REPORT
COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, NEW YORK

DISPOSAL DISTRICT NO. 8

BOWE, ALBERTSON & WALSH
Engineers
New York City - Melville, New York
1966

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BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY — MELVILLE, NEW YORK

SEWAGE AND WATER WORKS
INDUSTRIAL WASTES - REFUSE
DISPOSAL - MUNICIPAL PROJECTS

REPORTS - PLANS - SPECIFICATIONS
SUPERVISION OF CONSTRUCTION
AND OPERATION - VALUATIONS
FEASIBILITY STUDIES

September 20, 1966

PLEASE REPLY TO:
20 BROAD HOLLOW ROAD (ROUTE 110)
MELVILLE, NEW YORK 11746
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262-1
Suffolk County, New York

Honorable H. Lee Dennison
County Executive
County Center
Riverhead
Long Island, New York

Dear Sir:

We are transmitting herewith the first part of the second Interim Report in accordance with our Contract, designated WPC-CS-20, with the County of Suffolk and the New York State Department of Health under Article 12, Section 1263-a of the Public Health Law.

This submission encompasses Sewage Disposal District No. 8. The balance of the second Interim Report will encompass the remaining north shore disposal districts 4-5-6,7,9 and 10.

This submission on Disposal District No. 8 precedes the others as this area is under consideration for a possible referendum to construct sewage works in accord with a comprehensive plan for the area.

Again, we would like to express our appreciation to the Suffolk County Department of Health and Suffolk County Department of Planning as well as the Town of Brookhaven officials for their excellent cooperation during the course of our studies.

#6008463

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Hon. H. Lee Dennison

The contents of this report will be reviewed with the County Sewer Agency.

Respectfully submitted,

BOWE, ALBERTSON & WALSH

Charles T. Walsh P.E.
Charles T. Walsh
Partner

Louis P. DiMatteo P.E.
Louis P. DiMatteo
Project Engineer

CTW:CC

DISPOSAL DISTRICT NO. 8

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

TABLE OF CONTENTS (continued)

TABLE OF CONTENTS (continued)

TABLE OF CONTENTS (continued)

DISPOSAL DISTRICT NO. 8

LIST OF TABLES

LIST OF TABLES (continued)

LIST OF TABLES (continued)

DISPOSAL DISTRICT NO. 8

LIST OF PLATES

LIST OF PLATES (continued)

DISPOSAL DISTRICT NO. 8

ABSTRACT

Study Area

The scope of the comprehensive sewerage studies includes the five western towns of Suffolk County; namely Babylon, Islip, Huntington, Smithtown and Brookhaven, excluding certain areas on the eastern end of Brookhaven which by topography naturally drain away from the town, and includes certain areas of Riverhead and Southampton which drain to Brookhaven, all as shown on Plate 1.

The study area was divided into ten major drainage zones, each called a disposal district, as shown on Plate 2.

Each disposal district was studied independently, in combination with other disposal districts in whole or in part, to determine the most feasible comprehensive system for the area. Studies for Disposal Districts Nos. 1 and 2 have been completed and were the subject of the first interim report. This report presents data and conslusions of studies for Disposal District No. 8.

This abstract presents pertinent data in a concise manner to give the reader an encompassing view of the study.

Disposal District No. 8

Disposal District No. 8 is a drainage district on the north shore consisting of approximately 17 square miles or 10,844 Acres and includes the Port Jefferson - Stony Brook area and a small portion of Smithtown.

The only existing sewerage facility within the district is an inadequate primary treatment plant serving the Port Jefferson Sewer District, a business area of approximately 90 Acres. The plant also serves several adjacent facilities outside the Sewer District and Stony Brook University.

Stony Brook University is a major complex within Disposal District No. 8, encompassing 850 Acres, with a present student enrollment of approximately 4,000 and anticipated enrollment of 20,000 by 1985.

Presently, Stony Brook University has an agreement with the Town of Brookhaven for the Port Jefferson treatment plant to treat all of the University's wastes, with the University sharing the costs.

A new Veterans Hospital is to be constructed adjacent to the University with an anticipated 3,000 persons including patients and staff.

Comprehensive Plan

General

A comprehensive plan was developed for Disposal District No. 8, as shown on Plate 10. Costs were determined for a project encompassing the entire district and are presented in the text. Based on these costs, annual charges were determined and found to be excessive. The reasons for the excessive charges are the low population density and low valuation in the entire district. As a result, a first stage construction program was recommended, in accordance with the comprehensive plan, which can be expanded as the population and valuation increase in the area. The comprehensive plan is a guide for the development of the entire district.

Disposal District Facilities

Some pertinent data for the comprehensive plan of Disposal District No. 8 are as follows:

Area Served
10,844 acres

Population Served
(Inclusive of the existing Port Jefferson Sewer District, State University at Stony Brook and the Long Island Veterans Hospital.)

1960 - 8,600 persons
1964 - 15,530 persons
1968 - 23,400 persons
1980 - 47,050 persons
2015 - 69,100 persons

Full Valuation

(Inclusive of the existing Port Jefferson Sewer District.)

1960 - $ 55,000,000
1964 - 97,000,000
1968 - 136,000,000
1980 - 238,000,000
2015 - 388,000,000

Sewage Flow

Average Ultimate Flow - 8 million gallons daily.

Facilities Financed by Disposal District No. 8

a) Intercepting Sewers
b) Major Pumping Stations and Force Mains
c) Water Pollution Control Plant
d) Outfall Sewer
e) Recharge Facilities (Land acquisition only)

Intercepting Sewers

The disposal district was divided into drainage zones, as shown on Plate 3, and then further into sub-drainage zones, and data accumulated for each zone; such as area, population, types of zoning and land use, valuation, etc. Utilizing this data, a comprehensive sewerage system was developed. Basically, the intercepting sewer system is comprised of nine interceptors each serving a drainage zone or tributary area and two shore line interceptors collecting the flow from the tributary interceptors. The sewage is conveyed to a Water Pollution Control Plant located at the site of the existing treatment plant in the Incorporated Village of Port Jefferson. The interceptors are designed to serve all ultimate tributary flows in the entire disposal district.

Major Pumping Stations and Force Mains

Two major pumping stations and their associated force mains are proposed; one station to serve the Stony-Brook area and the other to serve the Port Jefferson-Belle Terre area. Both pumping stations are designed for their respective ultimate tributary flows with provisions for additional pump capacity to be added in the future.

Water Pollution Control Plant

The type of plant proposed is similar to that proposed for Disposal District No. 1 and will provide secondary treatment of the activated sludge type (about 90 to 95% purification.)

The site will be neatly landscaped and there will be no odors or unsightliness. The initial design capacity is 4 million gallons daily with space allowance and certain preliminary units designed for the ultimate average flow of 8 mgd.

Outfall Sewer

A study was made of Long Island Sound in the vicinity of the outfall sewer and is the subject of Appendix L, "Outfall Studies - North Shore Treatment Plants." Consideration was given to all pertinent factors, and conferences were held with all interested agencies. A 36-inch diameter outfall with a maximum ultimate capacity of 20 million gallons daily will discharge treated effluent one mile out into Long Island Sound through a 24-inch diameter diffuser. The length of outfall required is approximately 16,000 lineal feet; 6,000 lineal feet of a land section and 10,000 lineal feet of a subaqueous section. Effluent discharging in this area under the most adverse conditions, such as northerly winds, will create absolutely no problems and the quality of the recreational waters along the shore will remain well below the standards currently established for these areas.

Recharge Facilities

The first interim report discussed all factors pertinent to recharge of treated sewage effluent with the following conclusions:

a) Recharge of treated effluent is not required immediately to conserve water supply.
b) Other methods of preserving or augmenting water supply should be studied.
c) Recharge of 8 million gallons daily is recommended for Disposal District No. 1.
d) Research must be continued to evaluate the results of the Recharge Program initiated in Disposal District No. 1 before enlarging or extending the program to Disposal District No. 8.

Accordingly, the recommendation for Disposal District No. 8 is that sites for recharge basins, at least 20 acres in blocks of 5 acres each, be acquired at this time and reserved for use if and when recharge becomes necessary.

Collection District Facilities

A study was made to determine the cost of serving the entire Disposal District No. 8 with lateral sewers (street sewers) which flow to the disposal facilities.

Cost and Charges to Serve Entire Disposal District No. 8

The total cost to serve the entire Disposal District No. 8 is as follows:

Disposal Facilities (Plant, Interceptors, Outfall)	$ 16,158,000
Collection Facilities (lateral sewers)	$ 37,952,000
Total Project Cost	$ 54,110,000

At the present time 60% construction grants are available for disposal facilities. Assuming these grants were obtained, and also assuming that the State University at Stony Brook pay for its proportionate share of capital cost and operation and maintenance costs, the net cost to a residence with a full valuation of $15,000 would vary from approximately $55.00 in 1968 to $209.00 in 1977.

This project was considered not feasible as the charges are excessive and that all the areas within the district are not in immediate need of sewers.

Recommended Plan

Therefore, the recommended plan for construction as shown on Plate 20, includes disposal facilities in accord with the comprehensive plan including a new water pollution control plant, a pumping station and an outfall sewer to the Long Island Sound. These disposal facilities will serve the existing Port Jefferson Sewer District including those facilities outside the district which are presently connected, and the Stony Brook University.

These facilities will be able to accomodate the ultimate flow from the entire district when the population in the other areas warrant construction of lateral sewers.

Project Cost - Recommended Construction

The total cost for the disposal facilities recommended to be constructed initially is as follows:

		1968 Cost - ENR 1100
Water Pollution Control Plant (4 mgd)		$ 3,000,000
Pumping Station and Force Main 8-2 (Port Jefferson)		292,000
Outfall Sewer		1,540,000
Total Construction Cost		$ 4,832,000
Development Expense (20%)		966,000
Engineering Design		
Supervision		
Legal Consultant		
Financial Consultant		
Bond Counsel		
Administration		
Interest During Construction		
Contingencies (10%)		483,000
[1]Eligible Project Cost		$ 6,281,000
[2]Lands, Easements and Rights-of-Way		550,000
Water Pollution Control Plant	$ 250,000	
Outfall Sewer	100,000	
Recharge Sites	200,000	
[3]Net Worth, Existing Plant and System		0
Present Bond Issue		336,000
Total Project Cost		$ 7,167,000

[1]Eligible for Federal and State construction grants.
[2]Subject to review by real estate appraiser.
[3]Existing District facilities assumed awarded to County at no cost.

Assuming a 60% Federal and State Grant for Disposal Facilities and the State University sharing its proportionate cost the total net cost to be financed by the District is $2,218,000.

Annual Operation and Maintenance

The total annual operation and maintenance will be approximately $150,000 and the net annual operation and maintenance costs to the residents of the district is $105,000.

Summary - Annual Costs

	Total	Proportion by University	Net to District
Debt Service	$196,500	$ 68,200	$128,300
Operation and Maintenance	$150,000	$ 45,000	$105,000
Annual Costs	$346,500	$ 113,200	$233,300

Net Annual Charges to Residents Within Disposal District No. 8

	1968
Net Project Cost Financed by District	$ 2,218,000
Debt Service (30 year @ 4%)	128,300
Operation and Maintenance	105,000
Total Annual Cost	$ 233,300
Full Valuation District 8	$136,000,000
Cost per $1,000 of Full Valuation	$1.72

Annual Charge to Residence With Full Valuation of $15,000

The annual charge to residence within Disposal District No. 8 with a full valuation of $15,000 would be $15,000 x $1.72/1,000 or $25.80.

If no further facilities were constructed the charges would reduce gradually to $11.25 by the end of the bond issue period in 1997.

Annual Charges to Residents Within the Existing Port Jefferson Sewer District

The collection areas served by the initial construction facilities include the Stony Brook University and the Port Jefferson Sewer District.

The charge to residents within the Port Jefferson Sewer District would be $1.72/$1,000 of full valuation, plus a small charge for the operation and maintenance of the lateral system. Assuming an annual operation and maintenance cost of $5,000 for the collection system, the annual charge would be $1.00 per $1,000 of Full Valuation based on an estimated Full Valuation of $5,000,000 for the existing District. The total charges then would be as follows for a residence with a full valuation of $15,000.

Charges to Residence in Port Jefferson Sewer District
With Full Valuation of $15,000

Disposal District Charge	1.72/1,000 x 15,000 =	$25.80
Collection District Charge	1.00/1,000 x 15,000 =	15.00
		$40.80

Future Collection Districts

The above charges are based on an initial construction program of Disposal Facilities only. The charges would be to all assessed properties within the District, including those within the existing Port Jefferson Sewer District

The disposal facilities would serve the existing Port Jefferson Sewer District and the Stony Brook University; therefore, there is no collection facility or collection District charge except for a slight additional charge to the residents within the existing Port Jefferson Sewer District to maintain the existing lateral sewers as previously discussed.

As the surrounding areas develop, other collection districts may be formed which may be feasible. Individual studies will be required for each area to determine the feasibility. If an area is feasible, then the Interceptors would be extended to serve the area. A feasibility study would take the cost of Interceptors into account as well as the cost of lateral sewers.

SECTION 1

DISPOSAL DISTRICT NO. 8

GENERAL INFORMATION

General

In a previously submitted report for Disposal District No. 1, the first of a series of interim reports for the entire study area encompassing the five western towns, Babylon, Islip, Huntington, Smithtown and Brookhaven, a general introduction was presented. This first report provided general information and is herein referred to for the following data:

(a) Description of Suffolk County

(b) Suffolk County History

(c) Suffolk County Transportation Facilities

(d) Climatic Characteristics of Suffolk County

(e) Economy of Suffolk County

(f) Water Supply

(g) General Data Pertaining to the Over-all Study Area

(h) Mapping

(i) Hydrology and Geology of Study Area

(j) Need for Sanitary Sewerage System

(k) Existing Sanitary Sewerage Systems and Disposal Facilities - Study Area

(l) Existing Industrial Waste Facilities

Separate appendices to the first report covered Existing Sanitary Sewerage Systems and Disposal Facilities, Industrial Waste Survey, Soil Investigations and Geology and Recharge Studies for the entire Study Area which encompasses Disposal District No. 8.

Disposal District No. 8

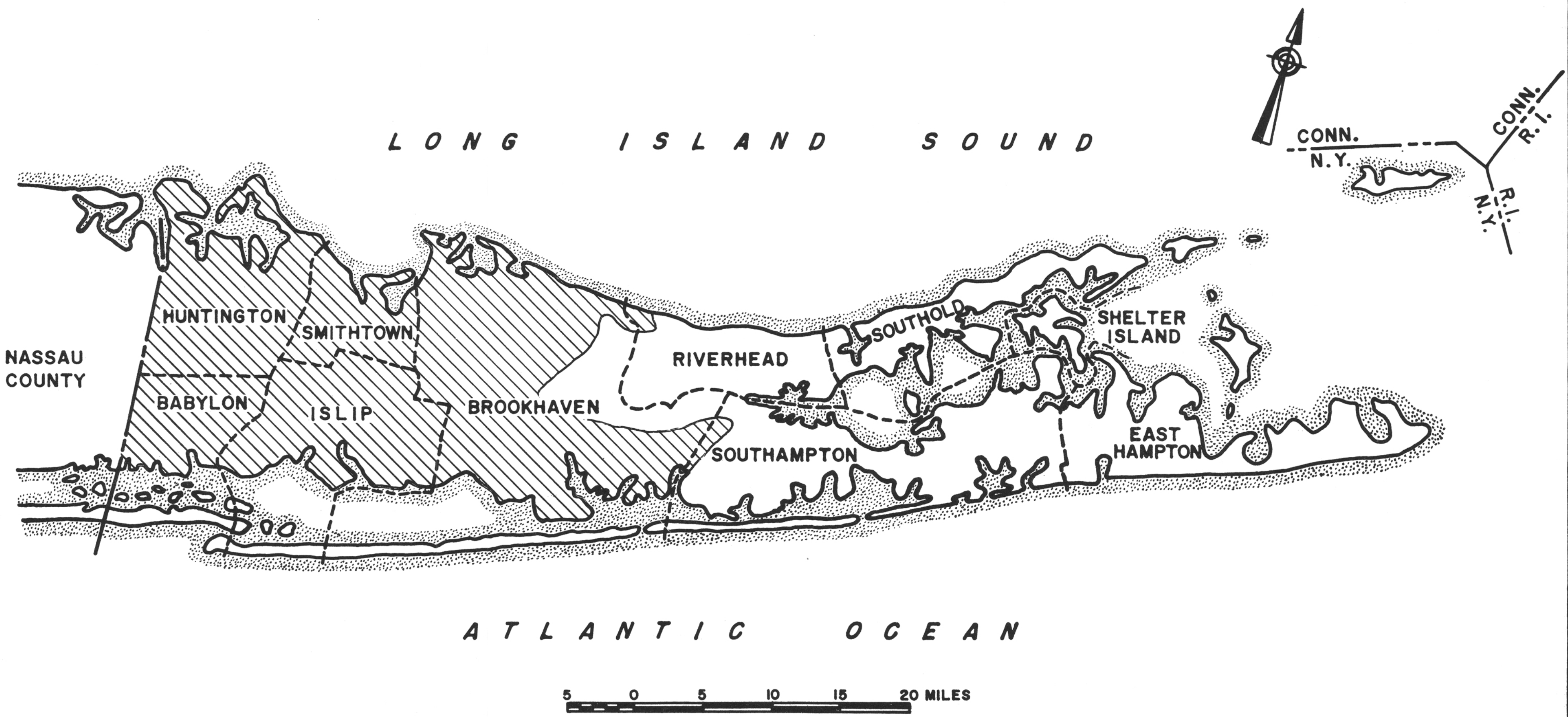
As discussed in the report for Disposal District No. 1, the study area encompasses all or parts of the five western towns of Suffolk County, namely Babylon, Islip, Huntington, Smithtown and Brookhaven as shown on Plate 1.

The study area was divided into ten major drainage zones or Disposal Districts. These districts were derived from the ground topography and contours which formed natural drainage districts and were used for the basis of detailed studies in each district. A map showing the ten Disposal Districts is presented on Plate 2. - Study Area - Disposal Districts.

Disposal District No. 8, shown on Plate 3, includes approximately 10,844 Acres or 17 Square Miles in the Northwestern corner of Brookhaven and includes a small portion of Smithtown. The area includes the Port Jefferson - Stony Brook area.

The westerly boundary borders on the easterly line of Disposal District No. 7 approximately southerly from Stony Brook Harbor. The southerly boundary is the geological ridge line extending in an east - west direction approximately mid-way between the Port Jefferson branch (north shore line) of the Long Island Railroad and the Nesconsett-Port Jefferson Road. The easterly boundary is a ridge line separating Disposal District No. 8 from District No. 9.

As shown on Plate 3, the District is comprised of many lesser drainage zones which were divided into subdrainage zones for detailed studies of population and flows.



COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.

SUFFOLK COUNTY
STUDY AREA

BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY-MELVILLE, N.Y.

PLATE I

COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.

STUDY AREA
DISPOSAL DISTRICTS

BOWE, ALBERTSON & WALSH
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NEW YORK CITY-MELVILLE, N.Y.

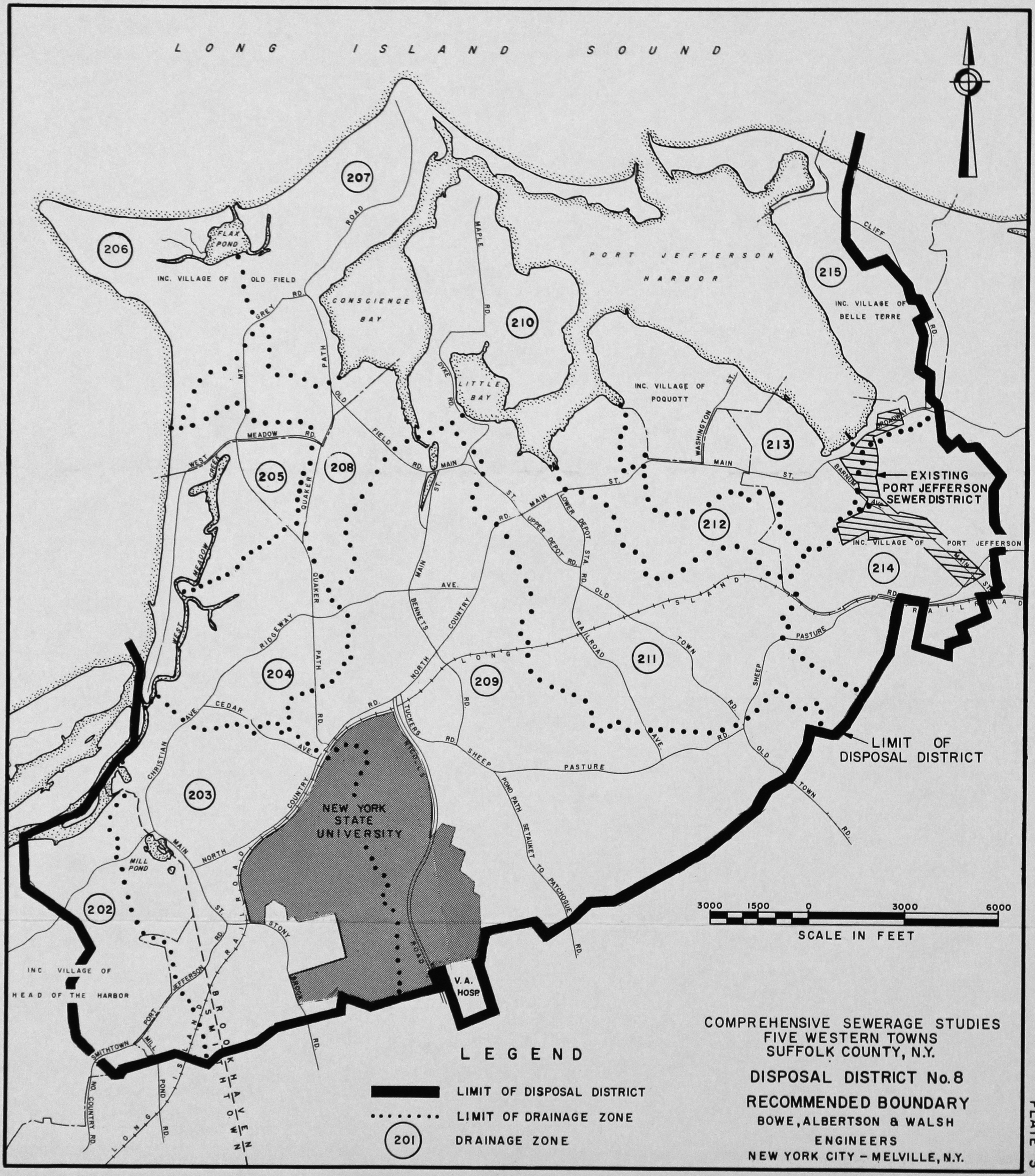
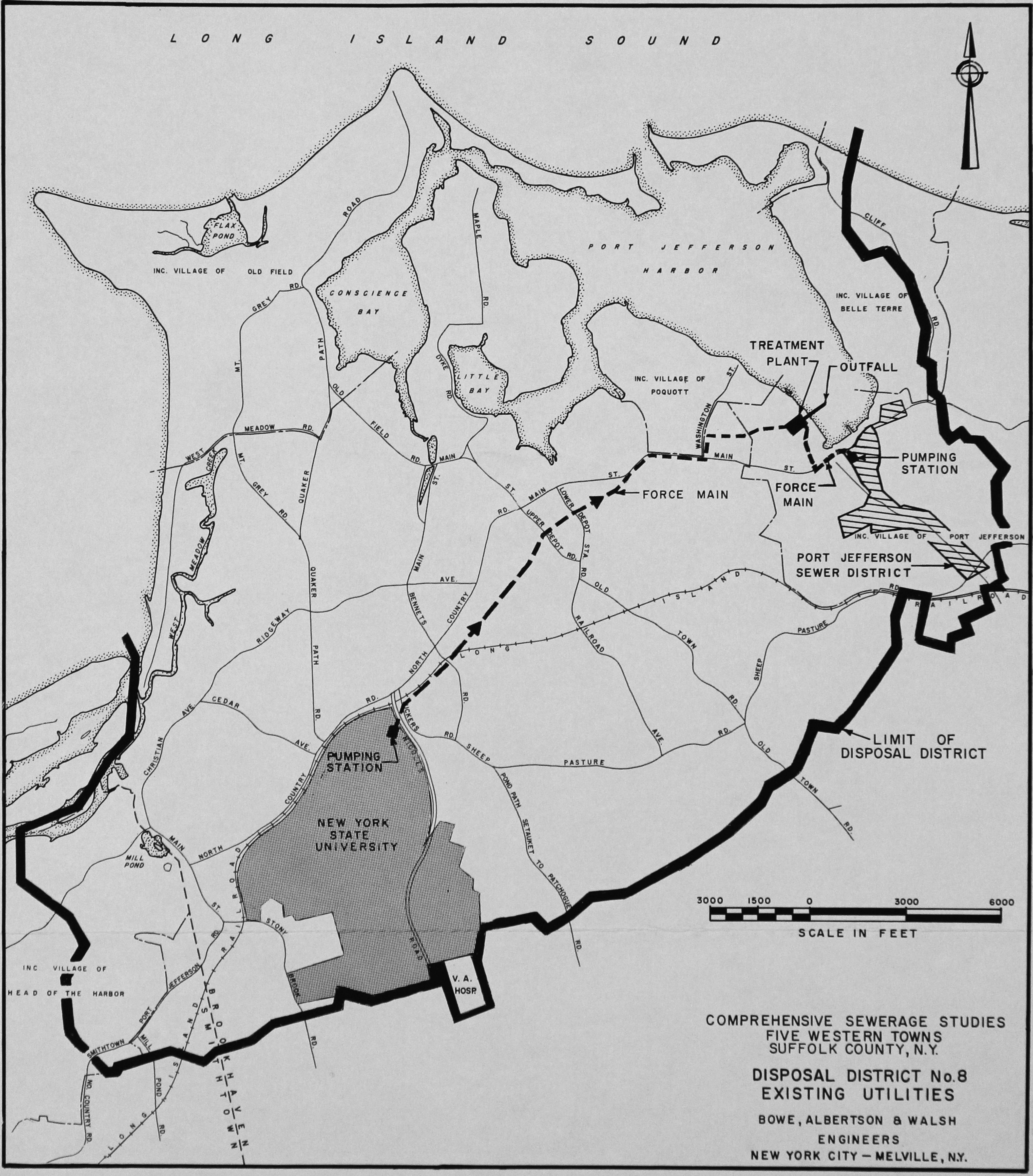

LONG ISLAND SOUND
PORT JEFFERSON HARBOR
CONSCIENCE BAY
LITTLE BAY
FLAX POND
MILL POND
INC. VILLAGE OF OLD FIELD
INC. VILLAGE OF BELLE TERRE
INC. VILLAGE OF POQUOTT
INC. VILLAGE OF PORT JEFFERSON
INC. VILLAGE OF HEAD OF THE HARBOR
EXISTING PORT JEFFERSON SEWER DISTRICT
LIMIT OF DISPOSAL DISTRICT
NEW YORK STATE UNIVERSITY
V.A. HOSP.
202
203
204
205
206
207
208
209
210
211
212
213
214
215
OLD FIELD RD.
MT. GREY RD.
QUAKER PATH
MEADOW RD.
WEST MEADOW CREEK
MAPLE RD.
DYKE RD.
MAIN ST.
UPPER DEPOT RD.
LOWER DEPOT RD.
STA. RD.
WASHINGTON ST.
BARNUM AVE.
CLIFF RD.
RIDGEWAY AVE.
CEDAR AVE.
CHRISTIAN AVE.
NORTH COUNTRY RD.
BENNETS RD.
TUCKERS RD.
SHEEP PASTURE RD.
POND PATH SETAUKET TO PATCHOGUE RD.
OLD TOWN RD.
STONY BROOK RD.
LONG ISLAND RAILROAD
SMITHTOWN
BROOKHAVEN
SCALE IN FEET
3000 1500 0 3000 6000
LEGEND
LIMIT OF DISPOSAL DISTRICT
LIMIT OF DRAINAGE ZONE
201 DRAINAGE ZONE
COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.
DISPOSAL DISTRICT No. 8
RECOMMENDED BOUNDARY
BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY – MELVILLE, N.Y.

PLATE 3



COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.

DISPOSAL DISTRICT No. 8
EXISTING UTILITIES

BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY – MELVILLE, N.Y.

PLATE 4

Disposal District No. 8 - Recommended Boundaries

The District includes all or parts of the villages of Port Jefferson, Belle Terre, Poquot, Old Field and their enbirons including Stony Brook, Setauket and East Setauket.

The recommended boundaries of Disposal District No. 8 are based on general topographic and economic considerations.

The boundaries of Disposal District No. 8 are shown on Plate 3 and a detailed description follows:

Beginning at the intersection of the Smithtown-Brookhaven boundary line and the mouth of Porpoise Channel and continuing southwesterly along said boundary line to the boundary line of the Incorporated Villages of Nissequogue and Head of the Harbor; from thence southwesterly along said boundary line to a point 2,620 feet north and 960 feet west of the intersection of Bacon Road and Stony Brook Road; from thence southerly to a point 960 feet north and 960 feet west of the intersection of Bacon Road and Stony Brook Road; from thence southeasterly to a point on Stony 230 feet northeast of the intersection of Bacon Road and Stony Brook Road; from thence southeasterly to a point 180 feet north and 270 feet east of the intersection of Bacon Road and Saneck Road; from thence northeasterly to a point 610 feet north and 100 feet east of the intersection of Saneck Road and Victoria Court; from thence southeasterly to a point 240 feet north and 410 feet east of the intersection of Saneck Road and Victoria Court; from thence southerly to a point 130 feet south and 220 feet east of the intersection of Saneck Road and Nadia Court; from thence southwesterly to a point 890 feet south and 510 feet east of the intersection of Bacon Road and Saneck Road; from thence southerly, parallel to Bacon Road, to a point 120 feet south and 380 feet east of the intersection of Bacon Road and Hitherbrook Road; from thence southeasterly, crossing Smithtown-Port Jefferson Road (New York State Routh 25A), to a point on the Incorporated

Village of Head of the Harbor boundary line 1,070 feet south and 770 feet west of the intersection of Smithtown-Port Jefferson Road and Mill Pond Road; from thence northeasterly along said boundary line to a point on Mill Pond Road 70 feet southeast of the intersection of Mill Pond Road and Parkside Avenue; from thence southeasterly along Mill Pond Road 190 feet to a point; from thence northeasterly to a point 330 feet south and 280 feet west of the intersection of Parkside Avenue and the Long Island Railroad; from thence southeasterly, crossing the Long Island Railroad, to a point 700 feet south and 680 feet east of the intersection of Parkside Avenue and the Long Island Railroad; from thence northeasterly to a point 50 feet south and 1,270 feet east of the intersection of Parkside Avenue and the Long Island Railroad; from thence northeasterly to a point 190 feet north and 2,000 feet east of the intersection of Parkside Avenue and the Long Island Railroad; from thence northeasterly to a point 2,070 feet south and 240 feet west of the intersection of Stony Brook Road and Mills Road; from thence northeasterly, crossing Stony Brook Road, to a point 1,530 feet south and 330 feet east of the intersection of Catalpa Lane and Mills Road; from thence easterly to a point 1,530 feet south and 660 feet east of the intersection of Catalpa Lane and Mills Road; from thence northerly to a point on the southerly boundary line of New York State University; from thence generally northeasterly along the southerly boundary line of the State University to a point on the westerly boundary of the Long Island Veterans Hospital; from thence southerly, easterly and northerly along the boundaries of the Long Island Veterans Hospital to a point on the southerly boundary of the State University; from thence easterly and northerly along the southerly and easterly boundary line of New York State University, to a point on the easterly boundary line 760 feet north and 2,200 feet west of the intersection of Setauket to Patchogue Road and Hills Lane; from thence northeasterly to a point 980 feet north and 1,160 feet west of the intersection of Setauket to Patchogue Road and Hills Lane; from thence southeasterly to a point 590 feet north and 880 feet west of the intersection of Setauket to Patchogue Road and Hills Lane; from thence northeasterly to a point on Setauket to Patchogue Road 1,000 feet northwest of the intersection of Setauket to Patchogue Road and Hills Lane, from thence northeasterly to a point 1,670 feet north and 520 feet east of the intersection of Setauket to Patchogue Road and Hills Lane; from thence northeasterly to a point 1,810 feet north and 1,620 feet east of the intersection of Setauket to Patchogue Road and Hills Lane; from thence northeasterly to a point on the Long Island Lighting Company right-of-way 3,240 feet south of the intersection of the Long Island Lighting Company right-of-way and Sheep Pasture Road; from thence northeasterly to a point on Old Town Road 2,100 feet southeast of the intersection of Old Town Road and Sheep Pasture Road; from thence northeasterly to a point 100 feet south and 2,090 feet east of the intersection of Old Town Road and Sheep Pasture Road; from thence southeasterly to a point 200 feet south and 2,880 feet east of the intersection of Old Town Road and Sheep Pasture Road; from thence northeasterly to a point 1,120 feet north and 1,170 feet west of the intersection of Jeanne Avenue and Sharon Street; from thence northeasterly to a point 1,350 feet south and 1,680 feet east of the intersection of Sheep Pasture Road and Dark Hollow Road; from thence northeasterly to a point 190 feet south and 1,870 feet east of the intersection of Sheep Pasture Road and Dark Hollow Road; from thence northerly to a point on the southerly right-of-way of the Long Island Railroad 550 feet east of the intersection of the Long Island Railroad and Sheep Pasture Road; from thence easterly along the southerly right-of-way of the Long Island Railroad 1,220 feet to a point; from thence southerly to a point 160 feet wouth and 140 feet west of the end of Piedmont Drive; from thence southeasterly, parallel to Piedmont Drive, to a point 360 feet south and 630 feet west of the intersection of Piedmont Drive and Clifton Place; from thence northeasterly, crossing Piedmont Drive, to a point 40 feet north and 480 feet west of the intersection of Piedmont Drive and Clifton Place; from thence northeasterly, parallel to Piedmont Drive, to a point 140 feet north and 250 feet west of the intersection of Piedmont Drive and Clifton Place; from thence northwesterly, parallel to Clifton Place, to a point 60 feet north and 230 feet west of the intersection of Clifton Place and Dayton Avenue; from thence northeasterly along Clifton Place to a point on Clifton Place 250 feet southwest of the intersection of Clifton Place and Patchogue-Port Jefferson Road; from thence northwesterly, crossing the Long Island Railroad, to a point on the northerly right-of-way of the Long Island Railroad 230 feet southwest of the intersection of the Long Island Railroad and Main Street; from thence northeasterly along the northerly right-of-way of the Long Island Railroad, crossing Main Street, to a point 170 feet northeast of the intersection of the Long Island Railroad and Main Street from thence northwesterly, parallel to Main Street and crossing Oakland Avenue, to a point 190 feet north and 50 feet east of the intersection of Oakland Avenue and Main Street; from thence northeasterly, parallel to Chestnut Street, to a point 70 feet south and 170 feet east of the intersection of Chestnut Street and Walnut Street; from thence northwesterly crossing Chestnut Street, to a point 120 feet north and 160 feet west of the intersection of Chestnut Street and Oakland Avenue; from thence northeasterly, crossing Oakland Avenue, to a point 280 feet north and 60 feet east of the intersection of Chestnut Street and Oakland Ave.; from thence northwesterly, parallel to Oakland Avenue, to a point on North Country Road 180 feet northeast of the intersection of North Country Road and Oakland Avenue; from thence northeasterly along North Country Road 520 feet to a point; from thence northwesterly to a point 940 feet north and 290 feet east of the intersection of Stony Hill Road and Belle Terre Road; from thence northerly to a point 1,910 feet north and 290 feet east of the intersection of Stony Hill Road and Belle Terre Road; from thence northeasterly to a point on Scraggy Hill Road 220 feet northwest of the end of Scraggy Hill Road; from thence northwesterly along Scraggy Hill Road and southwesterly along Myrtle Avenue to a point on Myrtle Avenue 380 feet northeast of the intersection of Myrtle Avenue and Belle Terre Road; from thence northwesterly to a point 450 feet north and 120 feet east of the intersection of Myrtle Avenue and Belle Terre Road; from thence southwesterly, parallel to Myrtle Avenue, to a point 260 feet north and 90 feet west of the intersection of Myrtle Avenue and Belle Terre Road; from thence northwesterly, parallel to Belle Terre Road, to a point on Thompson Street 150 feet east of the intersection of Thompson Street and Belle Terre Road; from thence northwesterly, crossing East Broadway, to a point on Burke Road, 380 feet north of the intersection of Burke Road and East Broadway; from thence northwesterly to a point 330 feet north and 210 feet east of the intersection of East Broadway and Cliff Road; from thence northerly, aprallel to Cliff Road and crossing Harbor Hills Drive, to a point 150 feet north and 200 feet east of the intersection of Harbor Hills Drive and Cliff Road; from thence northwesterly, crossing Cliff Road, to a point 260 feet north and 150 feet west of the intersection of Harbor Hills Drive and Cliff Road; from thence northerly and northwesterly, parallel to Cliff Road, crossing Saints Orchard Road, Lower Devon Road, Upper Devon Road, and Beach Path, to a point on Club Road 170 feet southwest of the intersection of Club Road and Cliff Road; from thence northwesterly to a point 490 feet north and 400 feet east of the intersection of David Hill Road and Alta Vista Road; from thence southwesterly, crossing David Hill Road, to a point 290 feet north and 160 feet west of the intersection of David Hill Road and Alta Vista Road; from thence northwesterly, crossing Camp Woodbine Road, to a point 190 feet north and 80 feet east of the intersection of Camp Woodbine Road and Arbutus Road; from thence northerly, crossing Cliff Road, to a point 230 feet south and 510 feet east of the intersection of Cliff Road and Anchorage Road; from thence northeasterly to a point on the shore line of Long Island Sound 800 feet north and 870 feet east of the intersection of Cliff Road and Anchorage Road; from thence westerly and southerly along the shore line of Long Island Sound and Smithtown Bay to the intersection of the Smithtown-Brookhaven boundary line and the mouth of Porpaise Channel, the point of beginning.

The direction and distances in the aforementioned description of the district are approximate. Excluded from the district are all state properties and other areas that may be legally omitted.

SECTION 2

DISPOSAL DISTRICT NO. 8

EXISTING SEWAGE DISPOSAL FACILITIES

Cesspools and Septic Tanks

Most of the area encompassed by Disposal District No. 8 is presently being served by cesspools and septic tanks. To obtain an approximate cost of the operation, replacement and maintenance of these systems, a study was made by this office in conjunction with the Suffolk County Department of Health for the area encompassed by Disposal District No. 1; the results and data of which are presented in Appendix F to the report on Disposal District No. 1. These costs are generally applicable to District No. 8.

Collection and Treatment Facilities

Within the limits of Disposal District No. 8, there is only one municipal collection and treatment facility serving a small area; approximately 90 Acres, in the Village of Port Jefferson. The area extends southerly from Port Jefferson Harbor to Port Jefferson Station. The District is operated as a Special Improvement District, administered by the Town Board, Town of Brookhaven.

Service is presently extended by private sewers to include the Thomas Wilson Lace Mill and Heatherwood House, several schools, some large hospitals and several businesses. The largest "outside" contributor is the State University at Stony Brook.

The area served by the Port Jefferson Sewer District including Stony Brook University is shown on Plate 4.

Existing Treatment Plant Facilities

All sewage entering the treatment plant of the existing Port Jefferson Sewer District is pumped, either by the District's pumping station, located south of Broadway, east of Barnum Avenue, or by the State University's pumping station located west of Nichols Road and south of Route 25-A in Stony Brook. Each station is equipped with three pumps, with a maximum capacity of 1,050 gallons per minute.

The District's sewage is transmitted about one-half mile via an 8-inch force main along Broadway and Beach Street to the primary type treatment plant on the west side of Beach Street, north of Shell Drake Avenue.

The University's sewage is pumped several miles via 12-inch and 8-inch force mains to the treatment plant.

Both wastes, totalling about 1,000,000 gallons per day, enter a distribution box which is equipped with proportioned rectangular weirs to divert the wastes to two primary settling tanks, one a "clariflocculator" and the other a "clarifier". The rated capacities are 0.5 and 1.0 million gallons daily, respectively. By removing flocculation paddles and baffles, the clariflocculator can be converted to a 0.75 mgd clarifier. Each tank is equipped with continuous sludge scrapers, scum skimmers and a peripheral overflow weir. Sludge is pumped periodically to a 12,700 cubic foot net capacity unheated sludge digester from which it is pumped after digestion to glass covered sludge drying beds with an area of 3,150 square feet.

The sludge disposal facilities are inadequate for present loads.

Following clarification, all wastes are chlorinated at the entry to a 40,000 gallon chlorine contact chamber.

Following chlorination, sewage effluent is discharged to Port Jefferson Harbor through a 10 inch sub-aqueous outfall sewer about 400 feet off-shore.

The present treatment plant was expanded in 1962 to increase the pumping, primary and chlorination design flow rate to 1.5 million gallons per day. The design was based on an anticipated District flow rate of 1.0 mgd plus 0.5 mgd from the State University. No facilities were provided to handle anticipated solids loads due to high costs to present District residents. Also no grit removal facilities are included at the existing plant. These inadequacies in the present plant were presented in a report prepared by Holzmacher, McLendon and Murrell, dated May, 1965.

In addition to the inadequacies of the present plant in handling the present solids load and anticipated future sewage flow, the town of Brookhaven is presently under orders of the New York State Health Department to provide secondary treatment facilities at this plant. The State has temporarily suspended these orders pending the submission of this report which presents a comprehensive plan for serving the entire area with sewers and treatment facilities.

The anticipated sewage flows from the existing Sewer District, exclusive of Stony-Brook University and scavenger wastes are shown in Table 1 .

TABLE 1

SEWAGE FLOW-EXISTING PORT JEFFERSON SEWER DISTRICT ONLY

YEAR	SEWAGE FLOW - M.G.D. AVERAGE DAY	MAXIMUM NORMAL	PEAK RATE
1961	0.63	0.95	1.4
1962	0.66	1.0	1.5
1963	0.66	1.0	1.5
1964	0.62	0.95	1.5
1965	0.65	1.0	1.5
1966	0.7	1.1	1.6
1967	0.8	1.2	1.8
1968	0.85	1.2	1.8
1969	0.9	1.3	1.9
1970	0.9	1.3	1.9
1975	1.0	1.4	2.0
1980	1.1	1.5	2.2
1985	1.2	1.7	2.4

State University at Stony-Brook

The Town of Brookhaven has an agreement with the State University at Stony-Brook to receive and treat all of their sewage flow. In return the University is paying for their proportionate share of the capital improvements made to the plant due to the anticipated increased flow and operation and maintenance costs.

The per capita flows to the plant have materially exceeded the anticipated flows to the plant, which were the basis for revenues to the Town.

A conference was held with representatives of the University, the Town, and Bowe, Albertson and Walsh to decide what course of action the State University would take in the development of a comprehensive plan serving the entire area including that of the University. This will be discussed later in the report under the comprehensive plan.

Present flow from the University is approximately 250,000 gallons per day or about 100 gallons per day per person.

The anticipated population and sewage flow from the State University is shown in Table 2 .

Anticipated Sewage Flow - Existing Port Jefferson Sewer District and Stony-Brook University

The anticipated sewage flow from the existing Port Jefferson Sewer District and the State University at Stony - Brook is shown in Table No. 3.

TABLE 2

POPULATION AND SEWAGE FLOW - STATE UNIVERSITY

YEAR	NUMBER STUDENTS	NUMBER STAFF	AVG. YEARLY TOTAL	GALS./CAP. PER DAY	AVG. FLOW M.G.D.
1966	3,200	600	3,800	100	0.38
1967	4,600	1,000	5,600	95	0.53
1968	6,300	1,400	7,700	90	0.70
1969	8,450	1,950	10,400	85	0.90
1970	10,100	2,300	12,400	80	1.00
1975	14,300	3,300	17,600	80	1.40
1980	18,100	4,200	22,300	75	1.67
1985	20,000	4,650	24,650	75	1.85

TABLE 3

SEWAGE FLOW - PORT JEFFERSON SEWER DISTRICT AND UNIVERSITY

	AVERAGE FLOW - M.G.D.		
YEAR	DISTRICT	UNIVERSITY	TOTAL
1965	0.65	0.33	0.98
1966	0.70	0.38	1.08
1967	0.80	0.53	1.33
1968	0.85	0.70	1.55
1969	0.90	0.90	1.80
1970	0.90	1.00	1.90
1975	1.00	1.40	2.40
1980	1.10	1.67	2.77
1985	1.20	1.85	3.05

Relationship of the Existing Port Jefferson Sewer District and Stony Brook University to the Comprehensive Plan

The relationship between the Existing Port Jefferson Sewer District, Stony-Brook University and the Comprehensive Plan will be discussed later in the report particularly with reference to the initial construction or facilities to be constructed in the first stage of development of the Comprehensive Plan. These existing facilities are in immediate need of corrective measures or planned improvements.

SECTION 3

POPULATION, AREA AND LAND USE

General

A detailed discussion of population and population trends, influencing factors, and comparison with other areas for Suffolk County and in particular the study area encompassing the five western towns is presented in the report for Disposal District No. 1 and the reader is referred to that report for background information. Data pertinent to Disposal District No. 8 will be discussed in this report.

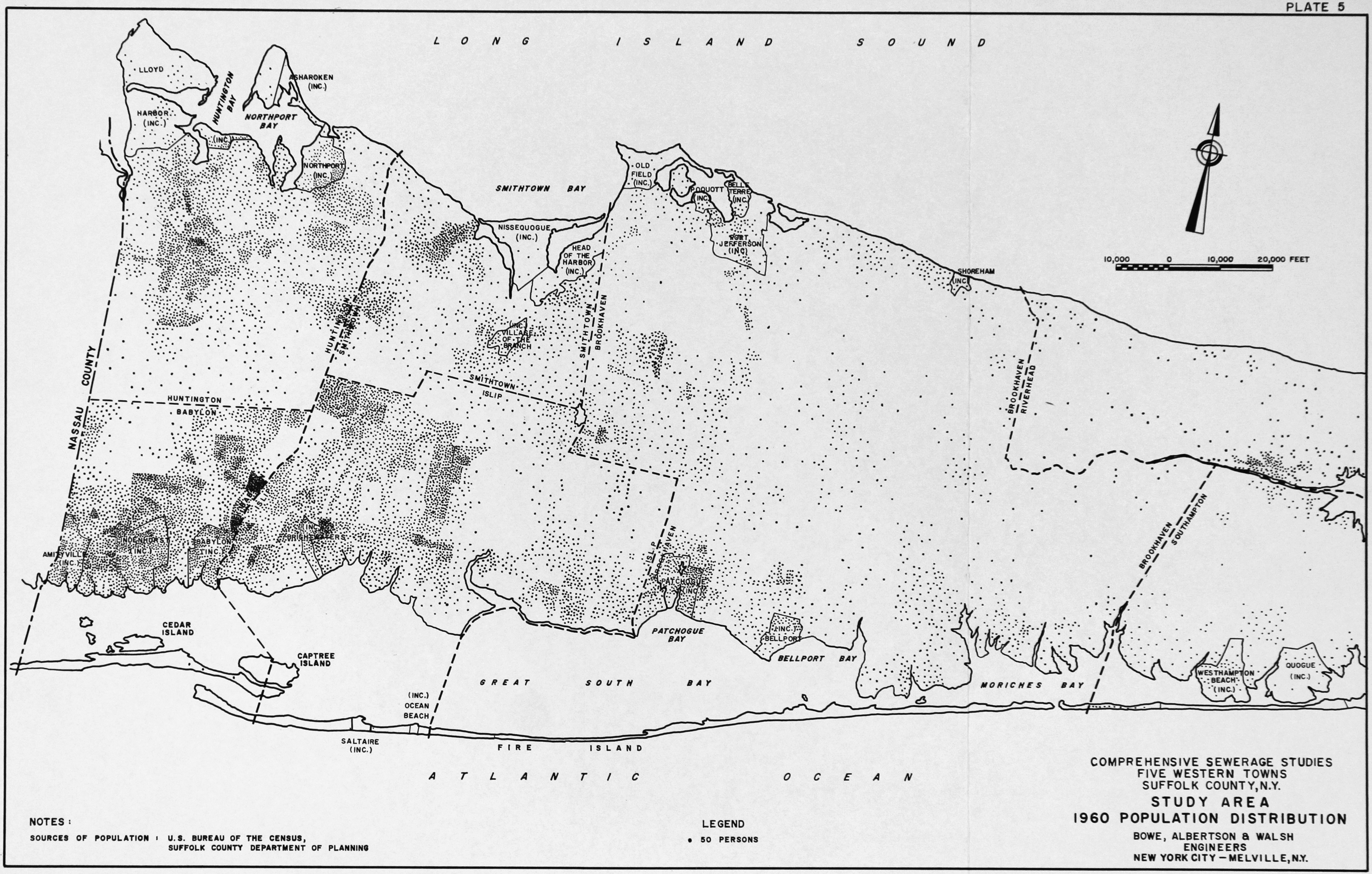
A summary of population for each town in Suffolk County is presented in Table 4 entitled Population of Suffolk County by Towns (1910 - 1960) which includes special census data obtained in 1964 and a current estimate for 1966.

1960 Populations - Disposal District No. 8

Population distribution for the year 1960 was determined from a population distribution dot map prepared by the Suffolk County Planning Board and based on the 1960 Federal Census as shown on Plate 5.

Disposal District No. 8 was divided into drainage zones based on topography obtained from aerial photographic maps and is shown on Plate 3. 1960 Populations for each sub-zone was then determined, a summary of which, is presented in Column 3 in Table No. 5 entitled Areas and Population in Disposal District No. 8.

The total population in 1960 was 8,600 persons and in 1964 estimated to be approximately 15,530 persons.



COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.

STUDY AREA
1960 POPULATION DISTRIBUTION

BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY – MELVILLE, N.Y.

TABLE NO. 4

Population of Suffolk County by Towns
1910 - 1960

Civil Division	1910 (1)	1920 (2)	1930 (3)	1940 (4)	1950 (5)	Special Census 1957 (6)	1960 (7)	Special Census 1964 (8)	Estimate* 1/1/66 (9)
SUFFOLK COUNTY	96,138	110,246	161,055	197,355	276,129	528,836	666,784		938,846
Babylon Town	9,030	11,315	19,291	24,297	45,556	112,125	142,309	177,395	186,171
Brookhaven Town	16,737	21,847	28,291	32,117	44,522	82,555	109,900	147,509	170,854
East Hampton Town	4,722	4,852	6,569	6,529	6,325	8,379	8,827		10,930
Huntington Town	12,004	13,893	25,582	31,768	47,506	98,909	126,221	156,219*	168,952
Islip Town	18,346	20,709	33,194	51,182	71,465	141,736	172,959	222,460	243,004
Riverhead Town	5,345	5,753	7,956	8,922	9,973	12,734	14,519		17,626
Shelter Island Town	1,064	890	1,113	1,073	1,444	1,273	1,312		1,497
Smithtown Town	7,073	9,114	11,855	13,970	20,993	34,899	50,347	78,944	90,717
Southampton Town	11,240	11,726	15,535	15,451	17,013	23,832	27,095		33,686
Southold Town	10,577	10,147	11,669	12,046	11,632	12,607	13,295		15,409

Source: - U.S. Bureau of the Census except as noted.

*Long Island Lighting Co. Estimate January 1, 1964 and January 1, 1966

TABLE NO. 5

Areas and Population in Disposal District No. 8

Sub-Drainage Zone	*Total Area In Acres	Estimated Population		
		1960	1980	2015
(1)	(2)	(3)	(4)	(5)
202	421	50	300	500
203A	440	350	850	1,650
203B	974	700	10,800	13,700
204	547	500	2,000	3,000
205	437	400	1,100	2,350
206	379	100	300	450
207	649	150	400	850
208	490	400	700	1,300
209A	626	450	1,800	2,600
209B	574	0	2,000	3,200
209C	414	500	1,300	1,850
209D	1,028	50	13,500	19,650
210	477	450	1,000	1,700
211A	280	250	900	1,150
211B	895	400	2,300	3,850
212	360	550	1,000	1,800
213	658	1,650	2,700	3,350
214	712	1,350	2,900	4,100
215	483	300	1,200	2,050
Totals	10,844	8,600	47,050**	69,100**

*For Area Classification see Table No. 6

**Includes Estimated Population for New York State University and Long Island Veterans Hospital.

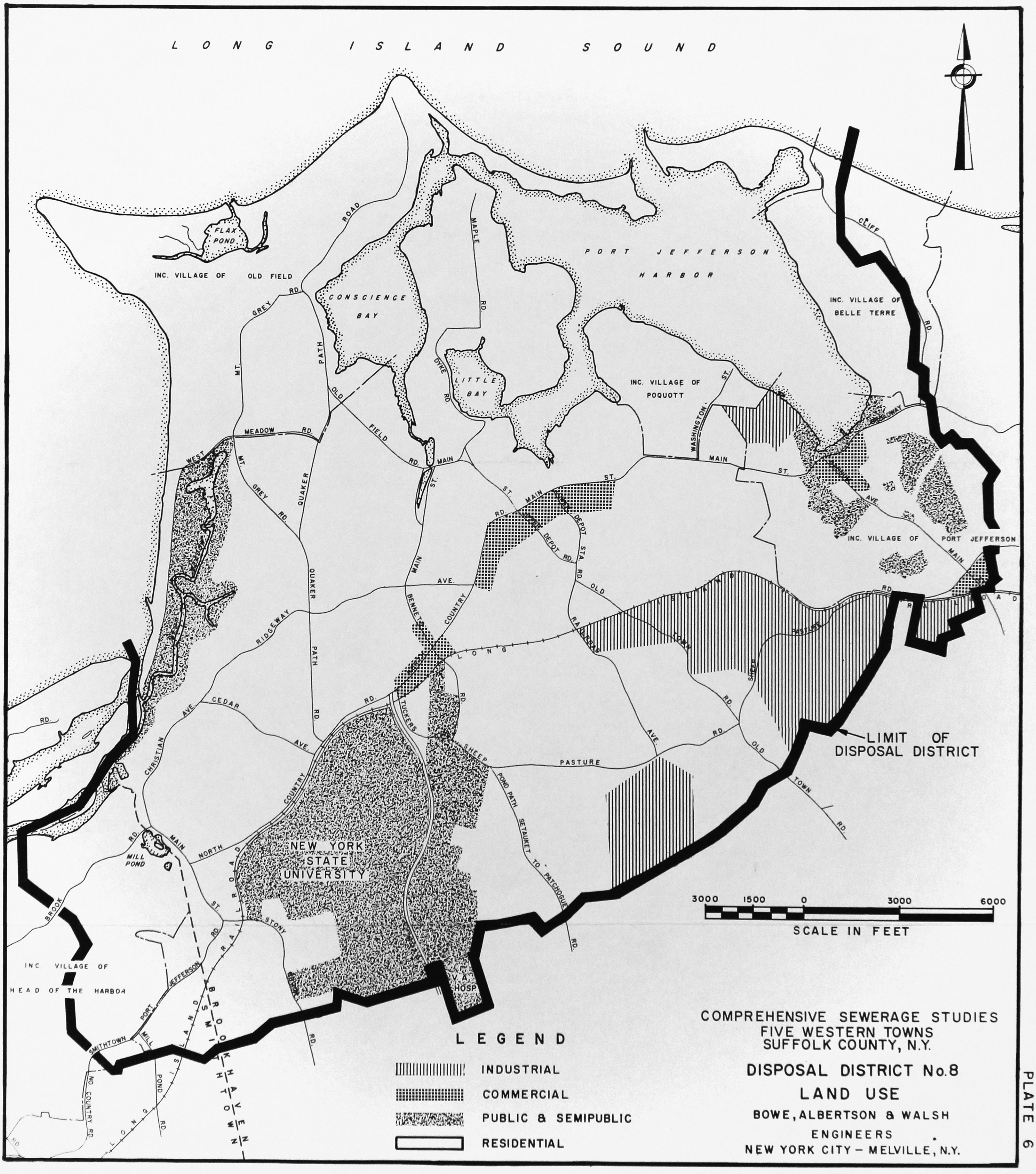

LONG ISLAND SOUND
PORT JEFFERSON HARBOR
CONSCIENCE BAY
LITTLE BAY
FLAX POND
INC. VILLAGE OF OLD FIELD
INC. VILLAGE OF BELLE TERRE
INC. VILLAGE OF POQUOTT
INC. VILLAGE OF PORT JEFFERSON
INC. VILLAGE OF HEAD OF THE HARBOR
NEW YORK STATE UNIVERSITY
V.A. HOSP.
MILL POND
LIMIT OF DISPOSAL DISTRICT
BROOKHAVEN
SMITHTOWN
3000 1500 0 3000 6000
SCALE IN FEET
LEGEND
INDUSTRIAL
COMMERCIAL
PUBLIC & SEMIPUBLIC
RESIDENTIAL
COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.
DISPOSAL DISTRICT No.8
LAND USE
BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY – MELVILLE, N.Y.

PLATE 6

Area Classification and Land Use

The present and proposed land use for the area included in Disposal District No. 8 was obtained from current zoning maps and reports from the planning departments.

Utilizing all available data, detailed studies were made by our organization together with the Suffolk County Planning Board to determine the type of zoning and proposed land use for each sub-zone. A summary of the area classification by sub-zones is shown on Table No. 6. A map showing land use for Disposal District No. 8 is shown on Plate 6.

From these studies, saturation populations were determined; that is, the number of people who can reside in the area under present zoning patterns.

Overall projections of population have been made by many organizations including Suffolk County Planning Board, Town Planning Board, Regional Planning Association Long Island Association and others. Saturation populations obtained from our studies were adjusted to conform to the overall county and town projections.

TABLE NO. 6

Area Classification in Disposal District No. 8

Sub-Drainage Zone (1)	Classification - Acres: Residential, Business, Commercial (2)	Industrial (3)	State Parks (4)	State Hospitals (5)	Total Area (6)
202	382	39			421
203A	440				440
203B	841	133			974
204	547				547
205	437				437
206	379				379
207	649				649
208	490				490
209A	626				626
209B	574				574
209C	414				414
209D	762	221		45	1,028
210	477				477
211A	280				280
211B	752	143			895
212	360				360
213	640	18			658
214	668	44			712
215	483				483
Totals	10,201	598	--	45	10,844

Basis for Population Projections

As emphasized in the report for Disposal District No. 1 and in a similar manner for this report, future population projections are based on the maintenance of present zoning in the study area. If the type of zoning is changed to any material extent, particularly if areas are re-zoned to allow garden type or high rise apartment dwellings, the design will have to be adjusted and the costs increased to account for the greater future populations. If apartments are allowed following construction of sewers, parallel sewers may be required at additional cost.

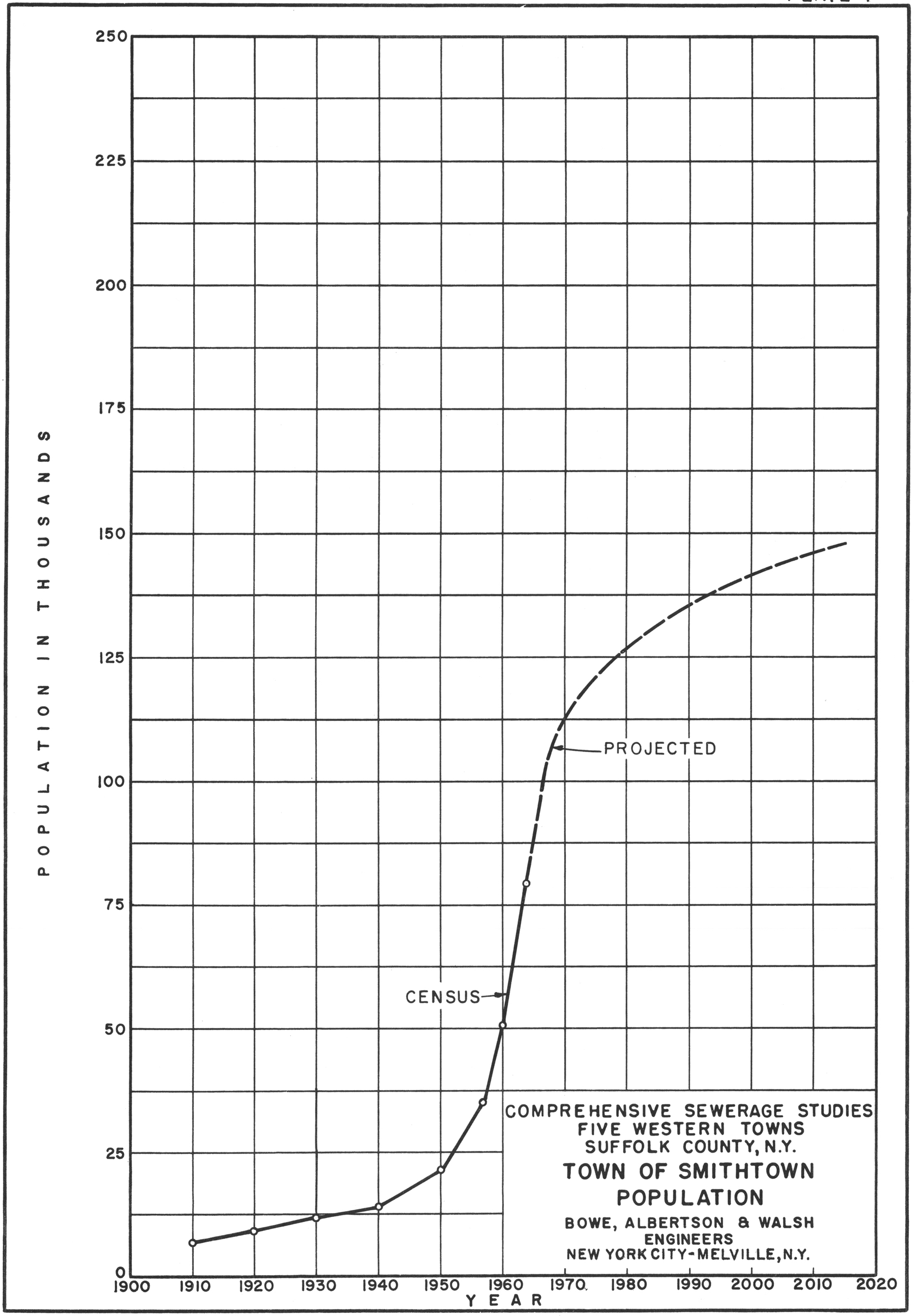
Population Projections by Towns to Year 2015

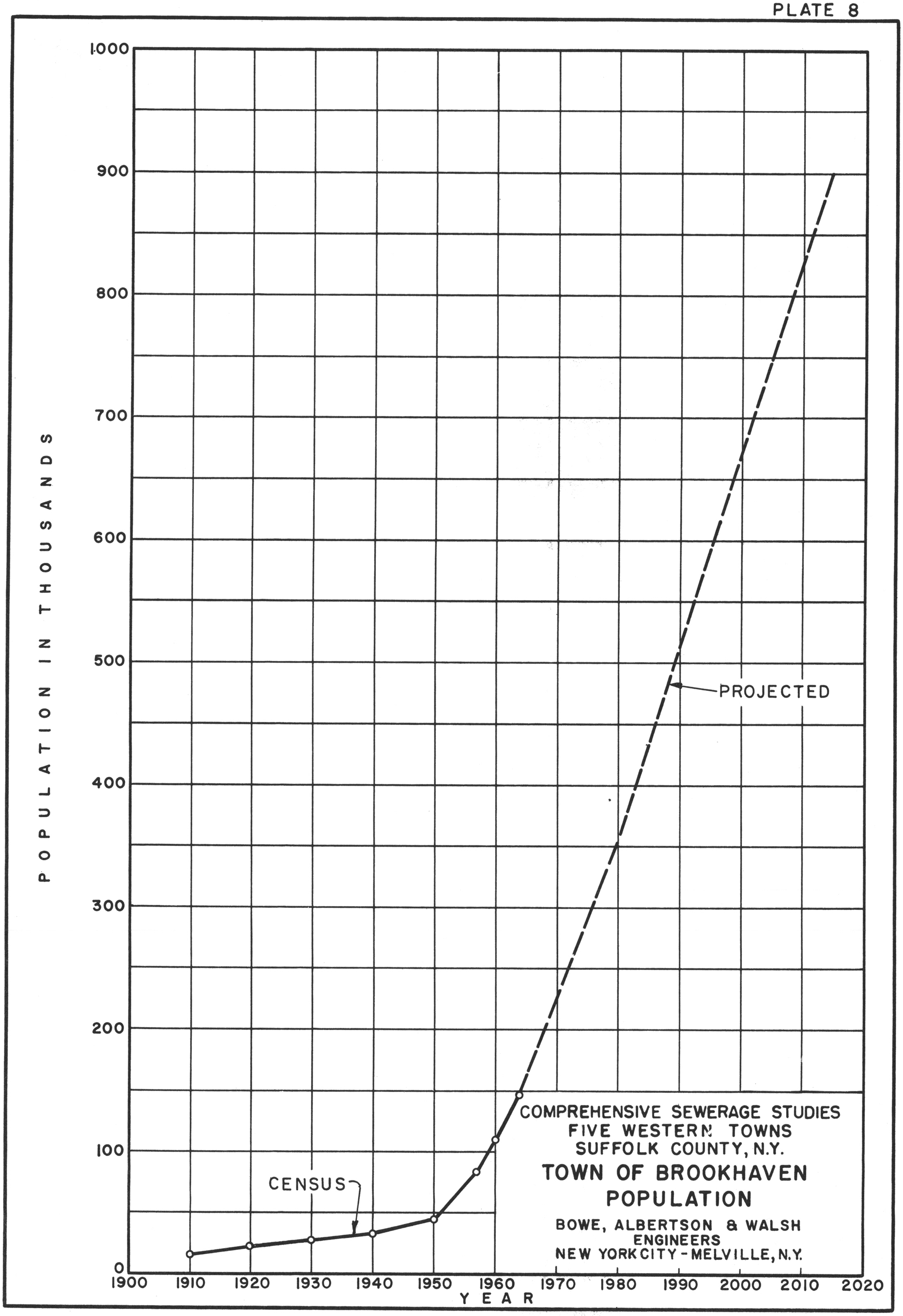
Based on information from the preceding studies, projections were made for each of the five towns included in the study area, a summary is shown in Table No. 7. Graphical presentation for the towns of Smithtown and Brookhaven, portions of which comprise Disposal District No. 8, are shown on Plates 7 and 8.

It is anticipated that by the year 1980 most of the available land in Smithtown and parts of Brookhaven included in the Disposal District will be developed; however it is anticipated that portions of Brookhaven will remain undeveloped until a later date.

Stony Brook University and Long Island Veterans Hospital

A large percentage of projected population increase within Disposal District No. 8 is due to the projected increased enrollment of the State University at Stony Brook (approximately 25,000 students and staff by 1985) and the Long Island Veterans Hospital (approximately 2,900 persons by 1971).


POPULATION IN THOUSANDS
250
225
200
175
150
125
100
75
50
25
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010
2020
YEAR
PROJECTED
CENSUS
COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.
TOWN OF SMITHTOWN
POPULATION
BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY-MELVILLE, N.Y.



1,000
900
800
700
600
500
400
300
200
100
0
POPULATION IN THOUSANDS
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010
2020
YEAR
CENSUS
PROJECTED
COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.
TOWN OF BROOKHAVEN
POPULATION
BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY - MELVILLE, N.Y.

TABLE NO. 7

Population Projection By Towns
1910 - 2015

Year	Babylon	Islip	Hunting-ton	Smith-town	Brook-haven	Total Five Western Towns	Total Five Eastern Towns	Total Suffolk County
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
[1] 1910	9,030	18,346	12,004	7,073	16,737	63,190	32,948	96,138
[1] 1920	11,315	20,709	13,893	9,114	21,847	76,878	33,368	110,246
[1] 1930	19,291	33,194	25,582	11,855	28,291	118,213	42,842	161,055
[1] 1940	24,297	51,182	31,768	13,970	32,117	153,334	44,021	197,355
[1] 1950	45,556	71,465	47,506	20,993	44,522	230,042	46,087	276,129
1951	--	--	--	--	--	--	--	--
1952	61,743	80,825	55,054	22,546	50,687	270,855	51,357	322,212
1953	69,048	88,276	61,150	23,330	55,568	297,372	54,174	351,546
1954	75,972	96,543	66,985	24,575	58,721	322,796	56,777	379,573
1955	81,640	106,510	75,190	25,710	63,490	352,540	59,550	412,090
1956	88,527	119,340	83,701	28,381	67,644	387,593	64,490	452,083
[2] 1957	112,125	141,736	98,909	34,899	82,855	470,524	58,312	528,836
1958	117,852	148,446	104,294	38,869	87,037	496,498	61,878	558,376
1959	125,379	154,465	109,441	43,828	90,835	523,948	62,703	586,651
[1] 1960	142,309	172,959	126,221	50,347	109,900	601,736	65,048	666,784
1961	148,638	179,956	132,187	54,409	114,780	629,970	67,492	697,462
1962	155,459	191,280	138,656	60,863	122,367	668,625	69,881	738,506
1963	162,860	199,980	144,910	65,430	124,580	697,760	71,700	769,460
[3] 1964	177,390	222,595	156,219	78,950	151,490	786,644	74,116	860,760
1980	235,000	335,000	232,000	126,000	373,000	1,301,000	135,000	1,436,000
2015	245,600	365,000	246,000	148,000	925,000	1,929,600	215,400	2,145,000
[4] Saturation	214,000	358,000	232,000	145,000	1,373,000	2,322,000	1,384,000	3,706,000

The Sources of the Population Figures are as follows:
- Long Island Lighting Company
- U.S. Bureau of the Census
- Special Census
- Suffolk County Department of Planning
- Town of Huntington Planning Report

The figures shown include State Hospitals where applicable and Oak & Gilgo Beach, Saltaire, Ocean Beach, Fire Island, etc.

Notes: No. 1 U.S. Bureau of the Census
No. 2 Special Census
No. 3 Special Census, except for Huntington which is L.I.L.Co. estimate as of 1/1/64.
No. 4 Saturation population based on 1960 zoning. Computed by adding 1960 population to possible additional population and then rounding-off. The figures for 2015, in excess of saturation population assume zoning adjustments.

Population Projections - Disposal District No. 8

Utilizing the method previously described, population projections were developed for each disposal district and coordinated with projections for each Town and the County as an entity. A population summary by Towns and Disposal Districts are shown on Tables 8 thru 12 for the years 1960, 1964, 1968, 1980, 2015.

The estimated 1964 population for Disposal District No. 8 is 15,530 and is expected to reach 47,050 by 1980 and 69,100 by the year 2015, the design year for the intercepting sewers. This is shown graphically on Plate 9.

Table No. 13 is a comparison of population densities between Disposal District No. 1, Disposal District No. 2 and Disposal District No. 8. The population density for Disposal District No. 8 is much less at the present time. It is anticipated that for 1980 the density will approach 4.3 persons per acre in Disposal District No. 8 which is approximately the present density of Disposal District No. 1. By the year 2015, assuming zoning patterns remain the same, all of the districts should be relatively saturated and will have comparable population densities.

It should be noted that the population densities are based on total land area. The actual population densities are much higher in developed areas. Most of the present population is concentrated in the Port Jefferson area of Disposal District No. 8 as can be seen on Plate 5 and more recently in the Stony Brook University area.

Present Zoning

At the present time approximately 21% of Disposal District No. 8 is zoned for 2-Acres, 2% for 1-Acre, 55% for ½-Acre and 15% for less than ½-Acre. Approximately 7% is zoned for Industrial, Commercial, Business and Public Usage.

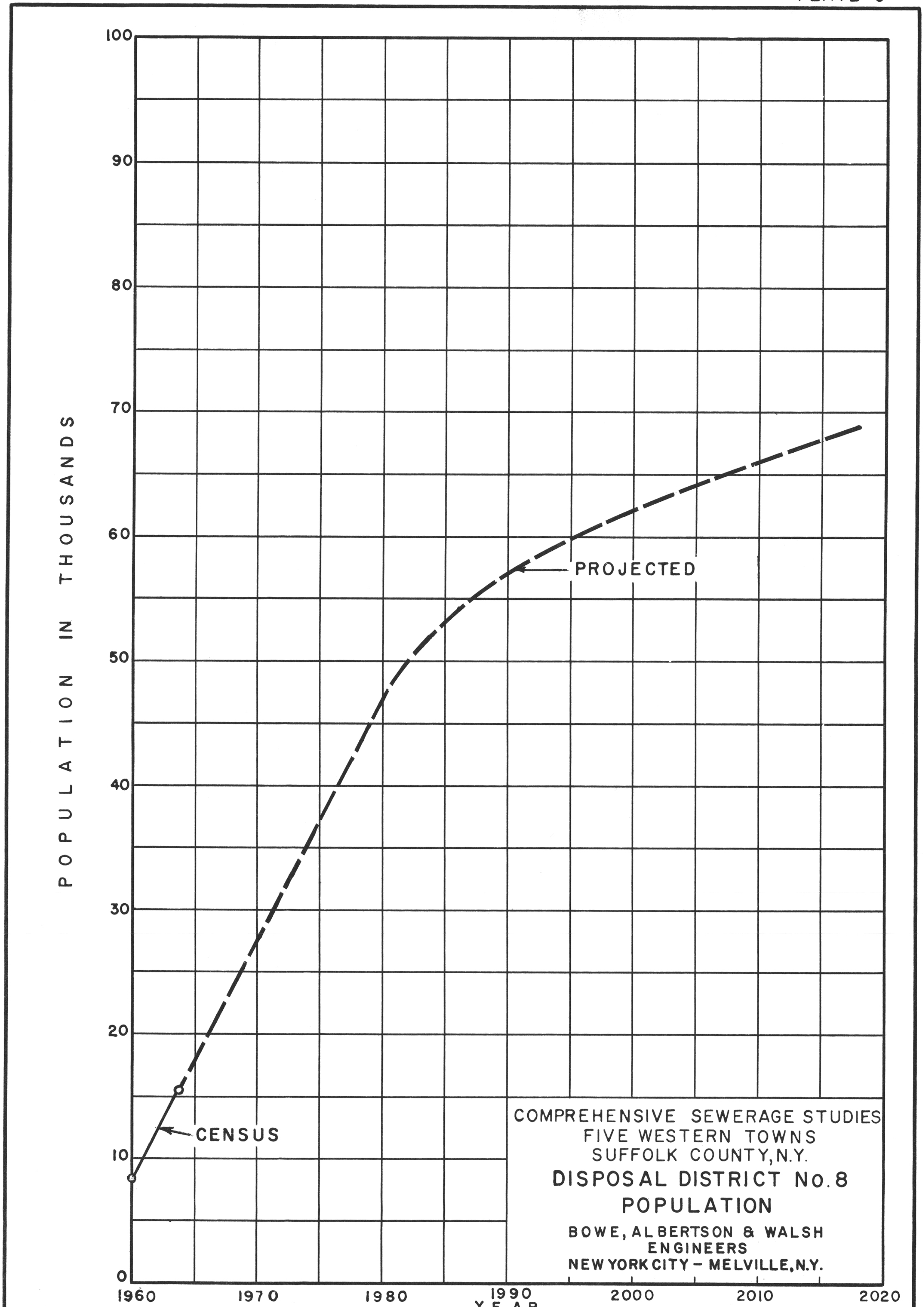

POPULATION IN THOUSANDS
100
90
80
70
60
50
40
30
20
10
0
1960
1970
1980
1990
2000
2010
2020
YEAR
PROJECTED
CENSUS
COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.
DISPOSAL DISTRICT No. 8
POPULATION
BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY – MELVILLE, N.Y.

TABLE NO. 8

Population by Towns and Disposal Districts for the Year 1960

Disposal District	5 Western Towns							
	Babylon	Islip	Huntington	Smithtown	Brookhaven	Southampton	Riverhead	Totals
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	142,309	68,650	69,000	3,500	--	--	--	283,459
2	--	103,350	--	4,700	38,050	--	--	146,100
3	--	--	--	--	52,500	150	--	52,650
4	--	--	28,300	--	--	--	--	28,300
5	--	--	14,600	--	--	--	--	14,600
6	--	--	14,321	4,100	--	--	--	18,421
7	--	959	--	37,847	--	--	--	38,806
8	--	--	--	200	8,400	--	--	8,600
9	--	--	--	--	4,350	--	--	4,350
10	--	--	--	--	2,300	--	450	2,750
Totals	142,309	172,959	126,221	50,347	105,600	150	450	598,036
*Outside Disposal Districts					4,300			4,300
Totals	142,309	172,959	126,221	50,347	109,900	150	450	602,336

*Outside Disposal Districts, but within 5 Western Towns

NOTE: The figures shown here for the Towns of Babylon (Dis. Dist. #1), Islip (Dis. Dist. #1 & #2), Huntington (Dis. Dist. #6) and Smithtown (Dis. Dist. #7) include State Hospital totals.

TABLE NO. 9

Population by Towns and Disposal Districts for the Year 1964

Disposal District	5 Western Towns							
	Babylon	Islip	Huntington	Smithtown	Brookhaven	Southampton	Riverhead	Totals
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	177,390	73,281	88,282	4,425	--	--	--	343,378
2	--	146,995	--	10,741	47,227	--	--	204,963
3	--	--	--	--	73,452	400	--	73,852
4	--	--	33,829	--	--	--	--	33,829
5	--	--	16,954	--	--	--	--	16,954
6	--	--	17,154	5,572	--	--	--	22,726
7	--	2,319	--	57,880	--	--	--	60,199
8	--	--	--	332	15,199	--	--	15,531
9	--	--	--	--	6,182	--	--	6,182
10	--	--	--	--	3,027	--	1,100	4,127
Totals	177,390	222,595	156,219	78,950	145,087	400	1,100	781,741
*Outside Disposal Districts	--	--	--	--	6,403	--	--	6,403
Totals	177,390	222,595	156,219	78,950	151,490	400	1,100	788,144

* Outside Disposal Districts, but within 5 Western Towns

Note: The figures also include State Hospital totals.

TABLE NO. 10

Population by Towns and Disposal Districts for the Year 1968

Disposal District	5 Western Towns							
	Babylon	Islip	Huntington	Smithtown	Brookhaven	Southampton	Riverhead	Totals
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	191,793	75,911	100,462	4,806	--	--	--	372,972
2	--	171,696	--	13,231	59,770	--	--	244,697
3	--	--	--	--	102,089	525	--	102,614
4	--	--	37,322	--	--	--	--	37,322
5	--	--	18,441	--	--	--	--	18,441
6	--	--	18,941	6,179	--	--	--	25,120
7	--	3,089	--	66,110	--	--	--	69,199
8	--	--	--	387	23,024	--	--	23,411
9	--	--	--	--	8,687	--	--	8,687
10	--	--	--	--	4,020	--	1,700	5,720
Totals	191,793	250,696	175,166	90,713	197,590	525	1,700	908,183
*Outside Disposal Districts	--	--	--	--	9,277	--	--	9,277
Totals	191,793	250,696	175,166	90,713	206,867	525	1,700	917,460

*Outside Disposal Districts, but within 5 Western Towns

Note: The figures also include State Hospital totals.

TABLE NO. 11

Population by Towns and Disposal Districts for the Year 1980

Disposal District	5 Western Towns							
	Babylon	Islip	Huntington	Smithtown	Brookhaven	Southampton	Riverhead	Totals
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	235,000	83,800	137,000	5,950	--	--	--	461,750
2	--	245,800	--	20,700	97,400	--	--	363,900
3	--	--	--	--	188,000	900	--	188,900
4	--	--	47,800	--	--	--	--	47,800
5	--	--	22,900	--	--	--	--	22,900
6	--	--	24,300	8,000	--	--	--	32,300
7	--	5,400	--	90,800	--	--	--	96,200
8	--	--	--	550	46,500	--	--	47,050
9	--	--	--	--	16,200	--	--	16,200
10	--	--	--	--	7,000	--	3,500	10,500
Totals	235,000	335,000	232,000	126,000	355,100	900	3,500	1,287,500
*Outside Disposal	--	--	--	--	17,900	--	--	17,900
Totals	235,000	335,000	232,000	126,000	373,000	900	3,500	1,305,400

*Outside Disposal Districts, but within 5 Western towns

Note: The figures also include State Hospital totals.

TABLE NO. 12

Population by Towns and Disposal Districts for the Year 2015

Disposal District	5 Western Towns							
	Babylon	Islip	Huntington	Smithtown	Brookhaven	Southampton	Riverhead	Totals
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	245,600	92,300	139,000	6,350	--	--	--	483,250
2	--	266,200	--	26,500	194,000	--	--	486,700
3	--	--	--	--	500,000	4,400	--	504,400
4	--	--	53,300	--	--	--	--	53,300
5	--	--	26,600	--	--	--	--	26,600
6	--	--	27,100	10,000	--	--	--	37,100
7	--	6,500	--	104,350	--	--	--	110,850
8	--	--	--	800	68,300	--	--	69,100
9	--	--	--	--	26,500	--	--	26,500
10	--	--	--	--	13,500	--	5,000	18,500
Totals	245,600	365,000	246,000	148,000	802,300	4,400	5,000	1,816,300
*Outside Disposal	--	--	--	--	122,700	--	--	122,700
Totals	245,600	365,000	246,000	148,000	925,000	4,400	5,000	1,939,000

*Outside Disposal Districts, but within 5 Western Towns

Note: The figures also include State Hospital totals.

TABLE NO. 13

Population Density Comparison
District No. 1, District No. 2 and District No. 8

Year	Disposal District No. 1		Disposal District No. 2	Disposal District No. 8
(1)	(2)		(3)	(4)
1964	Population	343,378	204,963	15,531
	Area	76,837	78,749	10,844
	Pop. Density	4.5	2.6	1.4
1980	Population	461,750	363,900	45,050
	Pop. Density	6.0	4.6	4.3
2015	Population	483,250	486,700	69,100
	Pop. Density	6.3	6.2	6.4

SECTION 4

COMPREHENSIVE PLAN

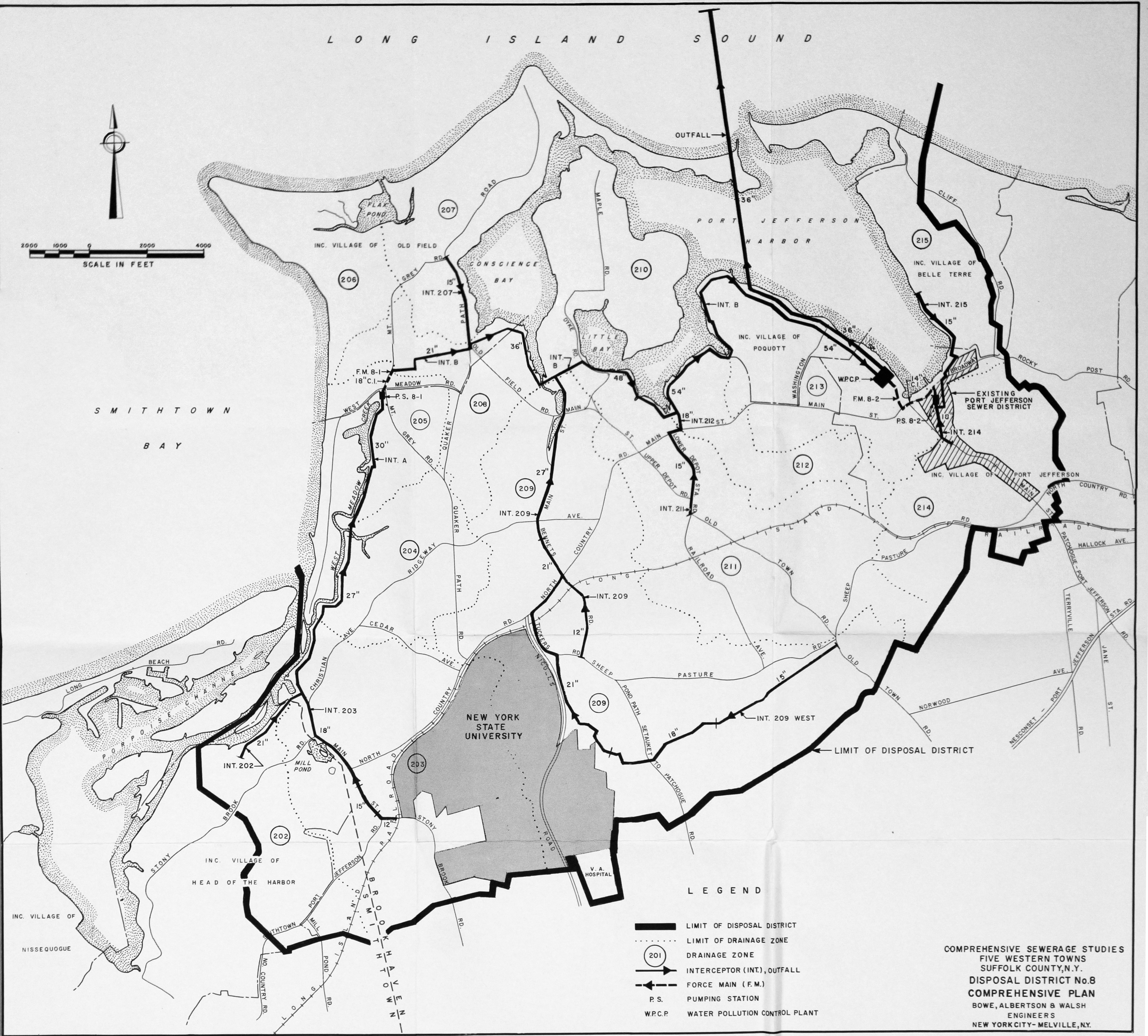
INTERCEPTING SEWERS

Comprehensive Plan

This report is concerned with the development of a comprehensive system of intercepting sewers, treatment facilities, outfall sewer and planning for recharge. The objectives include the determination of the general location, size, slope and depths of the sewers and also the development of a plan which can be constructed at the least possible cost.

A comprehensive plan has been developed for Disposal District No. 8 as shown on Plate 10. An estimate of cost has been prepared for the entire system for District No. 8 and will be presented later in the report. However, it will be seen that unlike Disposal District No. 1, the costs for Disposal District No. 8 are such that the entire system cannot be constructed at this time without excessive charges to the present residents. Accordingly further studies were made to determine what portions of the project can be constructed at this time in accordance with the overall comprehensive plan that would be feasible and would not result in excessive charges to the residents. As a result of our investigations, a recommended plan has been developed limited to the treatment plant and outfall sewer which will be designed to handle flows from the entire district when construction in that area becomes feasible. It will become feasible when populations and valuations have increased to a point where construction of facilities in the remaining areas of the district would not result in excessive charges to the residents of those areas.

This section of the report is limited to the intercepting sewers for the comprehensive plan of the entire Disposal District No. 8. Later sections of the report will discuss the recommended plan for first stage construction and other phases of the project.


LONG ISLAND SOUND
SMITHTOWN BAY
PORT JEFFERSON HARBOR
CONSCIENCE BAY
LITTLE BAY
FLAX POND
MILL POND
PORPOISE CHANNEL
SCALE IN FEET
2000 1000 0 2000 4000
INC. VILLAGE OF OLD FIELD
INC. VILLAGE OF POQUOTT
INC. VILLAGE OF BELLE TERRE
INC. VILLAGE OF PORT JEFFERSON
INC. VILLAGE OF HEAD OF THE HARBOR
INC. VILLAGE OF NISSEQUOGUE
NEW YORK STATE UNIVERSITY
V. A. HOSPITAL
EXISTING PORT JEFFERSON SEWER DISTRICT
OUTFALL
W.P.C.P.
INT. A
INT. B
INT. 202
INT. 203
INT. 207
INT. 209
INT. 209 WEST
INT. 211
INT. 212
INT. 214
INT. 215
F.M. 8-1
F.M. 8-2
P.S. 8-1
P.S. 8-2
18" C.I.
36"
54"
48"
30"
27"
21"
18"
15"
14"
12"
10"
LIMIT OF DISPOSAL DISTRICT
202
203
204
205
206
207
208
209
210
211
212
213
214
215
BROOKHAVEN
SMITHTOWN
LEGEND
LIMIT OF DISPOSAL DISTRICT
LIMIT OF DRAINAGE ZONE
201 DRAINAGE ZONE
INTERCEPTOR (INT.), OUTFALL
FORCE MAIN (F.M.)
P.S. PUMPING STATION
W.P.C.P. WATER POLLUTION CONTROL PLANT
COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.
DISPOSAL DISTRICT No.8
COMPREHENSIVE PLAN
BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY - MELVILLE, N.Y.

Sewage Flow

The reader is referred to the report for Disposal District No. 1 for a general discussion of sewage flow and the basis for which quantities of flow were determined. The report presents information on nomenclature, design period, regulations, design factors, components of sewage flow, quantities used for laterals, submains and intercepting sewers, domestic and commercial flow, infiltration, industrial flow, and design minimum and peak flows of sanitary sewage. The maximum and minimum design flows with respect to population served which was used as the basis for the design of the sewerage system is shown on Plate 11.

Design Basis

The basis of design for the intercepting sewers for Disposal District No. 8 is summarized as follows:

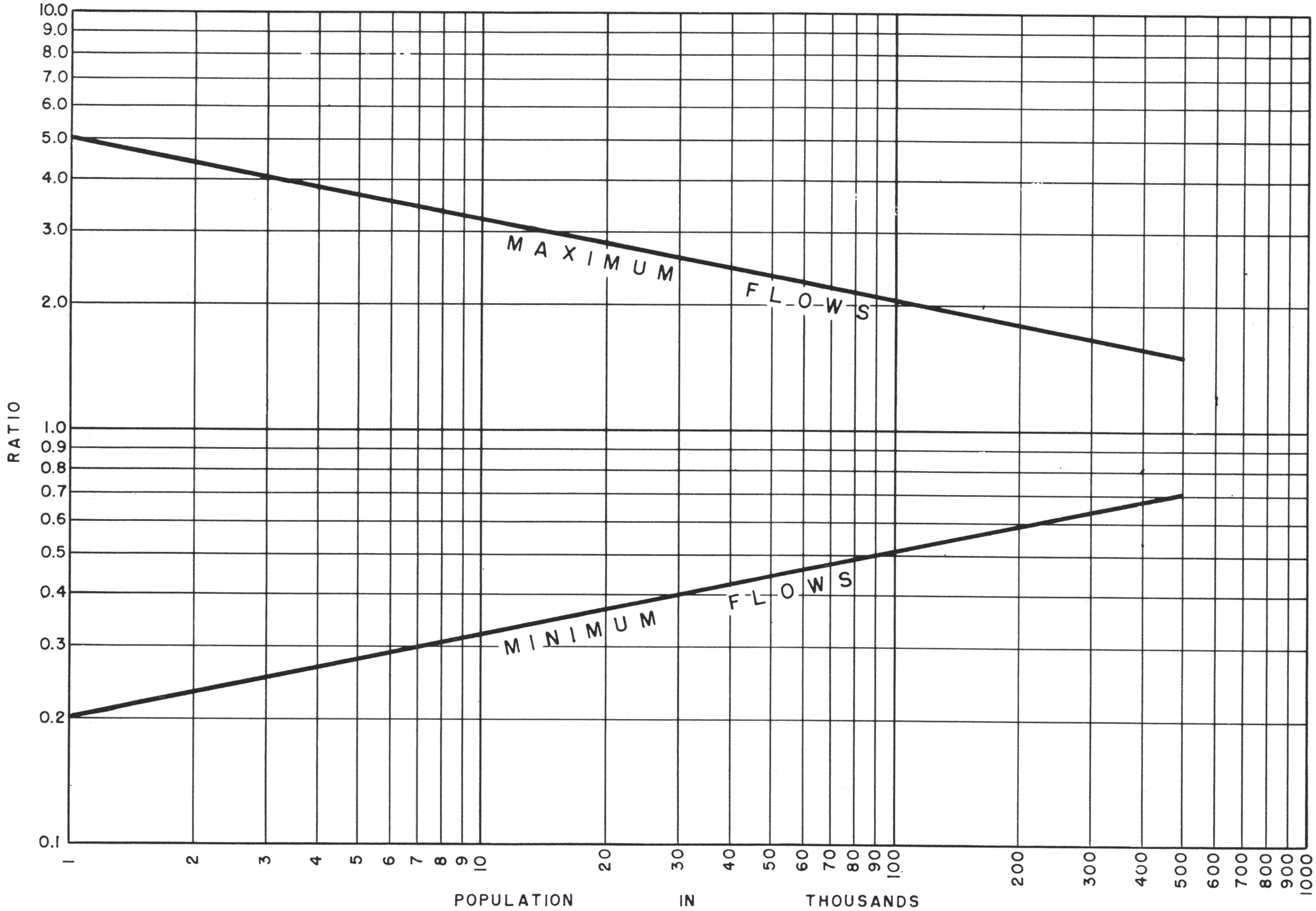
<u>Area Served</u> - Entire Disposal District No. 8 - 17 sq. mi. or 10,844 acres.

<u>Population</u> - Ultimate tributary population of 69,100 persons.

<u>Design Year</u> - 50 years to year 2015

<u>Average Sewage Flow</u> - Domestic, Commercial and Infiltration 100 gpcd. Equivalent Industrial Flow - 13 persons/acre

<u>Maximum Sewage Flow</u> - 500 gcd for small areas reducing to 250 gcd for tributary equivalent populations over 30,000.



RATIO OF MAXIMUM AND MINIMUM TO AVERAGE
SANITARY SEWAGE FLOW RATES
WITH RESPECT TO POPULATION SERVED

COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.

SEWAGE FLOW CHART

BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY - MELVILLE, N.Y.

PLATE 11

Design Criteria

For the purpose of a feasibility study, a certain minimum design criteria was established for a preliminary design. During a final design stage, each area will be reviewed in great detail and exceptions will have to be made where conditions warrant; however, in general these criteria as outlined will prevail and will be followed wherever possible.

The criteria used are as follows:

1. Minimum size - 8"

2. Minimum depth of sewers - Depth required is such as to enable sewers to drain basements of houses. In general, minimum depths of 8 feet was used throughout area, except in certain areas along the shore where basements are higher due to high ground water, minimum depths of 6 feet was used.

3. Sewer velocities - Sewers are designed to provide mean velocities when flowing full, of not less than 2.0 feet per second, based on Kutter's formula using an "n" value of 0.013. Maximum velocities - 10 feet per second.

4. Slopes - The following are the preferred minimum slopes. Where possible, greater slopes were used:

Sewer Size	Minimum Slope in Feet Per 100 Feet
8"	.40
10"	.28
12"	.22
14"	.17
15"	.15
16"	.14
18"	.12
21"	.10

(Continued)

Sewer Size	Minimum Slope in Feet Per 100 Feet
24"	.08
27"	.067
30"	.058
33"	.049
36"	.043
39"	.039
42"	.035
48"	.029
54"	.026
60"	.023
66"	.020
72"	.020
78"	.020
84"	.020
96"	.020
102"	.020
108"	.020

5. Increasing size - Where a sewer joins a larger one, the invert of the larger sewer is lowered such that the 0.8 depth point of both sewers are at the same elevation.

6. Manholes - Manholes will be located at ends of each line, changes in grade, size, and alignment; at all intersections and at distances not greater than 400 feet for sewers less than 15 inches, 500 feet for sewers up to 30 inches and 1,000 feet for larger sewers.

Construction Features and Crossings

Reference is made to the report for Disposal District No. 1 for discussion on construction features such as type of pipes, manholes, special installation conditions, stream crossings, Highway, Parkway and Railroad Crossings, and construction in Rights-of-Way. These will all apply to Disposal District No. 8.

Proposed Comprehensive Sewerage System

In order to determine the routes and tributary areas of the proposed intercepting sewers, the disposal district has been divided into drainage zones as shown on Plate 3 in Section 1. For the purpose of determining pipe sizes and gradients for the intercepting sewers, the zones have been further divided into sub-drainage zones.

Future population and industrial contribution has been estimated for each of the drainage and subdrainage zones based upon present population, zoning regulations and population trends as explained under the previous sections and is indicated in Tables Nos. 5 and 6 in Section 3.

After defining the limits of each subdrainage zone, a preliminary layout of the entire sewerage system was developed. Using the preliminary layout, lateral sewer arrangements were developed, tributary areas defined, and the layout adjusted and finalized.

Each area was studied to assure that an interceptor would serve them.

Estimated flows to each interceptor from each subzone were determined and are shown in Table 14, Disposal District No. 8, Comprehensive Plan, Estimated Sewage Flow.

From the preceding data and developed ground profiles, preliminary pipe sizes and gradients were established and are as indicated on Table 15, Disposal District No. 8, Comprehensive Plan, Intercepting Sewers, Design Capacities.

TABLE NO. 14

DISPOSAL DISTRICT NO. 8
COMPREHENSIVE PLAN - ESTIMATED SEWAGE FLOW

Drainage Zone, Interceptor or Pumping Station	Population (2015)	Indus. Areas Acres	Indus. Equiv. Population	Total Equiv. Population	Cumulative Equiv. Population	Flow		
						GPCD	MGD	CFS
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Interceptor 202								
202	500	39	507	1,007	1,007	500	0.50	0.82
Interceptor 203								
203B	13,700	133	1,729	15,429	15,429	300	4.63	7.16
203A	1,650	-	-	1,650	17,079	300	5.12	7.92
Interceptor 207								
207	850	-	-	850	850	500	0.43	0.67
Interceptor 209 West								
209D	19,650	221	2,873	22,523	22,523	300	6.76	10.46
209C	1,850	-	-	1,850	24,373	300	7.31	11.31
Interceptor 209								
209B	3,200	-	-	3,200	3,200	400	1.28	1.98
Int. 209 West	21,500	221	2,873	24,373	27,573	300	8.27	12.79
209A	2,600	-	-	2,600	30,173	300	9.05	14.00

TABLE NO. 14 (cont'd)

DISPOSAL DISTRICT NO. 8
COMPREHENSIVE PLAN - ESTIMATED SEWAGE FLOW

Drainage Zone, Interceptor or Pumping Station (1)	Population (2015) (2)	Indus. Areas Acres (3)	Indus. Equiv. Population (4)	Total Equiv. Population (5)	Cumulative Equiv. Population (6)	Flow GPCD (7)	Flow MGD (8)	Flow CFS (9)
Interceptor 211								
211B	3,850	143	1,859	5,709	5,709	400	2.28	3.53
211A	1,150	-	-	1,150	6,859	350	2.40	3.71
Interceptor 212								
212	1,800	-	-	1,800	1,800	450	0.81	1.25
Int. 211	5,000	143	1,859	6,859	8,659	350	3.03	4.69
Interceptor 214								
214	4,100	*	*5,900	10,000	10,000	350	3.50	5.41
Interceptor 215								
215	2,050	-	-	2,050	2,050	450	0.92	1.42
Interceptor A								
Int. 202 & Int. 203	15,850	172	2,236	18,086	18,086	300	5.43	8.40
204	3,000	-	-	3,000	21,086	300	6.33	9.79
205	2,350	-	-	2,350	23,436	300	7.03	10.88

* Assumed Industrial Equivalent Based on Existing Flows

TABLE NO. - 14 (cont'd)

DISPOSAL DISTRICT NO. 8
COMPREHENSIVE PLAN - ESTIMATED SEWAGE FLOW

Drainage Zone, Interceptor or Pumping Station	Population (2015)	Indus. Areas Acres	Indus. Equiv. Population	Total Equiv. Population	Cumulative Equiv. Population	Flow GPCD	Flow MGD	Flow CFS
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Pumping Station 8-1								
Int. A	21,200	172	2,236	23,436	23,436	-	-	-
206	450	-	-	450	23,886	-	-	-
Interceptor B								
P.S. 8-1	21,650	172	2,236	23,886	23,886	300	7.17	11.09
208	1,300	-	-	1,300	25,186	300	7.56	11.70
Int. 207	850	-	-	850	26,036	300	7.81	12.08
Int. 209	27,300	221	2,873	30,173	56,209	250	14.05	21.74
210	1,700	-	-	1,700	57,909	250	14.48	22.40
Int. 212	6,800	143	1,859	8,659	66,568	250	16.64	25.74
213 (Part)	2,350	18	234	2,584	69,152	250	17.29	26.75
Pumping Station 8-2								
213 (Part)	1,000	-	-	1,000	1,000	-	-	-
Int. 214	4,100	-	*6,200	10,300	11,300	-	-	-
Int. 215	2,050	-	-	2,050	13,350	-	-	-
Treatment Plant								
Int. B	61,950	554	7,202	69,152	69,152	-	-	-
P.S. 8-2	7,150	-	*6,200	13,350	82,502	-	-	-

*Assumed Industrial Equivalent Based on Existing Flows

TABLE NO. 15

DISPOSAL DISTRICT NO. 8
COMPREHENSIVE PLAN
INTERCEPTING SEWERS - DESIGN CAPACITIES

Part Served	Reg. Cap.* (cfs)	Actual Size	Actual Slope (%)	Actual Cap (cfs)
	Interceptor 202			
Zone 202	0.82	21"	0.10	4.9
	Interceptor 203	12"	2.70	5.4
		15"	1.87	8.4
Zone 203B	7.16	18"	1.00	10.0
Zone 203A	7.92	18"	0.67	8.3
	Interceptor 207			
Zone 207	0.43	15"	0.15	2.4
	Interceptor 209 West	15"	0.15	2.4
		18"	0.54	7.4
		21"	0.44	10.3
Zone 209D	10.46	21"	0.60	12.0
		21"	1.33	18.0
Zone 209C	11.31	21"	0.60	12.0
	Interceptor 209			
Zone 209B	1.98	12"	0.83	3.0
Interceptor 209		21"	1.07	15.9
West and Zone 209A	14.00	27"	0.32	17.4
	Interceptor 211			
Zone 211B	3.53	15"	0.73	5.3
Zone 211A	3.71	18"	0.33	5.8

* The required capacity is that at the end of the part served and includes cumulative flows.

TABLE NO. 15 (cont'd)

DISPOSAL DISTRICT NO. 8
COMPREHENSIVE PLAN
INTERCEPTING SEWERS - DESIGN CAPACITIES

Part Served	Reg. Cap.* (cfs)	Actual Size	Actual Slope (%)	Actual Cap. (cfs)
	Interceptor 212			
Interceptor 211 and Zone 212	4.69	18"	0.60	7.8
	Interceptor 214			
Zone 214	5.41	18"	0.53	7.3
	Interceptor 215			
Zone 215	1.42	15"	0.15	2.4
	Interceptor A			
Interceptor 202		27"	0.08	8.7
and 203 and Zone 204	9.79	27"	0.13	11.1
Zone 205	10.88	30"	0.08	11.5
	Interceptor B			
P.S. 8-1 & Zone 208	11.70	21"	1.15	16.5
Interceptor 207	12.08	36"	0.06	16.3
Interceptor 209 and Zone 210	22.40	48"	0.03	25.0
Interceptor 212 & Part of Zone 213	26.75	54"	0.026	34.0

* The required capacity is that at the end of the part served and includes cumulative flows.

Based on presently available information, study plans and profiles of each interceptor were drawn up using aerial topographic maps prepared for this study and other available maps.

Alternate treatment plant sites, sewer layouts and interceptor routings were considered before the comprehensive plan was finally developed.

The final comprehensive plan is as shown on Plate 10.

Table No. 16, Disposal District No. 8, Comprehensive Plan, Total Length Intercepting Sewers, summarizes pipe sizes and lengths of each interceptor. The total length of all interceptors is approximately 15.6 miles.

Description of Interceptors

The intercepting sewer system for Disposal District No. 8 is comprised of nine interceptors, each serving a drainage zone or tributary area and two shore line interceptors collecting the flow from the tributary interceptors. The sewage is conveyed to a Water Pollution Control Plant located at the site of the existing treatment plant in the Incorporated Village of Port Jefferson.

Interceptor 202 - In general, Interceptor 202 serves the northeast portion of the Incorporated Village of Head of the Harbor. The interceptor begins northwest of the intersection of Stony Brook Road and Jones Lane and runs north along the northeast shore line of the Incorporated Village of Head of the Harbor, crossing the Smithtown-Brookhaven boundary line to Interceptor A on Shore Road.

Interceptor 203 - In general, Interceptor 203 serves the southwest portion of Stony Brook and the northwest portion of South Setauket. The interceptor begins just west of the Long Island Railroad and runs west along Long Hill Road, north along Main Street to Interceptor A on Shore Road and Knoll Street.

Interceptor 207 - In general, Interceptor 207 serves the eastern portion of the Incorporated Village of Old Field. The interceptor begins at the intersection of Mount Grey Road and Quaker Path Road and runs south along Quaker Path Road to Interceptor B at the intersection of Old Field Road and Quaker Path Road.

Interceptor 209 - In general, Interceptor 209 serves the north central portion of South Setauket. The interceptor begins at the intersection of Tuckers Road and Bennets Road and runs north on Bennets Road, north on Main Street to the intersection of Old Field Road and Main Street, north to Interceptor B.

Interceptor 209 West - In general, Interceptor 209 West serves the eastern portion of the New York University and north central and east central portion of South Setauket. The interceptor begins on Old Town Road south of Sheep Pasture Road and runs southwest, generally parallel to Upper Sheep Pasture Road crossing Pond Path, west to Washington Avenue, west crossing University Drive, northwest to Nicolls Road, north generally parallel to Nicolls Road to Tuckers Road, north along Tuckers Road to North Country Road, east along North Country Road to Interceptor 209 at Bennets Road.

Interceptor 211 - In general, Interceptor 211 serves the southeast portion of Setauket, the southwest portion of East Setauket and the southwest portion of the Incorporated Village of Port Jefferson. The interceptor begins at the intersection of Station Road and Old Town Road and runs north along Lower Depot Road to Main Street, east along Main Street to Interceptor 212 on Shore Road.

Interceptor 212 - In general, Interceptor 212 serves the northeast portion of Setauket, the southwest portion of the Incorporated Village of Port Jefferson, the northeast portion of East Setauket and Interceptor 211. The interceptor begins at the intersection of Main Street and Shore Road and runs north along Shore Road to Interceptor B at Carleton Avenue.

__Interceptor 214__ - In general, Interceptor 214 serves the north central and south central portion and the existing sewer district of the Incorporated Village of Port Jefferson. The interceptor begins at the intersection of Main Street and Barnum Avenue and runs north generally parallel to Main Street, crossing Maple Place just southwest of Main Street to Pumping Station 8-2 located at the site of the existing pumping station in the Port Jefferson Sewer District.

__Interceptor 215__ - In general, Interceptor 215 serves the western portion of the Incorporated Village of Belle Terre and the north central portion of the Incorporated Village of Port Jefferson. The interceptor begins west of Crescent Hill Road at the shore of Port Jefferson Harbor and runs south along the shore line, crossing the Incorporated of Belle Terre - Incorporated Village of Port Jefferson boundary line, to Broadway, southwest along Broadway to Main Street, south along Main Street to Pumping Station 8-2.

__Interceptor A__ - In general, Interceptor A serves Interceptors 202 and 203 and the northwest portion of Stony Brook. The interceptor begins at Knoll Street and runs north along Shore Road, north along the east shore of West Meadow Creek crossing an inlet and the west end of Hillside Road to Pumping Station 8-1 located approximately at the intersection of Mount Grey Road and West Meadow Road.

__Interceptor B__ - In general, Interceptor B serves Pumping Station 8-1, Interceptors 207, 209 and 212, the northern portion of the Incorporated Village of Poquott, the northern portion of Setauket, the southeast portion of the Incorporated Village of Old Field and the northeast portion of Stony Brook. The interceptor begins at the intersection of Mount Grey Road and Blueberry Ridge Road and runs east along Blueberry Ridge Road, north and east generally

Interceptor B (continued)
parallel to Blueberry Ridge Road to Mud Road, north on Mud Road to just north of the intersection of Mud Road and Old Field Road, northeast along the southern shore of Conscience Bay crossing the Incorporated Village of Old Field boundary line, south along the southern inlet of Conscience Bay, northeast crossing an inlet to Dyke Road, southeast along Dyke Road and the south shore of Little Bay and Setauket Bay crossing an inlet, east, crossing an inlet, to the intersection of Shore Road and Carleton Avenue, north along Shore Road crossing the Incorporated Village of Poquott boundary line, north along Van Brunt Manor Road, north and southeast, generally along the southwest shore line of Port Jefferson Harbor, southeast along Passway Street to the Water Pollution Control Plant.

TABLE NO. 16

DISPOSAL DISTRICT NO. 8
COMPREHENSIVE PLAN
TOTAL LENGTH - INTERCEPTING SEWERS

Interceptor	Crossings R.R.	Crossings Hwy.	Crossings Str.	Lengths in 1000 feet 12"	15"	18"	21"	27"	30"	36"	48"	54"	Total in 1000ft.	Total in Miles
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
202			1				3.0						3.0	0.57
203				0.9	0.8	4.2							5.9	1.12
207					3.5								3.5	0.66
209 West	1				4.3	4.5	7.5						16.3	3.08
209	1			3.0			1.3	6.0					10.3	1.95
211					1.9	2.1							4.0	0.76
212						0.7							0.7	0.13
214						1.5							1.5	0.28
215					4.0								4.0	0.76
A			1					6.4	5.1				11.5	2.17
B			2				3.2			4.8	5.3	8.5	21.8	4.12
Total	2	-	4	3.9	14.5	13.0	15.0	12.4	5.1	4.8	5.3	8.5	82.5	15.60

SECTION 5

DISPOSAL DISTRICT NO. 8

PUMPING STATIONS

General

Within Disposal District No. 8, two major pumping stations will be required, one station will be required to serve the Stony-Brook Area and the other to serve the Port Jefferson, Belle Terre Area.

Stony-Brook Pump Station 8 - 1

The Stony-Brook Pumping Station labelled 8 - 1 on the plan has a tributary equivalent population of 17,580 persons for the year 1980 and an ultimate saturation equivalent population of 23,900 persons for the year 2015. The pumping station should be designed for the ultimate tributary population of 23,900 persons or an average flow of 2.39 mgd and a maximum flow of 7.19 mgd using a maximum to average ratio of 3.0. Pumping facilities initially provided should be capable of handling the 1980 maximum flow of 5.3 mgd with additional pump capacity added in the future.

An 18-inch diameter force main with a length of 700 lineal feet will be required to deliver sewage flow to a gravity sewer and thence to the treatment plant.

Port Jefferson Pumping Station 8 - 2

The Port Jefferson Pumping Station labelled 8 - 2 on the plan has a tributary equivalent population of 11,100 persons for the year 1980 and an ultimate saturation equivalent population of 13,350 persons for the year 2015. The pumping station should be designed for the ultimate tributary population of 13,350 persons or an average flow of 1.3 mgd and a maximum flow of 4.7 mgd using a maximum to average ratio of 3.5. Pumping facilities provided initially should be capable of handling the anticipated 1980 maximum flow of 3.9 mgd with additional pump capacity added in the future.

A 14-inch force main with a length of 3,300 ft. will be required to deliver sewage flow directly to the treatment plant.

The Port Jefferson Pumping Station will replace the existing pumping station now serving the existing Port Jefferson Sewer District. During the design phase, the existing station and force main will be reviewed and studied in detail to determine what, if any, portions of the existing facilities may be incorporated into the new system. The new station will provide for variable speed higher head pumps, modern flow control devices, standby power and comminuting facilities. For a conservative estimate, costs presented in this report are for a completely new system.

SECTION 6

WATER POLLUTION CONTROL PLANT

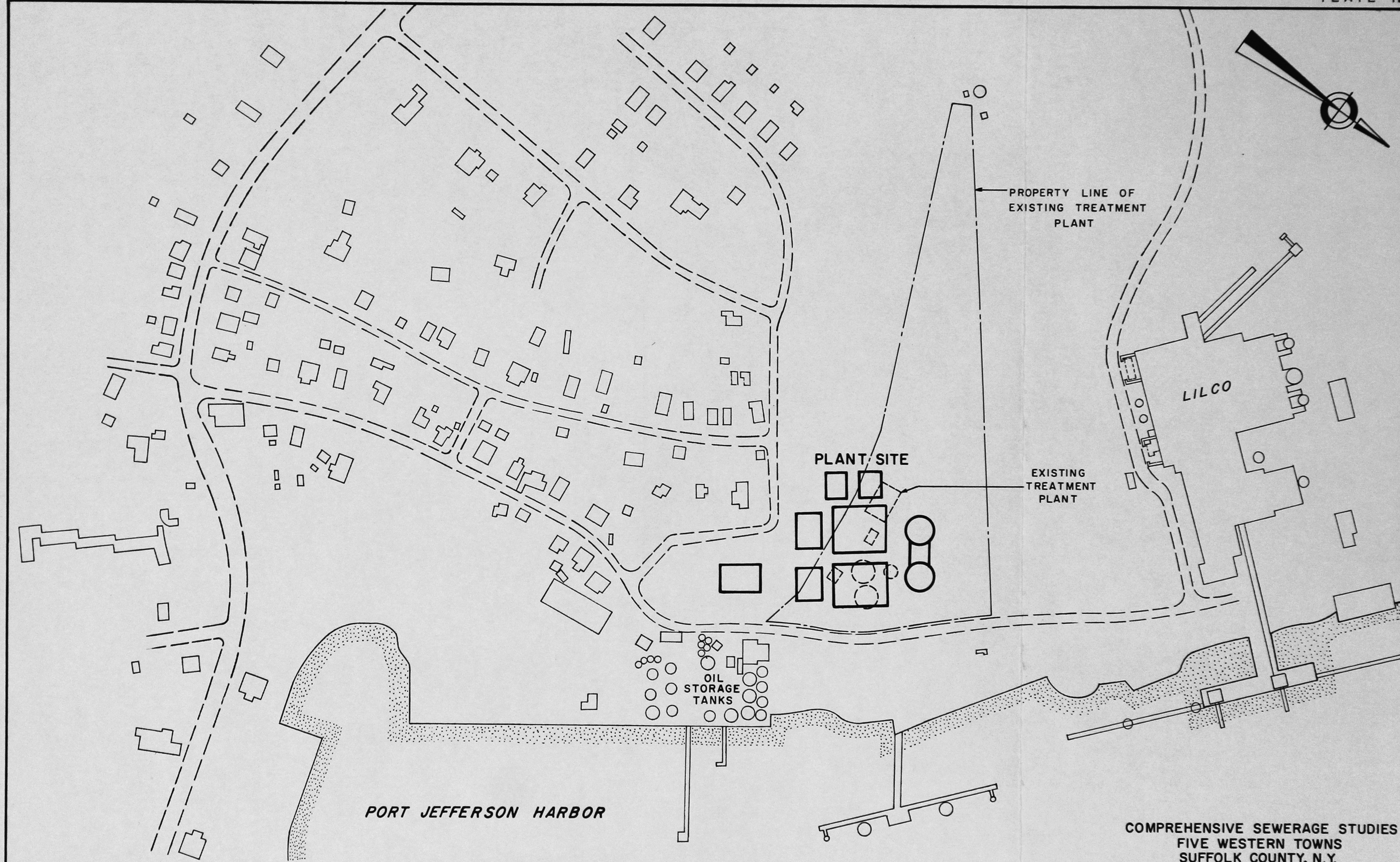
General

The water pollution control plant (treatment plant) for Disposal District No. 8 will be of the same type as the plant for Disposal District No. 1, except the recommended design capacity for the initial construction is 4 million gallons per day. The plant will provide secondary treatment of the activated sludge type.

Location

The recommended location for the treatment plant is at the site of the existing treatment plant, presently consisting of approximately 5 acres, adjacent to the Southwest corner of Port Jefferson Harbor off Beach Road. Possible locations for sites have been discussed with the Suffolk County Planning Board, and other officials and interested Agencies. After considering all pertinent factors including existing land use, economics, availability of large parcel of property, local conservation policy, isolation from developed areas, proximity to parks and bathing beaches and other factors, the site selected offers the most advantages and least disadvantages and is therefore recommended. Adjacent property will have to be acquired to fulfill the needs of a larger plant serving the entire Disposal District with adequate allowance for future expansion.

The plant site, shown on Plate 12, will be neatly landscaped to blend with the surrounding terrain. There will be no odors, and the structures will be attractive. No possible contamination of adjacent waters will occur as the outfall sewer will convey effluent across Port Jefferson Harbor into the Long Island Sound.



COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.
DISPOSAL DISTRICT No. 8
WATER POLLUTION CONTROL PLANT
SITE PLAN
BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY-MELVILLE, N.Y.

Degree of Treatment

The degree of treatment or the extent to which impurities have to be removed from the sewage is necessarily related to the receiving body of water. A thorough study was made of waters in the Long Island Sound which includes the area of Disposal District No. 8 and is the subject of Appendix L entitled Outfall Studies - North Shore Treatment Plants.

The conclusions drawn, as a result of the studies, recommend that the sewage be given secondary treatment of the activated sludge type, which is the highest degree of treatment in common use, and that effluent or treated sewage be conveyed across Port Jefferson Harbor and be discharged approximately one mile into Long Island Sound.

The activated sludge process, as discussed in the report for Disposal District No. 1, involves aeration of sewage in the presence of biological sludge followed by sedimentation in settling tanks and sterilization with chlorine. Results include substantial reduction (better than 90%) of suspended matter, oxygen demand and bacteria. Further reduction of toxic bacteria occurs, following sterilization with chlorine and by elements encountered in the diluting water.

Site Preparation

Considerable excavation will be required at the site to provide the grades to the levels required for the plant. Excess excavation will be disposed of along the shore, at low areas and may possibly require hauling to low areas in the north end of the District. Proposed grade will be approximately elevation 25 ft. above mean sea level. Existing grades range from elevation 125 to elevation 10 above mean sea level.

Treatment Units

Units for treatment of sewage will include:

Primary Pumping Station
Comminutors
Grit Chambers
Primary Settling Tanks
Aeration Tanks
Secondary Settling Tanks
Chlorine Contact Tanks
Secondary Pumping Station

Solid matter retained by the plant will be digested by means of Digesters.

Controls and equipment will be housed in an administration building and adjoining buildings.

A layout of the proposed plant is shown on Plate 13.

Sewage Flow

The recommended design capacity for the first stage of the treatment plant is 4 mgd. Although anticipated average sewage flow from the Port Jefferson Sewer District and the State University is 3.0 mgd, it is expected that additional sewage collection districts will be formed by 1985, such that average sewage flow in 20 years will be approximately 4 mgd. Treatment plants are normally designed with capacity for a minimum of 15 years. Initially certain units may be planned for 2 mgd to be augmented as required, however estimates are based on a 4 mgd plant.

Ultimate sewage flow to the plant will be approximately 8 mgd. Space will be allowed and certain preliminary treatment units will be designed to serve for this ultimate flow.

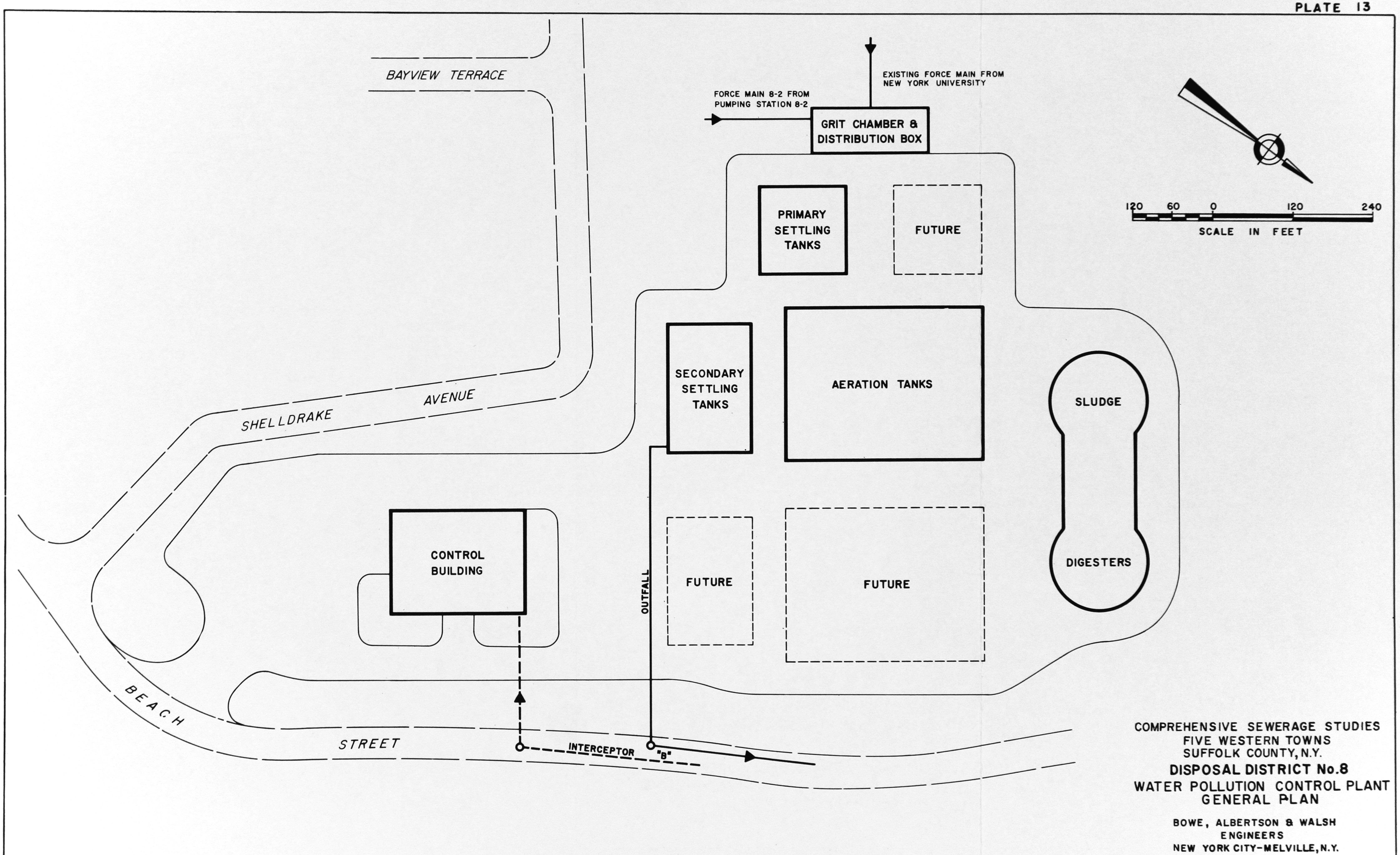
Flows in million gallons per day are estimated as follows:

Period	Minimum	Average	Maximum
1980	1.7	4	10
Ultimate	3.2	8	18

Screening and Grinding

Initially, all raw sewage entering the plant will be pumped either from the Port Jefferson Pumping Station 8 - 2, or the State University Pumping Station. These stations are or will be equipped with comminuting devices prior to pumping. These units are essentially bar screens with devices to grind sewage screenings without removing them from the flow. Larger solid objects such as timbers, etc, occasionally found in sewage are removed manually.

PLATE 13


BAYVIEW TERRACE
FORCE MAIN 8-2 FROM
PUMPING STATION 8-2
EXISTING FORCE MAIN FROM
NEW YORK UNIVERSITY
GRIT CHAMBER &
DISTRIBUTION BOX
PRIMARY
SETTLING
TANKS
FUTURE
120 60 0 120 240
SCALE IN FEET
SHELLDRAKE AVENUE
SECONDARY
SETTLING
TANKS
AERATION TANKS
SLUDGE
DIGESTERS
CONTROL
BUILDING
OUTFALL
FUTURE
FUTURE
BEACH STREET
INTERCEPTOR "B"
COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.
DISPOSAL DISTRICT No.8
WATER POLLUTION CONTROL PLANT
GENERAL PLAN
BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY-MELVILLE, N.Y.

Later when additional collection districts are formed, and the west shore Interceptor B is constructed, a primary pumping station will be provided at the plant site which will also be equipped with comminuting devices.

Primary Pumping Station

The primary pumping station located at the plant site will be eventually required to pump 17.3 mgd. or 27 cubic foot per second from "Interceptor B". Pumping capacity will be provided as additional collection districts are formed. Space for pumps to handle the ultimate flows will be provided including standby pump capacity, assuming the largest unit out of service. Emergency power generators will also be provided, as well as ventilators, flow metering equipment, and all required electrical controls.

Aerated Grit Chamber

Sewage entering the plant will be routed through a chamber to remove grit. This chamber will be 19.5 feet by 9.0 feet in plan with 11.0 feet average water depth. Detention will be about 5 min. at the design rate of flow. During this period air will be introduced near the bottom of the tank at a rate which will keep the lighter material in suspension but permit heavy matter to settle into a hopper. Grit will be removed by means of a tubular conveyor to a discharge hopper for transferring to a truck or storage cans. The chamber is designed to handle flows up to 15 mgd. A bypass arrangement will be to service the chamber.

Primary Settling Tanks

Two primary settling tanks will be constructed each 25 by 65 feet in plan with 8.0 feet average water depth. Tanks will have a detention of 1.1 hours for the average design rate of flow and a surface overflow rate of 1230 gal/sq.ft./day.

Each of the two tanks will consist of two bays each and will be equipped with sludge and scum collectors.

Inlet diffuser boxes are provided to dissipate inlet velocity and to minimize short circuiting. Adjustable outlet weirs will be as well as scum baffles to eliminate scum over-vlow.

Aeration Tanks

Four tanks each 30 by 95 feet in plan and 14.5 feet water depth will be constructed, providing a total volume of 165,000 cubic feet. Detention will be 6 hours at the design flow of 4 mgd plus 25% recirculation.

Air will be applied by means of swing diffusers in such a manner as to provide spiral flow.

Three blowers located in the basement of the control building, each with a capacity of 2080 cfm will provide a total volume of 6240 cfm of air or 2.25 cf per gallon of incoming raw sewage. Normal air requirements at the design flow are 4160 cfm, therefore one blower will serve as a standby unit.

Two of the blowers will be driven by variable speed electric motors and to reduce power costs, one blower will be driven by a dual-fuel combustion engine. The normal fuel will be sewage gas produced in the digestion tanks, and upon insufficient sewage gas supply, auxiliary fuel supply will be used. Automatic change-over from one fuel to the other will be in the design.

Water sprays will be installed along the side of the aeration tanks to control foam.

Secondary Settling Tanks

Final settling tanks have been planned in duplicate, each 25 by 100 feet in plan and average water depth of 8.0 feet, exclusive of an allowance for sludge. Combined volume will be 40,000 cubic feet. Detention will be 1.8 hours and overflow rate 800 gals/sf/day at the design rate of flow.

Each tank will be equipped with two longitudinal collectors and one transverse collector. A scum collector trough will be installed at the effluent end of the tanks. Sludge collected in the tanks will be withdrawn to a sludge observation box and then recirculated to the aeration tanks or returned to the influent end of the plant.

Two return activated sludge pumps of the centrifugal type will be housed in the basement of the control building. Each pump will have a capacity from 350 to 1400 gpm by means of a variable speed drive. Discharge piping and valves will permit either return of sludge to aeration tanks or wasting to primary settling tanks. Capacity of each pump will be sufficient for 50 percent return for a sewage flow of 4 mgd.

Flow Measurement

Sewage flow into the plant will be metered at the Pumping Stations and transmitted via aerial telephone lines to the office of the control building where an indicating, recording and totalizing receiver will be located.

Return activated sludge and waste activated sludge will be measured by magnetic flow meters and transmitted to the office where a receiver of the indicating, recording and totalizing type will be located.

Air to the aeration tanks and air to the grit chamber will also be metered.

Sludge Digestion Tanks

Two tanks have been planned each 65 feet in diameter, one 25 feet deep and one 23 feet deep. Combined volume will be 158,000 cf or 3.95 cf per capita for an equivalent population of 40,000 persons.

The primary tank will be equipped with a fixed steel roof and three draft tube mixers. Secondary tank will have a floating gasholder and two scum mixers.

To assure active fermentation, maintenance of a temperature of about 95° F is required. The method of heating will be to circulate supernatant through an external heat exchanger. The source of heat will be sewage gas with fuel oil as a stand-by.

Hot water boiler and heat exchanger will be located in a separate room with outside entrance adjacent to digestion tanks.

The design will provide for overflow from primary to secondary tank, transfer of sludge from primary to secondary tank, withdrawal of supernatant from three levels in both tanks and withdrawal of digested sludge from either tank. Piping arrangement will be flexible to permit independent use of either tank. A master sampling sink, three raw sludge pumps, two sludge liquor recirculating pumps for tank heating and indicating thermometers will be located in the basement of the operating gallery.

Vacuum Filter

Anticipated solids removal, dry weight assuming 40,000 persons at 0.2 lbs per capita and 90% removal is 7,200 lbs/day. Following digestion, dry weight will be reduced about 36% to 4608 lbs/day or 32,256 lbs per week.

It is proposed to "dewater" digested sludge on a vacuum filter with a "permanent" type filter medium. For this purpose a 200 sq. ft. filter has been selected which at 4 lbs/sf/hr will require about 40 hours of filtering per week. The filter is amply sized to handle future increases and this may be accomplished by operating for longer periods. Chemicals for conditioning digested sludge will be lime and ferric chloride, or polymers a new sludge conditioning chemical agent.

Dewatered sludge filter cake, an innocuous residue, can be used for fill on the plant site or at some adjacent fill site.

Control Building

The basement of the control building will house blowers, return sludge pumps, emergency electric generating plant, plant water system, workshop, sewage ejector, sump pump, digested sludge pumps and miscellaneous appurtenances.

The superstructure, of architecturally pleasing design, will consist of an office wing including superintendent's office, laboratory, lunch room, lavatory and electrical control room, and an operations wing which will include space for chlorinator, vacuum filter, chemical storage and garage.

Chlorinators

Two chlorinators, each with a capacity of 1000 lbs per day with a 20 to 1 range and equipped presently for feeding from 25 to 500 lbs/day of chlorine will be installed. Facilities will be provided to inject chlorine solution to the raw sewage at the grit chamber, to the return sludge at the return sludge force main and to the final effluent at the inlet of the post-chlorination chamber.

Either chlorinator may be used for any point of application and each chlorinator may be program controlled. A distributor panel will be provided to measure and proportion flow to each point of application.

The post-chlorine contact chamber will be 45 by 24 feet in plan and 10 feet deep providing 30 minutes detention at the design flow of 4 mgd or 15 minutes at the normal maximum rate of flow. Additional detention time is provided in the outfall line.

Water Supply and Utilities

Final effluent will be used as the source of plant water. Requirements include that for vacuum filter, pump seals, engine cooling water, froth control at aeration tanks, meter purging, and hosing. The municipal supply will be used for chlorinators, drinking and sanitary fixtures.

Power lines will also be extended to the plant with reserve capacity to meet near future requirements.

Secondary Pumping Station

The secondary pumping station will be arranged so that treated sewage will flow by gravity through the outfall sewer to the Long Island Sound during low flows and low tide and pumped during high flows and high tide. Pump capacity will be provided to handle the entire maximum flow into the plant or 10 mgd initially. Space will be provided for future units.

Space for Future Development

Space on the site will be provided for possible future incorporation of a wet-air oxidyzing system which is a unit designed to reduce the volume of sludge filter cake, in the event there is little available space for fill.

SECTION 7

EFFLUENT DISPOSAL STUDIES

OUTFALL SEWER

General

A detailed report of studies, investigations field surveys and pertinent data are presented in Appendix L entitled "Outfall Studies - North Shore Treatment Plants" prepared by our consultant Mr. William F. Cosulich. A summary of pertinent data and conclusions are presented herein.

Requirements of Regulatory Agencies

The degree of treatment and method of effluent disposal for Disposal District No. 8 must meet the requirements of the Interstate Sanitation Commission and the New York State Department of Health.

The Interstate Sanitation Commission has classified the waters of Long Island Sound and the North Shore Bays in the vicinity of District No. 8 as Class "A" waters which are primarily for recreation, shellfish culture and the development of fish life.

The New York State Department of Health has classified the waters of Long Island Sound and outer Port Jefferson Harbor as Class "SA" the best usage for which is shellfishing for market purposes. The Inner Port Jefferson Harbor area in the vicinity of the existing treatment plant outfall sewer has been classified as "SC", the best usage for which is fishing and any other usages except bathing or shellfishing for market purposes.

Both agencies recognize these waters as prime quality and all sewage disposal into these waters must meet their requirements.

Bacterial Standard for Bathing Beaches and Shellfish Areas

Bathing Beaches.- The measure of bacterial quality in normal usage is MPN (most probable number) per 100 ml (milliliters) of coliform (certain types of bacteria). The bacteria measured are in themselves not harmful; however, if large quantities are present, the probability of harmful bacteria being present is that much greater.

New York State does not have legal standards, however, administratively a median of less than 2400 coliform per 100 ml is used as the maximum allowable concentration of bathing beaches.

New York City uses the following classifications:

> Class A - Group 1 - Bathing allowed - average MPN less than 1000 per 100 ml. Epidemiological evidence satisfactory. Sanitary survey satisfactory
> Class A - Group 2 - Bathing allowed - average MPN greater than 1000 but less than 2400 per 100 ml. Epidemiological experience satisfactory. Sanitary survey shows exposure to increasing pollution.

Suffolk County and Nassau County use an administrative standard of 240 coliforms per 100 ml plus a sanitary survey.

Shellfish Areas.- The coliform standards of the New York State Department of Conservation and the U. S. Public Health Services for satisfactory shellfish waters is 70 or less coliform bacteria per 100 ml.

Degree of Treatment and Method of Disposal

The existing sewage treatment plant at Port Jefferson Harbor discharges its effluent into the southerly end of Port Jefferson Harbor. The Harbor in this area is polluted primarily because of this discharge from the existing Primary treatment plant. This area of the Harbor is closed to commercial harvesting of Shellfish. The Harbor was at one time used for shellfishing and presumably could be reopened if the sources of pollution were removed.

Therefore it is recommended that the effluent from the proposed water pollution control plant for District No. 8 be conveyed through an outfall sewer to Long Island Sound in an area removed from shellfish harvesting areas and where there is a large quantity of diluting waters and tidal currents.

Considering the high value, present purity, and extensive recreational and commercial use of the waters in the entire area, it appears mandatory that the sewage from Suffolk County District No. 8 be provided with a high degree of treatment, disinfected by chlorination, and discharged into Long Island Sound through an effective diffuser.

Treatment Plant Effluent Characteristics

The probable characteristics of the effluent from the proposed plant in Suffolk County will be similar to that of the effluent from the Bay Park Plant in Nassau County. The appendix tabulates all pertinent data.

Disposal of Effluent into Long Island Sound

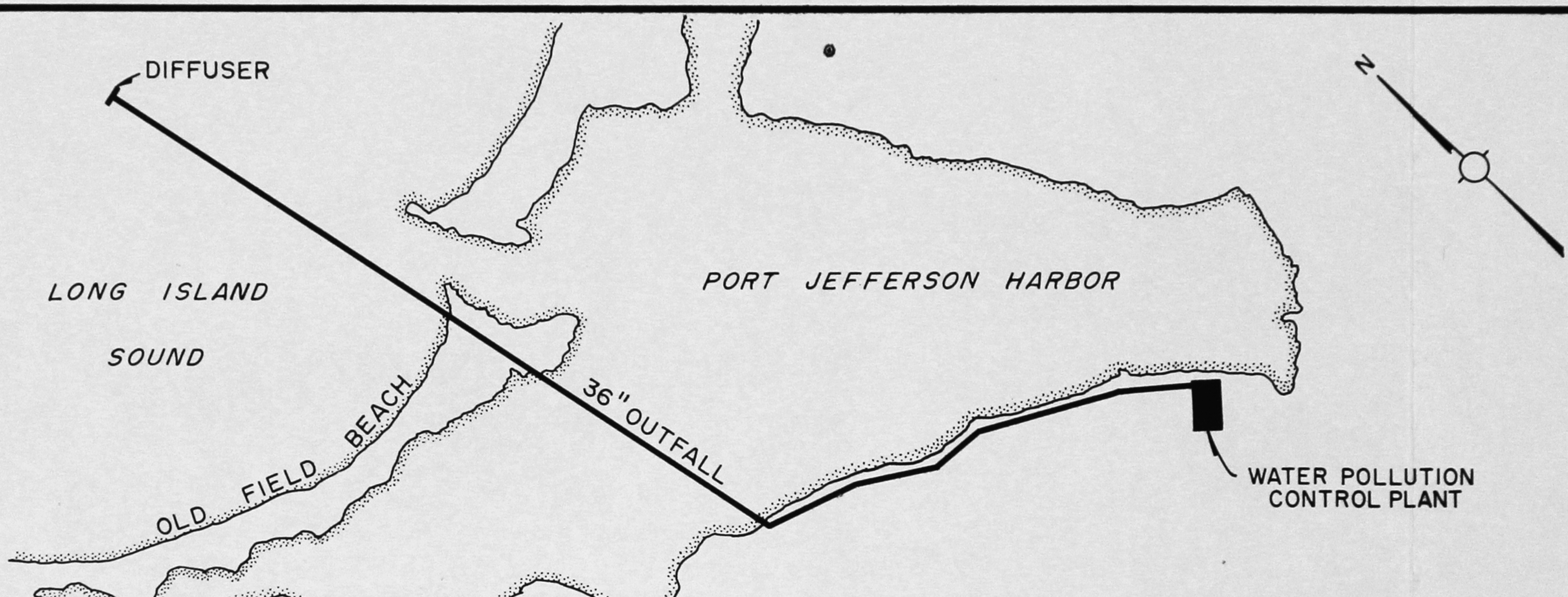
Disposal of treated effluent from Suffolk County District No. 8 will involve construction of a one mile land section of outfall sewer and a subaqueous outfall sewer 3,300 feet across Port Jefferson Harbor to Old Field Beach and sufficiently far out into the Sound approximately one mile to assure that the effluent will not cause a nuisance and the diffuser will not be disturbed by wave action or littoral drift.

Information on tides, winds, currents, littoral drift and other factors relative to the water and shoreline of Port Jefferson Harbor and Long Island Sound in the vicinity of proposed outfall were obtained from the Corps of Engineers, U. S. Coast and Geodetic Survey, MacArthur Airport, New York University, Bingham Oceanographic Laboratory and other sources.

This information was supplemented by current, temperature, water quality and drift card studies conducted by our consultants during July 1964.

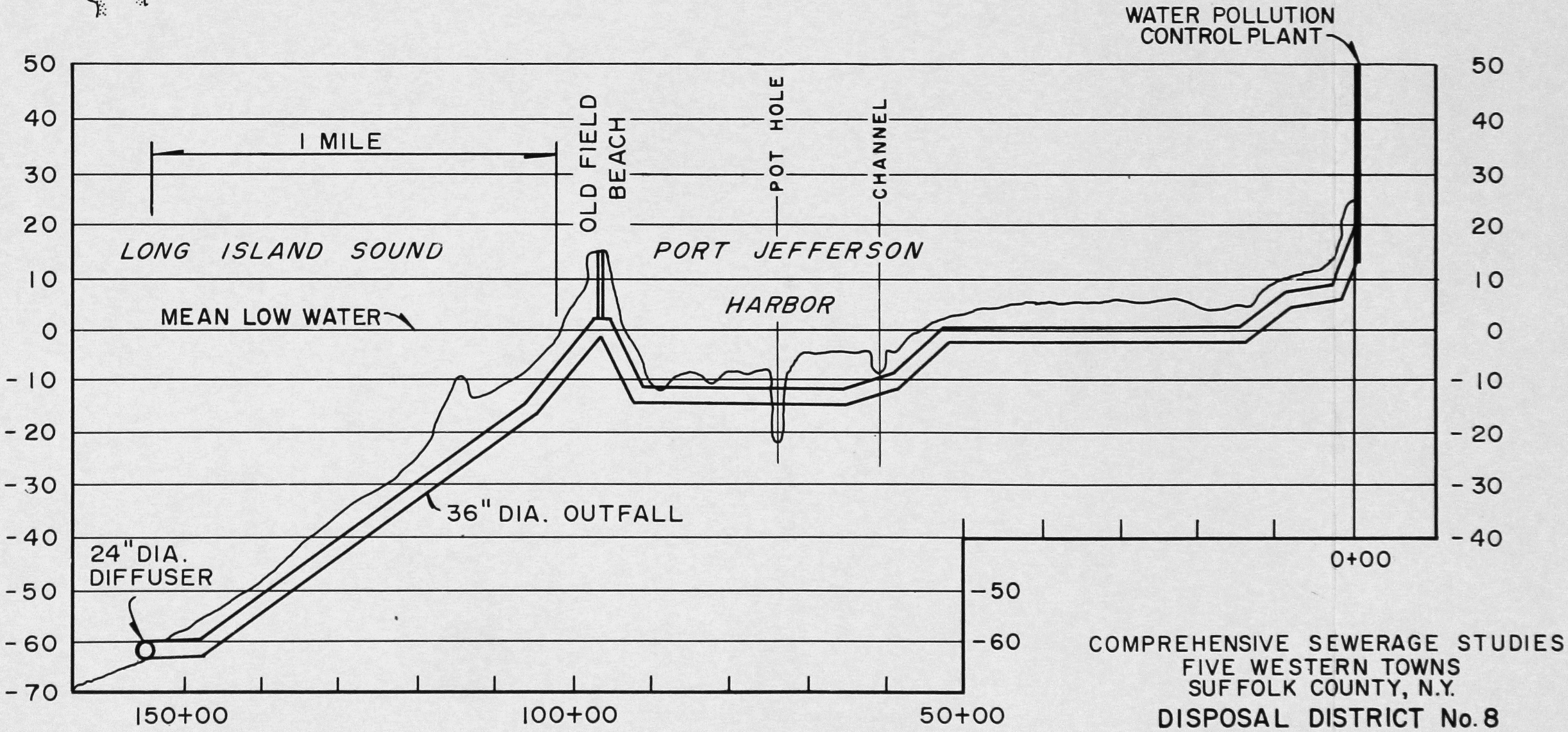
A diffusion study was conducted under the direction of Dr. Donald O'Connor during August and September 1963.

Mr. R. Hollman, Research Oceanographer at New York University served as consultant, and assisted in the current and temperature measurements. All of the aforementioned data are presented in the appendix together with pertinent discussions.



PLAN

SCALE: 1" = 2000'



PROFILE

SCALE: HORIZ. 1" = 2000'
VERT. 1" = 30'

COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.

DISPOSAL DISTRICT No. 8
OUTFALL SEWER
PLAN AND PROFILE

BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY-MELVILLE, N.Y.

Outfall Design

The outfall sewer is designed to convey 250 percent of the ultimate average flow of 8 mgd anticipated in the year 2015 or 20 mgd which will be adequate to handle peak hourly flows.

A 36-inch diameter outfall sewer and 24-inch diffuser will convey and discharge 20 mgd with a friction loss of approximately 40 feet. Effluent pumping facilities will be provided at the treatment plant for discharging treated effluent at high tide and high flow periods. With high tide elevation at 4.0 feet above mean sea level, and effluent weirs at the treatment plant at 25.0 feet above mean sea level, the 36-inch outfall will be capable of discharging up to 15 mgd without pumping. At lower tides, gravity flow will be greater. Although not anticipated, flows in excess of 20 mgd can be conveyed by means of additional pumping capacity at the plant.

Outfall Sewer Profile

The 36-inch diameter outfall sewer should be laid in a trench to protect it from the dynamic forces of the waves and currents. The 24-inch diameter diffuser must be laid above the Sound bottom to permit discharge of effluent through the ports. Plate 14 shows the proposed profile of the outfall sewer.

Effect of Outfall Discharge at Shoreline

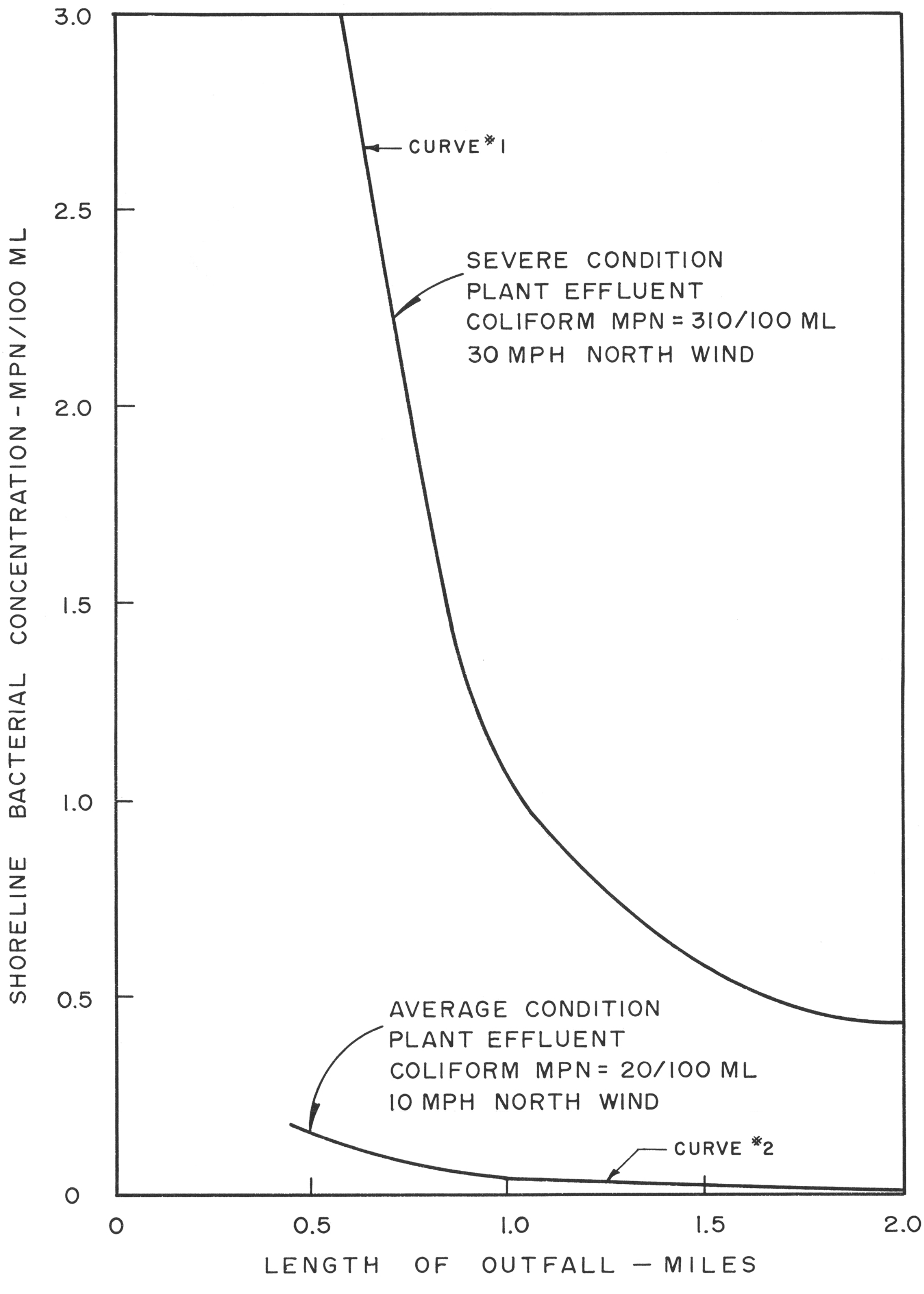
Two distinct types of dilution are available for discharges by a submarine outfall. The first is initial dilution which results as the effluent leaves the pipe and mixes with surrounding water by virtue of its discharge velocity and the associated turbulence. Density and temperature differences cause the sewage plume to rise resulting in the formation of a sewage field on the surface of the receiving water body. If some type of current is available, the field is drawn away from the point of discharge and a second form of dilution, termed physical dilution, due to natural turbulence causes the field to spread laterally and further mixing occurs. In the past, most effluents were discharged from the outfall pipe in a single jet.

Recent experience has indicated that greater ultimate dilution may be expected when disposal is accomplished through a diffuser manifold containing a number of discharge ports. This design significantly increases sea water entrainment.

The actual coliform concentration which may be anticipated at the shoreline is indicated on Plate 15. Curve number 1 represents a severe condition produced by a high velocity onshore wind (exceeded 1% of the time) and a poor quality effluent (exceeded 10% of the time). The probability of these two situations occurring at the same time is remote. However, even under this severe condition the coliform count at the shoreline is well below the standard of 240/100 ml.

Plate 15 represents average conditions during the summer months. Coliform counts are extremely low under average conditions.

Plate 15 indicates that an outfall extending one mile offshore and discharging a good quality effluent through an efficient diffuser will be entirely satisfactory to maintain the excellent water quality now existing in this area.



COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.

DISPOSAL DISTRICT No. 8
SHORELINE BACTERIAL CONCENTRATIONS
INITIAL AND PHYSICAL DILUTIONS COMBINED

BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY-MELVILLE, N.Y.

SECTION 8

RECHARGE CONSIDERATIONS
DISPOSAL DISTRICT NO. 8

General

The report for Disposal District No. 1 discussed all factors pertinent to recharge of treated sewage effluent for the western Suffolk Area. The reader is referred to the report on Disposal District No. 1 and the separate volume entitled "Appendix H - Recharge Studies" for a thorough background on recharge considerations for Suffolk County. The conclusions, high points and data for District No. 8 is presented in this section.

Conclusions of Studies

The conclusions drawn were that:

a) Recharge of treated sewage effluent is not required immediately.
b) Other methods of preserving or augmenting water supply should be studied.
c) Recharge of 8 million gallons per day of treated effluent is recommended for Disposal District No. 1.
d) Research must be continued, to evaluate results of recharge program to be initiated in District No. 1 and other programs to be undertaken by our organization as well as others throughout the country, before enlarging the program or extending the program to other Districts including District No. 8.
e) Acquisition of recharge sites in other Districts including District No. 8 should be undertaken immediately and reserved for use if and when recharge of treated effluent becomes necessary.

Reason For Recharge

There is only one reason to justify recharge of waste effluent; namely, to conserve underground water supply or stream flow.

Recharge Practice in Suffolk Area

Up to the present time, recharge of waste effluent for the purpose of conservation of underground water supply has never been a serious consideration but merely a secondary factor; the primary factor being that it is the only available means of disposal of effluent. It is only recently, in California and other arid areas, where recharge for the purpose of conservation has been given serious consideration. The chief source of water for this purpose is the Colorado River.

In the Suffolk Area, many inland plants have been designed and are in operation utilizing seepage beds or basins for the disposal of waste effluent. These include Pilgrim State Hospital, Central Islip State Hospital, Long Island Agricultural and Technical Institute, Grumman Aircraft Corp., several "package" treatment plants serving shopping centers and garden apartments. Recently several plants have been designed to serve housing developments, which will utilize seepage beds for the disposal of effluent. Seepage beds were adopted since this is the only method presently available for effluent disposal. At the same time, they served to replenish the ground water supply; however, the flows are negligible compared to total area withdrawals so conservation has never been a significant factor. With the rapid population growth of Nassau County and Suffolk County and the attendant increase in water withdrawals, much thought is being given to conservation of Long Island's underground water supply.

Ground Water Levels in Suffolk Area

Past history in the Brooklyn-Queens area showed that increasing water withdrawals in excess of natural replenishment resulted in depletion of ground water reservoir and intrusion of salt water with the final ruination of the ground water resources in this area.

In Nassau County, withdrawals have been proportional to population growth. The western portion of Nassau has been sewered and indications are that the ground water levels have lowered in the past 10 years. There is some evidence of the salt water interface approaching the ground water reservoir beneath the mainland in the southwest corner of Nassau County.

In Suffolk County, up to the recent drought of the last 3 years, there was no indication of lowering of ground water table nor of salt water intrusion, except in land areas surrounded by salt water from which water is being withdrawn. Evidences of this are in Eatons Neck, Lloyd's Neck and the north fork at the eastern end of Long Island, at Peconic, Southold, Greenport, Orient, and under the barrier beaches on the South Shore.

It is evident that the prime reasons for this intrusion is proximity to salt water, insufficient land area for natural replenishment, and excessive withdrawals compared to replenishment.

There are a number of agencies which are aware of the importance of ground water conservation and are charged with safeguarding the supply. These include the New York State Water Resources Commission, the New York State Department of Health, United States Geological Survey, Suffolk County Health Department, Suffolk County Water Authority and Suffolk County Board of Supervisors. Others directly concerned with the water supply include planning boards, industry, developers, and the public.

Ground Water Conservation - Geological Aspects

In the Suffolk area, ground water underlies the entire mainland. There are three water yielding strata:

1. Glacial
2. Magothy
3. Lloyd Sand

Glacial Acquifer - Eastern Suffolk and parts of western Suffolk presently derive most of its water supply from the upper or glacial acquifer which is most prolific and quite pervious. This is presently being replenished mostly from rain water traveling down through the ground and to a lesser extent from cesspools and injection wells used by industry.

In eastern Suffolk and certain areas of western Suffolk, the quality of water from this stratum is good; however, ground waters in certain areas of considerable extent in western Suffolk have become polluted from cesspool wastes containing detergents and other pollutants of domestic origin. In general, these areas are of high population density.

As a general pattern, water in this stratum travels north to Long Island Sound from a ridge which extends approximately along a line parallel to the south shore and about two-thirds the width of Long Island from the south shore. South of this ridge, water flows southerly to Great South Bay and the Atlantic Ocean.

Magothy Strata - The present tendency is to derive more and more water from the Magothy Strata as the upper water bearing stratum becomes unsatisfactory due to objectionable constituents. In Nassau County most water is derived from the Magothy. The Magothy consists of mixture of coarse sand, fine sand, silts and layers of clay. In certain areas the supply is prolific, in other areas sparse. It is believed the Magothy is replenished from the glacial acquifer in various areas. The Magothy strata is nearest to the surface along the Huntington-Babylon boundary.

In western Suffolk County these strata are very important, as it probably will be used for most of the water supply for a considerable number of years, at least until the Glacial Stratum is cleansed of pollution or until other means of water supply are developed. It is imperative that this stratum be preserved and continually observed for signs of pollution seeping down from the Glacial stratum and for signs of decreasing supply. It is also important to determine areas where these strata are being replenished.

From the data available, the most logical place for artificial recharge by seepage beds to these Magothy strata are along the Huntington-Babylon boundary, or in areas where the Magothy approaches the surface.

Lloyd Stratum - The Lloyd stratum underlies the Raritan clay layer and is just above bedrock. It is very deep and for this reason there are very few wells drawing water from this source. From the meager data available, this stratum does not yield much water; however, there are probably certain areas which can yield substantial quantities. It is not quite certain how this stratum is replenished. There may be certain areas where access is available from the Magothy. Along the coast, this stratum appears vulnerable to salt water intrusion.

Ground Water Conservation - Hydrological Aspects

Hydrological Balance - From accumulated data in the Suffolk area over the past fifty years, certain facts have been observed from which tentative conclusions may be derived.

The following hydrological data is presented in Geological Survey Water - Supply Paper 1768 for the Babylon-Islip Area:

Total effective land area..................	190 square miles
Average annual precipitation................	46 inches
Gallons per year........................	152,000 mg
Gallons per day............................	417 mg

Disposition of this volume is as follows:

Direct runoff................................	9 mgd
Evaporation-transpiration..................	190 mgd
To ground...................................	218 mgd
	417 mgd

Disposition of flow to ground is as follows:

Indirect runoff to streams..................	190 mgd
Ground water evaporation transpiration.......	10 mgd
Submarine outflow...........................	18 mgd
	218 mgd

The following hydrological data is presented in Geological Survey Water - Supply Paper 1669-D for the Huntington-Smithtown Area:

Total Effective Land Area	146 square miles
Average Annual Precipitation	49 inches
Gallons Per Year	125,000 mg
Gallons Per Day	344 mgd

Disposition of this volume is as follows:

Direct Runoff	4 mgd
Evaporation-Transpiration	193 mgd
Natural Recharge to Ground	147 mgd
	344 mgd

Disposition of the Natural Recharge to Ground is approximately as follows:

Indirect runoff to streams	33 mgd
Evaporation-transpiration	7 mgd
Indirect runoff to Long Island Sound and Submarine outflow	107 mgd

The aforementioned observations constitute an approximate water balance under present conditions in the Babylon-Islip area and the Huntington-Smithtown area. It can also be inferred that these conditions will continue if nothing is done to alter the situation; that is, the system is essentially in equilibrium with no addition or depletion of the ground water reservoir.

It should also be noted that 95 per cent of stream water runoff comes from ground water of the glacial stratum.

District 8

Unfortunately there has not been a study of the area encompassing District 8 by the U. S. Geological Survey however, any approximation of the hydrological balance based on the other adjacent areas is as follows:

Total Effective Land Area....................17 square miles
Average Annual Precipitation.................43" (1953-1965)
Gallons per year.........................12,800 mg
Gallons per day..............................35 mgd

Disposition of this volume is approximately as follows:

Direct runoff..................................1 mgd
Evaporation-Transpiration....................16 mgd
Natural Recharge to Ground...................18 mgd

Disposition of the 18 mgd to the ground is approximately as follows:

Underground Evaporation-Transpiration........1 mgd
Indirect runoff to Streams and
Long Island Sound............................15 mgd
Submarine Outflow.............................2 mgd

Ground Water Withdrawals

Suffolk County - In 1960, of the total amount of 96.1 mgd withdrawal for Suffolk County, 2.4 mgd was wasted and the balance returned to the ground waters by means of recharge basins, injection wells, cesspools and subsurface drainage system.

Babylon-Islip Area - In 1960, withdrawals were estimated to be approximately 40 mgd of which about 5 mgd was wasted and the balance returned to the ground.

Huntington-Smithtown - In 1957, withdrawals were about 14.7 mgd of which 4.2 was wasted and the balance was returned.

Disposal District No. 8 - An estimate of the present amount of water withdrawn based on population and proportion to the other Districts would be about 4 mgd withdrawn and 2 mgd wasted through discharge of the treatment plant in Port Jefferson and water used consumptively, and the balance returned to the ground water.

Tentative Conclusions

The above data, indicates that the net amounts wasted are very small or relatively insignificant when compared with the total amount naturally recharged to the ground. Most of the water naturally recharged is being wasted through underground flow to the streams, bays and the Long Island Sound.

The United States Geological Survey- Paper 1669-D for the Huntington-Smithtown Area under conclusions, states "Thus, the net withdrawal is relatively small in comparison with the estimated average rate of natural recharge. Moreover, water levels in observation wells for which long-term records are available, have remained relatively stable during the past two decades and do not suggest any downward trend attributable to pumping at present (1960) rates". These same conclusions apply to District 8.

The report continues,"A very substantial increase in the net rate of withdrawal from the ground-water reservoir could be sustained if the new centers of pumping were properly located with respect to existing well fields". Thus the authors recommend that new wells and well field be located at least 2 miles inland (south) from tidewater". This means that considerably more water could be withdrawn and wasted if the wells were properly located, which is a water supply and distribution problem.

Paper 1669-D also concludes that one of the problems which is becoming increasingly serious is contamination of the shallow ground water table and one partial recommended solution includes "construction of sanitary sewer systems in areas currently containing a high density of population or industry and likely to grow in the future."

Ground Water Conservation-Hydrological Effects Under Sewered Conditions

Population within District No. 8 including the State University, has been estimated as follows:

1964	15,530
1968	23,400
1980	47,050
2015	69,100

Sewage from District No. 8 with an allowance of 100 gallons per capita per day for domestic contribution and 1300 gallons per acre per day for industrial contribution would be as follows:

1968	2.5 mgd
1980	5.5 mgd
2015	8.25 mgd

These figures represent the amount which would prevail if the disposal districts were 100 percent served and all industrial flow collected.

From a practical standpoint, serving the entire area with collection facilities for District No. 8 is not feasible.

It is currently proposed to collect sewage flow from the existing Port Jefferson Sewer District and the State University with other areas to be served when they become built up sufficiently to warrant construction of sewers. Thus, initial flows would be approximately 1.5 mgd in 1968 increasing to approximately 4 mgd in 1980. This represents a net increase in ground water of 0.5 mgd in 1968 and 3 mgd in 1980 since the present plant is now discharging approximately 1 mgd to Port Jefferson Harbor. These quantities are relatively insignificant.

Possible Solutions or Preventive Measures to Safeguard Water Supply

As may be noted from the foregoing, there would probably be no serious problem until 1980. Beyond that period, however in order to maintain stream flows and to avoid the possibility of salt-water intrusion, certain measures may have to be undertaken. One or more of the following may be required:

1. Wells must be re-distributed with transmission mains.

2. Supplemental or alternate method of water supply or some combination of the following:

   (a) Importing water.

   (b) Desalinization.

   (c) Direct re-use of waste effluent following tertiary treatment.

   (d) Use of surface water supply.

3. Recharge of underground water supply with:

   (a) Treated sewage.

   (b) Stream runoff.

   (c) Combination of the two.

4. Creation of salt water barrier to enable lower water table with no salt water intrusion.

The above is presented as a general outline only. These and other significant factors require more thorough investigation in the form of a water supply study. Some other considerations that must be taken into account are:

   (a) Effect on salinity and shellfish or fishlife due to decreased fresh water runoff into Great South Bay.

   (b) Effect on Magothy stratum with continuous withdrawals.

Does natural replenishment exceed withdrawals, or will these strata be exhausted?

(c) Even with recharge at certain areas in close proximity to the Magothy, will this replenishment travel to areas where withdrawals occur?

Recharge Recommendations

From the considerations noted it is clear that recharge of treated waste effluent is not the only means of conservation or preservation of the underground water resources. However, it should also be clear that immediate planning is required to determine just what course should be followed in the years ahead when it will become necessary to preserve the water supply and sustain the anticipated population.

If no planning or foresight is exercised at this time, an emergency situation may arise and the solution at that time may cost many times more than would prevail if proper planning were adopted. As previously mentioned, one necessary step for proper planning is a thorough water supply study. A water study is presently being conducted under the auspices of the Suffolk County Health Department and the New York State Department of Health to review the entire water supply and distribution for Suffolk County.

Studies made by this office, our consultants and others in the field indicate that as of this date and the foreseeable future:

(a) Importing water would be too expensive.

(b) Desalinization, while the cost has been reduced as a result of current research, is still a more expensive method of providing water than from the present underground supply including recharge. In addition, there are many problems which require solutions before this procedure can be made feasible.

(c) Direct re-use of waste effluent, although possible with current methods of treatment, is still too costly when compared with other methods of providing water.

(d) Development of a surface water supply by means of reservoirs is impractical due to flat topography and large areas which would be required. However, further research should be performed on utilizing stream flow for recharge to the ground water.

Recharge, utilizing treated sewage or stream flow appears to be the most economical methods of preserving the underground supply.

In our opinion it is advisable to construct recharge facilities with a capacity of 8 mgd for District No. 1 to determine:

1. The practical aspects of recharge.
2. Hydrological effects on ground waters in recharge area.
3. Effect on quality of ground waters in area.
4. Effect on stream flow.
5. Effect on glacial and Magothy water bearing strata.
6. Cost of installation, maintenance and operation of recharge basins.
7. A basic method of recharge from which other alternate methods of recharge may be compared.

After several years of operation, and based on the data obtained, plans for extension of recharge system to District No. 8 could be made predicated on experience in the District No. 1 area. In the meanwhile studies should be continued regarding other ways and means of supplementing the ground water resources.

Current Studies Relating to Recharge in Suffolk County

A. Water Study - Presently the most important study under way is a study on the water supply of Suffolk County. The results of this study should indicate:

1) The amounts of sewage flow that can be discharged with little or no effect on the ground water reservoir

2) The most economical means of preserving the water supply; that is, whether recharge of sewage is necessary at all or whether some other method or recharge of stream flow is more preferable.

3) The locations where recharge may be required with relation to centers of pumping, streams, geological strata, etc.

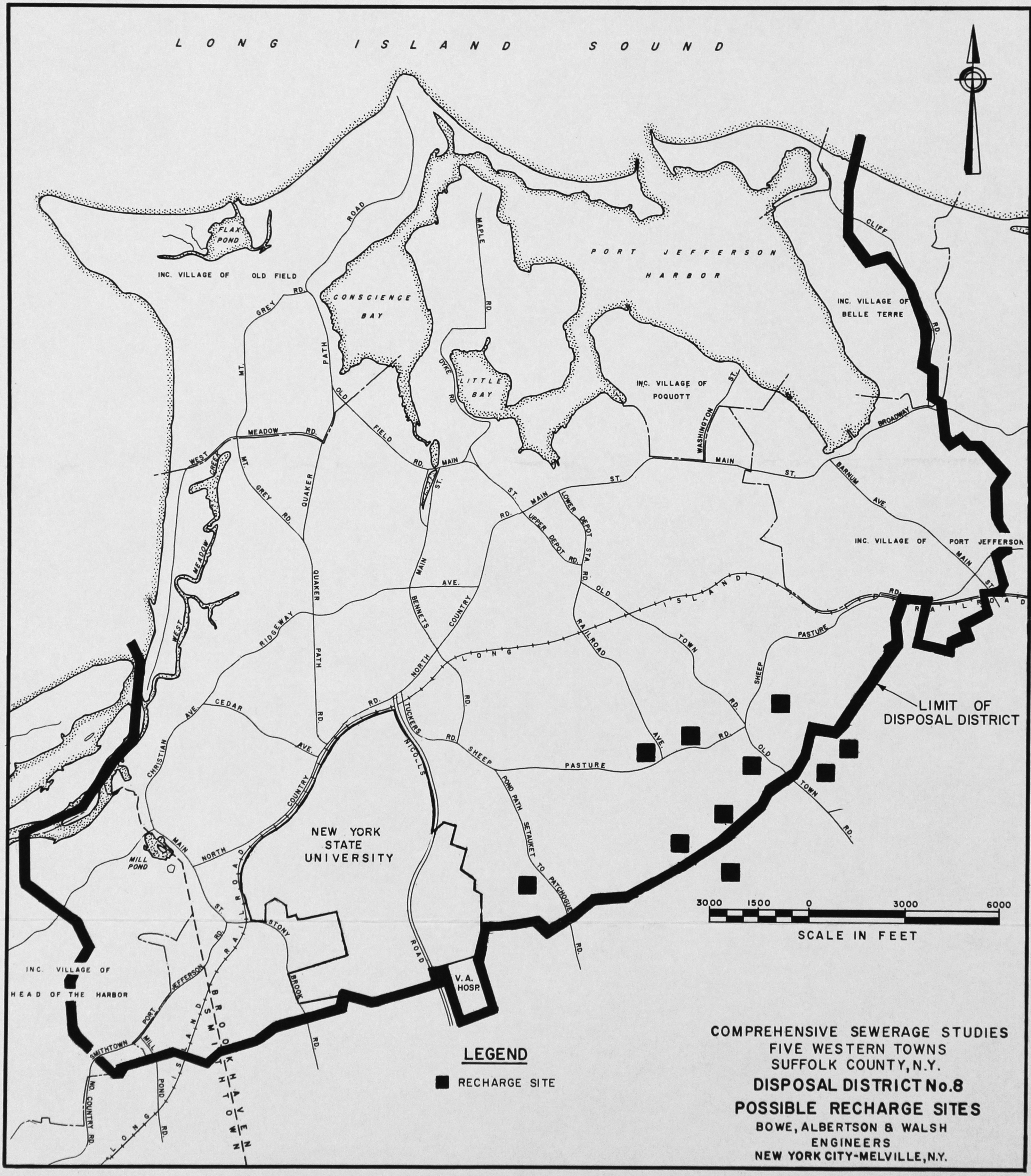
B. Nassau County Study - Nassau County in conjunction with the New York State Department of Health is presently performing studies of recharging treated sewage effluent by means of injection wells. In order to inject sewage by means of wells some form of tertiary treatment,which is expensive, is required. The results of these studies are not yet available as these studies are continuing.

C. Riverhead Study - A study is presently under way at the Riverhead Treatment Plant utilizing an underground simulator and studying the effects of discharging treated secondary effluent of the trickling filter type through the simulator to determine effects and rates, etc.

D. Bowe, Albertson & Walsh Study - This organization in conjunction with the Suffolk County Health Department and New York State Health Department is presently preparing an application to provide a pilot plant utilizing six different recharge basins. Secondary effluent of the type proposed for the County System will be discharged to each of these pilot basins to determine rates, quality of effluent at different depths, effect of different surface materials, effect of chlorination, effect of varying methods of operation and effect on ground water table. The plant will be located at the site of the Levitt housing development in Selden.

Acquisition of Recharge Sites

If after extensive research over the next 20 years, recharge of treated sewage effluent is found to be the most practical method of augmenting or conserving the water supply for Suffolk County in the area of District No. 8, and if recharge basins are found to be the best method of recharging the treated effluent as it is at present, then extensive areas will be required for this purpose. Accordingly, it would be desirable to acquire as much land as possible at this time, when land, although expensive, is still available. If other methods of supplementing the water supply are found, this acquired land can be used for



COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.

DISPOSAL DISTRICT No.8

POSSIBLE RECHARGE SITES

BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY-MELVILLE, N.Y.

PLATE 16

other public purposes or sold, presumably at a price to compensate for the investment.

A minimum of 20 acres should be acquired in blocks of 5 acres each across the district.

Some possible sites which, based upon presently available information should be desirable locations for recharge, are shown on Plate 16.

Cost

Cost estimates for the Disposal District Facilities include an amount of $200,000 which would be 20 acres at a price of $10,000 per acre. These costs are our estimate only, and should be verified by a qualified real estate appraiser and costs adjusted.

SECTION 9

COMPREHENSIVE PLAN

PROJECT COST SUMMARY

DISPOSAL DISTRICT NO. 8 FACILITIES

General

The report for Disposal District No. 1 contains a general discussion of the basis of costs presented in this section. That report includes cost curves for treatment plant construction, sewer construction, pumping stations, stream crossings, submarine outfalls and general construction cost index.

Sewage Works is comprised of the following:

(a) Disposal District Facilities - This includes the water pollution control plant, intercepting sewers, main pumping stations, outfall sewer and recharge facilities.

(b) Collection District Facilities - This includes lateral sewers and small pumping stations which are appurtenant to the disposal district facilities. These facilities include branches to the property line of the individual residences.

(c) House Connections - This is the sewer from the house or building to the sewer at the property line, which flows to the sewer in the street. Costs for this connection is payed for by the individual home owner, and work is normally performed by local plumbers. Costs vary from $2 to $4 per lineal foot.

This section will cover the capital costs, annual costs including debt service, operation and maintenance costs and annual charges to residents within the Disposal District for Disposal District Facilities which would prevail if the entire disposal facilities were constructed now. When these costs are added to the costs for Collection Facilities (Lateral Street Sewers), it will be seen that the resulting total charges to a served unit (home with a full valuation of $15,000) is excessive and therefore the total project including laterals is not feasible at this time. However, the comprehensive plan can be used as a guide for the development of Disposal District No. 8. As previously discussed, a first stage construction project was developed which will coordinate with the comprehensive plan for the entire district. This recommended first stage construction is discussed under the next section.

<u>Development Expenses</u>

An allowance of 20% has been included for development expenses which include legal, engineering, cost of financing, interest during construction, administrative and other pertinent expenses.

<u>Lands, Easements and Rights-of-Way</u>

A separate allowance has been made for real estate, easements and rights-of-way which are required for the complete execution of the project. These costs should be reviewed by a qualified real estate appraiser.

Disposal District No. 8 - Comprehensive Plan
Cost Summary - Disposal District Facilities

The cost summary for the Disposal District Facilities if the entire project were constructed now is shown in Table No. 17. The project includes a Water Pollution Control Plant with an initial capacity of 4 million gallons per day and an ultimate capacity to handle an average of 8 mgd, an Outfall Sewer for a maximum ultimate capacity of 20 mgd, and Interceptors, Pumping Stations and Force Mains which are designed to serve the ultimate flow from the entire area including the State University at Stony Brook.

It is assumed that the Town of Brookhaven will transfer the existing Port Jefferson Sewer District Facilities over to the County at no cost, however, it is also assumed that the County will take over the existing outstanding Bond Indebtedness of the Town for these facilities.

The cost summary includes an amount for the acquisition of recharge sites and land easements. These costs should be reviewed by a qualified real estate appraiser.

Tables 18, 19 and 20 are detailed cost breakdowns of each portion of the project.

TABLE NO. 17

DISPOSAL DISTRICT NO. 8
COMPREHENSIVE PLAN
COST SUMMARY - DISPOSAL DISTRICT FACILITIES

	1968 Cost - ENR 1100
Water Pollution Control Plant	$ 3,000,000
Interceptors, Pumping Stations and Force Mains	6,476,000
Outfall Sewer	1,540,000
Total Construction Cost	$ 11,016,000
Development Expense (20%) Engineering Design Supervision Legal Consultant Financial Consultant Bond Counsel Administration Interest during Construction	2,204,000
Contingencies (10%)	1,102,000
[1]Eligible Project Cost	$ 14,322,000
[2]Lands, Easements, and Rights-of-Way (Inclusive of Recharge Sites)	1,500,000
[3]Net Worth, Existing Plant and System	0
Present Bond Issue	336,000
Total Project Cost	$ 16,158,000

[1]Eligible for Federal and State construction grants
[2]Subject to review by real estate appraiser
[3]Existing District facilities assumed awarded to County at no cost.

TABLE NO. 18

DISPOSAL DISTRICT NO. 8
COMPREHENSIVE PLAN
COST SUMMARY - WATER POLLUTION CONTROL PLANT

		1968 Cost - ENR 1100	
Units			
Primary Pumping Station		$ 200,000	
Aerated Grit Chambers		30,000	
Primary Settling Tanks		100,000	
Aeration Tanks		500,000	
Secondary Settling Tanks		160,000	
Contact Tank-Chlorine Building		80,000	
Secondary Pumping Station		200,000	
Digestion Tanks		350,000	
Sludge Thickening Installation		50,000	
Administration Building		600,000	
	Sub-total		$2,270,000
Special Trades			
Electrical		100,000	
Heating and Ventilating		40,000	
Plumbing		30,000	
	Sub-total		170,000
Site Work			
Site Preparation		500,000	
Roadway and Walks		30,000	
Landscaping		10,000	
Fencing		20,000	
	Sub-total		560,000
	Total Construction Cost		$3,000,000
Development Expense (20%)			600,000
Contingencies (10%)			300,000
	[1]Eligible Project Cost		$3,900,000
Land Acquisition			250,000
	Total Project Cost		$4,150,000

[1]Eligible for Federal and State construction grants
[2]Subject to review by real estate appraiser

TABLE NO. 19

DISPOSAL DISTRICT NO. 8
COMPREHENSIVE PLAN
COST SUMMARY
INTERCEPTORS, PUMPING STATIONS AND FORCE MAINS

Interceptor	Pumping Station	Force Main	1968 Cost - ENR 1100
202			$ 139,000
203			255,000
207			144,000
209 West			900,000
209			652,000
211			162,000
212			41,000
214			61,000
215			205,000
A			832,000
B			2,540,000
	8-1 (Stony-Brook)		228,000
		8 - 1	25,000
	8-2 (Port Jefferson)		200,000
		8 - 2	92,000
	Total Construction Cost		$ 6,476,000
Development Expense (20%)			1,296,000
Contingencies (10%)			648,000
	[1]Eligible Project Cost		$ 8,420,000
[2]Lands, Easements and Rights-of-Way			950,000
	Total Project Cost		$ 9,370,000

[1]Eligible for Federal and State construction grants.
[2]Subject to review by real estate appraiser.

TABLE NO. 20

DISPOSAL DISTRICT NO. 8
COMPREHENSIVE PLAN
COST SUMMARY
OUTFALL SEWER

		1968 Cost - ENR 1100
Land Section: 6,000 l.f. of 36" dia.		$ 350,000
Subaqueous Section: 10,000 l.f. of 36"dia.		1,150,000
Diffuser Section: 400 l.f. of 24" dia.		40,000
	Total Construction Cost	$ 1,540,000
Development Expense (20%)		308,000
Contingencies (10%)		154,000
	[1]Eligible Project Cost	$ 2,002,000
[2]Easements and Rights-of-Way		100,000
	Total Project Cost	$ 2,102,000

COST SUMMARY
RECHARGE FACILITIES

[2]Land Acquisition only: 20 acres @ $10,000/Acre	$ 200,000

[1]Eligible for Federal and State construction grants
[2]Subject to review by real estate appraiser

Federal Aid - Construction

The Federal Government under Public Law 660 or Public Law 87-88 as amended will provide thirty percent (30%) of the eligible cost of a sewerage project. Eligible items are limited to treatment plants, Interceptors, Outfall Sewers and major pumping stations (Disposal Facilities) and include construction, engineering, legal and administrative costs, but exclude land costs. Limits of 1.2 million dollars on single projects and 4.8 million dollars for multi-municipal projects are set for projects in States where no State assistance is provided. However, in States providing assistance such as New York State, the Federal Government will provide matching grants which in New York State amounts to 30% of the total eligible project cost.

The Federal Government under the Housing and Urban Development Act of 1965 will provide up to 50 percent of the cost for lateral sewers (portions of the project not eligible under the Public Law 660), however there is little monies available for projects throughout the country at this time. Therefore, no allowance has been made for federal assistance in our estimate of annual charges.

New York State Aid - Construction

New York State, under Article 12 of the Public Health Law, will provide thirty percent (30%) of the eligible cost of a sewerage project plus pre-payment of the Federal share where there are insufficient federal funds, which is the situation at the present time. The eligible costs are for projects:

1) in accord with applicable comprehensive plans
2) eligible for Federal Grants
3) necessary for the accomplishment of the State water pollution control program
4) which will be constructed between May 12, 1965 and March 31, 1972.

New York State Aid - Operation

New York State under article 12 of the Public Health Law will also provide for one-third the cost for the operation and maintenance of a treatment plant for a period of 10 years commencing June 1, 1964. In our estimates for the operation and maintenance of the treatment plant this item was not included as it is relatively insignificant, however, applications should be filed and any assistance will reduce the annual charges slightly.

Long Island Veterans Hospital

A new Long Island Veterans Hospital will be constructed adjacent to and south of the State University. Preliminary conferences and correspondence with representatives of the Veterans Administration responsible for the planning of utilities indicates that the Hospital proposes to discharge its wastes to the State University's pumping station and thence to the new Disposal District Water Pollution Control Plant. It is assumed for the purposes of this report that a contract will be negotiated between the University and the Veterans Hospital. Therefore only one agreement will be required between the County and the University. The following Tables and charts, revenues, etc. reflect flows from the University and Hospital, however, they are listed as University only.

Preliminary planning for the Hospital indicates a facility with a bed capacity of 1,000 and approximately 1,825 employees. Anticipated sewage flow is 28,000 gallons per day. Suspended solids are expected to average 312 ppm with an additional 3.2 ppm if garbage grinders are provided as now anticipated.

New York State University at Stony Brook

Conferences have been held with representatives of the State University at Stony Brook and local authorities. As previously mentioned, the University now has a contract with the Town to treat and discharge all wastes from the University. The University has agreed to enter a new agreement with the County such that under the new comprehensive system the County will treat and discharge sewage from the University and the University will share their proportionate share of all capital costs and operation and maintenance costs.

It is assumed for this report that the University's share of capital cost would be in proportion to the design capacity of the units and the University's share of operation and maintenance costs would be in proportion to the actual metered flows.

Table 21 indicates the proportionate share of the capital costs borne by the University and the Net Costs to Disposal District No. 8.

Comprehensive Plan - Annual Costs Disposal District Facilities

The annual costs which will be charged to all properties within the limits of Disposal District No. 8 will be the sum of:

a) Debt service or the annual cost of paying for the bond issue required to construct the disposal district facilities.

b) Annual Operating and Maintenance Cost which is the cost to operate and maintain the disposal district facilities.

Debt Service

For estimating purposes a 30 year bond issue with an interest rate of 4% was assumed. These factors are average for this type of work, however, the actual costs will be those prevailing at the time of construction.

In order to determine approximate annual charges it was assumed that the construction program for the Disposal District Facilities will be completed in ten years.

The initial construction would have to comprise a completely functional system including the treatment plant and outfall sewer, to serve the existing Port Jefferson Sewer District and the State University. The approximate initial project cost to be financed would be $3,398,000 and the balance spread over the remaining nine years as shown in Table No. 22. Reference is made to Section 10 for discussion on Initial Construction.

Operation and Maintenance Cost

Discussion of what constitutes the annual operation and maintenance costs were presented in the report for Disposal District No. 1. The operation and maintenance costs for Disposal District No. 8 would be approximately $150,000 in 1968 with the University contributing approximately $45,000. These costs would increase in the year 1977 to approximately $300,000 as the system is expanded with the University's share increasing to $75,000.

TABLE NO. 21

DISPOSAL DISTRICT NO. 8
COMPREHENSIVE PLAN
PROPORTION OF CAPITAL COSTS BORNE BY THE UNIVERSITY AND THE DISTRICT

Item (1)	Total (By District) (2)	Proportion (By State Univ.) (3)	Net (By District) (4)
W.P.C.P.	$ 3,000,000	$ 1,500,000	$ 1,500,000
Interceptors	5,931,000	1,607,000	4,324,000
P.S. 8-1	228,000	95,000	133,000
F.M. 8-1	25,000	10,000	15,000
P.S. 8-2	200,000	---	200,000
F.M. 8-2	92,000	---	92,000
Outfall Sewer	1,540,000	385,000	1,155,000
Construction Cost	$ 11,016,000	$ 3,957,000	$ 7,419,000
Development Expense (20%)	2,204,000	720,000	1,484,000
Contingencies (10%)	1,102,000	360,000	742,000
Eligible Project Cost	14,322,000	$ 4,677,000	$ 9,645,000
Less 60% Fed. & State Grant	-8,593,000	- 2,806,000	- 5,787,000
Sub-total	$ 5,729,000	$ 1,871,000	$ 3,858,000
Lands, Ease., & R.O.W.			
W.P.C.P.	250,000	125,000	125,000
Int. P.S. & F.M.	950,000	250,000	700,000
Outfall	100,000	25,000	75,000
Recharge	200,000	50,000	150,000
Bond Indebtedness (Exist)	336,000	---	336,000
Project Cost to be Financed	$ 7,565,000	$ 2,321,000	$ 5,244,000

TABLE NO. 22

DISPOSAL DISTRICT NO. 8
COMPREHENSIVE PLAN
ANNUAL DEBT SERVICE

	Project Capital Cost			Annual Debt Service		
Year	Total Cumulative Cost	Proportion by State University	Net to District	Total Cumulative	Proportion by State University	Net to District
1968	3,398,000[1]	1,180,000	2,218,000	196,500	68,200	128,300
1977	7,565,000	2,321,000	5,244,000	437,500	134,200	303,300

[1]See Section 10, Table No. 27

Annual Charges - Disposal District Facilities

In order to determine the approximate annual charge to a resident in the disposal district (based on the available information at this time) the following assumptions were made:

a) Ten year construction program for disposal facilities.

b) Construction and Financing would begin in 1968

c) Bonds would be issued for 30 years at 4% interest rate.

d) Full valuation of the disposal district will be \$136,000,000 in 1968 and increase to \$213,000,000 by 1977, generally in proportion to the projected population increase. Estimates of predicted full valuation are shown graphically on Plates 17 and 18 for each of the towns, parts of which comprise Disposal District No. 8. The full valuation for Disposal District No. 8 is shown graphically on Plate 19.

e) Initial project cost to be financed would be \$3,398,000 with the balance of the total project cost to be financed spread over the remaining nine years.

f) Grants totalling \$3,769,000 in 1968 and \$8,593,000 by the year 1977 would be received from the Federal Government and New York State.

g) The existing facilities of the Port Jefferson Sewer District would be given to the County at no cost.

h) The Disposal District would assume the outstanding bond indebtedness of \$336,000.

i) The State University would share in the amount of $1,180,000 for the initial facilities and a total of $2,321,000 for all the disposal facilities.

j) The annual operation and maintenance costs would be $150,000 in 1968 increasing to $300,000 by the year 1977.

k) The University would share in the amount of $45,000 for the operation and maintenance costs in 1968 increasing to $75,000 by the year 1977.

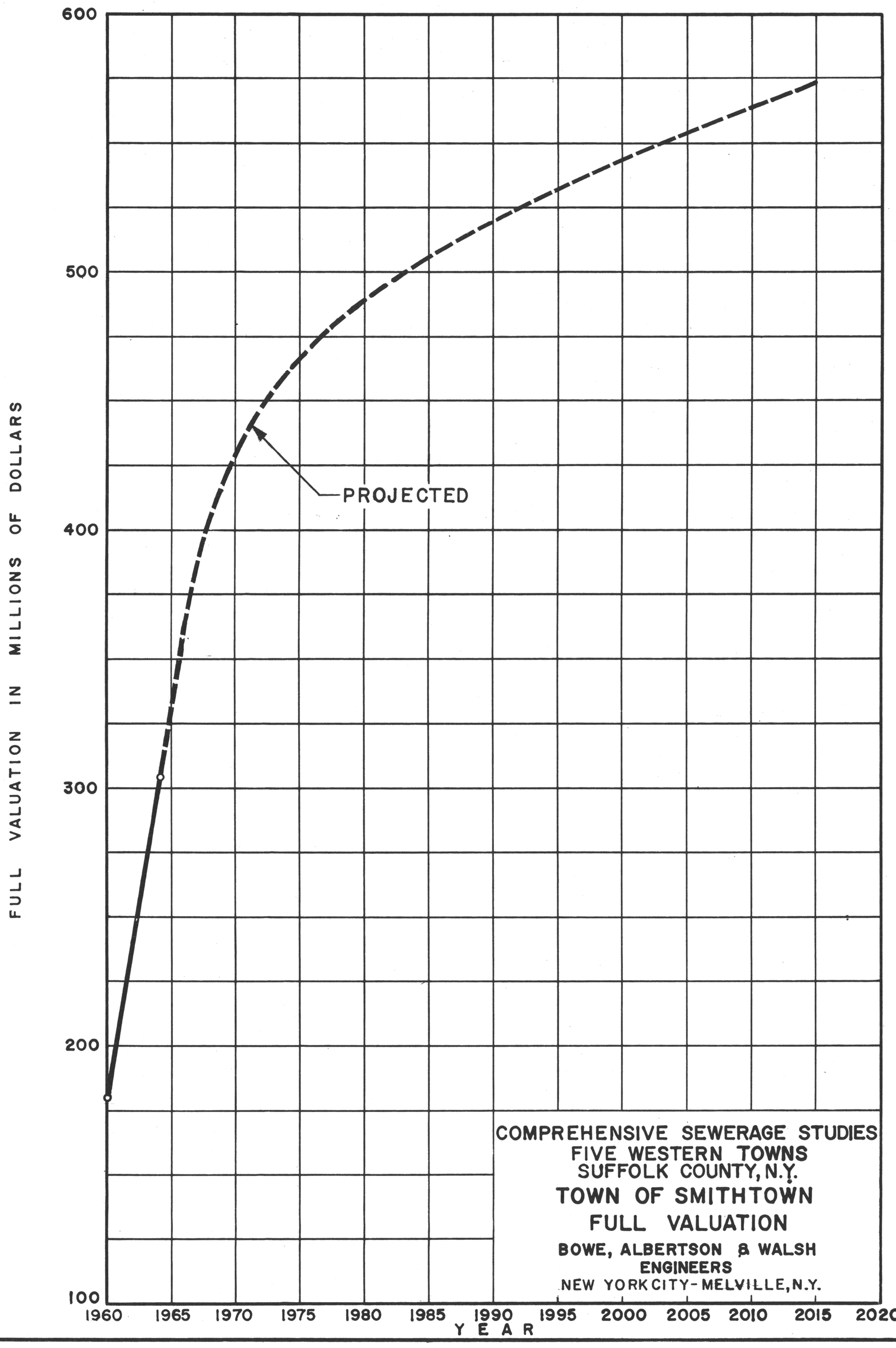
Table No. 23 entitled "Annual Costs and Annual Charges, Disposal District No. 8, Comprehensive Plan - Disposal District Facilities" was developed based on the above data. As can be noted from the Table, annual charges for a property owner in Disposal District No. 8 range from $1.72 per $1,000 of full valuation in 1968, to a maximum of $2.48 per $1,000 in 1977. These charges would apply to all property owners having assessable valuation within the limits of the disposal district.

TABLE NO. 23

DISPOSAL DISTRICT NO. 8
COMPREHENSIVE PLAN
ANNUAL COSTS AND ANNUAL CHARGES
DISPOSAL DISTRICT FACILITIES

	[1]Initial (1968)	Total (1977)
Eligible Project Cost	$ 6,281,000	$ 14,322,000
60% Federal and State Construction Grants	- 3,769,000	- 8,593,000
Sub-total	$ 2,512,000	$ 5,729,000
[2]Lands, Easements and Rights-of-Way	550,000	1,500,000
[3]Net Worth, Existing Plant and System	0	0
Present Bond Issue	336,000	336,000
Project Cost to be Financed	$ 3,398,000	$ 7,565,000
Debt Service (30 year @ 4%)	$ 196,500	$ 437,500
Operation and Maintenance	150,000	300,000
Total Annual Cost	$ 346,500	$ 737,500
Proportion by University (Debt Service and O&M)	- 113,200	- 209,200
Net Annual Cost	$ 233,300	$ 528,300
Full Valuation (Millions of Dollars)	$ 136	$ 213
Rate Per $1000 of Full Valuation	$1.72	$2.48

[1]See Section 10, Table No. 26
[2]Subject to review by real estate appraiser
[3]Existing District facilities assumed awarded to County at no cost

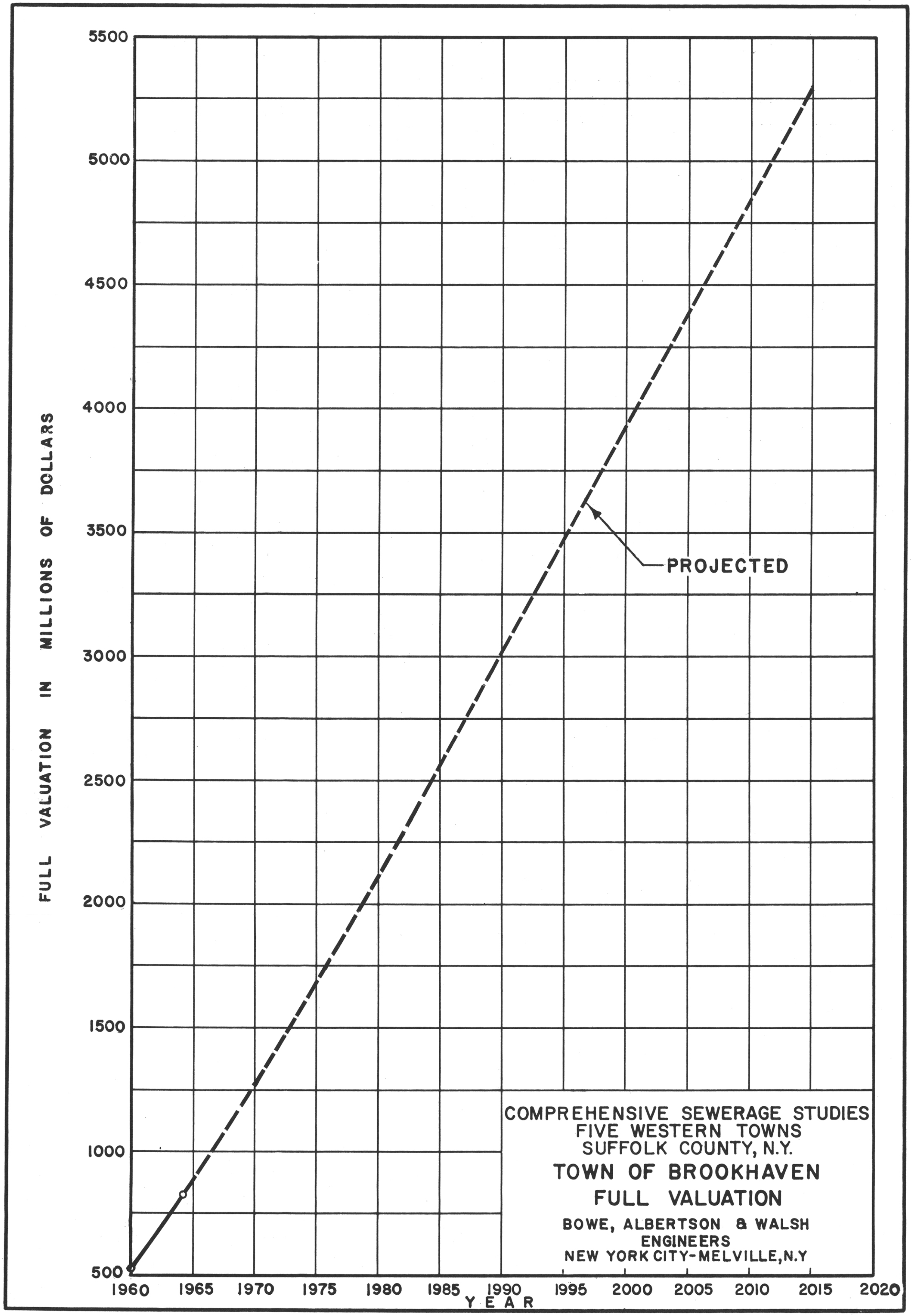


COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.

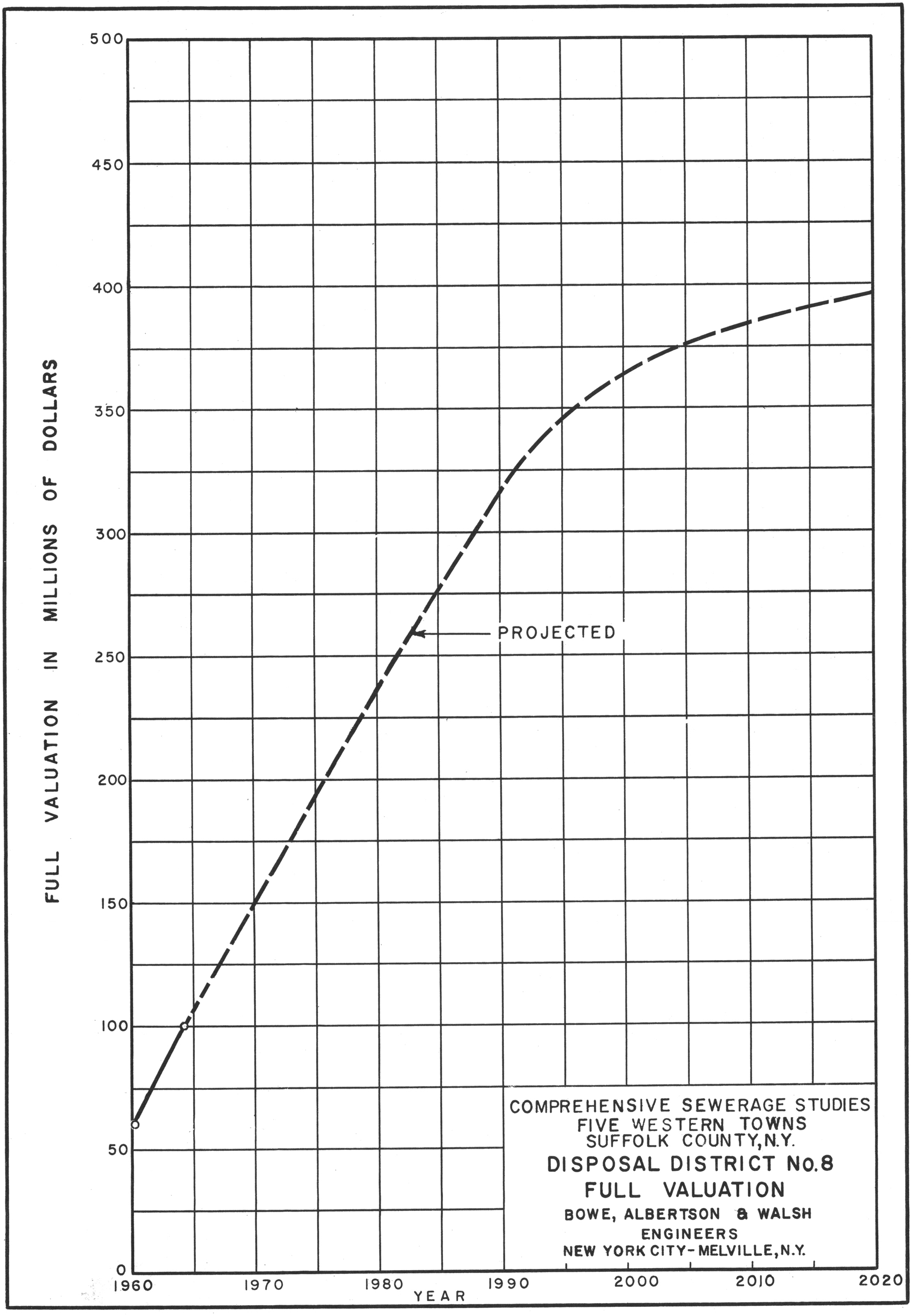
TOWN OF SMITHTOWN

FULL VALUATION

BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY - MELVILLE, N.Y.



5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
FULL VALUATION IN MILLIONS OF DOLLARS
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
YEAR
PROJECTED
COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.
TOWN OF BROOKHAVEN
FULL VALUATION
BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY-MELVILLE, N.Y


FULL VALUATION IN MILLIONS OF DOLLARS
0
50
100
150
200
250
300
350
400
450
500
1960
1970
1980
1990
2000
2010
2020
YEAR
PROJECTED
COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.
DISPOSAL DISTRICT No.8
FULL VALUATION
BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY-MELVILLE, N.Y.

COMPREHENSIVE COLLECTION DISTRICT

General

A study was made of the entire Disposal District to determine which areas are in immediate need of sewers and which areas may be served in the future.

At the present time, the area is relatively lightly populated with the exception of the area in and around the existing Port Jefferson Sewer District, the State University of Stony Brook, some residential and commercial sections in the Setauket Harbor area.

Under this section, costs and charges were determined on the basis that the entire disposal district would be served with lateral sewers, it being assumed that the areas would develop prior to construction of lateral sewers.

Area

The total area of the Collection District would be as follows:

Total Area - Disposal District No. 8	10,844 Acres
Stony Brook University	- 850 Acres
Long Island Veterans Hospital	- 45 Acres
Existing Port Jefferson Sewer District	- 90 Acres
Net Total Area Collection District No. 8	9,859 Acres

Therefore the total area of the Collection District is 9,859 acres, exclusive of the State University at Stony Brook, the Long Island Veterans Hospital and the existing Port Jefferson Sewer District. Collection facilities for the University and the Hospital are not the responsibility of the County.

Population

The population within the Collection District, again exclusive of the University, the Hospital and the Existing Sewer District would be as follows:

1960 -	8,100 persons
1964 -	11,000 persons
1968 -	14,800 persons
1980 -	23,300 persons
2015 -	40,300 persons

Full Valuation

The estimated full valuation of the Collection District is estimated and projected as follows:

1964 -	$ 92,000,000
1968 -	131,000,000
1977 -	206,000,000
1980 -	230,000,000
2015 -	378,000,000

The valuation for the Collection District is the Total Valuation for the Disposal District less the valuation within the Existing Port Jefferson Sewer District.

Pumping Stations and Force Mains

The area of the Collection District is generally rugged and a general study of the area indicates that approximately 10 small pumping stations will be required to serve the entire area.

Capital Costs - Collection District Facilities

The capital costs for the collection district facilities, based on a cost of $3,000 per acre for lateral sewers are shown in Table No. 24.

TABLE NO. 24

COLLECTION DISTRICT NO. 8
COMPREHENSIVE PLAN
COST SUMMARY
COLLECTION DISTRICT FACILITIES

	1968 Cost - ENR 1100
Lateral Sewers and Appurtenances	$ 29,577,000
Pumping Stations and Force Mains	800,000
Total Construction Cost	$ 30,377,000
Development Expense (20%) Engineering Design Supervision Legal Consultant Financial Consultant Bond Counsel Administration Interest during Construction	6,075,000
[1]Lands, Easements and Rights-of-Way	1,500,000
Total Project Cost	$ 37,952,000

[1]Subject to review by real estate appraiser

Annual Costs

Annual costs are comprised of:

a) Debt Service
b) Annual Operating costs

Construction Program

For the purposes of determining approximate annual charges it was assumed

a) 10 year construction program for collection facilities
b) 30 year bond issue @ 4%

Debt Service

Initial Construction (1968)

1/10 Total Construction Cost	$ 3,038,000
20% Development	608,000
10% Contingency	304,000
	$ 3,950,000
1/10 Lands, Easements & R.O.W.	150,000
Total Initial Project Cost to be Financed	$ 4,100,000
Debt Service - (30 year Bond Issue @ 4%) Investment Charge of 5.783%	$ 237,100

End of Construction (1977)

Total Project Cost (See Table No. 24)	$ 37,952,000
Debt Service	$ 2,194,800

Annual Operating and Maintenance Cost

The average length of Sewer per Acre is 130 lin. ft.

Total Length of Lateral Sewers :9,859 Acres x 130 L.F./Acre = 243 miles

Average Annual Operation and Maintenance Cost per mile of Sewer is $500/mile.

Average Annual Cost for a small pumping station is $4,000.

Therefore, the annual operation and maintenance costs are as follows:

1968: 1/10 Project 24 miles @ $500/mile = $12,000 + $4,000 (P.S.) = $16,000

1977: Total Project 243 miles @ $500/mile = $120,000 + $40,000 (P.S.) = $160,000

Summary - Annual Costs

	1968	1977
Debt Service	$ 237,100	$ 2,194,800
Operation and Maintenance	16,000	160,000
Total Annual Costs	$ 253,100	$ 2,354,800

Annual Charges - Collection Facilities

In order to determine the approximate annual charge to a resident in the collection district, the following assumptions were made based on the available information at this time.

a) 10 year construction program for the collection district facilities.

b) Construction and Financing would begin in 1968.

c) Bonds would be issued for 30 years at 4% interest rate.

d) Full valuation of the collection district would be $131,000,000 in 1968 and increase to $206,000,000 in 1977 generally in proportion to the projected population increase.

e) Initial project cost to be financed would be $4,100,000 with the balance of the total project cost to be financed, spread over the remaining nine years.

f) The annual operation and maintenance costs would be $16,000 in 1968, increasing to $160,000 in 1977.

g) The annual charges would be applied to all properties having assessed valuation within the collection district area.

Table No. 25 entitled "Collection District No. 8, Comprehensive Plan, Annual Costs - Annual Charges (General Tax Method) Collection District Facilities, Ten-Year Construction Program," was developed based on the above data. Annual charges to all property owners in the Collection District for collection facilities would range from $1.93 per $1,000 of full valuation in 1968 to $11.43 per $1,000 of Full Valuation.

In subsequent year the charges would reduce slightly until the bonds were fully paid.

SUMMARY

DISPOSAL DISTRICT AND COLLECTION DISTRICT CHARGES

Typical Charges to a Residence with Full Valuation of $15,000 General Tax Method

The total county charge to a unit or home is comprised of:

a) Disposal District Charge

b) Collection District Charge

Typical charges to a unit is as follows:

1968

a) Disposal District Charge
$1.72/1,000 x 15,000 = $25.80

b) Collection District Charge
$1.93/1,000 x 15,000 = $28.95
$54.75

1977

a) Disposal District Charge
2.48/1,000 x 15,000 = $ 37.20

b) Collection District Charge
11.43/1,000 x 15,000 = $171.45
$208.65

TABLE NO. 25

COLLECTION DISTRICT NO. 8
COMPREHENSIVE PLAN
ANNUAL COSTS - ANNUAL CHARGES (GENERAL TAX METHOD)
COLLECTION DISTRICT FACILITIES
TEN-YEAR CONSTRUCTION PROGRAM

	Initial (1968)	Total (1977)
Project Cost to be Financed	$ 4,100,000[1]	$ 37,952,000
Debt Service (30 Year @ 4%)	$ 237,100	$ 2,194,800
Operation and Maintenance	16,000	160,000
Annual Cost	$ 253,100	$ 2,354,800
Full Valuation	$131,000,000	$ 206,000,000
Annual Charge (General Tax) (Rate per $1,000 of Full Valuation)	$1.93	$11.43

[1] Assumes one-tenth (1/10) Total Construction Cost plus twenty percent (20%) Development Expense, ten percent (10%) Contingencies and one-tenth (1/10) Total Lands, Easements and Rights-of-Way.

As this charge is considered excessive, that is; more than $150 - $160 for a unit with a full valuation of $15,000, serving the entire area with collection facilities is not feasible at this time. Accordingly the scope of the disposal district facilities and collection facilities must be reduced such that the maximum charges are less than $150.

Following a study of the area a first stage construction is recommended in accordance with the comprehensive plan which system can be expanded as the population and hence valuation increases in the area. This is discussed in the next section.

SECTION 10

CONSTRUCTION PROGRAM - INITIAL CONSTRUCTION

General

Some general considerations pertinent to establishing a construction schedule are as follows:

1. Legal requirements to satisfy State and County Health Requirements.
2. Financial ability of district to pay capital costs.
3. Length of time before entire area will be served.
4. Order of priority for serving the respective area.
5. Ability of the County to administer the construction and operational program.
6. General economic conditions in area.
7. Availability of contractors and local labor.
8. Proper sequence for construction.
9. Availability of Federal and State grants or other financial assistance.
10. Initial construction must be a completely functional system including collection and disposal facilities.

With the above considerations taken into account, an initial program has been developed which can be expanded to suit conditions prevailing as the program progresses.

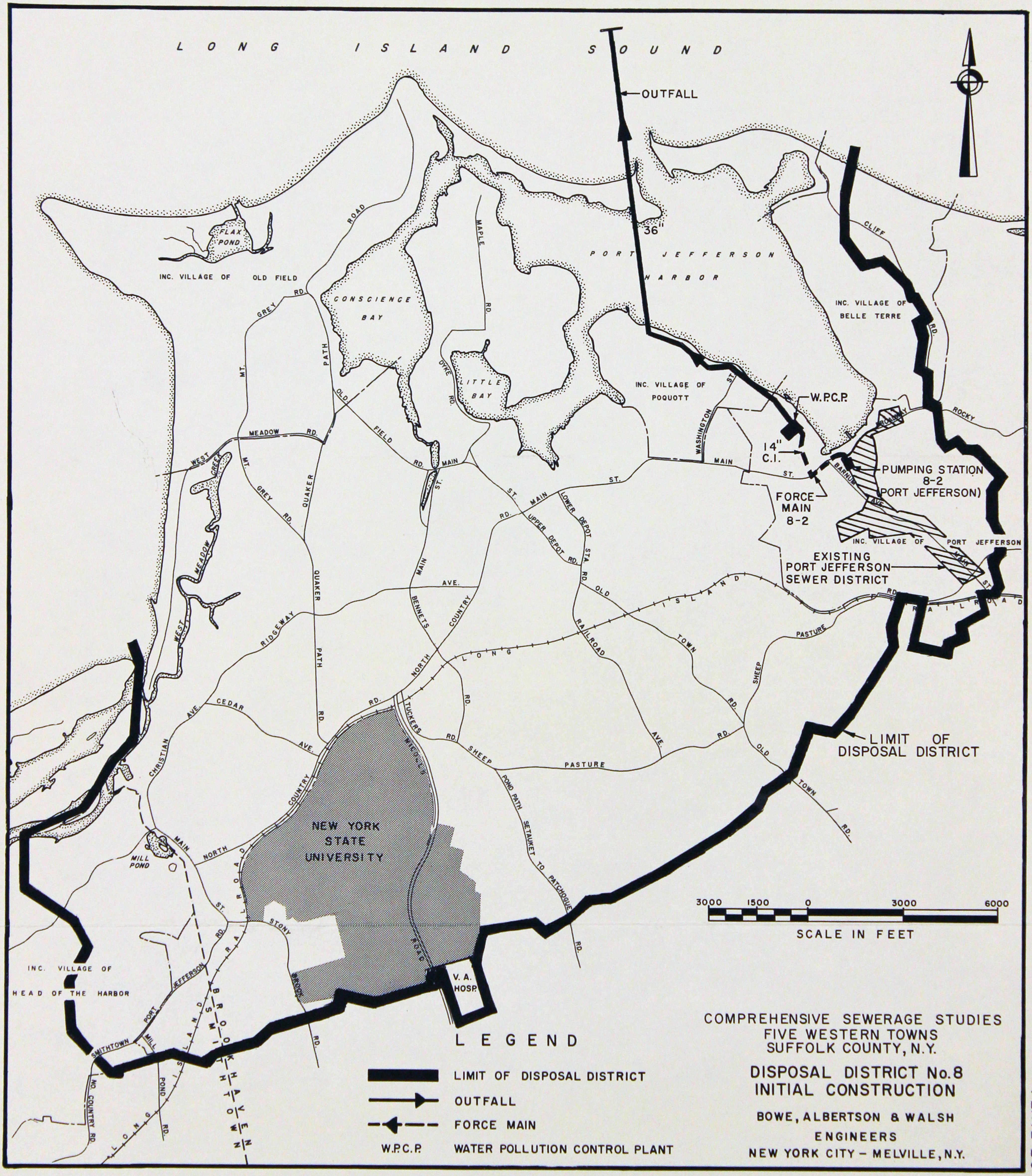

LONG ISLAND SOUND
OUTFALL
36"
PORT JEFFERSON HARBOR
FLAX POND
INC. VILLAGE OF OLD FIELD
CONSCIENCE BAY
LITTLE BAY
INC. VILLAGE OF BELLE TERRE
INC. VILLAGE OF POQUOTT
W.P.C.P.
14" C.I.
FORCE MAIN 8-2
PUMPING STATION 8-2 (PORT JEFFERSON)
INC. VILLAGE OF PORT JEFFERSON
EXISTING PORT JEFFERSON SEWER DISTRICT
LIMIT OF DISPOSAL DISTRICT
NEW YORK STATE UNIVERSITY
V.A. HOSP.
MILL POND
INC. VILLAGE OF HEAD OF THE HARBOR
BROOKHAVEN
SMITHTOWN
3000 1500 0 3000 6000
SCALE IN FEET
LEGEND
LIMIT OF DISPOSAL DISTRICT
OUTFALL
FORCE MAIN
W.P.C.P. WATER POLLUTION CONTROL PLANT
COMPREHENSIVE SEWERAGE STUDIES
FIVE WESTERN TOWNS
SUFFOLK COUNTY, N.Y.
DISPOSAL DISTRICT No. 8
INITIAL CONSTRUCTION
BOWE, ALBERTSON & WALSH
ENGINEERS
NEW YORK CITY – MELVILLE, N.Y.

PLATE 20

Disposal District Facilities

In order to provide a completely functional system, the initial construction must include the treatment plant, outfall sewer and a pumping station to serve the initial collection district areas.

The recommended initial collection areas to be served are the existing Port Jefferson Sewer District including services outside of the District which are now being served by the District, the Long Island Veterans Hospital, and the State University at Stony Brook which has its own collection facilities.

The remaining portion of the disposal facilities can be constructed as the need arises, the order of construction in accordance with the program for the expansion of the collection district facilities.

The recommended initial construction program for disposal district facilities is shown on Plate 20.

Project Cost - Initial Construction - Disposal District Facilities

The cost for the disposal district facilities recommended to be constructed initially is shown in Table 26, detailed breakdowns of these facilities were presented in previous tables.

Apportionment of Costs with the State University

Table 27, Initial Construction, Apportionment of Costs with State University indicates the costs and amounts estimated to be shared by the University and the net costs to the District. These costs take into account State and Federal Assistance. They are based on the design allowance for the University, which is 50% of the Water Pollution Control Plant and 25% of the Outfall Sewer, and their respective percentages of land acquisitions.

TABLE NO. 26

DISPOSAL DISTRICT NO. 8
INITIAL CONSTRUCTION
COST SUMMARY
DISPOSAL DISTRICT FACILITIES

		1968 Cost - ENR 1100
Water Pollution Control Plant (4 mgd)		$ 3,000,000
Pumping Station and Force Main 8-2 (Port Jefferson)		292,000
Outfall Sewer		1,540,000
Total Construction Cost		$ 4,832,000
Development Expense (20%)		966,000
Engineering Design		
Supervision		
Legal Consultant		
Financial Consultant		
Bond Counsel		
Administration		
Interest During Construction		
Contingencies (10%)		483,000
[1]Eligible Project Cost		$ 6,281,000
[2]Lands, Easements and Rights-of-Way		550,000
Water Pollution Control Plant	$ 250,000	
Outfall Sewer	100,000	
Recharge Sites	200,000	
[3]Net Worth, Existing Plant and System		0
Present Bond Issue		336,000
Total Project Cost		$ 7,167,000

[1]Eligible for Federal and State construction grants
[2]Subject to review by real estate appraiser
[3]Existing District facilities assumed awarded to County at no cost.

TABLE NO. 27

DISPOSAL DISTRICT NO. 8
INITIAL CONSTRUCTION
APPORTIONMENT OF COSTS WITH STATE UNIVERSITY

Item (1)	Total (By District) (2)	Proportion By State University (3)	Net (By District) (4)
Water Pollution Control Plant (4 mgd)	$ 3,000,000	$ 1,500,000	$ 1,500,000
Pumping Station 8-2	200,000		200,000
Force Main 8-2	92,000		92,000
Outfall Sewer	1,540,000	385,000	1,155,000
Construction Cost	4,832,000	1,885,000	2,947,000
Development (20%)	966,000	377,000	589,000
Contingencies (10%)	483,000	188,000	295,000
Eligible Project Cost	6,281,000	2,450,000	3,831,000
Less 60% State and Federal Grants	- 3,769,000	- 1,470,000	- 2,299,000
Sub-total	2,512,000	980,000	1,532,000
Lands, Easements & R.O.W.			
W.P.C.P.	250,000	125,000	125,000
Outfall	100,000	25,000	75,000
Recharge	200,000	50,000	150,000
Bond Indebtedness (Existing)	336,000		336,000
Project Cost to be Financed	$ 3,398,000	$ 1,180,000	$ 2,218,000

Annual Cost - Initial Construction - Disposal District No. 8 Facilities

The annual costs which are recommended to be borne by all properties within the limits of Disposal District No. 8 is the sum of:

(a) Debt Service or the annual cost of the bond issue required to construct initial disposal district facilities, and

(b) Annual Operating and Maintenance Cost which is the cost of operating and maintaining the disposal district facilities.

Debt Service

For estimating purposes, a 30 year bond issue with an interest rate of 4% was assumed; the actual rates will be those prevailing at the time of construction.

Annual Operating and Maintenance Costs

Section 12 of the report for Disposal District No. 1 describes what the operation and maintenance costs consist of and presents graphical charts typical for similar installations. These are applicable to Disposal District No. 8. Estimated annual operation and maintenance cost for the Initial Construction Program is shown on Table No. 28.

TABLE NO. 28

DISPOSAL DISTRICT NO. 8
ANNUAL OPERATION AND MAINTENANCE COSTS
DISPOSAL DISTRICT FACILITIES
INITIAL CONSTRUCTION

Annual Operation and Maintenance Cost	Total 1968	Proportion by University 1968	Net to District
Water Pollution Control Plant	$ 80,000	$ 40,000	$ 40,000
Pumping Station	10,000		10,000
General Operation and Maintenance	5,000		5,000
Outfall Sewer	5,000	1,250	3,750
Administration	50,000	3,750	46,250
Total Annual Operation and Maintenance Cost	$150,000	$ 45,000	$105,000

These costs would increase in the year 1977 to approximately $300,000 as the system is expended with the University's share increasing to $75,000.

Total Annual Costs

A summary of annual costs for the initial construction program is presented in Table No. 29.

TABLE NO. 29

DISPOSAL DISTRICT NO. 8
SUMMARY ANNUAL COSTS
INITIAL CONSTRUCTION

	Total	Proportion by University	Net to District
Debt Service	$196,500	$ 68,200	$128,300
Operation and Maintenance	$150,000	$ 45,000	$105,000
	$346,500	$ 113,200	$233,300

Annual Charges

The annual charges that would result to the residents of Disposal District No. 8 would be as shown in Table 30, Net Annual Charges to Residents within Disposal District No. 8.

TABLE 30

DISPOSAL DISTRICT NO. 8
NET ANNUAL CHARGES TO RESIDENTS WITHIN DISPOSAL DISTRICT NO. 8

	1968
Net Project Cost Financed by District	$ 2,218,000
Debt Service (30 year @ 4%)	128,300
Operation and Maintenance	105,000
Total Annual Cost	$ 233,300
Full Valuation District 8	$ 136,000,000
Cost per $1,000 of Full Valuation	$1.72

Annual Charge to Residence with Full Valuation of $15,000

The annual charge to residence within Disposal District No. 8 with a full valuation of $15,000 would be $15,000 x $1.72/1,000 or $25.80.

If no further facilities were constructed the charges would reduce gradually to $11.25 by the end of the bond issue period in 1997.

Annual Charges to State University

The annual charge to the State University for the Initial Construction Facilities are shown in Table 31.

TABLE 31

DISPOSAL DISTRICT NO. 8
NET ANNUAL CHARGE TO STATE UNIVERSITY

Net Project Cost Financed by State University	$ 1,180,000
Debt Service	68,200
Operation and Maintenance	45,000
Total Annual Cost	$ 113,200

The State can pay an initial amount for the capital costs and annual payments for operation and maintenance or the entire amount may be financed similar to the District.

Annual Charges to Residents Within the Existing Port Jefferson Sewer District

The collection areas served by the initial construction facilities include the Stony Brook University and the Port Jefferson Sewer District.

The charge to residents within the Port Jefferson Sewer District would be \$1.72/\$1,000 of full valuation, plus a small charge for the operation and maintenance of the lateral system. Assuming an annual operation and maintenance cost of \$5,000 for the collection system, the annual charge would be \$1.00 per \$1,000 of Full Valuation based on an estimated Full Valuation of \$5,000,000 for the existing District. The total charges then would be as follows for a residence with a full valuation of \$15,000.

Charges to Residence in Port Jefferson Sewer District With Full Valuation of \$15,000

Disposal District Charge	1.72/1,000 x 15,000 =	\$25.80
Collection District Charge	1.00/1,000 x 15,000 =	15.00
		\$40.80

Future Collection Districts

The above charges are based on an initial construction program of Disposal Facilities only. The charges would be to all assessed properties within the District, including those within the existing Port Jefferson Sewer District.

The disposal facilities would serve the existing Port Jefferson Sewer District and the Stony Brook University; therefore, there is no collection facility or collection District charge except for a slight additional charge to the residents within the existing Port Jefferson Sewer District to maintain the existing lateral sewers as previously discussed.

As the surrounding areas develop, other collection districts may be formed which may be feasible. Individual studies will be required for each area to determine the feasibility. If an area is feasible, then the Interceptors would be extended to serve the area. A feasibility study would take the cost of Interceptors into account as well as the cost of lateral sewers.

If future government assistance programs develop with sufficient funds for the construction of lateral sewers, the construction of lateral sewers or creation of collection districts will become feasible at a much earlier date.