island due to land fill resulting in a low productivity mud flat connecting it with the mainland. From Neptune Island the route will cross New Rochelle Creek, an active pleasure boating area, and into Long Island Sound.

2.03 The area of the Sound in which the proposed transmission line will be located is an active recreational boating area. Approximately 14,500 power boats were registered from Westchester County between the Bronx County and Connecticut line as of August, 1970. For Nassau County from the Queens County line to the Suffolk County Line, the corresponding number is about 47,000. While no comparable statistics are available for those sailboats without engines, many use the area for day sailing as well as for racing. Other uses of the Sound water include bathing at the public and private beaches along both shores. Of these, Orchard Beach in Bronx County provides the most extensive facilities, with 90,000 persons using the beach on a typical summer weekend.

2.04 Glen Island, adjacent to the proposed route, is the site of Glen Island Park, a county park. Davids Island, owned by Con Edison, is well covered with trees. This island was formerly an Army base with two to four-story structures remaining from the previous Army operation. A tiny island south-east of Davids Island, Pea Island, is owned by the Hugueont

Yacht Club and supports a small beach club with cabanas and launch service. Execution Rocks, on the boundary between Westchester and Nassau County waters of the Sound, is a small local build up of rip rap and has a Coast Guard light station as its single facility.

2.05 The proposed project in Nassau will be almost entirely within the Town of North Hempstead, the only exception being the Glenwood Substation on the east shore of Hempstead Harbor in the Town of Oyster Bay. A major portion of the project area is in Port Washington, sometimes referred to as Manhasset Neck, primarily a residential area with tree-lined streets and large estates to the north at Sands Point, and several parks, golf courses, and private and public beaches. The largest recreational facility in the township, Town of North Hempstead Park, is partly in the path of the proposed cable route at Bar Beach on the west shore of Hempstead Harbor. Approximately 30,000 persons use the recreational facilities at Bar Beach on a typical summer weekend.

2.06 Along the western shores of Hempstead Harbor, extensive sand and gravel quarries have been in operation for many years. These operations are supported by barging in the harbor. The harbor is primarily industrial in character, although town and county parks and bathing beaches are located opposite the LILCO generating station at Glenwood Landing, and also farther to the north along both shores of the harbor. There are a number of facilities in direct support of recreational boating on the east shore of Hempstead Harbor. These include marinas at Glenwood Landing immediately north of the Glenwood substation, and Glen Cove Creek farther north at Sea Cliff. Most of the boating activity is directed toward the mouth of the harbor, north of the proposed cable crossing.

2.07 The project route through Queens consists largely of single family and multi-family residences, small apartment buildings, shopping, and commercial activities. The route along Union Turnpike and Utopia Parkway passes by Cunningham and Alley Pond Parks, St. John's University, and several hospitals, including Creedmoor State Hospital. In Jamaica, the route passes by small Tilly Park and Ottilie Home for Children. The terminal in Jamaica is near a major transportation hub of bus and subway lines and Jamaica Station of the Long Island R.R.

2.08 **Population** The cable traverses three densely populated counties. Population figures presented were extracted from 1970² Census of Population reports.

²U.S. Department of Commerce, Bureau of the Census, 1970 Census.

	<u>1960</u>	<u>1970</u>	<u>% Change</u>
Westchester County	808,891	894,104	10.5
City of Yonkers	190,634	204,297	7.2
City of Mt. Vernon	76,010	72,778	-4.3
Village of Pelham	1,964	2,076	5.7
City of New Rochelle	76,812	75,385	-1.9
Nassau County	1,300,171	1,428,080	9.8
North Hempstead	2,908,888	234,984	7.3
Port Washington	15,657	15,923	1.7
Manhasset	-	8,541	-
Roslyn Village	2,681	2,546	-.50
New Hyde Park Village	6,379	5,812	-8.9
Mineola Village	20,451	21,845	6.8
Oyster Bay	290,055	333,089	14.8
Glenwood Landing	-	1,300	-
Queens County	1,809,578	1,986,473	9.8

Population projections for the region are listed below.

<u>Year</u>	<u>Westchester</u>	<u>Nassau</u>	<u>Queens</u>
1985	1,050,000	1,530,000	2,100,000
2000	1,150,000	1,600,000	2,200,000

2.09 Socio-Economics Southern Westchester is primarily residential and industrial with many of the residents commuting to New York City via rail or highway. Nearly 400,000 of Westchester's 900,000 people live within 4 miles of the Bronx (N.Y. City) border.

2.10 Between 1959 and 1967, Westchester's employment rose 25% with professional, technical, management, and clerical predominating. Professional-technical-management employees rose by 31% and clerical employees went up by 30%. By 1985, about half of Westchester's jobs will be professional, technical, management, and clerical; only one third

will be operators, laborers, and service. It is estimated that by the year 2000, there will be 70,000 jobs in factories and 160,000 jobs in offices, Considerable employment along Westchester's Long Island Sound shore is in support of recreation boating (marinas, etc.)

2.11 Nassau County has a total land area of 201,000 acres, of which 7,000 were zoned industrial in 1969. Actual land used for industrial purposes was slightly more than half of that zoned.

Industry composition of Nassau-Suffolk bi-county employment in 1970 was as follows:

<u>Type of Industry</u>	<u>% of total</u>
Wholesale and retail trade	26.5
Transportation and public utilities	4.6
Contract construction	5.1
Manufacturing	21.2
Government	19.7
Finance, insurance, and real estate	4.5
Service and miscellaneous	18.4

Approximately 65 percent of Nassau-Suffolk manufacturing employment is concentrated in industries that will experience national market growth rates in excess of 3.5 percent, the average projected growth rate for United States manufacturing employment between 1966 and 1975. Future employment growth in the Nassau-Suffolk area will be concentrated in some of the nation's fastest growing industries: wholesale and retail trade, finance, insurance and real estate, and service occupations.

2.12 In the past 50 years, Queens has grown more rapidly than any other borough of New York City. The majority of Queens workers have white collar jobs: 22% are engaged in professional, technical or managerial work and 24% have clerical and related jobs, which is the highest percentage of all five boroughs.

2.13 Queens has important commercial and industrial areas. The most important industry in Queens is aviation, with about 50,000 people employed in the two large airports. Industry in Queens in general employs about 160,000 persons. Metal, wholesale, and

electrical industries each employ approximately 10% of the total work force and are followed in importance by food, rail, trucking, and percision instruments.

2.14 Historical/Archeology A review has been made of the National Register of Historic Places. This review has been supplemented by searching relavent issues of the Federal Register up to and including 1, July, 1975. The following sites are within the vicinity of the project: Stevens House, Mount Vernon; Thomas Paine Cottage, New Rochelle; Bolton Priory, Pelham; Main Street District, Roslyn; Execution Rocks Light Station, Port Washington vicinity (nominated and under review); and Leland Castle, New Rochelle (in the process of nomination).

Of those listed above, only Execution Rocks Light Station is in direct proximity to the project. This Light Station is under nomination to the National Register List by virtue of its historic value as one of the earliest aids to navigation in western Long Island Sound, and because of its interesting architectural history.

Sites of archeological value may be located along the project route. A letter dated 10, June, 1975 from the New York Archeological Council describing these possible sites is included in Appendix M.

2.15 Natural Environment (terrestrial) The physiography of the Westchester-Queens-Nassau region is a result of glacial activity and it exhibits considerable variety. It ranges from steep, rocky hills with elevations of about 300 feet in the project area in Westchester to flatter areas along the Long Island Sound shore. The project area in Queens is also generally flat, but the north shore of Nassau is rolling, the shoreline is irregular, and the soils tend to be sandy and devoid of rocks and bedrock outcrops, which are common in Westchester. Drainage patterns are not pronounced or consistent in Westchester and Nassau, and have been virtually obscured by development in Queens.

2.16 In Westchester County, the terrain is generally characteristic of the region's glaciated landscapes. Elevations range from sea level to 700 feet in the northern parts of the County, with the highest elevation approximately 300 feet in the vicinity of the proposed transmission line. The rolling hills are of varying gradients and are oriented generally in a north-south direction in the southern part of the county crossed by the right-of-way. The

soil is stony and thin, and bedrock outcrops are common. Tidal marshes are located at points along the irregular shoreline of Long Island Sound, and several small islands lie just offshore.

2.17 The topography of Nassau County is typical of areas lying along the southerly limits of the great glacial ice sheets. The north shore exhibits the rolling hills and kettle type valleys of morainal deposits and rises quite abruptly to a maximum elevation of about 391 feet above sea level at Harbor Hill in Roslyn. The terminal moraines deposited by two glacial advances extend in a generally west to east direction across the County. The older moraine, the Ronkonkoma Moraine, extends across the County in an easterly direction, from near the head of Little Neck Bay and crosses into Suffolk County east of Syosset. Harbor Hill Moraine, the more recent moraine, extends across the County in an east-northeasterly direction from near Lake Success and crosses into Suffolk County near Cold Spring Harbor.

2.18 The section of Queens County crossed by the proposed transmission line is predominantly flat, with elevations generally less than 150 feet. The natural drainage system and terrain have been obscured by urbanization along the proposed route. The major vegetation besides that of the East Creek salt marsh along the proposed right-of-way consists of street trees. Plantings on individual streets vary, but throughout Westchester, Queens and Nassau, the predominant street trees are Pin Oak, Red Oak, Red Maple, Sugar Maple, Norway Maple, and Sycamore. White Pine, Austrian Pine, and Honeylocust are present in small numbers, and smaller ornamental trees are planted on private property along the route, but out of the right-of-way itself.

2.19 Occasional marshlands indent the peninsulas which form the shoreline between the Queens County and Suffolk County boundaries. The Manhasset Neck peninsula is bounded on the west by Manhasset Bay, on the north by Long Island Sound, and by Hempstead Harbor to the east.

2.20 **Natural Environment** (Aquatic) Physical characteristics of the Long Island Sound basin were eroded by rivers during Pliocene time along the contact of the newly uplifted coastal-plain strata (late Cretaceous to Miocene age) with the older bedrock forming the New England Upland (Triassic and Paleozoic ages). Soon after the Long Island Sound depression was formed, it was covered by two continental glaciers which advanced from the northwest.

The Sound in the vicinity of the proposed cable crossing is approximately 3 miles wide. Islands in or adjacent to the path of the proposed cable are Glen Island, Davids Island, and Pea Island, all of which are in Westchester County. Execution Rocks, on the boundary between Westchester and Nassau County waters of the Sound, is a small shoal built up of rip rap where a Coast Guard light station is located.

2.21 The maximum depth of water in the Sound crossing is approximately 100 feet occurring at two points, between Pea Island and Execution Rocks, and between Execution Rocks and Sands Point, Nassau County. National Ocean Survey navigation chart number 233 indicates water depths in feet at mean low water for the area of the Sound under consideration. Sub-bottom geology along the route of the proposed pipe-cable has been described using sub-bottom profiles and core samples. (Appendix F) Boring logs indicate that there are approximately 1,600 linear feet of rock, of which 600 feet are exposed, along this route. These rocks are the southern extension of the rock types found in Westchester County and include shists, gneisses, and granitic pegmatites. The Long Island Sound area is seismically quiet, and little consideration need be given to earthquake or slide hazards. The rock types are common, and should pose no engineering difficulties during blasting and removal operations.

2.22 No significant coastal marshes are located on the North Shore of Long Island Sound near the proposed cable crossing, however, occasional marshlands indent the peninsulas which form the shoreline between the Queens County and Suffolk County boundaries on the south shore of the Sound. The Manhasset Neck peninsula is bounded on the west by Manhasset Bay, on the north by Long Island Sound, and by Hempstead Harbor to the east. The only truly productive wetlands near the project route is the East Creek salt marsh at Sands Point.

2.23 Along the western shores of Hempstead Harbor, extensive sand and gravel quarries have been in operation for many years. The harbor is primarily industrial in character, although town and county parks and bathing beaches are located opposite the LILCO generating station at Glenwood Landing, and also farther to the north along both shores of the harbor.

2.24 Winds and Tides Wind direction and velocity data are recorded by the National

Weather Service at La Guardia Airport. Cumulative data over the period 1951 to 1960 indicate a median wind velocity of 13.5 mph, and most winds have a component out of the west. Thus, the predominant wind-driven surface currents of western Long Island Sound waters move eastward under the influence of winds blowing from the west.

2.25 Tidal currents around the proposed route across the Sound flow to the west flooding and to the east when ebbing. These currents reach maximum velocities at the site about three hours before high water slack and low water slack at the eastern end of the Sound. The highest currents along the cable route occur at ebb during spring tides in Hempsted Harbor, where they reach 2.2 knots. In general, tidal currents in the area of the route across the Sound rarely exceed one knot.

2.26 Sediments Sediments along the proposed route across the bottom of the Sound were sampled and analyzed in 1972. (Appendix G) Along the Sands Point to Execution Rocks transect the sediments graded from sand through sandy mud to coarse sand and stones off Execution Rocks. The mud was located in the deeper portions of the transect. Approximately 64 percent of the samples collected along the Execution Rocks to Pea Island transect were mud, with the remainder ranging from coarse stones off Execution Rocks to coarse sand, stone, and boulders off Pea Island. The area between Pea Island and Davids Island was primarily characterized by a mixture of coarse sand, stone, and boulders. Sediments along the transect between Davids Island and Neptune Island were primarily mud mixed with some sand and shell. In Hempstead Harbor the sediments were primarily coarse sand and gravel.

2.27 The chemical characteristics of these sediments are presented on the following table. EPA criteria are also presented on this table for purposes of comparison.

SUMMARY OF DREDGE SPOIL CHARACTERISTICS**

(In percent dry weight basis)

<u>Parameter</u>	<u>Max.</u>	<u>Min.</u>	<u>Ave.*</u>	<u>EPA Criterion</u>
Volatile solids	19.74	0.32	3.79	6.0
Chemical oxygen demand	13.22	0.11	4.18	5.0
Total Kjeldahl nitrogen	1.68	0.00	0.35	0.10
Oil and grease	1.553	0.035	0.30	0.15
Mercury ($\times 10^{-5}$)	20.0	0.1	3.34	10.0
Lead ($\times 10^{-3}$)	1.18	0.39	0.73	5.0
Zinc ($\times 10^{-3}$)	6.13	0.61	3.82	5.0

* Average for 26 samples along the route.

** Derived from Alexander and D'Agostino (see Appendix G)

The same samples that exceed one EPA criterion tend to exceed most of them, while the rest of the samples, in general, don't exceed any of them. The samples that exceed the EPA criteria are found in three areas. Two samples from the Sands Point to Execution Rocks segment fell below the standards, and are located roughly midway between the Point and the Rocks along the route. Six out of the eight analyzed samples between Execution Rocks and Pea Island exceed the criteria for most parameters. In addition, the only two analyzed samples between Neptune Island and David's Island both exceed the allowable limits. One of the five analyzed samples from Hempstead Harbor exceeded EPA limits for Chemical oxygen demand and lead content. One other sample also exceeded COD criteria. All other parameters in these two samples were below EPA limits. The other three samples from Hempstead Harbor were also well below EPA limits. In all, ten of the twenty-six analyzed samples were below the EPA standards.

Material tested in New Rochelle Harbor (Shaker Test August 1974) indicated several areas where pollution levels exceeded that in the disposal site. COD, oil&grease, mercury, cadmium and lead levels were all higher than those found in the sea water sample taken from the New York Bight. Grain size analysis indicates a mixture of 65% sand, 30% silt and 3% clay.

The only currently approved dumping site is in the New York Bight. The spoils that are to be dredged from the proposed route, even though they may exceed the EPA criteria, are less polluted than much of the material that is currently dumped there. In addition, the total volume of spoils from the proposed project would constitute a very small percentage of the total yearly volume that is presently dumped in that area. (See Appendix B, pg. B-93)

2.28 Water Quality In general, the water quality in Long Island Sound in the vicinity of the proposed transmission line does not meet New York State standards at all times. For example, due to naturally caused thermal stratification which may occur during the summer months, the dissolved oxygen concentration of subsurface waters may fall below the standards. This trend is reversed during the winter when the entire water column meets the dissolved oxygen standards. Water quality standards assigned by New York State for waters in the vicinity of the proposed project are as follows:

Bronx River, Class C – Fishing and any other usages except for bathing or as source of water supply for drinking, culinary, or food processing purposes.

Hutchinson River, Class B – Bathing and any other usages except as source of water supply for drinking, culinary, or food processing purposes.

New Rochelle Creek, Class SB – Bathing and any other usages except shellfishing for market purposes.

Long Island Sound in Westchester County, north of Execution Rocks, Class SB.

Long Island Sound in Nassau County, south of Execution Rocks, Class SA – Shellfishing for market purposes and any other usages.

Hempstead Harbor, Class SA.

Long Island Sound east of Throggs Neck Bridge, Class SB.

The existing water quality throughout the study area is a result of the characteristic urbanization which has generally clustered along the Sound. It has resulted in the enrichment of the Sound through the disposal of all sorts of materials and sewage from municipalities, industries, boats, and individuals. A detailed report on water quality in the vicinity of the proposed project is contained in Appendix H.

2.29 Flora and Fauna Fish and Wildlife. Fish species from Long Island Sound that are commercially and recreationally valuable include striped bass, winter flounder, blackfish, bluefish, tomcod, eel, menhaden, blueback herring, hickory shad, American shad, sea herring, porgy, mackerel, cod, whiting, sea bass, smelt, weakfish, kingfish and blowfish. As reported by the National Marine Fisheries Service in *Current Fish Statistics, New York Landings*, the largest commercial landings are menhadend (207,000 pounds in 1969) and bluefish (168,000 pounds). Fish landed at ports along the Sound are not always caught in the Sound, however. For example most menhaden are caught off the coast of New Jersey and New York waters other than Long Island Sound, although the fish are landed along the Sound.

2.30 Historically the waters of Western Long Island Sound have been excellent for shellfish production. However, in recent years expanding areas of the Sound have been closed to shell fish harvesting. In the vicinity of the proposed transmission line, shellfishing is prohibited in all waters. Although these areas are closed to shellfish harvesting, the shellfish beds are still a valuable natural resource.

2.31 Wildlife along the route consists principally of waterfowl along the marine segments. Surveys of the Long Island area were conducted by the Bureau of Fish and Game the New York State Department of Conservation from 1947 to 1971. Species of waterfowl observed are:

Bladpate	(<u>Mareca americana</u>)
Black Duck	(<u>Anas rubripes</u>)
Brant	(<u>Branta bernicla</u>)
Bufflehead	(<u>Bucephala albeola</u>)
Canvasback	(<u>Aythya valisineria</u>)
Geese	(<u>Anatidae [family]</u>)

VESSEL MOVEMENTS

	<u>Inbound</u>	<u>Outbound</u>
Self-propelled tankers	386	384
Tugs and towboats	1,719	1,723
Dry cargo barges	2,968	2,976
Tank barges	5,390	6,391

2.39 Existing electrical generating facilities in the project area include a fossil fueled station at Glenwood Landing. This facility has 4 generators; two 77MW, one 114MW, and one 113MW units. In addition, 2 gas turbine peaking units of 16MW and 114MW are currently in use.

2.40 Future Trends Without Project If this project were not implemented, new generating capacity would have to be provided by LILCO to meet this reliability standard and projected load growth. Even if this option were adopted, the versatility and therefore reliability of the entire Con Ed-LILCO systems would not be enhanced. If the project were not implemented there would, because of the need for additional generating capacity, be increased air and water pollution, as well as increased fuel consumption.

The adverse impacts of this proposed project are short term. If the project were not implemented, there would be little effect on the future trends of disposal in the New York Bight area, as well as little effect on the uses of the Sound for recreational and commercial purposes.

2.41 Project Interrelationship: The proposed project does not interfere with plans of any other known projects in the area. Draft Copies of the Environmental Impact Statement were sent to all interested agencies and none of them reported any interference with other projects. The Lighthouse in Execution Rocks is the only exception, as it has been designated a national historic place.

3. RELATIONSHIP OF PROPOSED ACTION TO LAND USE PLANS

3.01 The placement of electrical transmission cables does not constitute a unique land use as defined in the strictest sense. Land use plans are developed in a manner which designates and recommends future proposed uses of land area in defineable parcels. Zoning regulations and ordinances are the vehicles whereby these plans are implemented.

Local and regional planning agencies were contacted, and there appears to be no project incompatibility with existing master plans. Major portions of the land sections of cable pipeline are already installed (Figures 5 and 6) for the overall project. The subject project deals exclusively with the marine portions of the cable route and as such should have minimal effect in actual long term land use plans.

Within the land portion of the cable, the areas traversed are designated (i.e. planned and zoned) for residential, commercial and industrial uses. Excepting the water crossing, the route lies almost entirely under public streets through residential areas. Davids Island owned by Con Edison is specially zoned for a nuclear power plant.

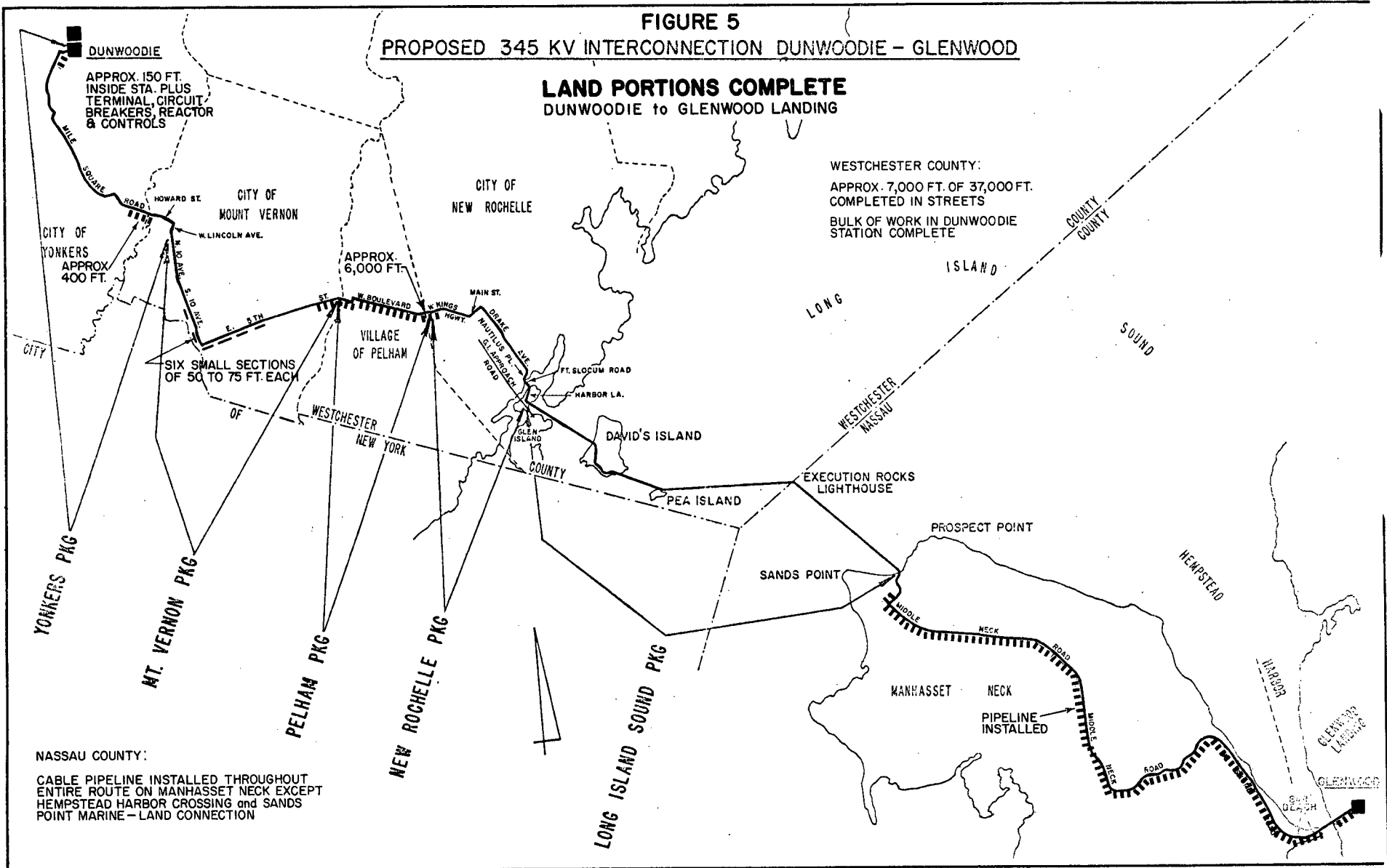
Historically, the development and supplying of required electricity has been left almost entirely to the utility companies with local land use plans ignoring electrical transmission lines as a tangible use of land.

Therefore, this cable does not conflict with any land use plans.

FIGURE 5

PROPOSED 345 KV INTERCONNECTION DUNWOODIE - GLENWOOD

LAND PORTIONS COMPLETE
DUNWOODIE to GLENWOOD LANDING



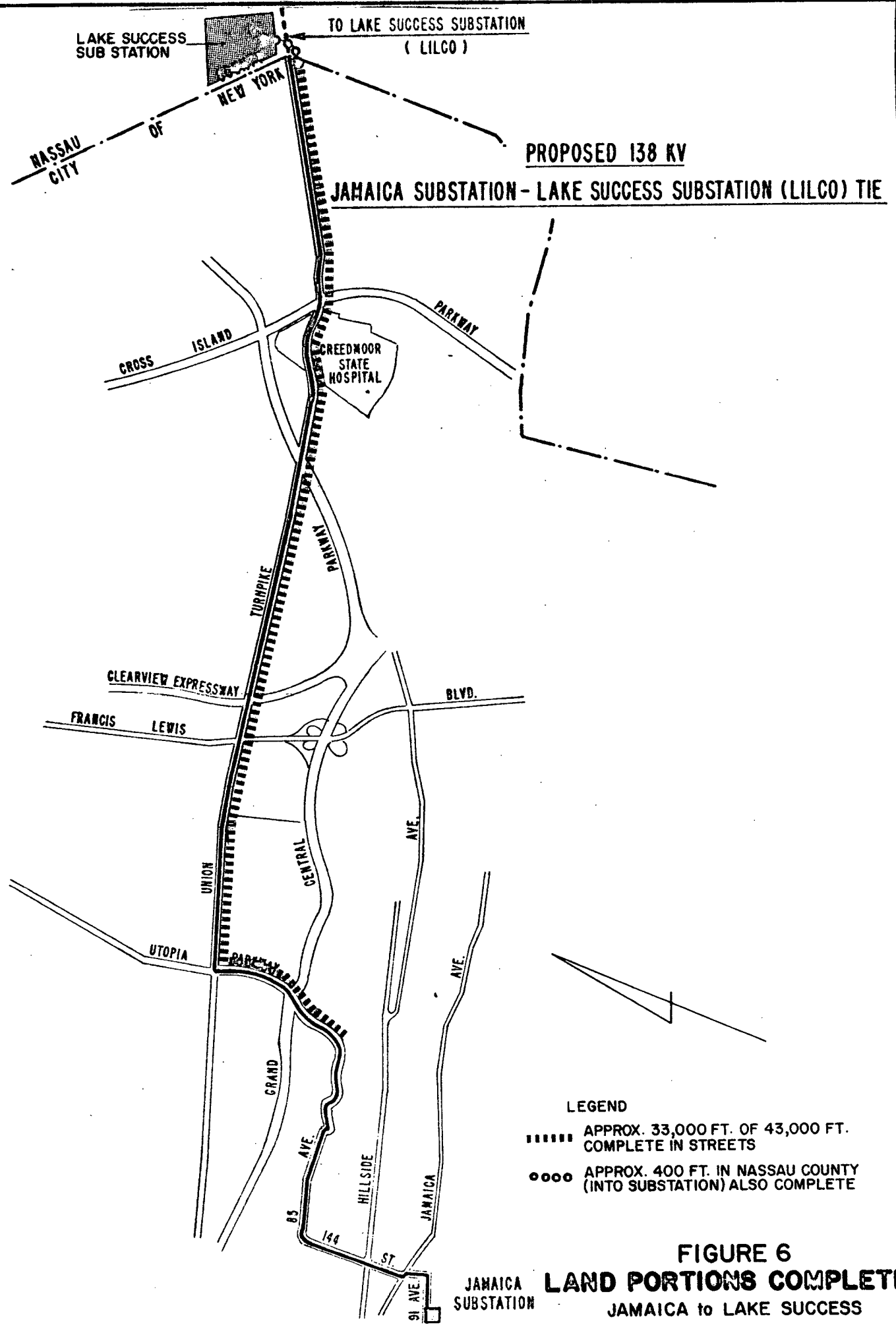
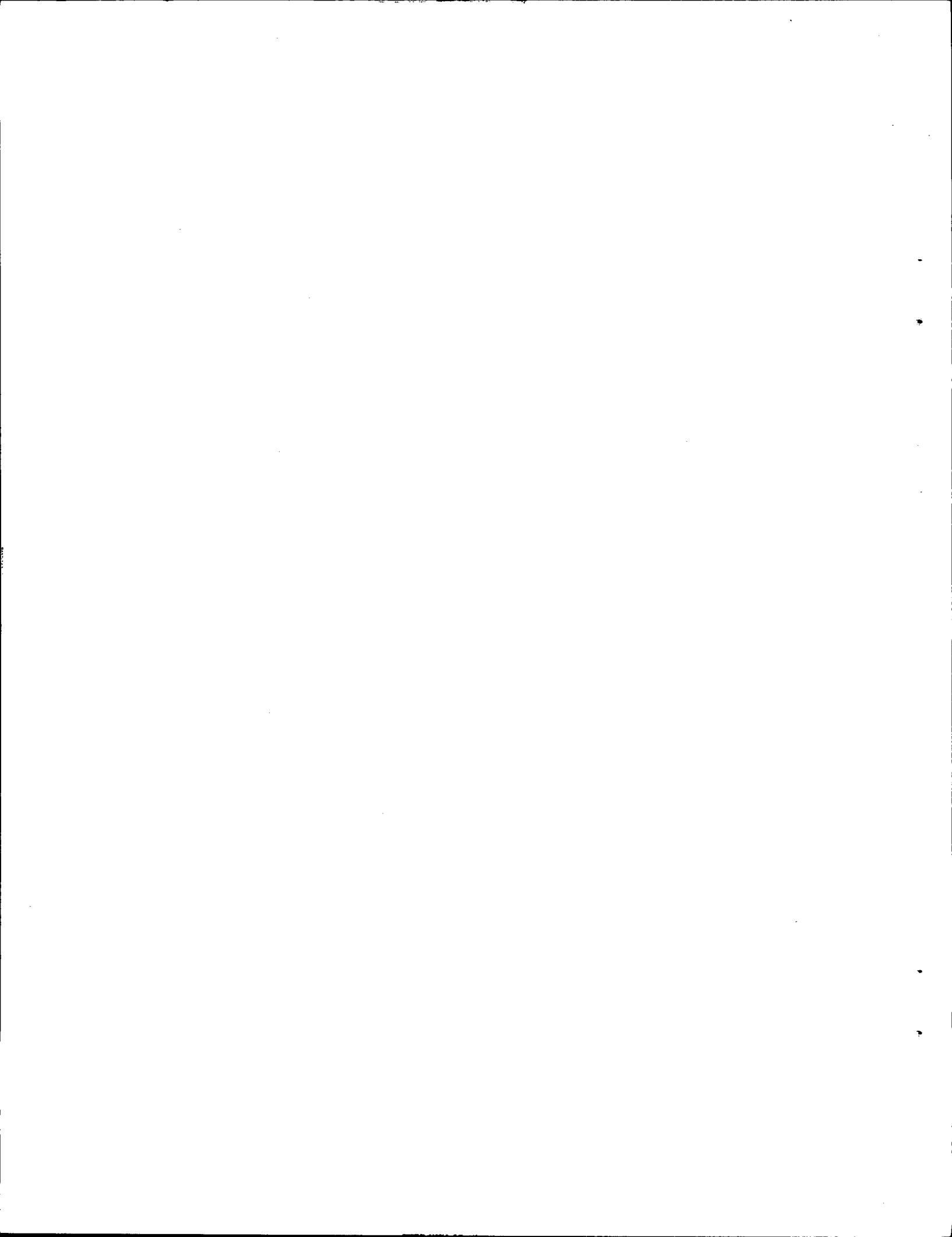


FIGURE 6
LAND PORTIONS COMPLETE
 JAMAICA to LAKE SUCCESS



4. ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

4.01 **Impact On Existing and Future Land Uses.** The improvement in reliability of electric service in the area will have no influence on land use development. Normal development could be impeded by a lack of such service reliability. However, the utilities are mandated by law to meet electrical demand growth with reliable service. Therefore, if the proposed project is not approved, a less environmentally desirable alternative such as increased generation capacity would have to be implemented to provide the reliability improvements needed. Future area trends, therefore, would not be different from those expected with the proposed project, except to the extent that more expensive electrical service incurred by the alternative may inhibit expected regional development patterns.

4.02 The proposed project, when completed, will be almost entirely underground except for pumping, cooling, and substation facilities located on utility company property. A right-of-way 16 feet wide in which the cable will be buried across Pea Island will be restricted against future above-ground construction; otherwise there will be no impact on the present use of the island as a beach recreational area by the owner, the Huguenot Yacht Club. Davids Island, owned by Con Edison, has been offered for sale back to the City of New Rochelle, but the City declined. Future development potential will be little affected by the presence of the pumping and cooling facilities or the emplaced cable. There should be no impact whatsoever on land use along the rest of the route, once construction is completed.

4.03 Communities along the transmission line have land use regulatory powers-zoning and have the responsibility of controlling their own development. The decision as to use of land is predicated on many variables, electrical service being one of the least significant.

4.04 **Impact on Conservation of Natural Resources** The proposed project will affect productive wetlands near staging areas, as well as affecting the marine life and water quality in Long Island Sound near the proposed route. Proper ecological consideration and planning will minimize the short term impact and eliminate any possible long term effects.

4.05 Wetlands The only productive wetlands near the project route is the East Creek salt marsh at Sands Point. The staging area adjacent to the marsh will be on land previously filled and is expected to reestablish its present state quickly after completion of construction. It was judged after field studies of the specific area that provision for an adequate buffer, proper supervision, and controlled drainage and runoff will prevent damage to the marsh ecosystem. Upon completion of the project, no residual impacts on the marsh will remain and marsh productivity will continue as in the absence of the project. The actual cable route does not intersect the marsh.

4.06 Marine Life Marine life will be slightly impacted by dredging and blasting during the pipe installation. Dredging can affect aquatic organisms by increasing water turbidity or increasing sediment deposition in areas adjacent to dredge operations. However, studies conducted by the State of Florida in conjunction with dredging operation similar to that required for installation of submarine cables have indicated that increased turbidity in the vicinity of the dredging operation did not reduce the feeding activity of commercial mollusks or cause the physical debilitation of associated fishes.³

Dredging the proposed trench across the Sound will create minimal sedimentation and turbidity since the dredge will work along a line rather than at one location. There will be minimal impact along the whole dredge line, rather than major impact at any one dredge location. Any benthic organisms living in the material removed by dredging will be transferred with the spoils to the dumping area. However, due to the relatively narrow dredge routes, the number of these organisms removed will have little effect on the total benthic populations in this area of the sound. The area of Long Island Sound through which the proposed project will pass, is presently closed to shellfish harvesting. The proposed project will therefore, have no impact on any commercial or recreational uses of this natural resource.

4.07 An increase in the sedimentation in areas adjacent to dredge operations can reduce the amount of bottom living populations. However, this reduction is usually limited to a very small area bordering the dredging operation. There is also some evidence to support the

³Minutes of Public Hearings by New York State Public Service Commission, 3, July, 1 August, 3-5 October, 16-17 November, and 22-23 December, 1972. Case numbers 26273 and 26274. Page 761, PSC.

thesis that dredging stirs up organic detritus resulting in a beneficial effect to large mollusks and crustaceans. (Appendix G).

4.08 About 1600 feet of the underwater route, 600 of which is exposed rock habitat, has a rock substrate which will require blasting for excavation of the cable trench. The gelatine dynamite explosives that will be set off produce a sharp shock wave with an abrupt front of great pressure intensity. This type of shock wave is potentially injurious to fish having air bladders. For small charges such as the 30 pound charge to be used in the proposed operation, the impact range for fish with air bladders appears to be about 150 to 200 yards. Fish without air bladders usually are not injured unless they are very close to an explosion, i.e., within about 50 feet.

4.09 With regard to minimizing the effects of blasting on fish, the applicants have agreed with the concurrence of the PSC and the New York State Department of Environmental Conservation to the following stipulations:

An effort will be made to commence and complete blasting in the period November 1st through April 30th in any year.

Should blasting be necessary during any other months, appropriate fish detection devices will be used to detect any schools of fish which may be in the blasting area. In the event that any schools of fish will be present, no placing of the charges will take place until the schools of fish are out of the blasting area. Once live charges have been placed underwater, blasting operations will not be interrupted.

In no event will the commencement of blasting operations take place in the period August 1 to October 31 in any year.

4.10 Independent investigations by the Washington Department of Fisheries and the Oregon Fish Commission generally conclude that plankton collected from the immediate area of an explosion appear to be unharmed, but possibly somewhat less active than normal.⁴ Experiments conducted in several states to determine the effect of explosions on clams, crabs, oysters, and other invertebrate animals have indicated that, except in a comparatively small area immediately adjacent to an explosion, little harmful effect was observed either immediately or after various periods of time.

4.11 Blasting could have a long-range beneficial effect for certain types of organisms, because excavated rock will be left in place wherever possible. The surface area of rock shoal habitat will be increased by this means and should thereby increase the lobster, crab, and other invertebrate populations.

4.12 Water Quality The temporary increase in turbidity due to dredging will cause the mobile species such as fish, crustacean, etc., to leave an area that is temporarily unacceptable to their life needs. The species that are attached in the immediate area such as infauna, shellfish and filter feeders in general are either smothered or are poisoned and/or concentrate the pollutants in their bodies. The only other possible impact on water quality as a result of the project would be the accidental release of LVP to surrounding waters. Methods for the detection of LVP leaks depend on the size of the break. For a major rupture where the enclosed cables are broken, the break in power transmission would immediately inform the power company. Smaller leaks of greater than 5 gallons/minute are sensed by a pressure drop in the pipe and subsequent warning. For even smaller leaks detection is provided by lowering of levels of LVP in the storage tanks at either end of the lines.

4.13 Realistic mechanisms by which such a break and spill could occur are difficult to postulate. The nominal burial depth of five feet in Long Island Sound, plus the extra protection of armor stone in land-water transition zones, should protect the pipes from the

⁴Minutes of Public Hearings by New York State Public Service Commission, 31, July, 1 August, 3-5 October, 16-17 November, and 21-22 December, 1972. Case number 26273 and 26274. Page 763, Issacson, PSC.

hazards of current and wave scour as well as the abnormal hazards of a ship grounding or sinking over the route. The route will be marked on nautical charts to warn against future construction or ship anchoring in the immediate vicinity. It is conceivable, however, that a large ship could drag anchor some distance from its intended anchorage and thereby intersect the cable. Probability studies by the applicants indicate that such an event would occur no more than once in 1000 years. Similar submarine cables have been installed and operated by Con Edison across the Narrows, East, Harlem, and Hudson Rivers since as early as 1952 without incident. The Hudson River crossing in 1972 was 6,600 feet long, and is very similar to the proposed project. The subsurface material was similar in both cases and the techniques anticipated to be used are also similar. To date there have been no operating problems associated with any of these facilities.⁵

4.14 The Hempstead Harbor crossing will have a burial depth of ten feet, reaching 25 feet below mean low water at the existing channel. This will allow ample safety margin for future channel dredging to 15 feet below mean low water. It is even less likely that vessels passing Bar Beach with drafts limited to 20 feet or so at high tide would be able to penetrate with their anchors to the depth of the buried pipes.

4.15 Although the potential for LVP leakage is slight, studies have been made to determine the characteristics of LVP and the potential for environmental harm should a spill occur. Toxicity tests have indicated that LVP produces no serious discernable effects on ducks, rats, or dogs when the material is ingested (Appendices B,D). Tests of fish and shrimp (Appendix C) also indicate that LVP is relatively non toxic. No fish mortality (salt water mummichog) was found with up to 56 ml/liter of LVP in Long Island Sound water. For the brine shrimp, high survival percentages were observed even after 48 hours exposure to 32 ml/liter of LVP (Appendix C). The species of fish and brine shrimp used in the toxicity studies are pollution tolerant, however, and the effects of LVP on sensitive plankton, algae, and other fish species are not known. LVP is only slightly soluble in water, however, and would quickly be dispersed by wind, wave, and tidal action. It forms very thin lenses since it

⁵Minutes of Public Hearings by New York State Public Services Commission, 31 July, 1 August, 3-5 October, 16-17 November and 21-22 December, 1972. Case Numbers 26273 and 26274, Page 1133, King.

has a very low viscosity. The short residence time of the LVP in the aquatic system indicates that there would be no long term serious degradation. None of the residues associated with spills of other petroleum products would be found, as LVP is very similar to clean mineral oil. If a spill does occur and the oil moves into approved shellfish waters, it may be necessary to close the affected waters to shellfish harvesting, pending chemical and toxicity studies. Since LVP quickly rises to the surface, however, little effect on benthic organisms would be expected.

4.16 Ground Water Along the land portions of the route the line will pass near the Roslyn Water District's shallow well field at the southern end of Hempstead Harbor. Leakage of LVP in this area could possibly, with time, cause some contamination of the water supply from this well field. Due to the viscosity of LVP and the fact that it is relatively insoluble in water, the chances of any significant ground water contamination in these wells is very slight.

4.17 Impact on Spoil Disposal Site The Smithsonian Advisory Committee Report on the Effects of Waste Disposal in the New York Bight reports: (See also Appendix B & O)

- a) Diminution of benthic species in spoil disposal areas.
- b) High concentrations of heavy metals (copper, nickel, zinc, lead) in sediments of the dump sites.
- c) Higher carbon content in the sediments of the dump sites than in the adjacent sediments.
- d) High level of chloriform bacteria in the waters surrounding the dump site
- e) Some diseased crustaceans in the dump locations.
- f) The presence of toxic substances that may pose a potential hazard to finfish resources.
- g) Low dissolved oxygen values in the waters overlying the dump site.
- h) Petrochemical concentrations in the sediments of the dump site.

The sediments along the proposed crossing are not nearly as contaminated as the sediments presently in the Bight disposal area. The fact that the estimated spoil of the proposed project would constitute less than 2.5 percent of the yearly dumping, coupled with the relatively uncontaminated state of the spoil implies little adverse affect on the spoil disposal site.

4.18. Impact on Parks, Recreation and Open Space. The proposed pipeline will traverse only one public recreational area on land, the Town of North Hempstead Park at Bar Beach. The depth of burial of the pipeline is 5 feet on shore and 10 feet off shore. An 8 to 9 feet of cover under sand at the beach will be provided to make a smooth transition. Adverse impacts will be avoided at the staging area at the town parking lot at Bar Beach and the Hempstead Harbor crossing by limiting construction to the off-season between October and May. Additional precautions will be taken during construction period to avoid and minimize the effects during this period.

4.19 The route also passes near several parks in Queens: Alley Pond Park, Cunningham Park, and small Tilly Park, Construction noise may have some minimal, temporary impact on local recreational activities.

4.20 Marine traffic in Long Island Sound normally moves through the channel between Execution Rocks and Sands Point. During construction in this channel, which will be a portion of the nine month period estimated to be required for construction in the Sound, marine traffic may have to be rerouted to the channel between Execution Rocks and Pea Island. This will require a notice to mariners by the Coast Guard, the installation of buoys at two shallow points in the approach, and lighting one existing buoy.

4.21 In Hempstead Harbor where harbor traffic must pass through a narrow channel past Bar Beach, the channel may be blocked by dredging equipment for a period of several hours on occasion. If construction should block the channel, appropriate arrangements for handling harbor traffic will be made with the Coast Guard.

4.22 The attempt will be made to schedule dredging and pipelaying operations so as to minimize disrupting the extensive recreational boating in New Rochelle Harbor and Long Island Sound.

4.23 Impact on Cultural and Historic Sites and Landmarks As stated in Section 2.14 the Execution Rocks Light Station is the only National Registry site in proximity to the cable crossing. The project will result in the trenching through the south-west corner of the rocks. This will be a water based operation and the Light Station itself will not be affected in any way.

Concern regarding sites of archeological value was expressed by both the New York State Historic Officer and the New York Archeological Council (see Appendix M). The project activities may uncover some areas of archeological value. During construction, provisions should be made to advise the appropriate officials of any such encounters in order that any artifacts can be salvaged.

4.24 **Community Cohesion** Some negative impact will be experienced during construction operations through residential and commercial zones. During the construction work week, a single lane will be blocked for a distance of about 500 feet to allow a trench opening approximately 300 feet in length. Progress will be at the rate of 200 feet per day with at least one lane of a street always being open. The maximum width of street that will be closed will be ten feet, allowing for the trenching equipment and spoil pile. Work vehicles passing along the work site may cause additional momentary blockage on occasion. Access for public safety needs will be provided at all times.

4.25 Access to homes and businesses on streets under construction will be provided across the open trench by metal plates. No traffic detours are anticipated. Construction activity at any point along the land portion of the route is generally estimated at no more than a few days.

4.26 **Impact on Air Pollution** The operation of construction equipment in the area and the slowing of traffic at the construction site will cause an increase in emissions from engines. This addition of pollutants to the environment is considered insignificant. Existing sources of air pollutants are of such magnitude as to totally dominate the effect of any contribution due to the construction activities.

4.27 **Noise** One of the principle environmental effects of construction along the land portion will be the noise associated with ditching and pipelaying. Typical noise measurements of breaking concrete taken during previous pipe installations showed sound levels of a compressor at idle to be 66 decibels at 26 feet from the compressor, 61 decibels at 50 feet, and 57 decibels at 100 feet. For a rotary gun breaking concrete and with a compressor under load, noise measurements were 93 decibels at 25 feet, 91 decibels at 50 feet, and 82 decibels at 100 feet. However, noise levels of these magnitudes are limited to intermittent periods, which reduce the impact. See Appendix L for potential noise sensitive areas along the proposed route.

4.28 Noise suppression equipment has been stipulated for the entire route, and special arrangements will be made with local authorities for sensitive areas such as near hospitals and schools.

4.29 Precautions have been taken in the design to minimize any noise generated by cooling

facilities at Dunwoodie and Glenwood substations.

4.30 Aesthetics This project will have minimal negative aesthetic impact.

4.31 At Dunwoodie and Jamaica, additional equipment will be placed entirely within the present confines of the substations. The addition of these facilities, although slightly visible from the surrounding neighborhoods, does not constitute a new intrusion.

4.32 The pumping and cooling facilities on Davids Island will be relatively small in size with low silhouette, while the island itself is at a substantial visual distance from any shore point. A non-reflective coating will be utilized for additional camouflage. The cooling facility along Union Turnpike will likewise be relatively small and of low silhouette with appropriate planting and screening to be used.

4.33 The Glenwood Landing facility will be located in an industrial zone that is surrounded by a residential area. The installation of the substation will be largely hidden by existing structures and screening. The Lake Success substation will be in a commercial area with partial screening from existing trees. LILCO has indicated that there will be additional tree plantings in one particular area for improved screening.

4.34 The only other appurtenant structures that will remain visible after construction are manhole covers flush with street surfaces and, on Long Island, small test boxes mounted on existing utility pools - one box per 3000 feet.

4.35 There are several points along the proposed route where special care will have to be taken during construction to avoid damaging trees, especially in Sands Point and the tree-lined Boulevard in Pelham. These deciduous trees have extensive root systems. Both Con Edison and LILCO have installed many projects near trees and have indicated that large roots will be tunneled under wherever necessary and practical to help preserve the integrity of the root systems.

5. ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

5.01 Temporary Impacts The unavoidable adverse effects of construction along the land portion of the route will include traffic disruption associated with ditching and pipelaying, noise associated with rock removal and breaking concrete, and some aesthetic intrusion. These are all short term impact and mitigation will be afforded as necessary. This includes providing of traffic controls to aid in traffic movement, covering of excavations as rapidly as possible, using accepted noise mufflers on equipment. The utility company has made provision for plantings of trees and shrubbery to shield facilities where necessary.

5.02 Residents and spokesmen from the communities of Roslyn Estates, Sands Point, and the Town of North Hempstead voiced concern over possible damage to trees, inconvenience to local residents, and loss of access of fire and police protection during the overland construction. The applicants indicated that care would be taken to avoid disturbing trees and that inconveniences such as traffic disruption and noise would be kept to a minimum and safety services would not be hampered. The Town of North Hempstead was concerned with the possibility of LVP getting into the sanitary or storm sewer system if there is a rupture in the pipe. The applicant maintained that in the event of such a leakage, LVP would have no detrimental effect on these systems. The Town's spokesmen also questioned any electromagnetic effects that might be caused by any portion of the transmission line. They were informed that there would be no such effect.

5.03 Along the submarine portion of the proposed route, turbidity and some sedimentation will be generated during the dredging operation. The impact of this activity on the community of bottom living organisms will be very slight since the impact will be distributed more or less evenly over the Sound crossing, a distance of about 21,700 feet. Blasting of 600 feet of rock will remove these organisms on and immediately about that limited portion of the proposed trenching operation. Blasting will not permanently remove this area from recolonization after construction is finished. Some dredge material will be deposited at an approved disposal site.

5.04 Dredging will require some temporary rerouting of maritime traffic within Long Island Sound during the construction process.

5.05 Permanent Operational Impacts There are essentially no permanent adverse environmental effects of the proposed project. Two intervenors questioned the need for the proposed facility based on the projected load growth and internal distribution adequacy of Con Edison in East Queens. LILCO has indicated that the need for the facility is not predicated on load growth and Con Edison denoted in the PSC record that East Queens requires increased power supply which will be provided by this project.

5.06 The proposed action is designed to help meet the needs of the service area of Con Edison and LILCO for improved reliability of electrical energy supply. As such, the action will provide long-term social benefit at the cost of some local, short-term environmental impacts and inconvenience during construction.

5.07 The disposing of the marine spoil will have little adverse environmental effects. If, for example, the material were disposed of at the approved site in the New York Bight, the 129,000 cubic yards would represent only 2.3 percent of one year's average discharge of mud and dredgings in that area. Studies of the effects of waste disposal in the Bight have been made by the National Marine Fisheries Service and the State University of New York at Stony Brook.

5.08 Heat generated within the cable is removed by circulating LVP. Some of this heat is transmitted through the thermal backfill along the entire route. Along the underwater segments of the route this heat will be transmitted to the waters of the Sound. The amount of heat generated (30 watts/foot) by the cable, however, is very small, and will have essentially no impact on the Sound. Along the land portions of the route, a small amount of heat will be dissipated into the soil. Both Con Ed and LILCO have hundreds of miles of similar cable in operation and no problems have ever been associated with heat flow from the pipes themselves. At the cooling stations, heat from the LVP will be dissipated into the air. At the present time Con Ed is not sure whether these cooling stations will be necessary. None of the stations are currently in use, but if used they will release about 2-3 million BTU per hour into the air. The effects of this heat, however, are considered small. (A typical 100 ton office air conditioner is 1.2 million BTU/hour.) The cooling facilities meet New York City residential noise standards.

6. ALTERNATIVES TO THE PROPOSED ACTION

6.01 The objectives of the project are to:

- . Provide a transmission path to LILCO capable of carrying adequate emergency power to meet established loss-of-load probability limits;
- . Provide a portion of the additional transmission capability required to transport Con Edison 1975 generation capacity from Dunwoodie to the New York City load area;
- . Support local load in Eastern Queens; and
- . Support local load in the area of Lake Success.

6.02 There are several alternative means for meeting Con Edison's requirement for transmission reinforcement and LILCO's requirement for additional inter-tie capacity.

6.03 Additional generating capacity could be provided through the construction of generating plants above and beyond those now projected in order to maintain an adequate level of reliability. Approximately 700 MW of additional generating capacity would be required to produce the same reliability benefits as the proposed inter-tie. The estimated cost of this additional generating capacity would be in excess of \$75 million, with no accompanying benefits to Con Edison.

6.04 Additional gas turbine peaking units, besides being economically expensive, would have the negative environmental impact of using land, producing noise, contributing air pollutants, and being aesthetically intrusive beyond those effects intrinsic in generating facilities already existing or planned.

6.05 Transmission Line Alternatives One technical alternative would be to establish an overhead transmission line using the primary route. Despite the economic advantages, this alternative is aesthetically unacceptable.

6.06 A second technical alternative along the primary route across Long Island Sound would be to place a self-contained cable (such as Pirelli cable) instead of pipe-type cable. The installation costs of such a system would exceed the costs of the proposed plan, but reduce the number of splicing manholes on islands in the Sound and use less insulating fluid than the pipe-type cable of the primary proposal.

6.07 The self contained cable system is less reliable than a pipe-type cable, and requires either a special transition joint or an above ground terminal on each side of the Sound. The Pirelli system does not lend itself to future supplemental cooling which could increase its rating, whereas, when an increase in tie capacity is needed, the pipe-type installation (the primary proposal) is designed so that it is possible to increase its rating by the addition of force cooling equipment, by installation of a second cable circuit in the existing spare pipe, or both. To achieve the same result with the Pirelli system, additional cables would be required. This would mean another trench, and additional shore transitions.

6.08 Another technical alternative is the selection of different alternating current voltage level. A voltage other than 345 kV would be incompatible with the equipment used both in the existing and proposed bulk power transmission system in southern New York and New England. In addition, higher voltages for underground circuits, while desirable, are not sufficiently developed for use on this project.

6.09 The use of pressured gas insulating medium instead of dielectric fluid (LVP) is an alternate design that has been used previously on 138 kV systems. Its use in 345 kV systems is limited and unproven and is considered technically infeasible for submarine use.

6.10 Alternative Routes The applicants studied two major alternative routes for the Dunwoodie to Glenwood Landing inter-tie. One alternative route would run from Dunwoodie Substation, through the Bronx to Queens, and proceed to Glenwood Substation in Nassau County. Four alternative methods of crossing the water from the Bronx to Queens are included in this alternative route.

6.11 This route is substantially longer than the proposed route, necessitating obstruction of some 50,000 more feet of public streets during construction. The overall length of alternative routes are approximately 38,000 to 44,000 feet longer than the prime route, and, therefore, the cost would be increased by an estimated \$7 to \$10 million, depending upon the alternative chosen.

MW deficit between load demand and transmission system capacity is projected for 1977 without transmission reinforcement.

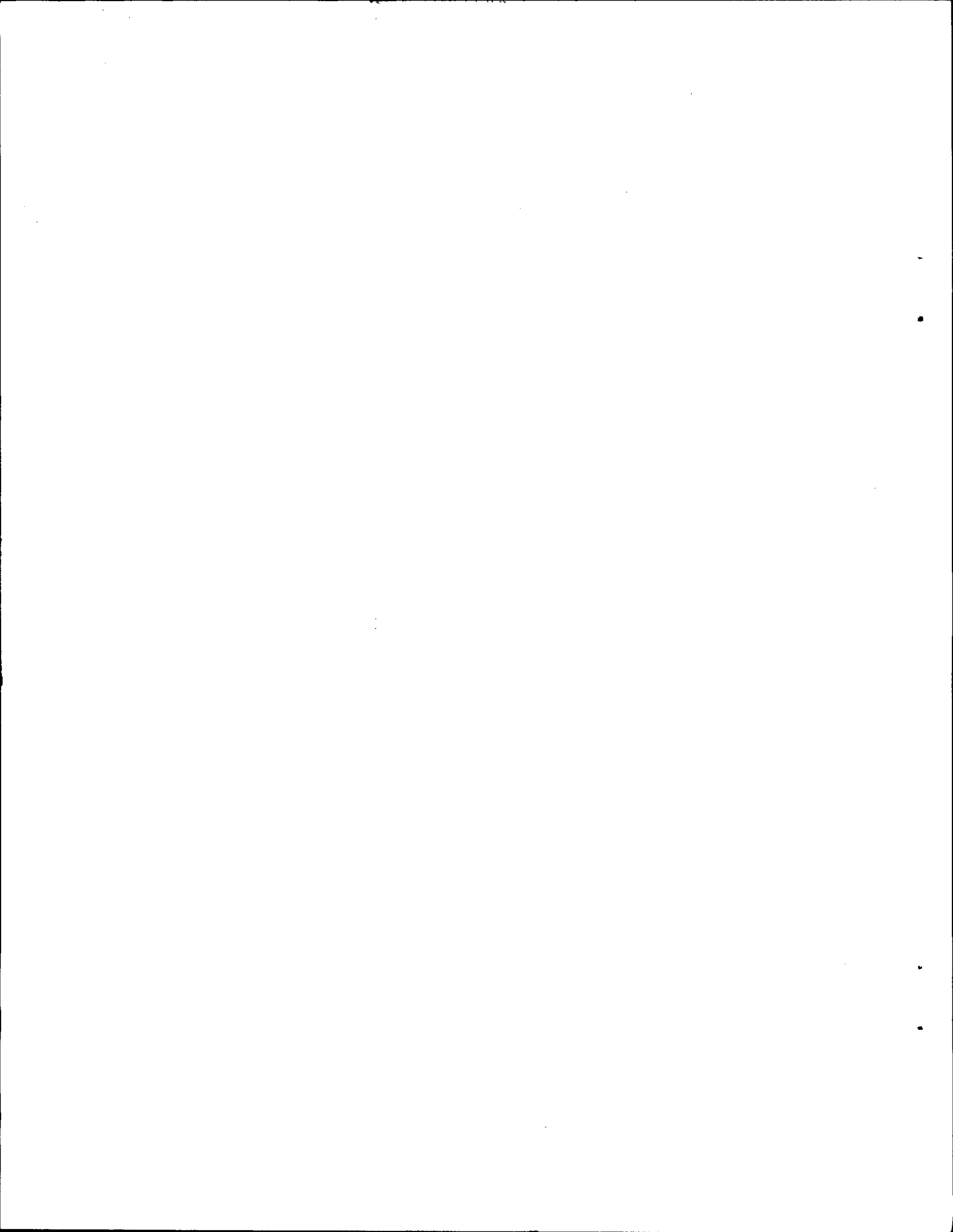
6.22 For LILCO, no action will result in loss-of-load probability in its system of six days in ten years by 1975, and 25 days in ten years by 1976. On July 31, 1970, the Northeast Power Coordinating Council adopted the following "Basic Criteria for Design and Operation of Interconnected Power Systems":

"Generating capacity will be installed and located in such a manner that after due allowance for required maintenance and expected forced outages, each area's generating supply will equal or exceed area load at least 99.9615 percent of the time. This is equivalent to a loss-of-load probability of one day in ten years.

6.23 Without the proposed project, LILCO might require new generating capacity to meet the Northeast Power Coordinating Council reliability standard. The proposed project will eliminate the need for additional generating capacity. Of the nine reliability councils, six councils representing 72 percent of the load and generation capacity in the United States use this standard, or a more severe one. Although the remaining councils do not have an established uniform criterion, many individual companies or pools within these councils likewise use one day in ten years or a more severe standard. This loss-of-load probability standard results from reasoned judgement after many years of operating experience throughout the country.

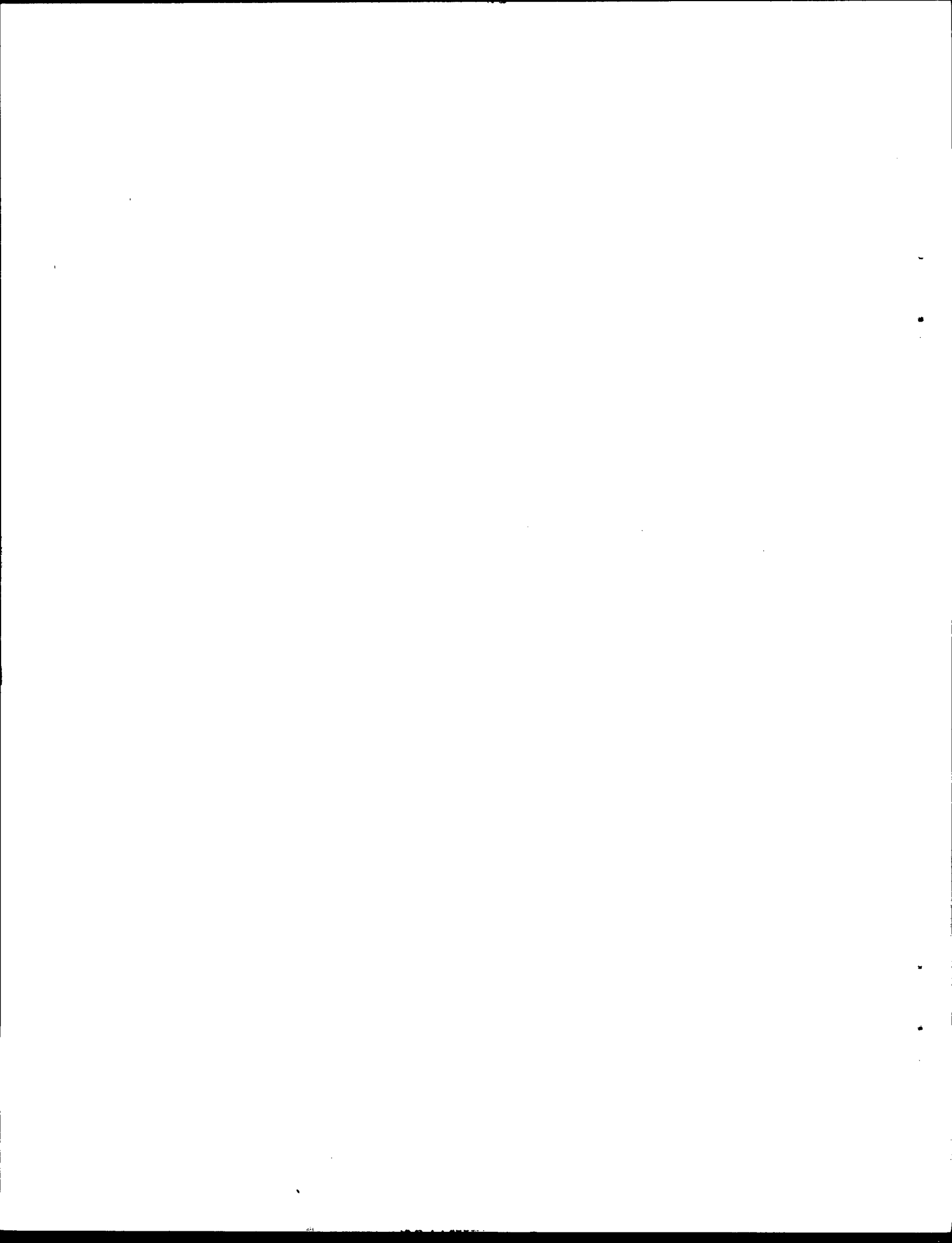
7. THE RELATIONSHIP BETWEEN SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

7.01 The proposed action will enhance the long-term reliability of electrical power supply to the Con Edison and LILCO service areas at the expense of some short-term disruption of the marine environment, and temporary inconvenience to residents along the route during construction. The enhancement in electrical power reliability is achieved with a reduced requirement for construction of new generating capacity, and thus at a lower investment in resources.



8. ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

8.01 Commitments of resources are the labor and funds, construction materials, facilities sites, land and marine spoils dumped offshore, and thermal backfill required to implement the project. Biota and habitat disturbances will be minor and temporary.



9. COORDINATION WITH OTHER AGENCIES

9.01 Plans for the construction and operation of the cable are being coordinated with various Federal, state and local Agencies (see Summary Sheet, paragraph 5) as well as any interested conservation groups. Copies of the Draft Impact Statement were furnished to these agencies and groups listed below for review and comments. Letters received are in Appendix A and comments have been incorporated into the Final Statement. The following pages (45-58) list specific comments and the Corps response to them.

COMMENTS REQUESTED

- (a) **Federal Agencies**
 - Advisory Council on Historic Preservation
 - Department of Agriculture
 - Soil Conservation Service
 - Department of Commerce
 - Department of Health, Education and Welfare
 - Department of Housing and Urban Development
 - Department of Interior
 - Department of Navy
 - Department of Transportation
 - Coast Guard
 - Federal Highway Administration
 - Environmental Protection Agency
 - Federal Energy Administration
 - Federal Power Commission

- (b) **Regional Agencies**
 - Interstate Sanitation Commission
 - Tri-State Regional Planning Commission

- (c) **State of New York**
 - Department of Environmental Conservation
 - Department of Parks and Recreation
 - Division for Historic Preservation
 - Planning and Development Clearinghouse
 - Public Service Commission

(d) **Local Agencies**

Nassau County Department of Health
Nassau County Environmental Management Council
Nassau County Planning Commission
Nassau/Suffolk Regional Planning Board
New York City Planning Commission
New York Environmental Protection Administration
Queens County Borough – President
Westchester County, County Executive
Westchester County, Department of Public Works
Westchester County, Department of Transportation
City of Mount Vernon
City of New Rochelle
Town of North Hempstead
Town of Oyster Bay
Village of Pelham
Town of Port Washington
Village of Port Washington North
Village of Sands Point
City of Yonkers

(e) **Groups and Organizations**

Hempstead Harbor Coalition
Save Our Bays Association
ACTION
County Estates Civic Association
Long Island Environmental Council
Long Island Sound Regional Study
National Audubon Society

9.02 In response to requests from the public as well as some local environmental groups, a public hearing was held on 3 September 1975 in Great Neck, N.Y. Approximately 50 people were in attendance. Public comment was limited to four individuals. A transcript of their comments as well as the entire proceedings is available for review at the District Office. Copies of the transcript can be obtained through the District Office for the cost of reproduction. The period for filing additional comments was 15 days (18 Sept. 1975). No additional comments were received.

(1) ADVISORY COUNCIL ON HISTORIC PRESERVATION

Comment: Evidence must be given that the most recent listing of the National Register of Historic Places has been reviewed.

Response: The listing of the National Register of Historic Places is published in the *Federal Register* on the first Tuesday of every month and additions, deletions and corrections. Section 2.14 lists the latest date of the *Federal Register* reviewed.

Comment: EIS needs a statement as to affected National Registry property.

Response: Section 2.14 indicates that the Lighthouse on Execution Rocks is now listed as National Registry property and the rocks themselves will undergo some minor effect due to the proposed project. The Lighthouse itself will not be altered in any way.

Comment: A statement should be made concerning potential enhancement or preservation of non-federally owned districts, sites, buildings, structures, or objects of historical, archaeological, architectural, or cultural significance.

Response: Other than those discussed in Section 4.23, the project is not anticipated to affect the concerns listed.

Comment: Contact should be made with the various State historical, cultural, and archaeological organizations.

Response: Appendix M details all correspondence on the subject.

(2) U.S. DEPARTMENT OF AGRICULTURE – SOIL CONSERVATION SERVICE

Comment: We have no comments to make in the area of SCS interest and expertise.

Response: No response required.

(3) U.S. DEPARTMENT OF COMMERCE

Comment: We must be advised of any activity that will disturb or destroy any Geodetic control survey monuments.

Response: Letters were sent to the New York Archaeological Society and New York State historic officer to request such information and the responses are incorporated into Sections 2.14 and 4.23. Appendix M details all correspondence on the subject.

Comment: The final statement should discuss those mitigation efforts on archeological values. A survey of the right-of-way should be performed to determine if any cultural resources would be specifically affected by the project.

Response: It is anticipated that the project will not impact any known archaeological sites. See revised Section 4.23 and Appendix M.

Comment: The final statement should include a schedule indicating that pipelaying operation in the marine sections will be conducted during the off season.

Response: See Appendix B, Sections 1.56 and 1.66.

Comment: More relevant geological information about the rocks in Long Island Sound is requested.

Response: Section 2.21 has been modified to include this information.

Comment: Information about ground water contamination by LVP leakage is requested, especially with respect to the Roslyn Water District's shallow well field.

Response: Section 4.16 now includes this discussion.

(6) DEPARTMENT OF THE NAVY – OFFICE OF THE OCEANOGRAPHER

Comment: An expanded discussion of dredge disposal sites is requested.

Response: Section 6.19 has been modified to clarify the discussion of dredge spoil disposal site alternatives.

(7) U.S. COAST GUARD

Comment: The alternate routes involve bridge structures, and if one of these routes is adopted, a permit may be necessary from the Coast Guard.

Response: If one of these alternate routes is chosen, a permit will be requested.

Comment: It should be stated that the Corps of Engineers will not allow any rock excavation by blasting to remain in place if it becomes a hazard to navigation.

Response: Section 1.25 has been modified to make this point clear.

Comment: Any significant changes in the bottom contour as a result of this project, and the cable location should be reported to the appropriate NOAA office for possible entry into the nautical charts.

Response: Any significant changes in the bottom contour and the location of the cable will be reported to the appropriate NOAA office.

(8) U.S. DEPARTMENT OF TRANSPORTATION – FEDERAL HIGHWAY ADMINISTRATION

Comment: The proposed cable routes will intersect several federal-aid highways. We recommend that coordination with the New York State Department of Transportation would be useful with regard to permit regulations.

Response: Corps jurisdiction extends only to those areas below the mean high water mark. This recommendation has been transferred to the applicant.

(9) ENVIRONMENTAL PROTECTION AGENCY

Comment: The extent of the effects of the proposed project on productive wetlands should be included in the final EIS.

Response: The East Creek salt marsh is the only productive wetland along the route, and will not be affected by the project. The staging area in this region will be on a section of the marsh that has already been filled, and no construction activity will take place on the marsh itself.

Comment: We recommend that the technique of lay barges be used for marine pipelaying in the areas near wetlands.

Response: The Corps of Engineers acknowledges this recommendation.

Comment: A possibility exists that a large vessel could drag anchor and intersect the line. We recommend that deeper pipe burial, perhaps 8–10 feet, be evaluated in the final statement.

Response: The Corps of Engineers has found that a burial depth of 5 feet is sufficient to protect the cables from damage by dragging anchors. Under Hempstead Harbor the depth will be greater to allow for anticipated future dredging.

Comment: With regard to LVP leakage, the feasibility of sectionalizing the insulation to minimize the amount of fluid lost by such an accident should be investigated.

Response: The fluid return pipe is check valved at each manhole so that in case of a leak, the sections can be isolated. In the cable pipe itself, check valves will be installed at each shoreline to isolate the land and water portions of the route in the event of a severe leak.

Comment: The EIS states that special arrangements will be made with the local authorities to protect sensitive areas such as hospitals and schools from noise impacts. The final statement should discuss these arrangements and identify the projects operation in relation to noise sensitive land uses.

Response: Noise suppression standards, maximum length of open trench, and the length of the working day are all governed by local rules. These arrangements are made with the local authorities to protect sensitive land use areas.

10) FEDERAL POWER COMMISSION

Comment: The addition of the proposed Con Ed-LILCO transmission facility will provide increased inter-system electric power and energy exchange capability, including firm and emergency power exchanges, lower reserve requirements, improved operating stability and reduced power losses.

Response: The Corps acknowledges this comment.

Comment: The Bureau of Power staff concludes that the planned functions of the subject transmission facility are of the nature of those normally provided by electric utilities to provide for protected load growth, and to maintain acceptable levels of adequacy and reliability of bulk power systems.

Response: The Corps acknowledges this comment.

(11) STATE OF NEW YORK – PUBLIC SERVICE COMMISSION

Comment: We recommend deletion of the Glenwood (turbines) facility from the list of future facilities. In addition, the Cornwall pumped storage facility project has been temporarily postponed.

Response: Paragraph 1.06 has been amended.

Comment: Three typographical errors were pointed out.

Response: The typographical errors have been corrected.

Comment: Section 2.31 – species of waterfowl should be corrected to agree with current accepted literature.

Response: Section 2.31 has been changed as suggested.

Comment: Typographical error, Section 2.32.

Response: Typographical error has been corrected.

Comment: Section 2.34 – this paragraph should reveal that the East Creek salt marsh is a northern salt marsh.

Response: An expanded discussion of the East Creek salt marsh has been included as Section 2.34.

Comment: Section 2.34. The last sentence is confusing.

Response: Section 2.34 has been rewritten.

Comment: Section 2.34 should be more explicit about the activity near the East Creek salt marsh.

Response: Section 2.34 has been rewritten.

Comment: Section 2.39 – typographical error.

Response: Typographical error has been corrected.

Comment: Suggested word change in Section 6.03.

Response: Sentence in question has been rewritten.

Comment: Suggested rewording of Section 6.20.

Response: Section 6.20 has been reworded.

Comment: Suggested word change in Section 6.23.

Response: Section 6.23 has been rewritten.

(12) NASSAU COUNTY DEPARTMENT OF HEALTH

Comment: Information should be provided on the experience with submarine pipe-type cables; and the similarities and dissimilarities between the instances cited and the project should be provided.

Response: Section 4.13 has been modified.

Comment: Information should be provided about experience with pipe-type cables on land as well as under water in view of the concern about groundwater contamination.

Response: To date there has been no experience with leakage of pipe-type cables on land and ground water contamination. Any leak that might occur would release coolant into the street and the storm sewer system, where dispersion and biodegradation would take place.

Comment: Pending our review of the information requested, we do object to the project.

Response: The Corps acknowledges the objection.

Comment: More information of the procedures for the control and monitoring for leaks is necessary.

Response: Section 4.12 has been modified to include this information.

Comment: Information should be provided on the availability of manpower, containment devices, and clean up equipment in the event of a spill.

Response: Dispersion of LVP in the aquatic system would be so rapid and complete that clean up procedures would not be required. LVP is water clear, thin and is classified as a volatile hydrocarbon which will biodegrade over a 30 day period.

Comment: The proposed methods of protecting and restoring the East Creek salt marsh area should be outlined. A map should also be included.

Response: The staging area in this region will be on a filled area of the marsh and will have little effect on the remaining viable marsh land. No work will be done in the marsh itself. Figure 3 is a detailed map of this area showing cable routing.

Comment: The organisms used for the LVP toxicity tests are known to be hardy.

Response: Section 4.15 has been revised to expand on the toxicity tests and the implications for the rest of the biological communities.

Comment: Our recommendations are as follows:

1. An alternative type of cable should be utilized or some additional methods should be employed to limit the quantity of oil that can be discharged.
2. The hydraulic method of dredging should be eliminated since it will cause additional turbidity and impact on benthic organisms.

Response: The Corps acknowledges these recommendations.

(13) CITY OF NEW YORK – ENVIRONMENTAL PROTECTION ADMINISTRATION

Comment: More specific information with regards to the adequacy of control measures during construction is requested.

Response: Specific control measures are worked out with local authorities depending on site conditions.

Comment: We would recommend that the applicant prepare detailed information on such matters as pipeline routing; specific methods to attenuate construction noise; enumeration of specific schools, hospitals, etc. to be impacted upon; and location of any new above ground operation facilities that will be constructed. Information should be made available outlining the time duration of construction activity, including any planned variations from normal construction hours.

Response: A map is included to show pipeline location, other information requested is contained in Appendix L. Construction hours and noise attenuation will be governed by local ordinances.

(14) MUNICIPAL SERVICE ADMINISTRATION

Comment: The Long Island Cable tie offers the best choice to enhance the reliability of the Con Edison and LILCO systems with the least economic and environmental burdens.

Response: The Corps acknowledges this comment.

(15) PRESIDENT – BOROUGH OF QUEENS

Comment: I must object to the proposed route because it will permanently damage the newly constructed roadways and will again subject motorists to traffic delays.

Response: Note that approximately 75% of the cable pipeline is already in place in the Borough of Queens – see Figure 6.

Comment: It is recommended that copies of the proposed project be sent to the New York City Department of Highways.

Response: This recommendation has been acted upon.

Comment: It is recommended that you coordinate your efforts with the Department of Highways to find an alternate route.

Response: Seventy-five percent of the land portion of the route through Queens is complete. See Figure 6.

(16) THE ECOLOGY GROUP

Comment: The EIS fails to establish LILCO's need for the connection.

Response: See Appendix B, Section 1.07 to 1.25.

Comment: The EIS fails to address the potential for thermal pollution by the underwater cable.

Response: Heat flows from the cable itself (30 watts/foot) is considered insignificant.

Comment: The EIS fails to address the methods used to detect leaks in the coolant system.

Response: Section 4.12 has been modified to include this information.

Comment: The EIS fails to address the potential problem of deterioration of the concrete and tar casing protecting the coolant carrier.

Response: The concrete is only used to protect the cable during installation. Once in place, the cable will be surrounded with thermal backfill, and deterioration of the tar casing is not expected to be a serious problem.

Comment: The EIS seems to be based on obsolete data.

Response: The final statement includes the latest data available as of May, 1975.

(17) ROSLYN ENVIRONMENTAL ASSOCIATION

Comment: Population figures are obsolete.

Response: 1975 populations projection figures are included in the final statement.

Comment: This report does not reflect an awareness of our current fuel situation.

Response: The project has both long and short term beneficial impacts. It will increase reliability **now** with the least amount of economic and environmental burdens. It will also provide room for expansion if needed in the future. The project is designed for more reliable distribution without the need for more generation facilities.

Comment: The report does not include present power capabilities and power demands of LILCO.

Response: The final statement includes this information.

Comment: LILCO presents a goal of not more than one day outage in ten years, but this goal does not reflect an awareness of local power outages which occur as a result of unreliable transmission lines.

Response: The purpose of the project is to increase reliability without new generating facilities.

Comment: Shifting of the Glenwood facility from a peaking plant to a full time generating facility would not be in the interest of fuel conservation or environmental preservation.

Response: The Glenwood plant is not scheduled to run continuously.

Comment: A realistic approach to our fuel economy and self-sufficiency goal would have grossly inefficient plants such as the one at Glenwood Landing phased out, not relied upon for greater demand.

Response: This project will not result in the increased use of the Glenwood Plant.

Comment: The cable pipe is to be protected by coal tar enamel and concrete areas left untarred are common occurrences when the tar is applied and the concrete is subject to cracks. Therefore, the steel pipe would be subject to corrosion.

Response: The coating process will be monitored to prevent any areas from being left uncovered. The concrete casing is designed only to protect the pipe during installation.

Comment: There is no safeguard detection device to warn of LVP leakage into the harbor (Hempstead).

Response: The coolant is within a closed system, that continuously monitors changes in pressure. The system has been designed such that in the event of a break fluid from the land portions will be isolated from fluid in the marine portions.

Comment: Concern is expressed with regard to blasting in Hempstead Harbor.

Response: No blasting will take place in that area.

Comment: Steps are being taken to upgrade the water quality in the southern part of Hempstead Harbor. It would be unfortunate if this healthy trend was negated by this highly questionable plan.

Response: The proposed cable will have no long term effect on Hempstead Harbor, once the construction phase is complete. The only possible post-construction effects would occur in the event of a leak of coolant, and this has been shown to be a short term impact.

Comment: A serious leak of LVP into Hempstead Harbor would be a profound and permanent disaster for this small body of water.

Response: The chances of a major spill in the harbor are minimal, but in the event of a spill there would not be permanent and profound damage to the area. Dispersion and biodegradation are rapid, so that although the short term impact might be significant, the long term effects are minimal.

Comment: Greater use of the Glenwood plant would mean increased thermal pollution.

Response: The Glenwood plant is not scheduled for increased use.

Comment: In reference to the thermal pollution, there will also be heat from the cable itself.

Response: The heat released from the cable is less than 30 watts per foot and is considered insignificant.

(18) ROSLYN HEIGHTS CIVIC ASSOCIATION

Comment: LILCO has not proved the need for this cable.

Response: See Appendix B, Section 1.08 to 1.25.

Comment: Will LILCO profit from selling power to Con Edison to the detriment of the public welfare?

Response: The proposed project is designed to increase reliability of electric service with the minimum of economic or environmental burden. Efficient distribution of electric power is the key to the overall fuel conservation.

Comment: Population figures are out of date and invalid.

Response: Section 1.07 has been modified to include the latest projection data.

Comment: Concern is expressed that the peaking plant at Glenwood Landing would be converted to a 24 hour per day facility, adding to the air and water pollution of the area.

Response: The Glenwood plant will remain only a peaking plant.

Comment: Concern is expressed with regard to LVP leakage into Hempstead Harbor.

Response: The coolant is within a closed system, that continuously monitors changes in pressure. The system has been designed such that in the event of a break fluid from the land portion will be isolated from fluid in the marine portions.

Comment: Concern is expressed that failure of a cooling plant will cause extreme thermal pollution due to the heating of the cable.

Response: At the present time the cooling facilities may not even be needed. Heat from the cable is a minimal problem.

(19) ROY W. MOGER*

Comment: Is there a need for such a cable? Times have changed and population growth has had a radical change.

Response: The proposed cable offers a method of enhancing the reliability for both the Con Ed and LILCO systems. In addition to helping meet any anticipated growth, the proposed project will have immediate beneficial effects to the current users of electric power. It is as important to present demands as it is to project load growth.

Comment: The need to do a deeper study as to the effects of the project on recreational potential of Hempstead Harbor.

Response: Project effects during construction will be minimized by scheduling in the off season. Long term effects on the recreational potential are minimal if present at all.

* List of names of other individuals with the same or similar comments on the Draft EIS.

Mr. & Mrs. K. Roseveau

Mr. & Mrs. F. Lyon

Ms. J. Chapman

Mrs. W. McKillop

Mrs. W. Console

Mr. L. Shaw

Mrs. M. Klein

Mrs. R. Miner

Mrs. J. Moffatt

Ms. M. Bobek

Ms. G. Eura

Ms. M. Hoyt

Mr. H. Buckley

Ms. F. Keyes

Ms. G. Mott

Ms. S. Sherman

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