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Beach Changes at Long Beach Island, New Jersey, 1962-73

by

Martin C. Miller, David G. Aubrey, and Joseph Karpen

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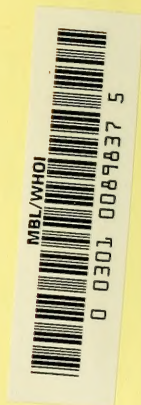
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<table border="0"> <tr> <td>Beach changes</td> <td>Groins</td> </tr> <tr> <td>Beach erosion control</td> <td>Long Beach Island, N.J.</td> </tr> <tr> <td>Beach profile surveys</td> <td>Storm erosion</td> </tr> </table>			Beach changes	Groins	Beach erosion control	Long Beach Island, N.J.	Beach profile surveys	Storm erosion
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Beach erosion control	Long Beach Island, N.J.							
Beach profile surveys	Storm erosion							
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Beach profile line data collected as part of the Beach Evaluation Program (BEP) were examined from 32 profile sites along Long Beach Island, New Jersey. A total of 2,158 profile line surveys were examined, using empirical eigenfunction analysis and other measures of beach variability. Most profile lines have shown an accretionary trend since 1962 with rates between 2.3 and 0.24 meter per year in spite of erosion estimates due to sea level rise on the order of 0.68 meter per year. A great deal of variability in profile line (continued)								

change takes place along the beach, increasing from north to south, due to the location of profile lines relative to structures and offshore linear shoals.. Detailed closely spaced profile lines taken over a year in a groin field near the north end of the island indicate littoral transport directions shift from north to south. Evidence of a littoral transport node near the north end of the groin field has been found. Net transport south of the node is toward the south, but the rate could not be established due to lack of adequate wave data. Profile line variability within groin cells shows that single profile lines are not sufficient to determine the net change within a cell. The design of future beach monitoring studies should consider coastal structures, offshore bathymetry, the method of analysis, and the scales of processes under study. A coastal storm in November 1968 moved the MSL back as much as 22 meters; however, the beach recovered without artificial measures. The offshore bathymetry shows a series of shoreface-connected linear shoals at several locations along the island. Limited data show that these have remained stable and that most beach variability takes place in water shallower than 3 meters.

PREFACE

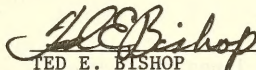
This report is one of a series describing the results of the U.S. Army Coastal Engineering Research Center (CERC) Beach Evaluation Program. One aspect of the program, and the subject of this report, is to provide basic engineering information on changes in the volume of sand on beaches above mean sea level, and on changes in shoreline position, as obtained from long-term beach survey projects. The 11-year study on Long Beach Island, New Jersey, was begun shortly after the catastrophic storm of 5 to 9 March 1962. The work was carried out under the CERC beach behavior and restoration program.

The report was prepared by Martin C. Miller (principal investigator), Science Applications, Inc. (SAI), Raleigh, North Carolina; David G. Aubrey, Woods Hole Oceanographic Institution, Massachusetts; and Joseph Karpen, SAI, under CERC contract No. DACW72-79-C-0020. Beach profile surveys were performed by the U.S. Army Engineer District, Philadelphia, under the supervision of H. Spies, except for a period in 1963 and 1964 when the work was contracted to Mauzy, Morrow and Associates of Lakewood, New Jersey. Visual wave data were contributed by P. Kief and H. Wilson. M.V. Fleming, T.J. Lawler, J. Buchanan, and B. Sims developed the CERC computer programs used for editing, analyzing, and displaying the beach profile data. Eigenfunction analysis programs were written by D. Aubrey. J.L. Miller, J.A. Tarnowski, and K.P. Zirkle assisted in data reduction. The authors acknowledge and appreciate the helpful review comments from G. Ashley, W. Birkemeier, A. DeWall, E. Hawley, B. LeMehaute, and C.L. Vincent.

A.E. DeWall was the contract monitor, under the general supervision of R.M. Sorensen, Chief, Coastal Processes and Structures Branch, CERC.

Comments on this publication are invited.

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TED E. BISHOP
Colonel, Corps of Engineers
Commander and Director

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CONVERSION FACTORS, U.S. CUSTOMARY TO METRIC (SI) UNITS OF MEASUREMENT

U.S. customary units of measurement used in this report can be converted to metric (SI) units as follows:

Multiply	by	To obtain
inches	25.4	millimeters
	2.54	centimeters
square inches	6.452	square centimeters
cubic inches	16.39	cubic centimeters
feet	30.48	centimeters
	0.3048	meters
square feet	0.0929	square meters
cubic feet	0.0283	cubic meters
yards	0.9144	meters
square yards	0.836	square meters
cubic yards	0.7646	cubic meters
miles	1.6093	kilometers
square miles	259.0	hectares
knots	1.852	kilometers per hour
acres	0.4047	hectares
foot-pounds	1.3558	newton meters
millibars	1.0197×10^{-3}	kilograms per square centimeter
ounces	28.35	grams
pounds	453.6	grams
	0.4536	kilograms
ton, long	1.0160	metric tons
ton, short	0.9072	metric tons
degrees (angle)	0.01745	radians
Fahrenheit degrees	5/9	Celsius degrees or Kelvins ¹

¹To obtain Celsius (C) temperature readings from Fahrenheit (F) readings, use formula: $C = (5/9) (F - 32)$.

To obtain Kelvin (K) readings, use formula: $K = (5/9) (F - 32) + 273.15$.

BEACH CHANGES AT LONG BEACH ISLAND, NEW JERSEY, 1962-73

by
Martin C. Miller, David G. Aubrey, and Joseph Karpen

I. INTRODUCTION

Beach profile data from 32 profile stations along the oceanside of Long Beach Island, New Jersey, from Barnegat Inlet at the north end of the island to the Brigantine National Wildlife Refuge, about 4 kilometers north of Beach Haven Inlet, were collected from 1962 to 1973 by the U.S. Army Engineer District, Philadelphia, as part of the U.S. Army Coastal Engineering Research Center (CERC) Beach Evaluation Program (BEP) (formerly known as the Pilot Program for Improving Coastal Storm Warnings or the Storm Warning Program). The BEP was initiated after the Great East Coast Storm of March 1962 to observe variations on typical beaches in response to waves and tides of specific intensity and duration. Twelve beaches in the region hardest hit by that storm (Massachusetts to North Carolina) are under study in this program. The movement and the devastation of the March 1962 storm are described in U.S. Congress (1962), U.S. Army Engineer Division, North Atlantic (1963) and Bretschneider (1964). Other important applications of the BEP include use of the data in generating a predictive model of beach erosion (Galvin, 1969) and in providing representative values of basic engineering information for the planning and design of protective structures or remedial measures for stabilizing and maintaining beaches (Everts, 1973).

This report presents an analysis of the beach profile data collected at Long Beach Island, documents the locations of the profile lines, and evaluates the relationship of changes in beach elevation, sand volume, and shoreline position to changes in waves, water level, sediment size and supply, storm events, and coastal structures. The analysis includes a review of previous studies in the area to determine the relevant long-term trends in waves, winds, and tides.

Variability in the shape of the beach profile was analyzed using the empirical eigenfunction technique as well as by other standard methods performed at CERC. Changes were evaluated on three time scales: (a) short-term changes caused by individual storms or events occurring between surveys; (b) seasonal changes observed over the typical 3-month season; and (c) long-term changes that occur yearly. Spatial variability in both the shore-parallel and shore-normal directions was analyzed to determine the effects of coastal structures and systematic changes caused by variable wave refraction and other factors. Particular emphasis has been given to the effects of storms and to the evaluation of the closely spaced profile data obtained within the vicinity of a selected groin field.

II. THE STUDY AREA

1. Geography and Geomorphology.

Long Beach Island (Fig. 1) is a barrier island located along the coast of southern New Jersey. It separates the Atlantic Ocean and three shallow bays and associated salt marsh areas, each of which extends along approximately equal

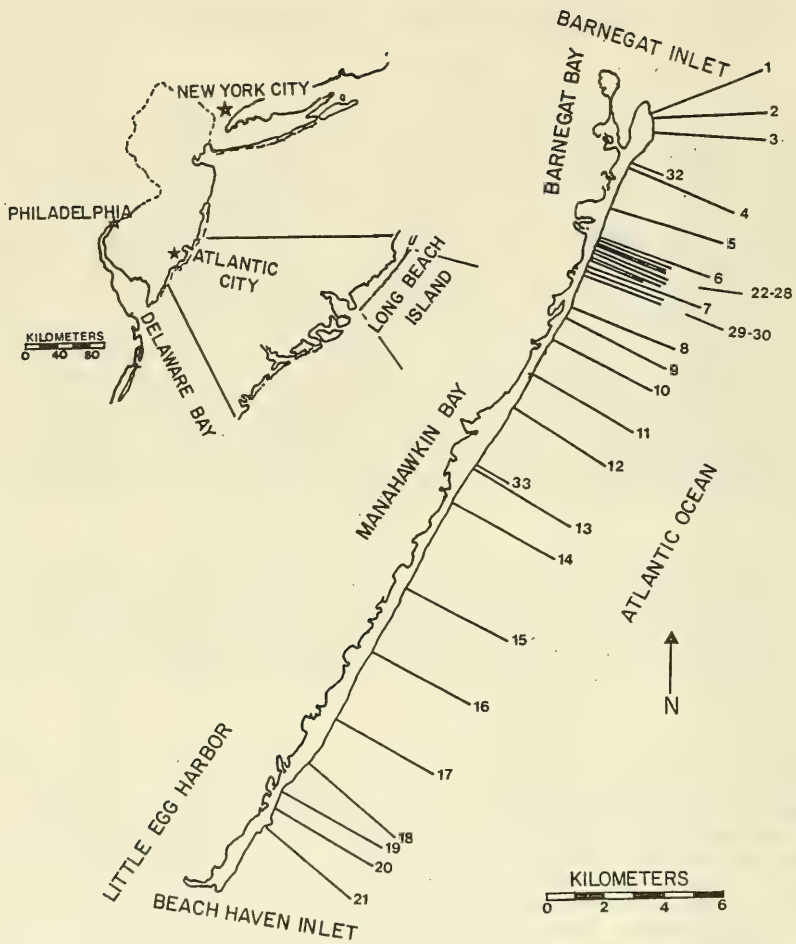


Figure 1. Profile line locations at Long Beach Island, New Jersey (after DeWall, Pritchett, and Galvin, 1977; Everts and Czerniak, 1977).

thirds on the island's western side. The bays, from north to south, are Barnegat Bay, Manhawk Bay, and Little Egg Harbor. No major rivers contribute to the bay waters. These are connected to the ocean through Barnegat Inlet at the north end and Beach Haven Inlet at the south end. Both inlets are areas of active sediment transport. The island has an east-southeast exposure of 32 kilometers of nearly straight sand beach consisting of quartz sand with median diameter of 0.35 millimeter (Ramsey and Galvin, 1977). Tides are semidiurnal with the normal range varying from 0.88 to 1.52 meters at neap and spring tides, respectively. Tide data from the recording station at Atlantic City have been nearly continuous since 1911. An analysis of water levels at Atlantic City from 1912 to 1953 indicates a rise in sea level at an average rate of 42.7 centimeters per 100 years. The trend appears to continue during the period 1954-65 (U.S. Army Engineer District, Philadelphia, 1974). The beach area from the Barnegat lighthouse to the Brigantine National Wildlife Refuge is heavily structured with 110 groins, 83 of which have been built or rebuilt during the period 1962-73 (Everts and Czerniak, 1977). "Critical" erosion is said to exist along this stretch of beach (U.S. Army Engineer District, Philadelphia, 1974). The net sediment transport is toward the south (Caldwell, 1966). The island is narrow and of generally low elevation with a nearly continuous sand dune (5 to 8 meters above MLW) extending along the ocean front. Most development has taken place landward of the dune, but some houses have been built directly on the dune crest. Plantings of American beachgrass, drift fences, and limited boardwalk beach access sites have been established to help preserve the remaining undeveloped dunes (Fig. 2). Though the beaches and dunes are active, the basic shape has varied little over the years from 1955 to 1965 (U.S. Army Engineer District, Philadelphia, 1974). The dune slope is about 1:5 while the beach berm, from the base of the dune to MLW, slopes about 1:15. The foreshore slope increases somewhat during the winter to 1:12 (Birkemeier, 1979). The only access to the mainland is provided by U.S. Highway 72, along a 10-kilometer causeway. Because it is relatively low lying and heavily populated, Long Beach Island may suffer extensive physical and economic damage during storms.

2. Littoral Processes.

The New Jersey barrier beaches have been periodically surveyed since 1840. Analyses of the beach profile data as well as measurements of nearshore bathymetry and contours of the 1.83-, 3.66-, and 5.49-meter isobaths are presented in Beach Erosion Board (1958) and U.S. Army Engineer District, Philadelphia (1974) along with a summary of the general location of the high water shoreline from 1840 to 1965. The studies indicate that the beaches at Long Beach Island have undergone periods of erosion and accretion that varied in magnitude and conclude that recession has been the general trend along the entire island. Barnegat Inlet, at the northern end of the island, is stabilized by a pair of converging stone jetties which were in various stages of construction from 1926 to 1942 (Fig. 3). Though sediment transport is still extremely active in the inlet, the jetties have stopped the southerly migration of this end of the island, which averaged 10 meters per year during the period 1840 to 1936. The history of jetty construction and the problems associated with inlet stabilization have been reviewed by Caccese and Spies (1977). The stone jetties are the site of a large ebb tidal delta asymmetric toward the south. A large sand wedge, which has accumulated along the north jetty at the south end of Island Beach State Park, provides evidence of net southerly transport. Waves refracting around the ebb tidal delta cause a local area of northerly transport under most conditions immediately south of the south jetty. Winds from the east and southeast



a. View looking south from profile line 1, showing extensive sand fencing, groins, and development.



b. View south from profile line 5, showing development on the dunes and the line of wave drifted material at the base of the dune scarp.

Figure 2. Views of the different techniques used to preserve the undeveloped dunes on Long Beach Island.



c. Typical beach access through dunes at profile line 15. Such locations were washover sites during the March 1962 storm.



d. View north from profile line 19, showing low dunes in contrast to the northern end of the island.

Figure 2. Views of the different techniques used to preserve the undeveloped dunes on Long Beach Island.--Continued

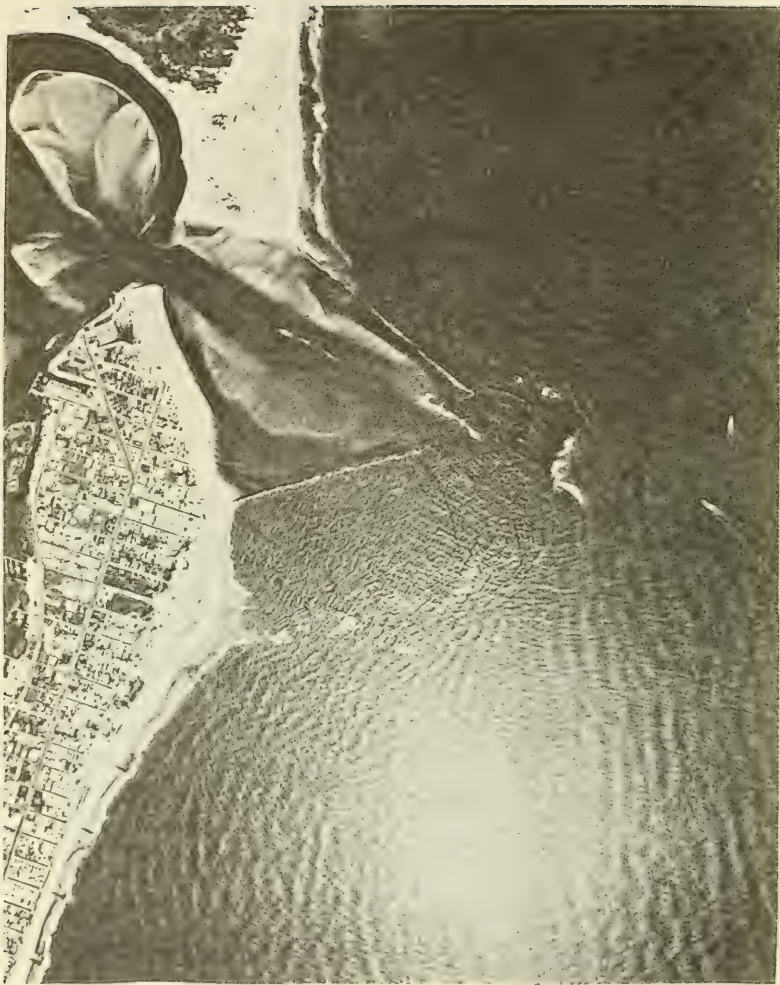
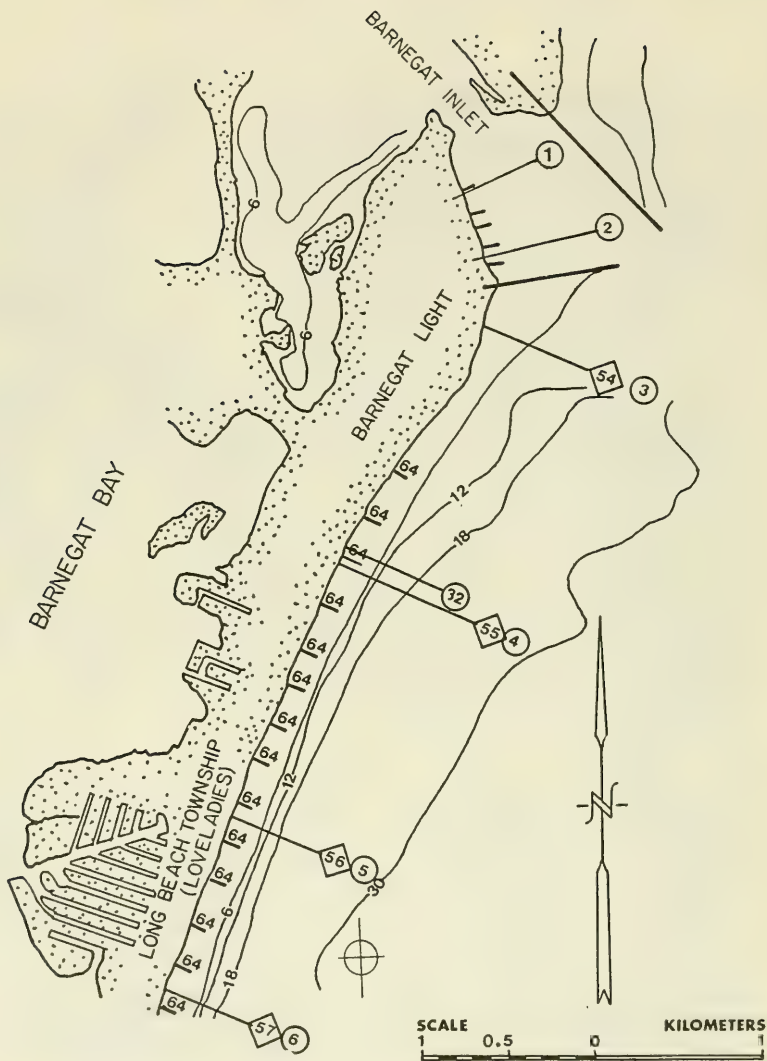


Figure 3. Air photo of Barnegat Inlet and converging jetties. Note the confused wave refraction over the shoal south of the south jetty.

cause northerly transport on both sides of the inlet. A nodal zone, north of which transport is predominantly northerly and south of which it is southerly, has been postulated to exist north of Barnegat Inlet based on the relative orientations of the shoreline and the prevailing direction of wave approach (U.S. Army Engineer District, Philadelphia, 1974). Beach Haven Inlet, at the southern end of the island, is unstructured and remains extremely active with shifting tidal channels and bar formations occasionally blocking the inlet completely (U.S. Army Engineer District, Philadelphia, 1974). The shoreface morphology of the southern end of Long Beach Island was studied by Goldsmith, Farrell, and Goldsmith (1974) in an effort to document the dynamic nature of the shoreface system. Beach profiles collected over a 1-year period were used to calculate changes in sand volume per unit length of beach. The authors concluded that, despite large biweekly variations, there was a lack of total net volumetric change at many of the measured profiles. In many cases, the biweekly fluctuations exceeded the net annual changes over the study period. They also concluded that, unlike most west coast beaches, the Long Beach Island profiles exhibited no seasonal cycle of erosion and recovery. There were, in fact, cases in which net volumetric change occurred in opposite directions at adjacent profiles. Other studies summarizing beach changes, inlet processes over various time scales, as well as wave and climate conditions during the BEP study include Plusquellac (1966), Charlesworth (1968), Darling (1968), Halsey (1968), and Dames and Moore (1973, 1974). Bretschneider (1964) provided a detailed description of processes occurring along the island during the March 1962 storm. The net sand transport along the beaches of 115,000 cubic meters per year toward the south was estimated from dredging records of Barnegat Inlet (Beach Erosion Board, 1958; U.S. Army, Corps of Engineers, Coastal Engineering Research Center, 1977). Changes to the strand of beaches between the two inlets during the 1963 to 1973 study period have been the subject of two additional investigations--one dealing with the short-term alterations caused by a specific storm (DeWall, Pritchett and Galvin, 1977), the other an evaluation of some long-term changes (Everts and Czerniak, 1977). A major storm event affecting the beaches after the termination of the BEP measurement program was reported in Birkemeier (1979).

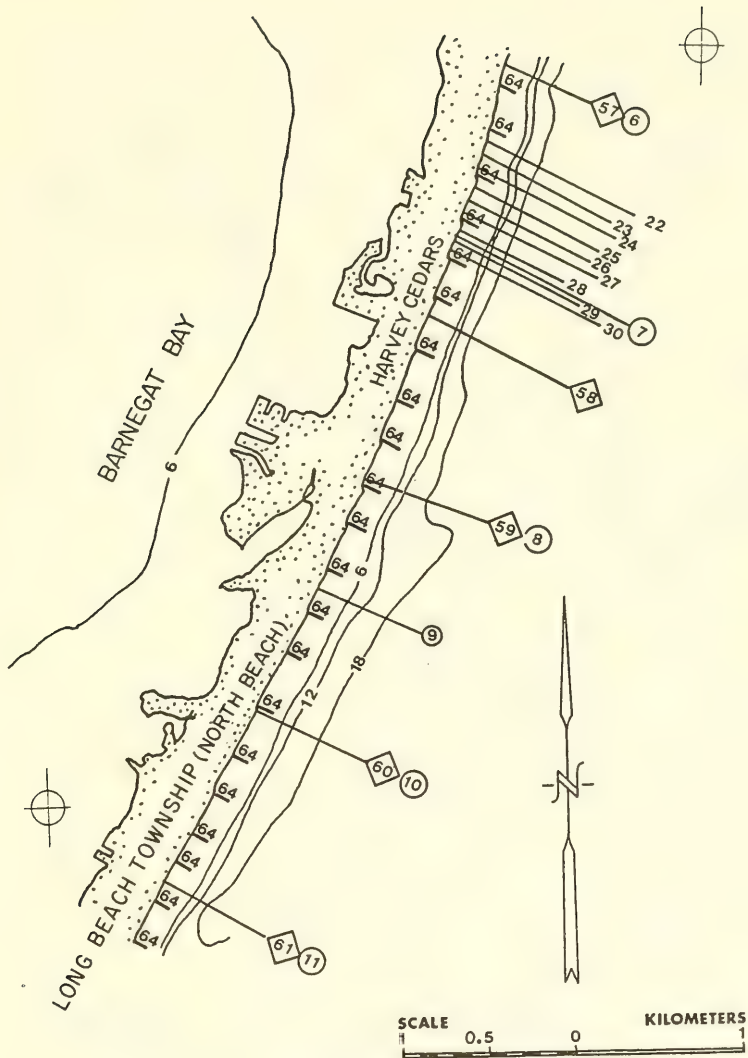
3. Offshore Bathymetry.

Fields of shoaling features are present on the Inner Continental Shelf regions from Long Island to Florida (Duane, et al., 1972). These shoals are linear or arcuate, isolated, or associated with other features such as inlets. Three shoreface-connected linear shoals are easily identified along Long Beach Island from soundings taken in 1937, 1955, 1963, and 1965. Other, less well-developed features are also present (Fig. 4). The shape and position of the shoals appear stable. The features off of the island are typical of similar shoals near Fenwick Island, Maryland, and other barrier island localities farther south. The Long Beach Island shoals open toward the north, making an angle between 20° and 30° with the shoreline. Peahala Ridge, the best developed of the three, is attached to the shore at about Beach Haven and extends at an angle of 20° to the shoreline for a distance of 5.6 kilometers measured along the axis to the 10-meter contour. The mean axis slope is 1:600 and is fairly constant while the side slopes are 1:100. The method of formation of these ridges is presently undetermined. The relatively constant angle to the shoreline in spite of the shoreline orientation indicates they are generated by nearshore hydrodynamic processes. Subbottom seismic studies and test borings in some of the ridges show the shoreface-connected shoals are



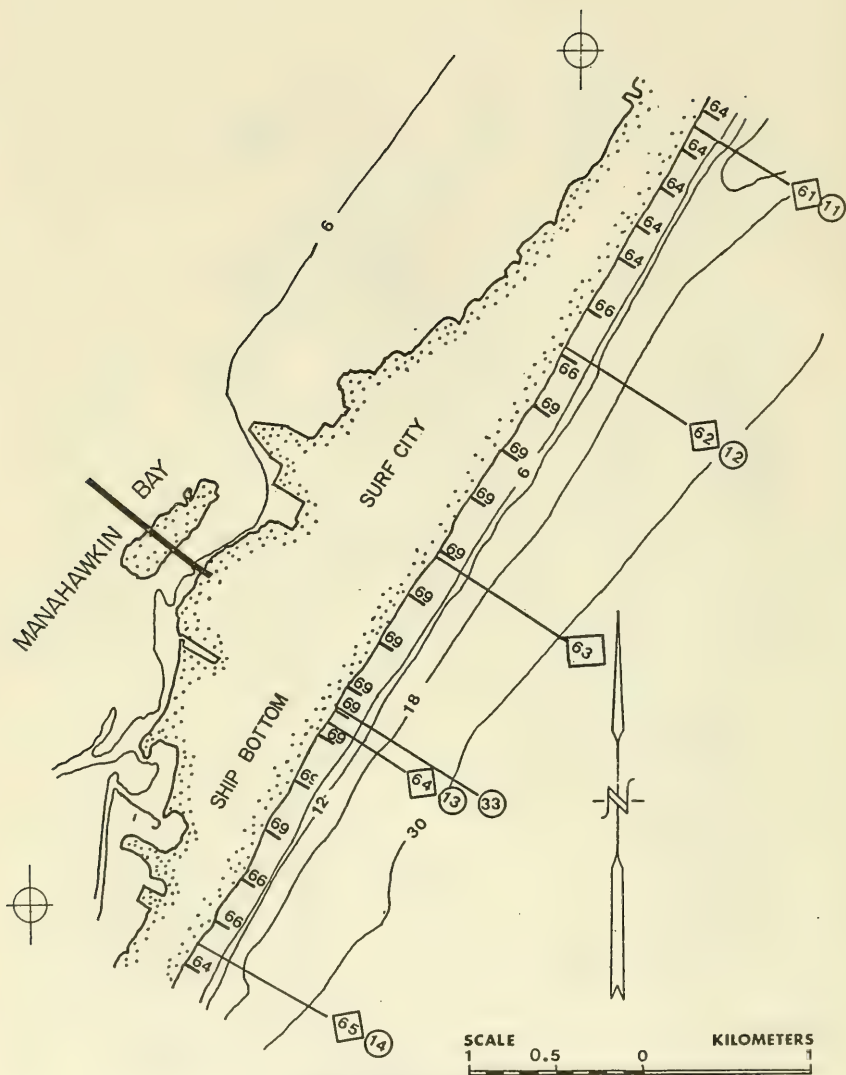
a. Barnegat Light to Loveladies (groins inside jetties constructed before 1960).

Figure 4. Segmented map (a to f) of Long Beach Island, showing locations and dates of construction of groins, beach profile lines (circles), offshore profile lines (diamonds), and bathymetry (in feet).



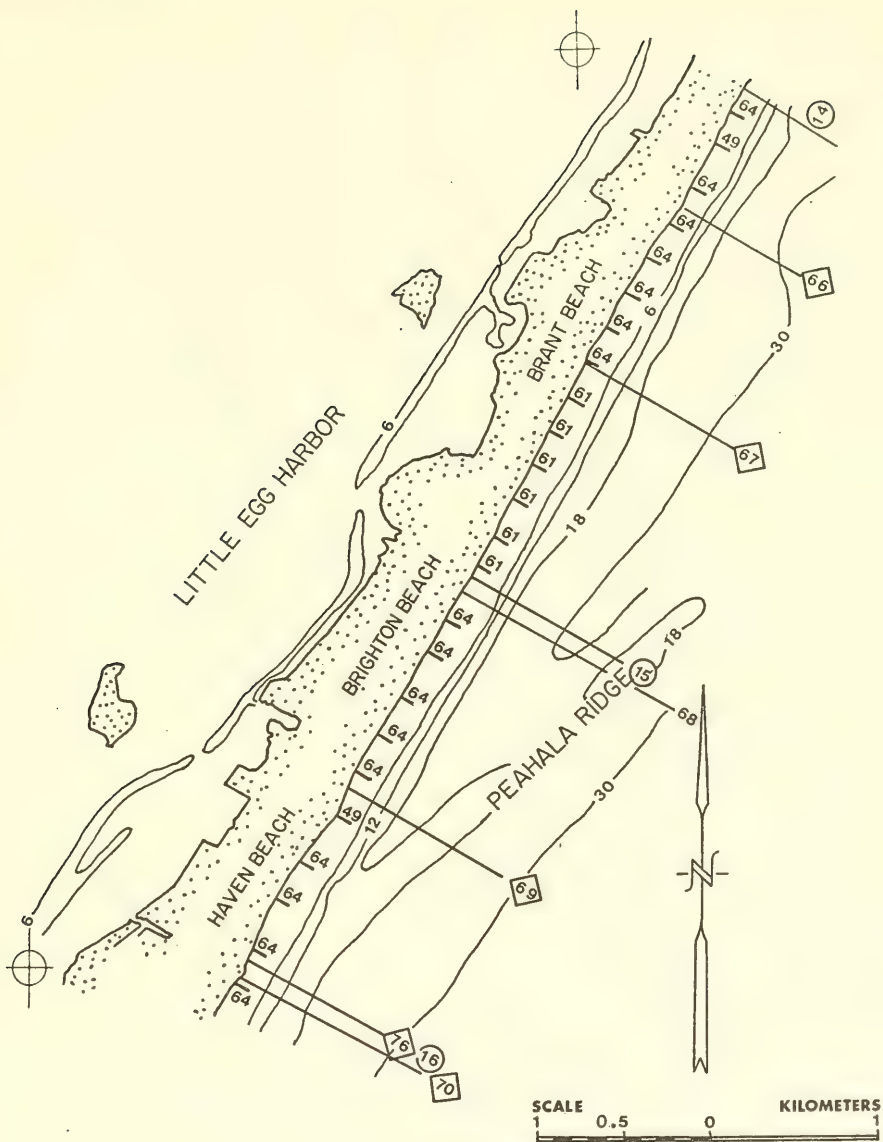
b. Harvey Cedars to North Beach (includes site of groin field studies).

Figure 4. Segmented map (a to f) of Long Beach Island, showing locations and dates of construction of groins, beach profile lines (circles), offshore profile lines (diamonds), and bathymetry (in feet).--Continued



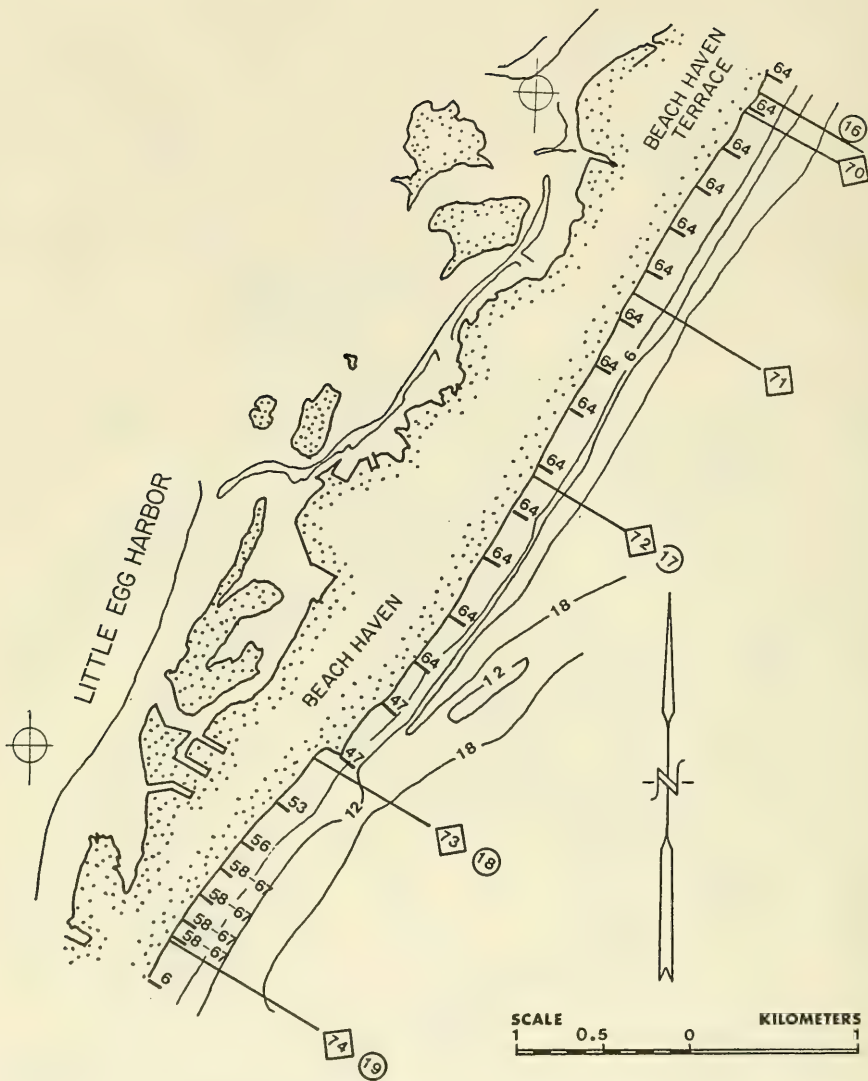
c. North Beach to Ship Bottom.

Figure 4. Segmented map (a to f) of Long Beach Island, showing locations and dates of construction of groins, beach profile lines (circles), offshore profile lines (diamonds), and bathymetry (in feet).--Continued



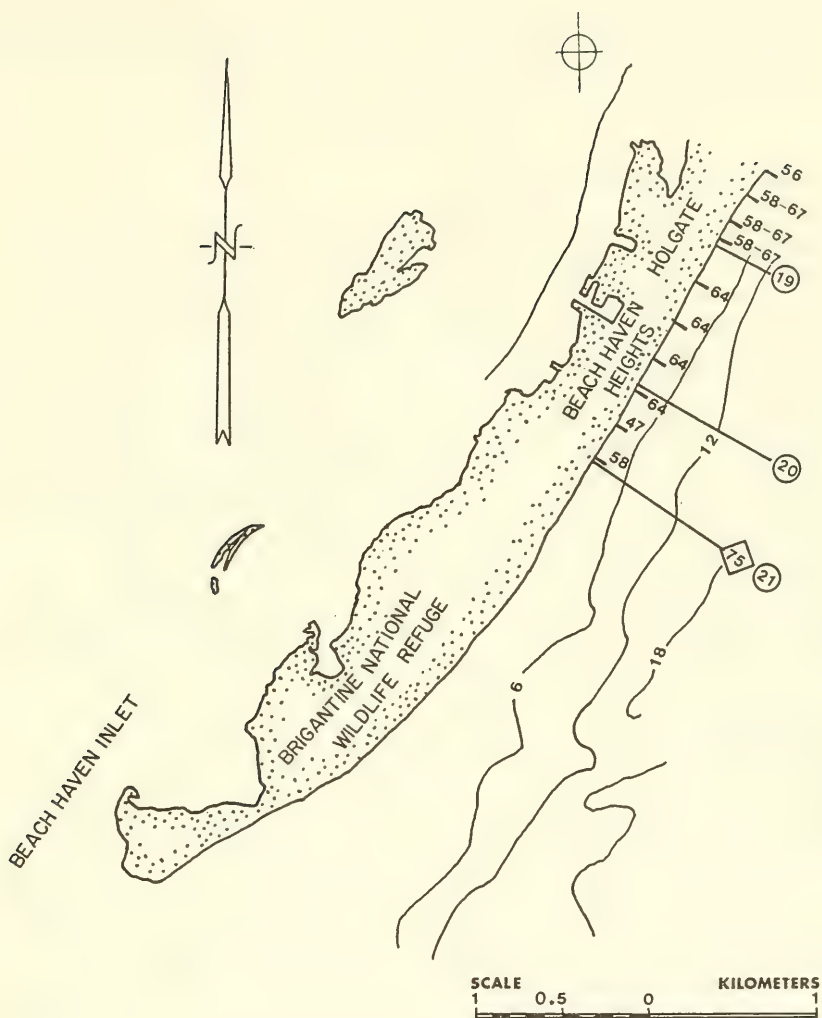
d. Brant Beach to Haven Beach.

Figure 4. Segmented map (a to f) of Long Beach Island, showing locations and dates of construction of groins, beach profile lines (circles), offshore profile lines (diamonds), and bathymetry (in feet).--Continued



e. Beach Haven Terrace to Beach Haven.

Figure 4. Segmented map (a to f) of Long Beach Island, showing locations and dates of construction of groins, beach profile lines (circles), offshore profile lines (diamonds), and bathymetry (in feet).--Continued



f. Holgate to Brigantine National Wildlife Refuge.

Figure 4. Segmented map (a to f) of Long Beach Island, showing locations and dates of construction of groins, beach profile lines (circles), offshore profile lines (diamonds), and bathymetry (in feet).--Continued

not of structural origin. Similar linear shoals found in deeper water may be relict features formed during a lower stand of sea level. The role of shore-face-connected shoals in modifying the nearshore circulation and wave regime is unknown though it may be considerable.

III. METHODS

1. Profile Lines and Monumentation.

Thirty-two profile lines, extending from Barnegat Light to just south of Beach Haven, were surveyed along Long Beach Island. The location of the profile lines and their proximity to 110 groins on the island are shown in Figure 4. Locations of the groins were carefully checked with recent air photos and Corps of Engineers records (U.S. Army Engineer District, Philadelphia, 1974). Each groin in Figure 4 is indicated by the last two digits of the year of its construction. The survey periods and the number of measurements per profile line are given in Table 1. Profile lines 1 to 21 and 32 were established at the beginning of the period and, except as noted, were continued through the entire program. Profile line 4 was established just south of the groin shown in Figure 4. Profile measurements were taken from September 1962 to January 1966 with those readings from the north side of the groin referred to as profile line 32 and those to the south as profile line 4. Profile line 32 was discontinued after January 1966, and profile line 4 was standardized at a position 15 meters south of the groin. Profile line 13 was relocated one block northward (about 200 meters) in September 1969 and renumbered profile line 33 when a rock groin was constructed along the original profile line. In August 1972, a series of closely spaced profile lines was established among successive groins between the communities of Loveladies and Harvey Cedars to observe the influence of the structures.

a. Survey Procedures. The original profile lines were intended to be equally spaced. However, spacing was modified to place profile lines along a more representative section of beach, avoid structures, provide accessibility, or provide information of special interest. As shown in Table 1, spacing, except in the special groin field study area, varied from 318.2 to 3,285.7 meters. Profile measurements were taken by surveying crews from the U.S. Army Engineer District, Philadelphia. Horizontal control for the stations consisted of a monument at or near each profile line with references tied to cultural features such as houses, telephone poles, etc., and third-order survey control providing state-plane and geodetic coordinates of the monument. Vertical control consisted of a third-order elevation of the top of the monument with respect to sea level datum (Jacobs, 1978). The documentation of the location of each profile monument referred to the New Jersey Transverse Mercator as well as the azimuth of the line is given in Appendix A.

The surveying crews measured the profile line using a level and tape technique. A reference elevation was established at a fixed object such as the top of a log barricade, the foot spike on a telephone pole, or nail markers driven into the roadway.

The survey proceeded seaward, approximately perpendicular to the shoreline, from the reference along the preselected azimuth, maintained by alinement of two separated, fixed objects in the manner of a navigational range. Readings

Table 1. Summary of profile lines and surveys.

Profile line ¹	Distance to next profile (m)	Survey period		Total surveys	Remarks
		First reading	Last reading		
1	363.9	26 Sept. 62	12 June 73	99	
2	318.2	26 Sept. 62	12 June 73	99	
3	1,580.7	26 Sept. 62	12 June 73	98	
32		26 Sept. 62	25 Jan. 66	23	Discontinued
4	1,620.9	26 Sept. 62	12 June 73	89	
5 ²	1,118.0	26 Sept. 62	12 June 73	97	
6	433.4	26 Sept. 62	12 June 73	99	
22	88.1	29 Aug. 72	11 June 73	10	Groin field
23	88.4	29 Aug. 72	11 June 73	10	Groin field
24	89.6	29 Aug. 72	11 June 73	10	Groin field
25	89.9	29 Aug. 72	11 June 73	10	Groin field
26	89.9	29 Aug. 72	11 June 73	10	Groin field
27	86.6	29 Aug. 72	11 June 73	10	Groin field
28	44.5	29 Aug. 72	11 June 73	10	Groin field
7	39.9	26 Sept. 62	11 June 73	99	
29	81.1	29 Aug. 72	11 June 73	10	Groin field
30	1,465.5	29 Aug. 72	11 June 73	10	Groin field
8 ²	619.0	26 Sept. 62	12 June 73	99	
9	823.0	26 Sept. 62	12 June 73	90	
10	1,097.6	26 Sept. 62	12 June 73	99	
11	1,499.3	26 Sept. 62	12 June 73	99	
12	2,595.1	26 Sept. 62	12 June 73	99	
13 ³	1,526.1	26 Sept. 62	28 May 69	64	Relocated to line 33
33		24 Sept. 69	12 June 73	37	Replaced line 13
14	3,285.7	2 Oct. 62	12 June 73	98	
15	2,610.9	2 Oct. 62	12 June 73	98	
16 ³	2,646.9	2 Oct. 62	12 June 73	99	
17	2,006.5	2 Oct. 62	12 June 73	91	
18	1,374.6	2 Oct. 62	12 June 73	98	
19	954.3	2 Oct. 62	12 June 73	98	
20 ⁴	548.6	2 Oct. 62	12 June 73	98	
21		2 Oct. 62	12 June 73	98	
Total				2,158	

¹No record of profile line 31.²Monument offset from actual profile line.³Pipe profile (Urban and Galvin, 1969).⁴Chart measurement.

were taken every 15 meters or at each break in the beach slope, then continued to -0.6 meter MSL by the rodman. Surveys were timed to coincide with low tide to extend to that depth. Occasionally, however, extreme water levels or surf conditions prohibited seaward extension of the profiles. Crews were generally able to complete three profile lines per hour so the entire Long Beach Island survey (30 lines) was planned for several days.

Readings were taken to the nearest 30.0 centimeters in the horizontal and 3.0 centimeters in the vertical. It was occasionally necessary to move the level, and care was taken to document the elevation and new location. Survey lines were not closed except during the last year of the study.

Pipes were placed along profile lines 13 and 16 to test this method of measuring beach elevation. A 6.4-meter section of 3.8-centimeter inside-diameter iron pipe was marked in 15.2-centimeter sections and jettied 4.0 meters into the sand. These were placed every 15.2 meters along the selected profile lines and their position and elevation established by standard surveying methods. Weekly sand level readings were taken by local observers during the period from 6 December 1967 to 1 May 1968. Detailed results of the pipe survey are given in Urban and Galvin (1969). This short study showed that sand level variations of more than a meter occurred on the beach face during the winter storms of 1968. Measurements were not continued long enough to observe variations during the summer months nor was the study designed to provide transport rates and direction.

b. Survey Frequency. Profile measurement intervals were begun biweekly; however, successive surveyed profiles changed little and were of limited engineering significance. The interval was increased to monthly and further extended later in the program. The distributions of seasonal measurements by month and year are shown in Figures 5 and 6, respectively. Unscheduled surveys were made shortly before and after storms, when possible, to measure the effects of individual events. Documented coastal storms occurring during the 1962-73 study period are listed in Table 2. The frequency of surveys relative to storms is shown in Appendix B. No surveys were taken during the summer seasons of 1965 to 1969 since changes were considered too small to be of any meaning. This gap in the data set may have consequences for later statistical analysis of the temporal variability. Beach measurements taken in the groin field (profile lines 22 to 30) consist of only 10 surveys per profile line, none of which were taken during May, July, September, or November.

Survey data were recorded in field notebooks. Computations of range and elevation were made by the noteman in the field and were doublechecked by another member of the survey team. The detailed procedures of transcriptions to coding forms for computer processing are given in DeWall (1979, p. 15). All data were meticulously hand-checked and spurious points were either corrected or discarded. Profile data are shown in tabulated form in Appendix C.

2. Profile Analysis.

Each profile was analyzed by CERC and computer plots generated for (a) MSL position (App. B), (b) above MSL change in unit volume between surveys (App.D), and (c) profile envelopes (App. E). All profile changes are referred to the conditions existing on the "initial survey date." The distance-elevation

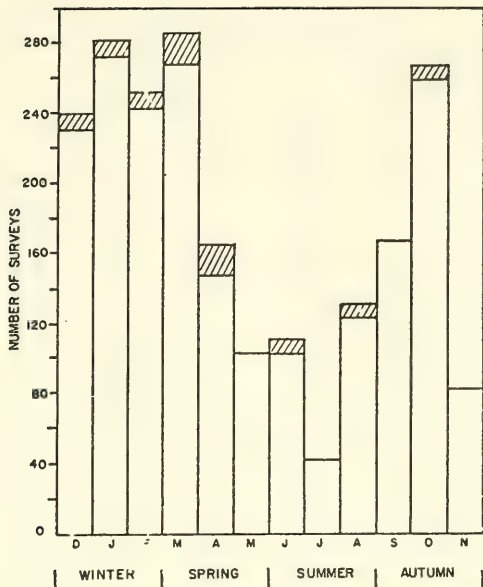


Figure 5. Distribution of profile line surveys by month and season. Cross hatching indicates survey of profile lines 22 to 30.

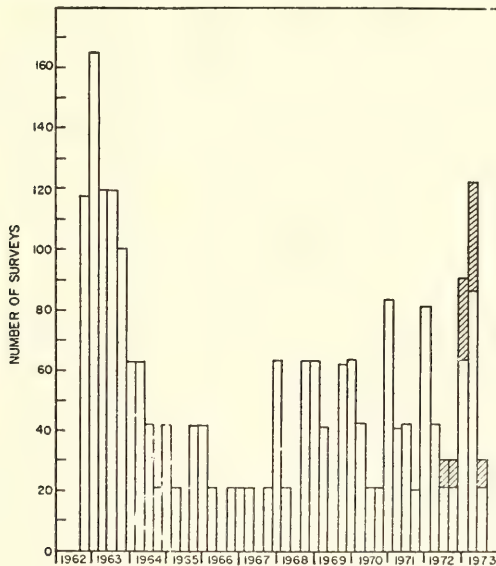


Figure 6. Distribution of profile line surveys by year and season. Cross hatching indicates survey of profile lines 22 to 30.

Table 2. Documented coastal storms occurring during period of BEP surveys, September 1962 - June 1973.

Year	Storm date	Source ¹	Survey Dates		Volume Change (m ³ /m)		Remarks
			Before	After	Mean	Variance	
1962	28 Sept.	1	26 Sept.	28 Sept.	-28.77	9.38	Northeaster coastal erosion Coastal storm. "Classic Northeaster" Coastal storm damage Dune erosion
	03 Nov.	1,5	29 Oct.	08 Nov.	-10.07	14.12	
	10 Nov.	1	08 Nov.	10 Dec.	1.03	17.29	
1963	27 Nov.	1	08 Nov.	10 Dec.	1.03	17.29	Hurricane GINNY, 19-22 Oct. in area 1.40-m maximum tide, Atlantic City 1.71-m maximum tide, Sandy Hook
	16-30 Oct.	2,5	10 Oct.	25 Oct.	6.79	13.30	
	03 Nov.	1,4	25 Oct.	15 Nov.	- 5.39	18.05	
	10 Nov.	4	25 Oct.	15 Nov.	- 5.39	18.05	
	29-30 Nov. 08 Dec.	5 1	15 Nov. 15 Nov.	27 Dec. 27 Dec.	10.73 10.73	18.05 16.79	
1964	12 Jan.	1,3,4,5	27 Dec.	15 Jan.	-24.14	18.48	Blizzard, 1.40-m maximum tide, Sandy Hook Hurricane ETHEL Hurricane GLADYS 1.37-m maximum, Atlantic City
	04-16 Sept.	2	29 Aug.	24 Sept.	- 2.33	18.72	
	13-24 Sept.	1,2	29 Aug.	24 Sept.	- 2.33	18.72	
	07 Nov.	4	24 Sept.	01 Dec.	3.24	19.29	
1965	17 Jan.	4	01 Dec.	19 Jan.	- 4.75	21.90	1.37-m maximum, Atlantic City 1.52-m maximum, Sandy Hook Tropical storm, unnamed
	15 Feb.	1	19 Jan.	27 Apr.	8.64	22.39	
	27 May	1	27 Apr.	07 Sept.	5.57	19.89	
	11-18 June 05 July	2 1	27 Apr. 27 Apr.	07 Sept. 07 Sept.	5.57 5.57	19.89 19.89	
1966	23 Jan.	1,4	22 Dec.	25 Jan.	-15.67	15.73	1.68-m maximum, Atlantic City 2.04-m maximum, Sandy Hook rain, snow, wind, erosion Hurricane ALMA Snow
	04-14 June 24 Dec.	2 1	21 Mar. 22 Sept.	22 Sept. 16 Jan.	1.87 8.72	20.88 16.33	
1967	07 Feb.	1	16 Jan.	05 May	- 9.37	19.30	Heavy snow 1.52-m maximum, Sandy Hook 1.43-m maximum, Atlantic City Hurricane DORIA
	27 April	4	16 Jan.	05 May	- 9.37	19.30	
	24 May	4	05 May	20 Sept.	11.10	24.27	
	10-17 Sept.	1,3,4,5	05 May	20 Sept.	11.10	24.27	
1968	07 Jan.	5	18 Dec.	17 Jan.	- 3.95	17.56	Insignificant storms
	14 Jan	5	18 Dec.	17 Jan.	- 3.95	17.56	
	25 Jan	5	17 Jan.	27 Feb.	- 2.74	18.19	
	08 Feb.	5	17 Jan.	27 Feb.	- 2.74	18.19	
	25 Feb	5	17 Jan.	27 Feb.	- 2.74	18.19	
	01 Mar.	1,3,5	27 Feb.	27 Mar.	3.76	18.71	
	13 Mar.	5	27 Feb.	27 Mar.	3.76	18.71	
	18 Mar.	5	27 Feb.	27 Mar.	3.76	18.71	
	23 Mar.	5	27 Feb.	27 Mar.	3.76	18.71	
	05 Apr.	5	27 Mar	09 Oct.	12.98	22.53	
	17-26 June	2	27 Mar	09 Oct.	12.98	22.53	
1968	13-21 Oct.	2	09 Oct.	23 Oct.	8.67	12.63	Hurricane BRENDA Hurricane GLADYS 1.43-m maximum, Sandy Hook Wind, rain, snow, erosion 1.37-m maximum, Atlantic City
	03 Nov.	4	23 Oct.	13 Nov.	-23.85	22.95	
	12 Nov.	1	23 Oct.	13 Nov.	-23.85	22.95	
	29 Dec.	4	18 Dec.	15 Jan.	2.48	7.77	
	24 Mar.	1,3	04 Mar.	28 May	17.93	31.15	
	25 July-	2	28 May	24 Sept.	- 7.65	19.86	
1969	05 Aug.	2	28 May	24 Sept.	- 7.65	19.86	Tropical storm ANNA Hurricane BLANCHE Hurricane CAMILLE Tropical storm JENNY 2.04-m maximum, Sandy Hook 1.62-m maximum, Atlantic City Minor storm Coastal storm Coastal storm
	10-13 Aug.	2	28 May	24 Sept.	- 7.65	19.86	
	14-22 Aug.	2	28 May	24 Sept.	- 7.65	19.86	
	01-10 Oct.	2	24 Sept.	20 Oct.	7.81	13.61	
	02 Nov.	4,5	20 Oct	18 Nov.	- 3.12	15.79	
	11 Dec.	5	18 Nov.	18 Dec.	8.04	13.65	
	15 Dec.	1,3	18 Dec.	20 Jan.	5.45	18.28	

Table 2. Documented coastal storms occurring during period of BEP surveys, September 1962 - June 1973.--Continued

Year	Storm date	Source ¹	Survey Dates		Volume Change (m ³ /m)		Remarks
			Before	After	Mean	Variance	
1970	07 Jan.	5	18 Dec.	20 Jan.	5.45	18.28	Storm moved rapidly
	23 Mar.	5	18 Mar.	21 May	8.79	19.51	
	02 Apr.	1	19 Mar.	21 May	8.79	19.51	Hurricane ALMA
	17-27 May	2	21 May	28 Aug.	1.34	40.05	
	15-18 Aug.	2	21 May	28 Aug.	1.34	40.06	
	27 Sept.	1	28 Aug.	12 Oct.	7.54	11.74	
	22 Oct.	5	12 Oct.	07 Dec.	- 4.28	43.86	Tropical storm, unnamed
	26 Oct.	5	12 Oct.	07 Dec.	- 4.28	43.86	
	04 Nov.	1	12 Oct.	07 Dec.	- 4.28	43.86	
	17 Dec.	1,3,5	07 Dec.	18 Dec.	-14.71	32.03	
26 Dec.	4	18 Dec.	12 Jan.	0.16	10.46		
1971	23 Mar.	5	08 Mar.	08 Apr.			Lesser storm than 27 March
	27 Mar.	4,5	08 Mar.	08 Apr.	- 2.81	14.95	1.58-m maximum, Sandy Hook
	06-07 Apr.	5	08 Mar.	08 Apr.	- 2.81	14.95	Typical northeaster
	04-07 July	2	24 June	17 Aug.			Tropical storm ARLENE
	10-17 Aug.	2	24 June	17 Aug.			Volume data not available
	20-29 Aug.	2,3	17 Aug.	07 Oct.	- 2.92	11.08	Hurricane BETH, volume data not available
1972	25 Jan.	1	12 Jan.	15 Feb.	- 6.27	9.07	Tropical storm DORIA
	04 Feb.	5	12 Jan.	15 Feb.	- 6.27	9.07	Tropical storm HEIDI
	13 Feb.	5	12 Jan.	15 Feb.	- 6.27	9.07	Typical northeaster, no serious damage
	19 Feb.	4,5	15 Feb.	23 Feb.	- 0.69	12.99	
	14-22 June	1,2	11 Apr.	23 Aug.	25.17	27.97	1.65-m maximum, Atlantic City
1972	29 Aug. -						1.89-m maximum, Sandy Hook
	05 Sept.	2	23 Aug.	17 Oct.	0.01	23.35	Hurricane AGNES
	21 Dec.						Tropical storm CARRIE
1973	28-29 Jan.	5	03 Jan.	13 Feb.			
	09-12 Feb.	5	03 Jan.	13 Feb.			
	21 Mar.	1,3,5	13 Mar.	24 Mar.	- 5.36	14.24	Coastal storm, erosion, flooding

¹Information sources are:

- 1 Storm Data and Unusual Weather Phenomena, U.S. Department of Commerce, NOAA, National Climatic Service, Series.
- 2 Newmann, et al. (1978).
- 3 DeWall (1979).
- 4 Ho, et al. (1976).
- 5 Birkemeier (1980).

coordinates of the MSL contour intercept with the initial survey on each profile line are defined as the origin of a coordinate system to which all subsequent surveys are referred (Fig. 7). Negative distances indicate stations landward of the MSL intercept with the initial profile; positive distances indicate seaward stations.

For a profile crossing the MSL elevation, the MSL intercept was linearly interpolated. When a profile did not cross the MSL elevation, but reached the 0.61-meter MSL elevation, the MSL intercept was determined by extrapolating the profile along the slope defined by the two seawardmost surveyed points on the profile (DeWall, 1979). Extrapolated shoreline points are indicated by the "x" symbol in the plots of Appendix B. Profile lines which could not be surveyed to the 0.61-meter MSL elevation were not used for shoreline or volume computations.

The cross-sectional area under each profile was computed. This area is bounded by three lines: (a) a vertical line projected from the landwardmost distance common to all surveys on a given profile line, (b) a horizontal line at the MSL elevation, and (c) the surveyed profile. The calculation was accomplished by summing 30.5-centimeter horizontal slices through the area under the profile from the highest elevation to MSL. The area change was then computed by subtracting the measured profile area from the previous profile area (Fig. 8). Note that the change in area (and volume) is referred to the previous profile and not the original profile. Cross-sectional areas were computed in square feet and then converted to unit volume in cubic meters per meter of shoreline.

The plots in Appendix E are profile envelopes; i.e., the plots show two lines drawn through the upper and lower extremes of the surveyed sand elevations on each of the profile lines. The envelope of extremes contains points from many different surveys, rather than trace a particular eroded or accreted profile found during one survey. This profile "sweep zone" is useful for designing the required depth of footings for coastal structures, burial depth for pipelines, and for other beach protection or improvement considerations.

The temporal and spatial variability of each of the beach profiles was also evaluated using empirical eigenfunction analysis. This technique has been used in a variety of scientific disciplines for many years (Lorenz, 1959), but it is only recently that the technique has been applied to examination of variability within the coastal zone.

When applied to analysis of a profile line resurveyed over a period of time, the method is useful in determining the topographic variability in the onshore-offshore direction and in time. Comparison of the eigenfunctions of a series of profiles taken along a coastline is useful for determining the long-shore variability. The technique has been applied to studies on beaches, islands, and other coastal and bathymetric features on both coasts (Winant, Inman, and Nordstrom, 1975; Vincent, et al., 1976; Resio, et al., 1977; Aubrey, 1978).

The objective of eigenfunction analysis is to separate the temporal and spatial dependence of the data set so that it can be represented as a linear combination of corresponding functions of time and space (Winant, Inman, and Nordstrom, 1975). This helps identify processes responsible for profile

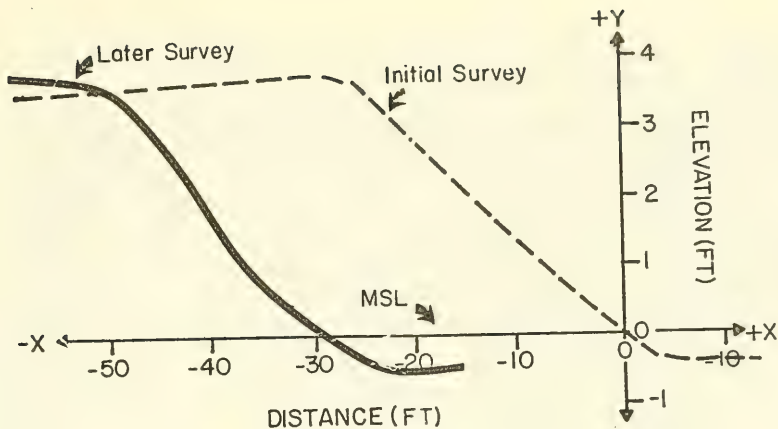


Figure 7. Profile line coordinate system (from DeWall, 1979).

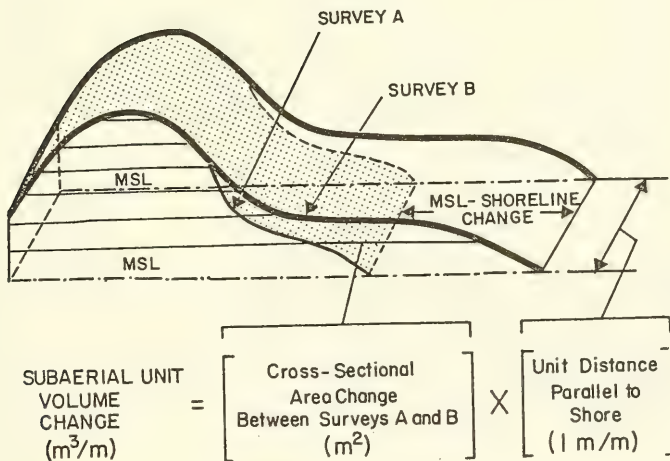


Figure 8. Definition of MSL shoreline change and above MSL unit volume change (from DeWall, 1979).

changes, assists in evaluation of their relative importance, and aids the identification of specific events.

The shape of a single profile changes between measurements in response to the many process variables (e.g., waves, wind, water level, etc) active on the beach. A careful evaluation of a profile line measured frequently over time may reveal systematic changes in its shape. Regular seasonal changes in profile area, for instance, were obvious on west coast beaches before being quantitatively confirmed by empirical eigenfunction analysis (Shepard, 1973; Aubrey, 1978). Along a single profile, zones of maximum variation are to be expected in the region of maximum wave energy dissipation. This, again, has been confirmed by empirical eigenfunctions on west coast beaches (Aubrey, 1978). The technique does not explain the physical reason for the variability. In the case of beach profiles, the sand is moved in response to wave forcing in a manner which is assumed to be deterministic, or at least statistically predictable. In this case, it is hoped that since the wave forcing provides most of the variability, the eigenfunctions will reflect this mechanism. By examining the temporal structure of the beach eigenfunctions along with spatial structure, the decision can be made as to whether, in fact, the eigenfunctions represent some physically meaningful process. This has been shown to be the case in nearshore profile studies.

Profiles obtained during the BEP do not extend beyond about the -0.61 meter MSL shoreline. For that reason, beach variability associated with transport in the nearshore zone seaward of this limit cannot be determined. This is a serious limitation of the data set and is not associated with a limitation in the method of analysis. It is known that the breaker zone and nearshore are regions of active transport both onshore-offshore and alongshore. Offshore bars act as periodic storage areas for sand that is later supplied to the beach under favorable wave conditions. The time periods and detailed response of this region cannot be determined from the available data.

IV. RESULTS

1. Temporal Variability.

a. Short-Term Changes (Storms). Coastal storms, such as the March 1962 storm, are particularly important agents for causing massive changes to the beaches. This storm, which never reached hurricane strength, resulted from two low-pressure cells which combined several hundred miles off the coast of New Jersey, Delaware, Maryland, and Virginia. It then remained stationary from 6 to 8 March generating high tides (2.2 meters above MSL) and extreme waves (6.1 to 9.1 meters high) which battered the coastline through five tidal cycles. The damage to Long Beach Island was particularly severe (Fig. 9). The northern end of the island was breached in four locations with waves destroying or damaging nearly every structure. In the vicinity of Harvey Cedars, the dune was breached, the area flooded, and most houses washed into Barnegat Bay. Dollar value of the damage at Long Beach Island was estimated at \$19,754,000, of which nearly half was attributed to storm waves. Other effects of the storm have been documented (Cooperman and Rosendal, 1962; U.S. Army Engineer Division, North Atlantic, 1963).

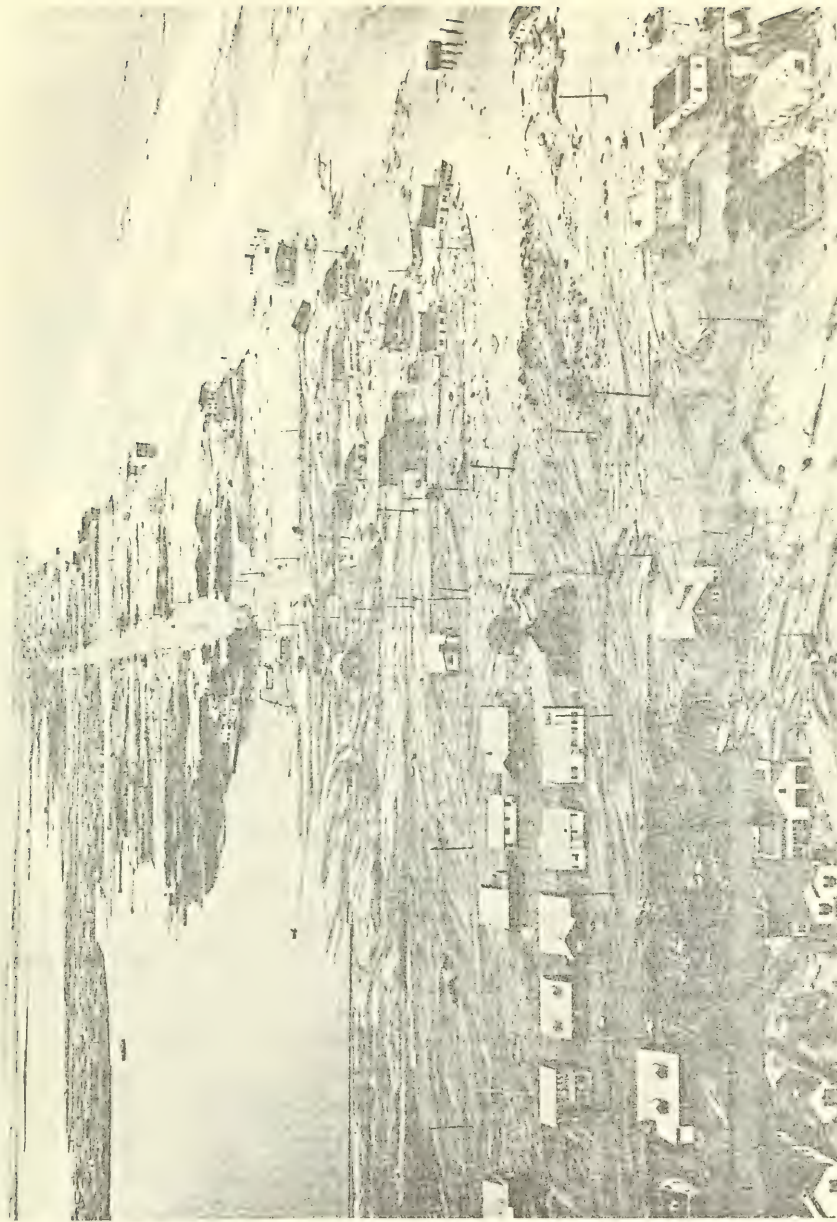


Figure 9. Damage caused by March 1962 coastal storm. Loveladies, Long Beach Township, Long Beach Island looking north, 9 March 1962 (from U.S. Army Engineer Division, North Atlantic, 1963).

After the March 1962 storm, emergency measures were necessary to rebuild the dune along 5,790 meters of shoreline. Approximately 182,220 cubic meters of sand was used to reconstruct a dune 3.0 to 3.7 meters above MSL. This restoration program was completed by late April 1962, 5 months before the first BEP survey. Sidecast dredging of Barnegat Inlet has continued on an annual or semiannual basis since 1972. Some of the dredged material was placed directly on the beach in the vicinity of profile lines 1 and 2. No other documented beach nourishment projects were carried out on Long Beach Island until the summer of 1979 when dredged material from the Barnegat channel was discharged along the shore to form a feeder beach at the north end of the island. Nourishment, then, has not been a factor in the evaluation of beach changes.

Table 2 provides a comprehensive list of storm events, compiled from various sources, for the study period. The record of storm data collected by the National Climatic Center (NCC) was reviewed for the period 1962 to 1973 for events that indicated a coastal impact such as high tides, coastal flooding and coastal erosion. Locations were not specifically indicated in this source. Tropical storms and hurricanes were obtained from Newmann, et al. (1978). Those events were selected which passed close enough to Long Beach Island to have an expected effect. Other historical documents indicating storms or occurrences of significant coastal impact were U.S. Army Engineer District, Philadelphia (1974), Ho, et al. (1976), DeWall (1979), and Birkemeier (1980).

Wind records from the NCC recording station at Atlantic City for the study period were sorted to determine the occurrences of winds greater than 54 kilometers per hour. The average monthly distribution of these severe winds is shown in Figure 10. This tabulation covers the period from 1965 to 1973, during which winds were recorded at 3-hour intervals. The distribution is decidedly seasonal but probably underestimates the actual time of severe winds along the beach since the recording station is located several miles inland. A 22-year record of winds at the Atlantic City station shows that most of the stormwinds are from the northeast, followed in frequency of occurrence by winds from the east (U.S. Army Engineer District, Philadelphia, 1974).

The Atlantic City NCC recording station is located at the Aviation Facilities Experiment Station, 16 kilometers inland from Atlantic City (Fig. 1). An analysis performed by the U.S. Army Engineer District, Philadelphia (1974) shows that the number of annual storm hours (e.g., the number of hours the recorded wind velocity was 51 kph or greater during a 24-hour period when the average velocity was 40 kph or greater) significantly decreased when the wind recording station was moved inland. Wind data are also recorded by the Coast Guard observers at Barnegat Light. These data are available in raw form from NCC but were not used in this study since analysis of the storm response required only that the event be identified and the Atlantic City data were sufficient for that purpose.

A total of 77 identified storm events occurred during the study period (Table 2). Column five in Table 2 indicates that the response of the beach during these storms was, in most cases, highly variable. This column is the volume change between survey periods averaged along the entire beach; the second number is the variance. The average change cannot be taken as a quantitative measure of sand movement since the profile lines were not evenly distributed along the beach. The sign of the number and its relative magnitude does,

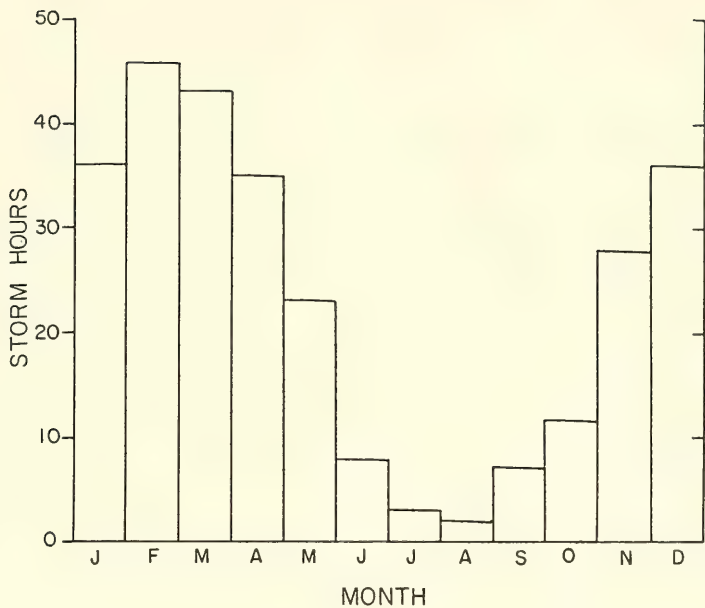


Figure 10. Average number of storm hours recorded at Atlantic City, New Jersey, 1965-73. A storm hour is defined as an hour when the wind is 51 kilometers per hour or greater during a 24-hour period when the average velocity was 40 kilometers per hour or greater (U.S. Army Engineer District, Philadelphia, 1974).

however, indicate qualitatively the trend over the period. Variance larger than the mean shows that some of the profiles prograded while others were eroded over the time interval between profiles.

The criteria for selecting the storms in Table 2 were based on those events that showed a significant change in the average beach volume, which could be attributed to a single event. This required that the storm be closely bracketed by surveys. An attempt was made to select storms distributed by season and over the entire period of the survey record. Of the 15 events that met these criteria, four which caused extensive erosion are discussed below. The results of an additional severe winter storm were previously reported by DeWall, Pritchett, and Galvin (1977). Each of the selected storms occurred during seasons other than summer. This is because widely spaced summer surveys did not meet the selection criteria and, as shown in Figure 5, few storms occur during the summer months.

(1) Refraction of Storm Waves. Strong onshore winds and low pressure enhance normal water levels and combine with storm-generated waves to cause coastal flooding and erosion. The direction and rate of net littoral transport cannot be determined from the beach profile data alone. Previous studies of the motion of the Long Beach Island inlets have concluded that a nodal zone exists in the vicinity of Barnegat Inlet with transport north of the zone toward the north and south of the zone toward the south (U.S. Army Engineer District, Philadelphia, 1974). However, no detailed studies are available which show the location of the node, its migration pattern, or the rate and direction of littoral drift along the length of the island. Studies which hope to answer these and other questions are being conducted (Dr. G. Ashley, Rutgers University, New Brunswick, New Jersey, personal communication, 1979).

Summary wave information was available from the wave gage at Steel Pier, Atlantic City, New Jersey, for most of the study period (Thompson, 1977). This provided height and period statistics, but did not provide directional information necessary for computation of sand transport. Wave data were also available from the Summary of Synoptic Meteorological Observations (SSMO), Volume 3 (U.S. Naval Weather Service Command, 1975). These are not appropriate for calculations of sand transport because they are at-sea observations and do not give precise directional information. They are also biased toward low wave conditions since reporting ships attempt to avoid severe weather by rescheduling or rerouting. Local visual observations were collected as part of the BEP at selected profile line locations from 1968 to 1974. These provide estimates of wave height, period, and direction. According to these sources, storm waves generated by northeasters may develop periods of 8 to 12 seconds.

Storm winds approach Long Beach Island from the northeast, east, and southeast in that order of frequency of occurrence (U.S. Army Engineer District, Philadelphia, 1974). Wave refraction diagrams were developed for waves approaching from these directions in order to determine if local topographic features caused wave focusing or other effects along the island and to obtain qualitative estimates of the locations of energy concentration under various conditions of offshore wave approach. Interpretation of these results should not be heavily relied upon since many assumptions are made about the waves and their behavior that do not apply to the prototype situation. Monochromatic, linear waves are

assumed and bottom frictional effects are ignored. These assumptions may lead to serious consequences since wave energy is not at a single mode but in a spectrum (unknown in this case) which may be altered as it proceeds across the shelf and nearshore zone. Crossing wave rays imply infinite wave heights which obviously do not exist. The refraction depends upon accurate knowledge of bathymetry on the scale of the wavelength of the surface wave. Bathymetric data were obtained from the National Geophysical and Solar-Terrestrial Data Center, Boulder, Colorado, and averaged in an offshore grid size of approximately 200 meters. The wave refraction program of Dobson (1967) was adapted for this study.

Waves of 2-meter heights and 10-second periods were assumed to approach the island from the three indicated directions, and resulting refraction diagrams are shown in Figures 11 to 16 for the north and south halves of the island. Bathymetry is shown with a 5-meter contour interval. Several parallel, northeast-trending swales lie submerged off the island and are subparallel to the shoreline. Waves from the northeast approach with crests perpendicular to these features and are refracted in an extremely complicated way. Figures 11 to 16 should not be taken as indicative of actual ray paths, but they do show that waves approaching from the direction of the predominant storm interact with the bottom in ways that may induce transport patterns that are not generalized along the entire beach. Wave rays approaching from the east (Figs. 13 and 14) are somewhat less complicated because of their greater angle of attack to the offshore bathymetric features. Points of local energy concentration suggested by the convergence of wave rays indicate that longshore gradients in wave run-up are developed which transport material along the island in both directions. Similar suggestions of focusing are seen in the wave rays approaching from the southeast (Figs. 15 and 16), nearly perpendicular to the shoreline. Additional studies of nearshore currents and angles of wave approach along the beach are required to substantiate these indications.

(2) Northeaster, 3 November 1962. Most serious storms along the New Jersey coast are caused by low-pressure systems generating strong winds and steep waves from the north to east quadrant. Birkemeier (1980) has identified the 3 November storm as a "classic northeaster" which caused considerable erosion during the same year of the most devastating Great East Coast Storm. The record of 3 hourly wind readings made at Atlantic City showed that, since a previous northeast storm in late September, winds had remained mainly from the west with periods of northwest and southwest flow (Fig. 17). The September storm caused widespread erosion, but was not selected for analysis because the survey was apparently made before the storm was over, and the entire beach was not included in the survey. An early November storm occurred between 2 and 4 November after a 2-week period of offshore (seaward) winds. Maximum recorded winds of 50.4 kilometers per hour occurred on 3 November from the northeast. Since these were recorded at the inland site, wind velocity along the beach could be expected to be somewhat greater. Location of the profile lines relative to the beach structures known to exist at the time of the surveys is shown in Figure 4. The changes

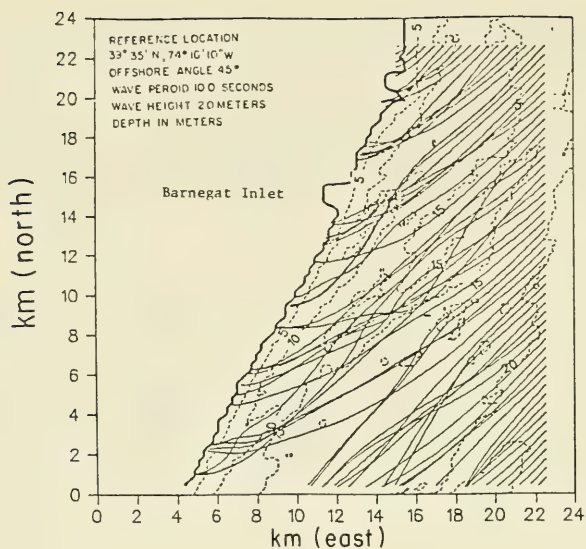


Figure 11. Wave refraction pattern for wave approaching the north half of Long Beach Island from the northeast.

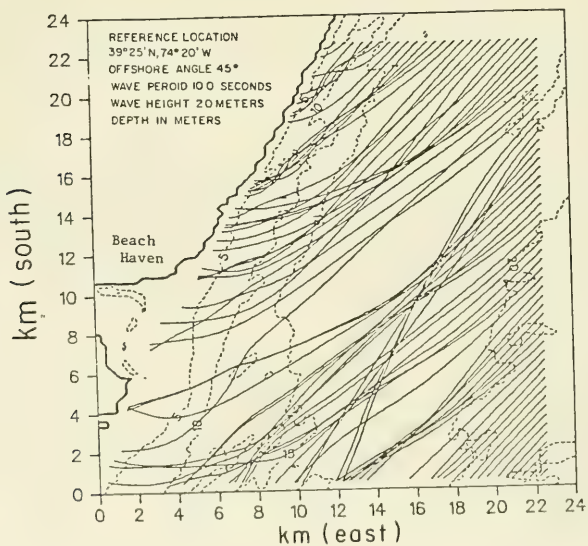


Figure 12. Wave refraction pattern for wave approaching the south half of Long Beach Island from the northeast.

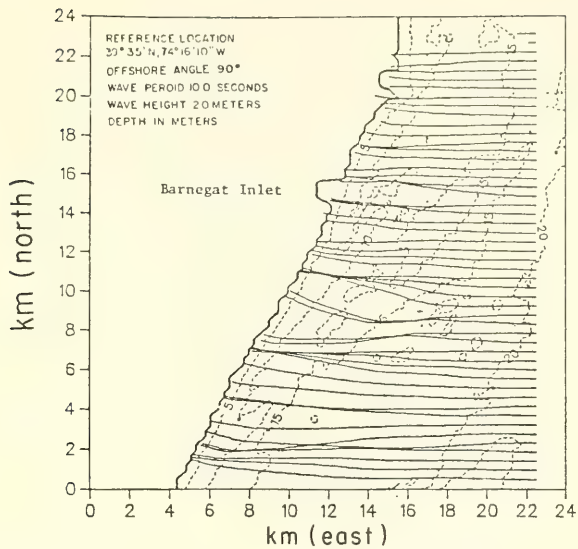


Figure 13. Wave refraction pattern for wave approaching the north half of Long Beach Island from the east.

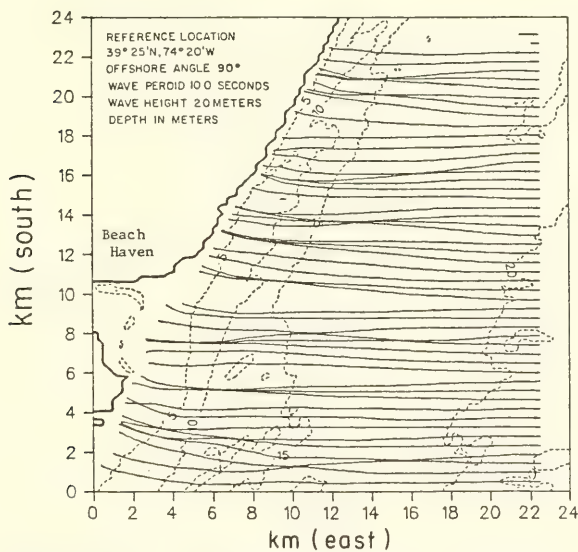


Figure 14. Wave refraction pattern for wave approaching the south half of Long Beach Island from the east.

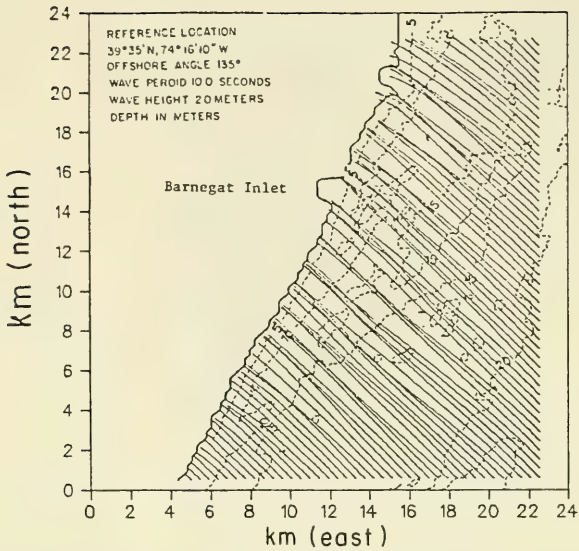


Figure 15. Wave refraction pattern for wave approaching the north half of Long Beach Island from the southeast.

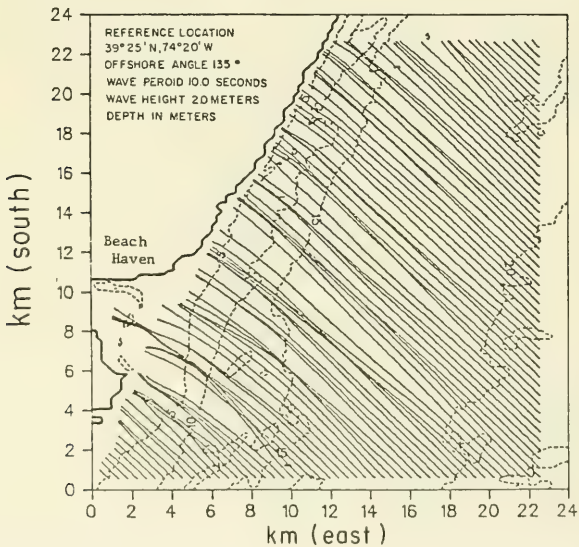


Figure 16. Wave refraction pattern for wave approaching the south half of Long Beach Island from the southeast.

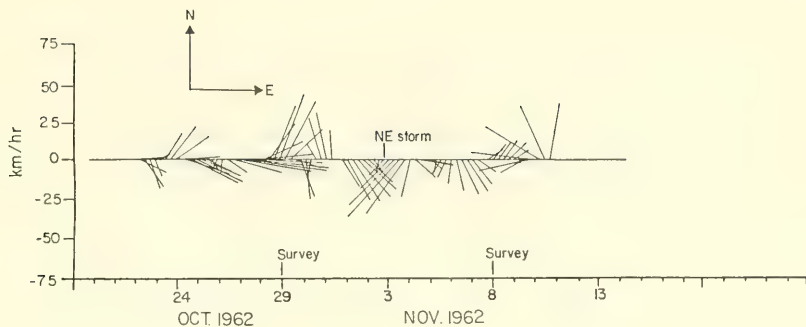


Figure 17. Wind diagram from data recorded at Atlantic City for parts of October and November 1962. Storm occurring 3 November was a "classic northeaster."

in above MSL sand volume which occurred during the interval are given in Table 3. Profile lines 3 to 14, 16, 17, and 20 were not protected by structures and experienced general erosion except at profile lines 5, 6, and 13. The latter three showed accretion with profile line 13 gaining 21.83 cubic meters per meter in sand volume while adjacent profile lines 12 and 14 suffered erosion. This was the greatest gain of any profile measured. Greatest losses occurred at profile lines 4, 10, and 16. The reasons for the extreme variability in volume change are not clear, but may be related to differential wave refraction and wave focusing.

(3) Winter Storm, 13 January 1964. A severe winter storm which developed strong winds from the northeast and north hit the New Jersey coast in January 1964 causing blizzard conditions, coastal erosion, and maximum high tide levels (Table 2). Winds recorded at Atlantic City during this period exceeded 72 kilometers per hour and were above 54 kilometers per hour for a 3-day period surrounding 12, 13, and 14 January (Fig. 18). Surveys of the beach were taken on 27 December 1963 and again on 15 January 1964 as the storm was abating. Erosion along the island was general except at profile line 21. Losses from profile lines 13, 18, and 19 were also anomalously small compared to the other profiles. Profile lines 18 and 19 are surrounded by older groins, but, since the groins recorded as built in 1964 were probably not yet in place, the reason for only a moderate loss at profile line 13 is not clear. Profile lines 1 to 4 at the north end of the island were apparently protected from the north-east waves by the Barnegat Inlet jetties (Fig. 2).

Table 3. Change in profile above MSL sand volume due to selected storms.

Line	Storm dates			
	29 Oct.-8 Nov. 1962 (m ³ /m)	27 Dec. 1962- 15 Jan. 1963 (m ³ /m)	23 Oct.-13 Nov. 1968 (m ³ /m)	13-24 Mar. 1973 (m ³ /m)
1	- 6.32	- 6.90	- 8.49	- 8.79
2	- 9.74	- 1.31	10.45	- 5.31
3	- 4.27	- 0.49	- 57.05	- 15.58
4	- 28.26	- 4.90	- 69.68	- 10.14
5	7.87	- 33.13	- 11.10	- 6.04
6	7.30	- 26.99	- 24.04	- 13.21
7	- 17.61	- 33.14	- 32.84	- 7.82
8	- 16.92	- 69.15	- 40.23	- 11.13
9	- 13.00	- 39.12	- 44.48	- 10.25
10	- 28.32	- 35.72	- 52.96	- 30.02
11	- 24.13	- 25.31	- 44.10	- 19.89
12	- 14.44	- 45.68	- 28.27	19.71
13	21.83	- 14.20	- 15.27	
14	- 1.21	- 29.40	- 26.15	- 3.71
15	2.96	- 44.45	- 34.29	- 12.15
16	- 27.15	- 26.44	1.34	- 3.40
17	- 21.79	- 19.03	- 26.55	- 4.12
18	- 17.37	- 12.58	- 14.18	19.97
19	- 0.02	- 14.77	- 15.97	- 11.92
20	- 21.26	- 41.08	2.36	- 11.84
21	10.86	9.71	2.18	43.55
22				- 19.44
23				- 1.23
24				- 17.02
25				- 14.78
26				- 3.18
27				9.70
28				- 6.26
29				8.39
30				0.50
31	No record			
32	- 20.52	- 15.35		
33				- 15.27

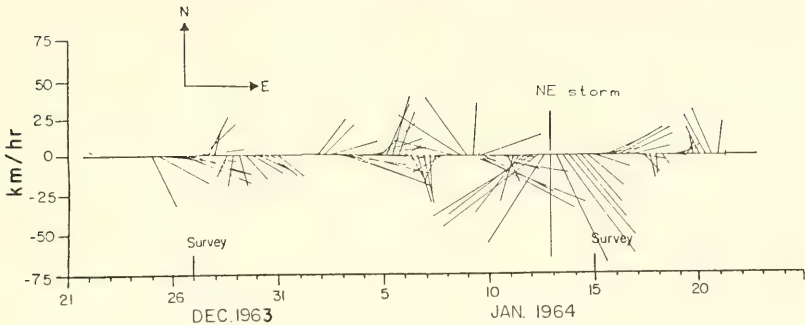


Figure 18. Wind diagram from data recorded at Atlantic City for December 1963 to January 1964, showing a northeast storm of 12 January and beach surveys. The gap from 30 December through 2 January is from a change in data format between 1963 and 1964.

(4) Northeast Storm, 12 November 1968. A short-lived, intense north-east storm with rain, snow, and wind caused erosion along the island during the survey interval from 23 October to 13 November 1968 (Fig. 19, Table 2). Erosion was widespread and severe, particularly north of the causeway and in segments to the south. Profile lines 1 and 2, enclosed by the jetties, showed erosion and accretion, respectively. Profile lines 3 and 4 suffered a severe loss of sand volume. This is in contrast to the response shown for the 13 January 1964 storm during which the profile lines were protected by the jetty. Since both generated high storm tides, differences in the wind patterns may account for the response. Winds during the January storm were from the west northwest, with the Atlantic beach face protected, on the 11th and began to develop strongly from the north-northeast, essentially parallel to shore, on the 12th. The winds remained strong but rotated counterclockwise blowing from the west on the 16th. This is the classic pattern of winds generated by a low-pressure system seaward of the island moving up the coast. A similar, though much less intense low on 10 November 1968 followed the same pattern as the 13 January 1964 storm. This storm, however, was followed by intense winds from the east-northeast in a direction nearly parallel to the south Barnegat Inlet jetty. This direction of wave approach combined with local refraction which may have focused the wave energy was apparently sufficient to cause a large amount of erosion to profile lines 3 and 4 as well as others. Profile lines 6 to 12 were also severely cut back during this event, as were profile lines 14 and 15. The south end of the island from profile line 15 showed great variability with profiles alternately eroding and accreting (Table 3). Most of the groins were in place during this period with the exception of the

structures built in 1969 around profile line 13. This profile again was not as severely affected as many others.

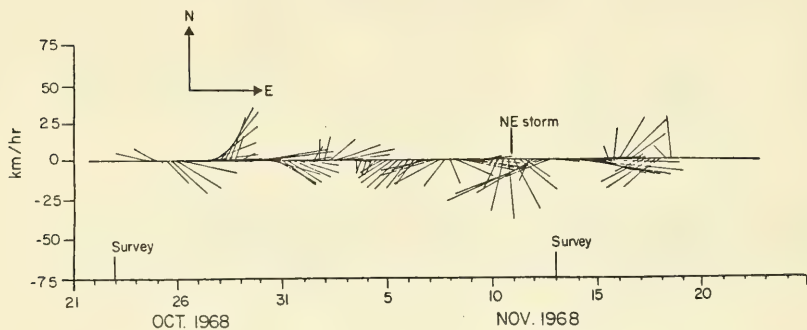


Figure 19. Diagram of winds recorded at Atlantic City, October–November 1968, showing northeast storm of 12 November and beach surveys.

(5) Spring Storm, 21 March 1973. This coastal storm differs from the previous three since the strongest winds from the south and southwest were caused by a low-pressure system centered west of the island that moved northward. These winds (Fig. 20), which reached intensities of 90 kilometers per hour, swung clockwise from south to northwest before abating. Winds from the north and northeast were then built up to intensities of 54 kilometers per hour during the 24 March survey. Though this is the only local storm during the survey interval, the high-velocity shifting winds made interpretations difficult. Erosion was widespread over the profiles though not as severe as during the winter northeast storms in spite of the high winds (Table 2). All profiles from profile line 11 north showed a loss in volume over this interval except the closely spaced profile lines 22 to 30 used for the groin field studies. South of profile line 11, the changes were extremely variable, ranging from a loss of 12.15 cubic meters per meter at profile line 15 to a marked gain of 43.55 cubic meters per meter at profile 21. Closely spaced profiles were being surveyed during this period. This data set is examined in Section IV-3.

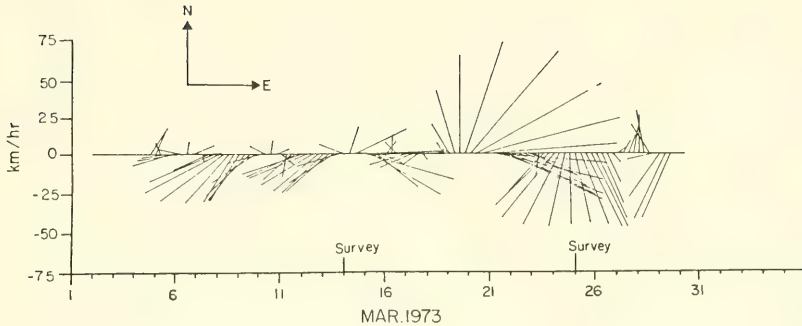


Figure 20. Diagram of winds recorded at Atlantic City, March 1973, showing strong southwest winds followed by a northeast storm. Erosion was not particularly severe on Long Beach Island.

b. Seasonal Changes. There is a definite seasonal cycle associated with the frequency and intensity of storms recorded at the Atlantic City reporting station (Fig. 10). West coast beaches respond to seasonal differences in wave climate caused by winter storms and exhibit a distinct bimodal character, being eroded with concave-upward profiles during winter and convex-upward profiles in summer (Shepard, 1950; Komar, 1976; Fox and Davis, 1978). The seasonal signal, if it exists, may also be detected in the empirical eigenfunction analysis. The seasonal cycles are clearly discernible in the second temporal eigenfunction of Aubrey (1978) from studies conducted on Torrey Pines Beach. If the record is demeaned, a strong seasonal signal should show in the first beach eigenfunction. The ideal record from which to extract the seasonal signal is one that is evenly and often sampled during all seasons. This requires at least monthly surveys of the profile sites. The sampling distribution for Long Beach Island was not evenly distributed as shown in Figure 4. Summer seasons, particularly during 1964-69, were infrequently sampled with some seasons missed completely. The other seasons were more frequently sampled since more beach changes were expected.

Several periods of frequent sampling were selected during 1963 and again in 1969-71. Eigenfunction analysis was performed on selected profiles not directly adjacent to groins to determine a seasonal variation. A definite seasonal variability is seen in the first temporal eigenfunction (Fig. 21) with mean removed. The trend is not as marked as on west coast beaches. Profile lines 5 and 11 show a low at the beginning of 1970 and a rise in the midyear. A similar pattern is seen in 1971. Profiles 14 and 16 do not show as marked a trend and appear to be out of phase with the other profile lines. Whether this is an opposite seasonal trend or the result of a sign ambiguity in the eigenfunction analysis is under study. However, the seasonal cycle can be seen in

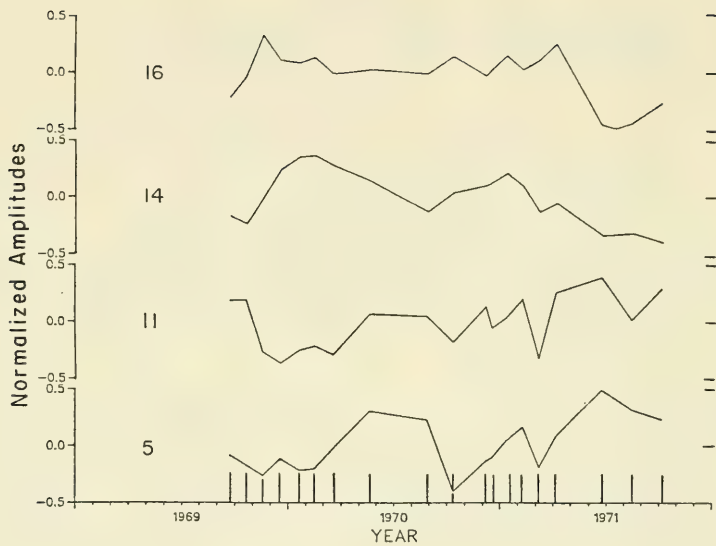


Figure 21. First temporal eigenfunction, mean removed, for profile lines 5, 11, 14, and 16. Profile lines were selected to be as evenly spaced as possible by season and to minimize groin effects.

each of the selected profile lines. Previous studies of MSL shoreline and beach volume changes had concluded that a well-defined seasonal response was not found on Long Beach Island (Everts and Czerniak, 1977). Goldsmith, Farrell, and Goldsmith (1974) also concluded that during a 1-year study (1973-74) of biweekly profile measurements at the southern end of Long Beach Island there was no overall seasonal trend. These data were not analyzed using empirical eigenfunctions. The fact that the seasonal signal can be shown here by a quantitative, objective method emphasizes the value of the technique applied to well-planned data sets.

c. Long-Term Changes. One of the goals of the BEP was to determine the long-term trend of beach development at the various evaluation sites. This is important from the standpoint of planning the beach preservation strategy as well as assessing the effectiveness of existing beach protection measures. A study of long-term shoreline changes along the mid-Atlantic coast, from Beach Haven Inlet to Shackleford Bank, North Carolina, was recently completed by Dolan, et al. (1979). Air photos, some dating back to 1930, were used to determine the rate of shoreline change of the barrier islands and headlands along the 630-kilometer section of coastline. Erosion rates averaged 1.5 meters per year, but were extremely variable with the greatest erosion rates occurring on unstructured, small barrier islands. Accretion was observed in developed areas near the north end of the study area where beaches are maintained by groins, jetties, and beach nourishment. The results of Dolan, et al. (1979) should not be extrapolated to Long Beach Island, but they do indicate that long-term erosion is not a necessary and general condition in the adjacent area to the south.

Trends in the change of MSL shoreline position and volume over the period of the study are apparent from the figures in Appendixes B and E. A qualitative indication of the trend in the above parameters as well as that apparent from the first beach eigenfunction of the total and demeaned data set is shown in Table 4. Linear regression was not used because the resulting slope implies a degree of precision and predictability that is unwarranted by these data. The volume change shows that only one profile line (21) showed a decrease over the study period. All of the other profiles indicated a volume increasing with time or no change. The first eigenfunction of the demeaned data is particularly well correlated with the rate of volume change. Comparison of the trends shows a one to one correspondence in most cases. Profile lines 17 and 18 indicate a negative correlation between the first demeaned beach eigenfunction and rate of volume change. This is due to a sign ambiguity which exists in the numerical solution for the eigenfunctions and eigenvalues. It may be resolved by integrating the product of the first temporal eigenfunction and the first spatial eigenfunction over the length of the profile. No long-term trends were obtainable from the 1-year record of profiles within the groin field (profile lines 21 to 30). Profile line 7, in that region, showed no trend in the rate of volume change. This analysis indicates that, in spite of large variability in above MSL volume, most of the profiles along Long Beach Island are stable and many are accreting over the term of the study.

Profile measurements were extended offshore to a depth of approximately 10 meters in 1937, 1955, 1963, and 1965. Detailed soundings were made in Barnegat and Beach Haven Inlets and, during the latter 3 years, were relatively evenly spaced along the beaches as well (Fig. 4). Many of the offshore

Table 4. Long-term trend in beach profile as indicated by MSL sand volume change, MSL shoreline change, and first spatial eigenfunction.¹

Profile line	Volume change	MSL shoreline change	First eigenfunction mean included	First eigenfunction demeaned
1	0 (large variability)	+	0	+
2	0 (large variability)	+	0	+
3	0 (large variability)	0	+	5-year cycle
4	0	0	0	0
5	0	+	0	0
6	0	0	+	+
7	0	0	0	+
8	0	0	0	+
9	0	-	0	0
10	0	0	0	0
11	0	-	0	0
12	0	0	0	0
13	0	0	0	0
14	+	0	+	+
15	0	+	+	+
16	+	0	+	+
17	+	0	0	-
18		Great variability	+	-
19	+	+	+	+
20	+	0	+	+
21	-	Extreme variability	0	-

¹Change indicated by + increase, - decrease, and 0 no change.

profile locations corresponded to those used for the beach surveys. Profile measurements were made at different times of year (e.g., the 1955 measurements were "Feb.-Sept.," 1963 - "Oct.," and 1965 - "Sept."). It is not known what the normal variability of the profiles is, so comparisons must be interpreted with caution. The profile lines obtained from the Philadelphia District were integrated from the MSL position to about the -10-meter MLW contour in order to compare the change in offshore sand accumulation. The integration was carried out at 3-meter depth intervals in order to compare the variability at the shallow intermediate and deep region. The change in area under each profile line as well as the net area change over the interval were computed. During the interval 1955-63, half of the profiles gained sand while half showed no change (profile 69) or lost sand. Much of the gain over this interval took place in profiles 72 and 73. A detailed look at the profiles showed a series of offshore bars which were nearly in phase between 1963 and 1965 but which were displaced landward more than 120 meters in 1955. Since similar sand waves were in phase during all three profiles at other locations, it is probable that the displacement was caused by a systematic error in the measurement. Most of the variability in the other profile lines took place near the shore at depths of -2 meters MLW or less. It is possible that the large increase in offshore sand volume between 1955 and 1963 is the result of erosion from the beach during the March 1962 storm.

Many of the profiles showed bars nearshore before grading smoothly at a slope of about 1:20 seaward to the -6-meter depth. The slope then abruptly decreased to about 1:200 or less. Offshore features with relief less than the contour interval of the bathymetric chart (6 feet) do not appear on the charts. Profile 58, however, shows three sand waves with wavelengths of about 700 meters and amplitudes of about 1.5 meters present and in phase in the 1963-65 profiles. Much of the feature was also apparent in 1955.

Though a firm conclusion is not possible from these data, the offshore features, such as bars and shoals, at depths of 6 meters and beyond appear to be stable, suggesting that most of the variability in sand volume takes place in the shallow beach face at depths less than 3 meters.

2. Spatial Variability.

Longshore and onshore-offshore variations in beach morphology were examined to determine systematic spatial variability including effects due to the proximity of profile lines to shore protection structures. Total volume calculations are often used as an indicator of the direction and degree of beach erosion or accretion. Calculations based on these profiles are shown as volume changes above the MSL shoreline in Appendix D, and the method of calculation is explained in Section 3. The amount of beach (sand) volume depends upon the offshore distance to which the calculations extend. If the distance is short, the recorded changes may have occurred only in the berm while very long profiles may show no net change because onshore accretion is compensated by offshore erosion. The existence of nodal points in the profiles representing onshore-offshore sediment exchanges (e.g., Aubrey, 1979) emphasizes the importance of selecting the proper offshore distance for volume calculation, especially when comparing results between different profile lines. Since the eigenfunction analysis retains spatial covariance information, volume changes can be readily calculated to any offshore distance, with the nodal points well delineated.

Changes in the MSL shoreline have been calculated as discussed in Section 3, and are graphed for each profile line in Appendix B. This parameter is sometimes invoked as an indicator of seasonal beach changes and, indeed, may show persistent long-term trends. Short-term changes in MSL intercept may also be caused by migrating rhythmic topographic features, such as cusps or rip channels, and may be incorrectly interpreted unless closely spaced profile lines are obtained.

The major disadvantage of the eigenfunction technique is that the results may be more obscure than simple volume calculations or MSL intercept plots. Beach changes may be regular and predictable, but the eigenfunctions do not always have simple physical interpretations. In much work to date on west coast beaches, the eigenfunctions have had physical analogues (e.g., Winant, Inman, and Nordstrom, 1975; Winant and Aubrey, 1976; Aubrey, 1979). Eigenfunction analyses on other beaches have shown similar characteristic shapes.

The alongshore variability of the beach profile measurements has been investigated by plotting the mean square value (MSV) and variance (VAR) of each line 1 through 21. No consistent trends emerged from this analysis except for the plot of total VAR of the demeaned data (Fig. 22). Though the conclusion must remain tentative, since each profile line did not contain the same number of points nor extend the same distance offshore, there is a trend of increasing variability from north to south along the island. The reason for the greater variability (if it is real) may be associated with more active transport processes occurring along the unstructured Beach Haven Inlet.

The alongshore variation was also examined to see if differences existed between profiles relatively evenly spaced between groins (profile lines 5, 7, 9, 12, 13, 14, 16, 20) and those closely adjacent to groins (profile lines 4, 6, 8, 10, 11, 15, 17, 18). No marked difference was discernible from these data. The eigenfunction analysis did not differentiate between beach responses to structural control simply on the basis of gross characteristics such as MSV, VAR, and percentage of VAR accounted for by the first eigenfunction. Examination of the closely spaced profile lines within the groin field (profile lines 22 to 30) will be discussed later in this report.

The demeaned spatial profiles demonstrate two major relationships between the first and second eigenfunctions (Fig. 23,a). The first group of profile lines (1, 2, 4, 5, 6, 10, 11, 12, 14 to 17, 19, 20) is the dominant form and has the second eigenfunction in phase spatially with the first on the beach backshore, and out of phase in the foreshore. For a positive temporal second eigenfunction [$c_2(t)$], the second eigenfunction shows an enhanced buildup in the backshore and a reduced buildup in the foreshore. For a negative weighting for $c_2(t)$, the backshore erodes while the foreshore accretes. Since the second eigenfunction is always less dominant than the first, this effect is second order.

The second profile grouping (profile lines 7, 8, 9, 13, 18) is shown in Figure 23(b). The first eigenfunction has a spatial sign difference between the foreshore and backshore, while the second eigenfunction has no sign difference. This eigenfunction representation shows the same result as the previous grouping; a positive weighting on the second function, $c_2(t)$, indicates accretion on the backshore and erosion on the foreshore, while a negative $c_2(t)$

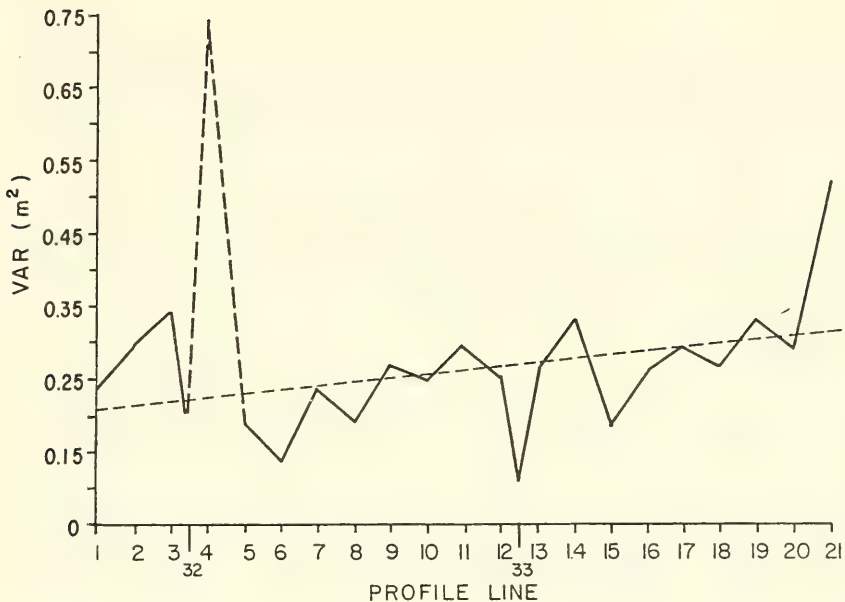
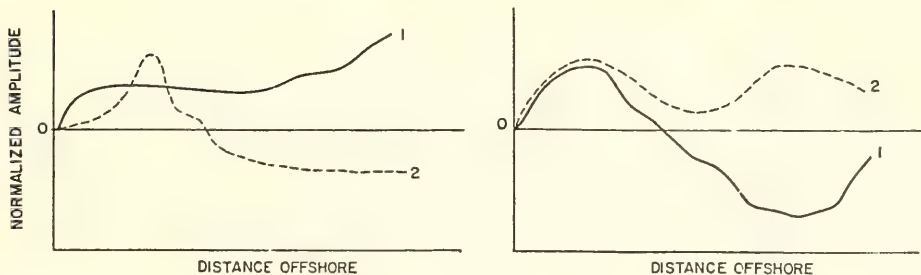


Figure 22. Total variance from empirical eigenfunction analysis at each profile line 1 to 21, 32 and 33.



(a) Characteristic of profile lines 1, 2, 4, 5, 6, 10, 11, 12, 14 to 17, 19, and 20. Spatial functions are in phase on backshore while second function is negative offshore.

(b) Characteristic of profile lines 7, 8, 9, 13, and 18. Spatial functions are in phase on backshore while first function is negative offshore.

Figure 23. Characteristic shapes of the demeaned beach eigenfunctions for Long Beach Island. The first two spatial eigenfunctions are shown.

indicates erosion on the backshore and accretion on the foreshore. The primary difference in the two eigenfunction representations is the negative covariance between the foreshore and backshore in the first eigenfunction for the second grouping and positive covariance for the first set of profiles. No physical explanation for the different beach response for these two groupings is apparent.

For the mean beach eigenfunction (those with the mean profile retained), the first eigenfunction is analogous to a mean beach profile. There is considerable variation in the beach slopes for the different profiles, but the eigenfunction analysis shows no systematic relationship between these profile slopes and proximity to beach structures.

3. Groin Field Studies.

Closely spaced profiles were taken along a section of beach protected by evenly spaced groins between the towns of Loveladies and Harvey Cedars (profile lines 22 to 30). Ten surveys of each profile line were made over a period of nearly 1 year (28 Aug. 1972 to 11 June 1973). Each set of parallel profile lines, three within each groin compartment, was arranged with the center profiles (23, 26, 29) spaced equally between the groins and the other lines two-thirds of the remaining distance to the groin on either side. Changes, between surveys, in MSL position and sand volume at each profile line have been prepared in Appendixes B and D, respectively. The changes within the groin field between survey dates are shown in Figure 24 for MSL position and Figure 25 for above MSL sand volume. Comparison of Figures 24 and 25 shows that the above MSL volume change is highly correlated with the MSL position change.

Visual wave observations were made once each day in the vicinity of Harvey Cedars during much of the period of these surveys. These data are not suitable for quantitative determinations of transport rate and direction because direction estimates are imprecise and data are not complete. The visual data were reviewed, however, for qualitative estimates of transport during each measurement interval.

a. 29 Aug. - 16 Oct. 1972. Few visual wave observations were taken during this interval and none are available after 21 September. It is obvious, however, that each groin cell responded similarly to processes occurring before the 16 October survey. The north side of each groin cell (A, B, C in Figs. 24 and 25) shows general erosion while the south side shows accretion, indicating longshore transport from north to south. The net gain in above MSL sand volume in each groin cell indicates that sand must have been contributed to the groin field from offshore or updrift. Tropical storm Carrie occurred shortly after 29 August, but its influence on the measured beach changes is unknown.

b. 16 Oct. - 4 Dec. 1972. The pattern of change in above MSL volume and MSL position reversed in all groin cells during this interval. Erosion occurred at the south end of each cell with accretion at the north end. No storms are recorded during the interval (Table 2) but visual wave observations are available for 30 of the 49 days. Most of these record waves approaching from directly offshore. Two days prior to the survey, however, waves were observed breaking at an angle from 5° to 30° to the shoreline, approaching from the south. These would have induced northward transport and may be responsible for the observed pattern of change.

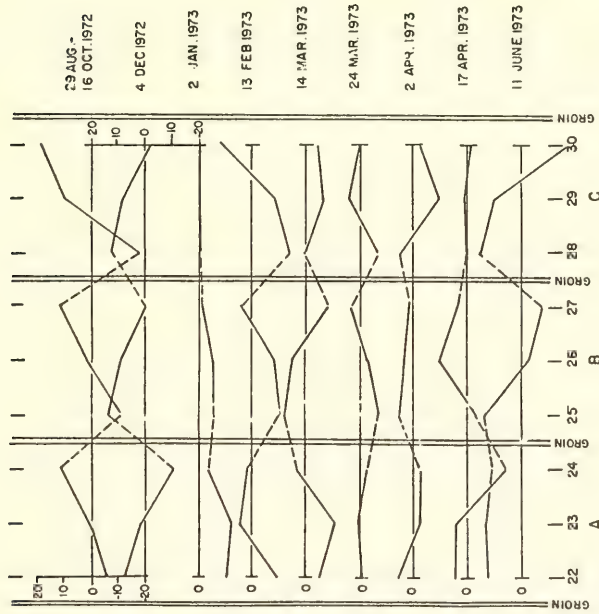


Figure 24. Change in distance to MSL intercept (m) between surveys along closely spaced profile lines 22 to 30.

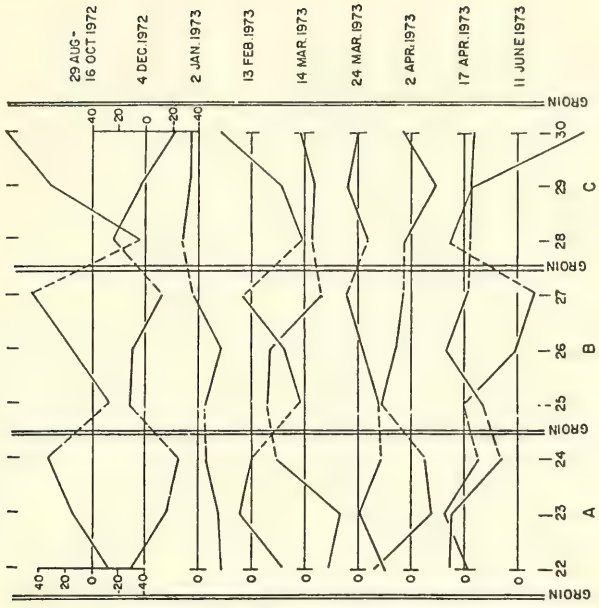


Figure 25. Change in above MSL sand volume (m^3/m) between surveys along closely spaced profile lines 22 to 30.

c. 4 Dec. 1972 - 2 Jan. 1973. Visual wave observations, available for 15 days of the 27-day interval, indicate that waves arrived oblique to the shoreline more than half of the time reported. Height and number of observations indicate transport from north to south was predominant. The MSL shoreline receded at all groin cells during the interval with slightly less erosion at the south end of two of the cells. The MSL shoreline position changed little in cell C while the above MSL sand volume increased in the same cell indicating berm building over the interval.

d. 2 Jan. - 13 Feb. 1973. A pattern of change was reestablished in the groin cells during this interval indicating transport from north to south at the time of measurement. Visual wave observations were made for 27 days of the 43-day period. Only 10 of these are indicated as providing an oblique approach (6 from north, 4 from south). Observations from the Atlantic City recording station show that winds were from the northwest during much of the interval with several periods of southerly winds (Fig. 26). The latter caused waves from the southwest. A northeast storm occurred about 9 February causing the largest waves of the interval (1.25 to 1.50 meters) from that direction and was probably the important influence on the observed changes. The measured beach topography for each of these dates is shown in Figure 27(a) and (b) with the regions of erosion and deposition shown in (c). The topography and change directly adjacent to the groins have been estimated. The map of the difference between the two topographies shows the pattern of erosion. Each cell eroded on the northern side and accreted on the southern side. There was a net loss in sand volume during the interval suggesting that sand was moved offshore or elsewhere out of the range of the survey measurements.

e. 13 Feb. - 17 Apr. 1973. Beach changes during these four intervals showed no particular pattern by groin cell attributable to available wave and wind data. Visual wave observations, recorded daily for more than 90 percent of the interval, suggest that the predominant transport is from north to south.

f. 17 Apr. - 11 June 1973. Almost half (25 of 54) of the visual wave observations during this interval indicate the predominant transport direction should be toward the north, and this is reflected in the pattern of change observed in the groin field. The north side of each cell accreted while the south side eroded. There was a net gain in sand volume throughout the groin field with cell A showing general accretion from side to side.

The pattern of change in each groin cell for the entire study interval (28 Aug. 1972 to 11 June 1973) is shown in Figure 28(a) and (b) for MSL shoreline and above MSL volume, respectively. They compare the mean change in each groin cell with the net change for each profile. The data are not sufficient for statistical tests of significant difference; however, the standard deviation (sd) about the mean is indicated on the southernmost profile line of each cell (i.e., profile lines 24, 27, 30). The fact that the same pattern of change is shown in each groin cell indicates that the measured response is real and that the groins have influenced the littoral transport process. The mean change in each cell was greater than zero indicating that, over the period of measurement, the beach experienced a net accretion. The mean increase in above MSL volume, for instance, was greatest in cell B (28 cubic meters per meter) and least in cell A (5 cubic meters per meter). The mean increase in cell C was 22 cubic

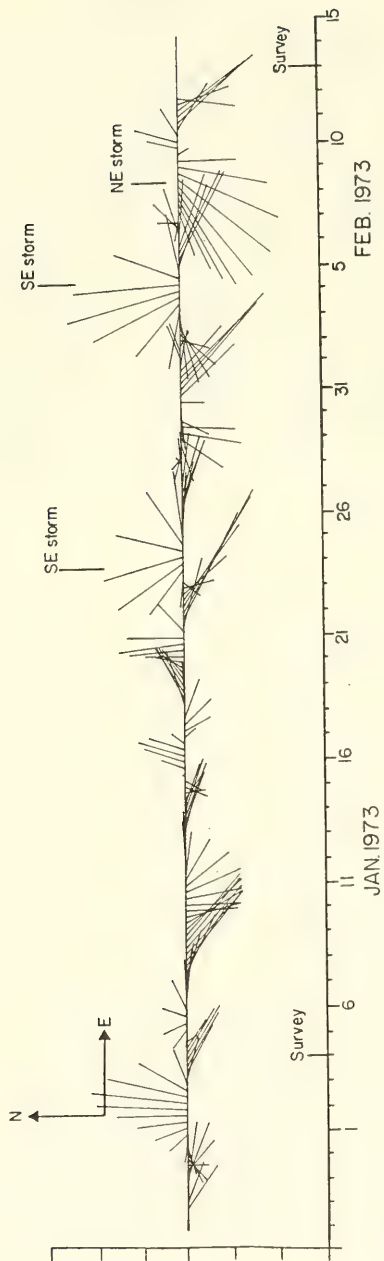


Figure 26. Atlantic City wind record for January-February 1973 showing periods of strong southeast and northeast winds. Resulting beach changes are shown in Figure 27.

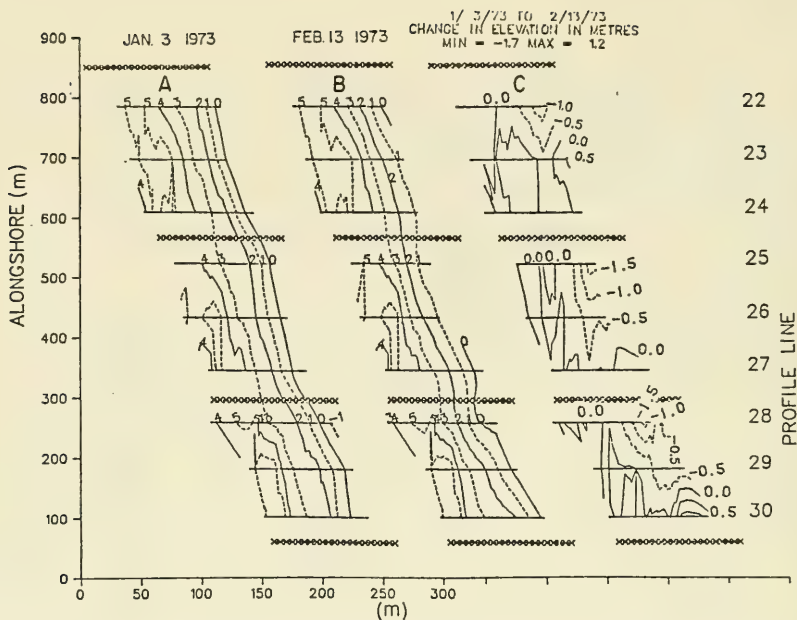
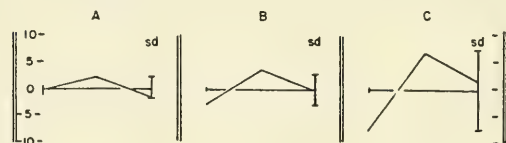


Figure 27. Contoured beach topography for surveys taken 2 January and 13 February 1973 and the contoured difference between surveys. The contour between the groin and the profile line was estimated.

a) MSL SHORELINE



b) ABOVE MSL SAND VOLUME

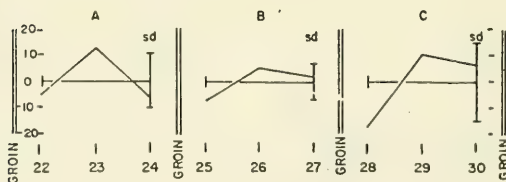


Figure 28. Net change in MSL shoreline (m) and unit volume (m^3/m) from 29 August 1972 to 11 June 1973 for each profile line with mean change in each groin cell removed. Standard deviation (sd) of each mean is shown at the right of each cell.

meters per meter. The reason for the large difference between cell A and the two other cells is not known. Each cell shows a change in above MSL volume at the north side which is negative relative to the mean while the south side of the cell is less than the mean but positive in the two southern cells. The latter suggests net transport toward the south while cell A suggests a slight net transport toward the north. Rates of transport cannot be determined from the available data. This section of beach may be the site of a local nodal point in sand transport direction. Similar, closely spaced profile line studies in groin cells to the north, would be necessary to confirm this possibility. The variability in the change within each groin cell indicates that repeated measurements of single profile lines placed between adjacent closely spaced groins may not accurately reflect the change within that cell. Figure 28 indicates that profile lines located in the middle of a groin cell would show a net change greater than the mean, while profile lines near the groins would show a lesser or negative rate of change. At least three profile lines should be located within a groin cell in order to resolve the direction of net transport and amount of change. The distribution of change within a cell also implies that regression estimates of the rate of change in MSL shoreline or above MSL sand volume from the available data from other profile lines would not provide a meaningful indication of beach development.

V. DISCUSSION

1. Profile Changes.

The profile lines along the Long Beach Island beaches are characterized by a high degree of variability that occurs on a number of time and space scales. The empirical eigenfunction analysis has shown (Fig. 22) that the variability generally increases from the north end of the island, which has been stabilized by the Barnegat Inlet jetties, toward the unstructured Beach Haven Inlet. The profile lines between these two extremes have, with the exception of the groin field studies, been placed along the beach with little regard for proximity or relationship to the groins. The beach variability prior to groin construction is unknown so it is not possible to assess the effect the structures have had on this factor. A long-term study on an unstructured beach in a similar environmental setting would provide a useful contrast of processes. Island Beach State Park, north of Barnegat Inlet, may provide a reasonable candidate site for a comparative study.

The erosion or accretion rate of the Long Beach Island shoreline remains unresolved. Linear regression analysis was used on profile lines 1 to 21 to estimate the rate and direction of change in the MSL shoreline position. All except five of the profile lines (7, 8, 9, 11, 21) showed a positive correlation between the MSL shoreline and time. The mean accretion rate of 0.56 meter per year indicates that the beaches along the island are building seaward even in the period of long-term sea level rise. The method of Weggel (1979) was used to estimate the expected erosion rate caused by the latter. This estimate is 0.68 meter per year. Both of these must be treated with caution since they are based on assumptions that may not be valid for the Long Beach Island system.

The high variability in the MSL position and sand volume may also be related to the position of the profile lines relative to offshore features, such as sandbars and the shoreface-connected shoals. The wave refraction diagrams (Figs. 11 to 16) show that the shoals refract simple waves approaching from, for instance, the northeast in complicated ways. Measurements of flow over the shoals and the longshore variation in wave characteristics may be necessary to adequately resolve this question.

The available data were evaluated to determine the direction and rate of net longshore transport. Neither can be determined with certainty using these data, but strong arguments can be made for a net southerly transport, at least south of profile line 24. Most severe storms arrive from the east or northeast, generating longshore currents and oblique waves which transport material from north to south. Clear evidence of this exists in the single year study of the closely spaced profile lines. The unfortunate locations of other single profile lines make direct confirmation of this phenomenon from profile line evidence impossible. Reversals in transport direction have been shown to exist, and evidence of a possible node in the transport is shown along closely spaced profile lines 22, 23, and 24.

Calculations of the rate of littoral transport are based upon a linear relationship between the volume transport rate and the longshore component of wave energy flux evaluated at the breaker zone, $P_{\ell S}$, (U.S. Army, Corps of Engineers, Coastal Engineering Research Center, 1977). The shallow-water breaking criterion and solitary wave theory can be used to show that $P_{\ell S}$ is quite sensitive to wave height and breaker angle. Relatively small errors in these values cause large errors in $P_{\ell S}$. Visual estimates of breaker conditions, available for part of the study, indicated a predominance of normal wave incidence with this zone defined as waves approaching from directly offshore to 5° on either side. Transport may, therefore, have been in either direction. The transport rate relationship to energy flux is based upon field measurements on plane, unstructured beaches and does not account for effects of groins, inlets, tidal currents or offshore topography. The uncertainty caused by these factors makes quantitative estimates of the transport rate meaningless.

2. Civil Engineering Implications.

The Long Beach Island beaches were identified as experiencing "critical erosion" (U.S. Army Engineer Division, North Atlantic, 1971). The rate of erosion and reason for this designation, however, were not specified. Evaluation of these BEP data indicates that the beaches are accreting or remaining stable at several locations and in spite of an expected erosion trend induced by sea level rise. Several of the profile lines show a marked increase in sand volume after groin construction began in 1964. Profile lines 14, 16, and 17 increased in sand volume and have remained relatively constant since about 1968 (App. D). Whether this trend is a result of groin construction or a natural beach cycle is unknown. Profile line 21 at the south end of Long Beach Island is near the last structure before the wildlife refuge and has shown a marked erosion trend over the course of the study which may be related to the sand trapping by the groins to the north. This conclusion must remain tentative since no profile data are available prior to the BEP.

The seasonal cycles in the beach profiles shown by the empirical eigenfunction analysis and the closely spaced profile lines have implications for beach-fill operations and the location of feeder beaches. Though net transport is toward the south, south of profile line 24, this region may be the site of a local transport node with the net drift north of this region toward the north. A feeder beach located north of the node would not supply sand to the southern beaches. Sand dredged from Barnegat Inlet during the summer of 1979 and placed on the beaches in the vicinity of profile line 3 was probably transported northward or offshore where it reentered the inlet system rather than nourished the southern beaches. Other nodal points, either temporary or permanent, may exist along the island. Predicting their location is, at present, not possible. Closely spaced profile lines placed within groin cells would be necessary to determine their position and motion. Studies on the effectiveness of the beach fill and its direction of transport are being conducted (Ashley, Halsey, and Farrell, 1980).

The profile envelopes (App. E) show that the sweep zones of the beach profiles have been considerable over the period of study. Variations of as much as 4 meters are not unusual in the region of the MSL intercept. This vertical excursion of the profile must be taken into account in the design of pipelines, coastal structures, and other protection measures.

Limitations in the amount of information obtainable from the Long Beach Island data set may be overcome in future studies by alterations in the sampling design which take into account the beach structures, offshore topography, nearshore below MSL changes, waves, currents and the anticipated methods of data analysis. The closely spaced profile line studies show that beach changes within a groin cell cannot be determined with fewer than three profile lines per cell. Comparative analysis may be done with this data set and that from Westhampton, New York (DeWall, 1979) to provide additional insight into the dynamics of groin cells. The distribution of profile line measurements depends upon the scale of the processes under consideration and may require that pilot studies be carried out for at least one season before the final design is adopted. It is likely that each beach environment will require a somewhat different approach. The offshore topography must be considered when laying out the profile lines. The linear shoals off of Long Beach Island certainly affect the distribution of sand transport by causing differential wave refraction. Profile lines should be extended farther offshore than the -2-foot MSL position as was done in this study. The depth of measurement depends upon the wave regime, currents, expected depth of sediment movement and the resources of the measurement team, but should extend beyond the breaker zone. The spacing and timing of profile line measurement again depend upon the scales of the processes but also on the expected method of analysis. Statistical methods including eigenfunction analysis work best when data are evenly distributed in time and space. Sets of closely spaced profile lines laid out in selected groin fields along the island would have been appropriate for Long Beach Island. The frequency of surveys depends upon the expected total length of the time series and the resources available. Monitoring studies should last several years to obtain adequate statistics of seasonal variability with surveys taken each month for longer studies and twice each month for short studies. Beach changes during storms are highly nonlinear and can be extreme in a short amount of time. These events should be monitored individually. Wave information is best obtained by a reliable gage giving height and direction. Adequate devices are generally not available or are very expensive. Well-trained observers

can be substituted for machinery for much of the study, but periods of wave data may be closely correlated with beach changes at selected times in the study period. Offshore surveys to depths of 10 meters should be made twice each year to provide a total record of nearshore change.

VI. SUMMARY

A total of 2,158 profile surveys were taken at 32 profile line locations along Long Beach Island, New Jersey, from 26 September 1962 to 12 June 1973. These surveys included closely spaced measurements taken at nine locations within three adjacent groin cells for a period of nearly 1 year (August 1972 to June 1973). The data were checked and verified by CERC personnel and subjected to a number of computer analysis techniques to obtain changes between surveys in above MSL unit volume, change in profile area, change in MSL shoreline intercept, profile envelopes, and linear regression trends. Additional processing was done using empirical eigenfunctions. The temporal and spatial changes of the profile lines were related to environmental process variables such as wind, waves, and storms.

Seventy-seven storm events were identified over the study period from historical records. Beach changes which could be related to four individual storms were selected for detailed analysis. The most severe erosion of these four storms (between 23 October and 13 November 1968) caused a recession of the MSL shoreline of about 22 meters at profile line 4 where the volumetric change was nearly 10 cubic meters per meter. In spite of the generally severe erosion, several of the profile lines accreted during the interval emphasizing the extreme variability which was a general characteristic of the beach changes during the study. This means that longtime series studies are required to obtain statistical data on general beach trends.

Detailed studies within three groin cells showed that at least three profile lines within a groin cell are necessary to determine the net erosion trend and transport direction. The change in beach volume or MSL intercept shown by a single profile line in a groin cell does not necessarily represent a characteristic change for that cell. Distance weighted volume calculations made from single profiles along a structured beach, therefore, are of questionable value. The closely spaced profiles and analysis of storm directions strongly support previous conclusions of a net southward littoral transport at least south of profile line 24. Evidence for a nodal area exists in that region.

Regression analysis of the MSL intercept with time showed most profile lines accreting. The maximum and minimum accretion values were 2.3 and 0.24 meter per year at profile lines 19 and 10, respectively. The maximum erosion occurred at profile line 21 which is receding at an annual rate of more than 5 meters per year. The low R^2 value for most of the regression equations emphasizes the variability of the individual profile lines. Profile line 21, however, has shown a persistent erosion trend over the course of the study. There is no discernible pattern to the regression values along the beaches. These rates must be treated with caution since they imply a degree of predictability to the long-term trend which does not exist.

Though transport is toward the south along most of the beach, the closely spaced profile lines show shifts in the beach pattern that indicate reversals

when waves arrive from the southeast. These reversals and the location of nodal zones should be considered in the development of future beach protection strategies.

Suggestions for the design of future beach monitoring studies have been developed. These require that the consideration be given the method of analysis when selecting the temporal and spatial scales of the beach profile lines. Other factors that must be considered are: location of profile lines relative to structures, offshore topography, possible nodal zones, and available resources. Pilot studies are suggested before the final monitoring design is adopted.

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APPENDIX A

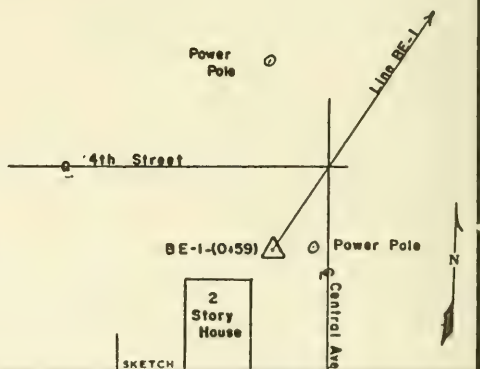
PROFILE LINE DOCUMENTATION

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OBJECT		AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)		BACK AZIMUTH		GEOD. DISTANCE (METERS) (FEET)		GRID DISTANCE (METERS) (FEET)			

The station is located at the north end of Long Beach Island at Barnegat Light at the intersection of 4th St. and Central Ave. It is 58.60' south of a PK nail in a power pole (B.T.301148); 10.00' west of a PK nail in a power pole (no number); and 9.35' NE of the NE corner of a two story dwelling at 401 4th St.

The station is set flush with the ground.

Azimuth of line BE-1 = 257°58'



DA FORM 1959

REPLACES DA FORMS 1959 AND 1959, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

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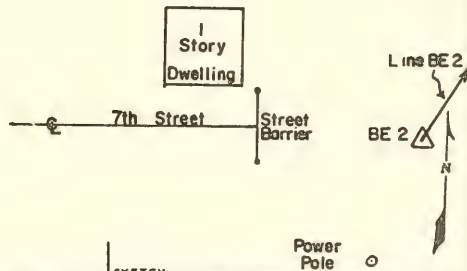
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OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

The station is located at the north end of Long Beach Island at Barnegat Light at the east end of 7th St. It is set 4.0' below the surface of sand dune. A 4" x 4" witness post is placed directly over the station.

The station is 60.80' SE of the SE corner of a one story dwelling; 29.74' NE of a PK nail in pole (Ace T7747); and 28.21' SE of PK nail in north post of street barrier.

Azimuth of line BE-2 = 262°03'



DA FORM 1959
1 OCT 64

REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

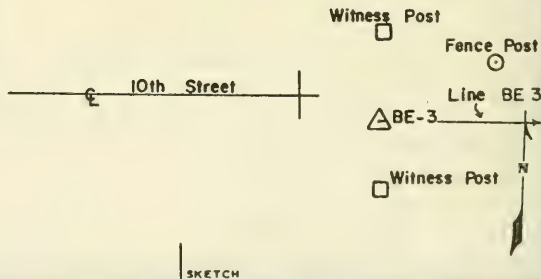
DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-227; the proponent
agency is U.S. Continental Army Command.

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TO OBTAIN		GRID AZ. (ADD)(SUB.)		TO THE GEODETIC AZIMUTH	
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS)	GRID DISTANCE (FEET)	GRID DISTANCE (METERS)

Station is located at the northern end of Long Beach Island at Barnegat Light, approximately 200' east of east end of 10th St. on top of a high sand dune. The station is 7.32' SW of PK nail in top of fence post; 5.00' south of PK nail in 4" x 4" witness post; and 5.00' north of PK nail in 4" x 4" witness post.

The station is flush with the ground.

Azimuth of line BE-3 = 294-39



DA FORM 1959
1 OCT 64

REPLACES DA FORMS 1889
AND 1890, 1 FEB 57, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-237; the preponent
agency is U.S. Continental Army Command.

COUNTRY U. S. A.		TYPE OF MARK Standard Disk		STATION B. E. 4 0+10	
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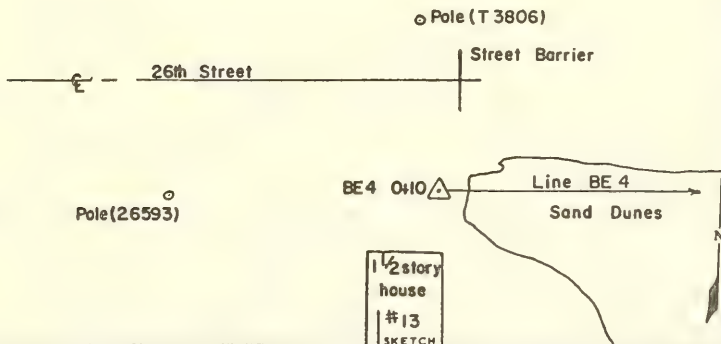
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

Station is located at the northern end of Long Beach Island in Barnegat Light at the east end of 26th Street.

The station is; 66.20' south of PK nail in pole (#T 3806); 50.41' east of PI nail in pole (#26593); 35.00' south of ϵ of 26th Street; and 31.00' north of NE corner of house at SE end of 26th Street.

The station is set flush with the ground at the toe of a sand dune.

Azimuth of line BE-4 $\hat{=}$ 296-46



DA FORM 1959

REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

COUNTRY U. S. A.		TYPE OF MARK Standard Disc		STATION B. E. -5A 0+00 15' North	
LOCALITY Long Beach Is. Loveladies, NJ		STAMPING ON MARK B. E. -5A 0+00 NO		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39°43' 46.61"		LONGITUDE 74°07' 21.38"		ELEVATION (FT) 7.92	
NORTHING 326 912		EASTING 2 153 026		DATUM S.L.D. 1929	
(NORTHING) (EASTING)		(EASTING) (NORTHING)		ESTABLISHED BY (AGENCY) Corps of Engineers	
(M)		(M)		DATE 11 Nov 75	
TO OBTAIN		GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADD) (SUB.)		TO THE GEODETIC AZIMUTH	

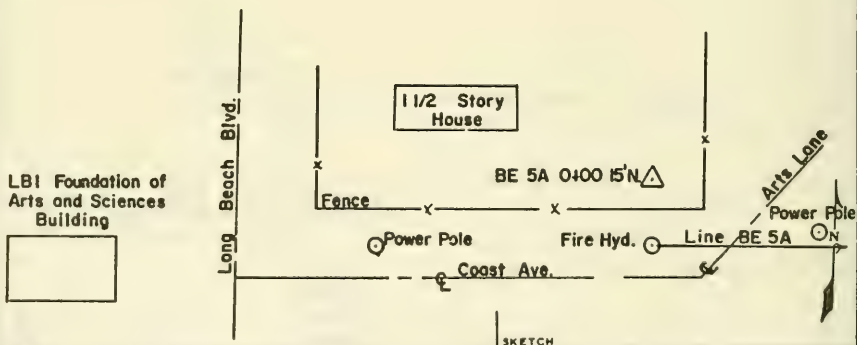
OBJECT	AZIMUTH OR DIRECTION (GEODETIC) (GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

Station is located at the northern end of Long Beach Island at Loveladies near the intersection of Coast Ave. and Arts Lane in the yard of the Martin Residence on the NW corner of the intersection.

Station is 75.18' NW of PK nail in pole (#T-15903), 58.40' NE of PK nail in pole (P35348), 50' west of Arts Lane, 32.00' SE of SE corner of the Martin house, 30' north of Coast Ave., and 15.00' north of top of fire hydrant on the north side of Coast Avenue.

Station is set 0.1' below the surface of the ground.

Azimuth of line BE-5A = 290-02



DA FORM 1959
1 OCT 64

REPLACES DA FORMS 1959
AND 1960, 1 FEB 67, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-237; the proponent
agency is U.S. Continental Army Command.

COUNTRY U. S. A.	TYPE OF MARK Standard disc	STATION B. E. -6 4+15	CERC PROFILE 6	
LOCALITY Long Beach Is. Loveladies, NJ	STAMPING ON MARK B. E. -6 4+15	AGENCY (CAST IN MARKS) Corps of Engineers	ELEVATION 18.40	(FT.) XXXXX
LATITUDE 39°43'11.8P"	LONGITUDE 74°07'34.83"	DATUM NJ Trans Merc	DATUM S. L. D. 1929	
(NORTHING)(EASTING) X 323 392	(EASTING)(NORTHING) X 2 151 996	GRID AND ZONE	ESTABLISHED BY (AGENCY) Corps of Engineers	
(NORTHING)(EASTING) (M)	(EASTING)(NORTHING) (M)	GRID AND ZONE	DATE 11 Nov 75	ORDER

TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETIC AZIMUTH
TO OBTAIN	GRID AZ. (ADD)(SUB.)	TO THE GEODETIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

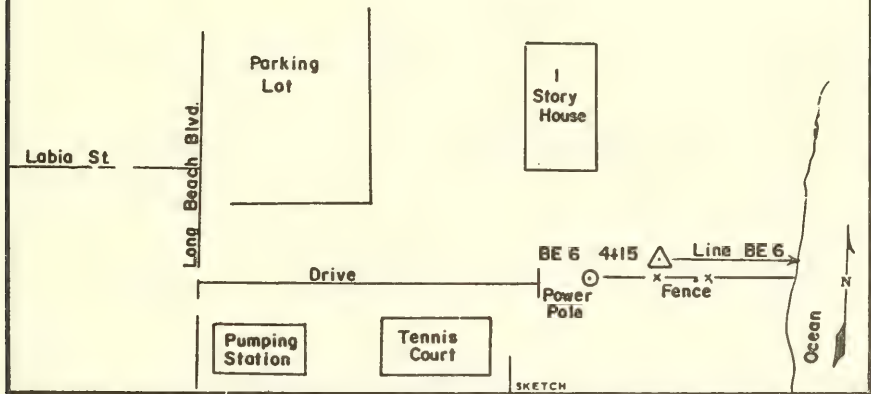
Station is located on the northern end of Long Beach Island at Loveladies near the intersection of Long Beach Blvd. and Labia Street.

Station is 35.75' east of PK nail in pole (Ace 3463), 28.68' SE of SE corner of porch decking on one story swelling, 4.47' north of a PK nail in top of fence post.

Station is set flush with the ground on slope of a large dune.

Disc reported missing March 1978 (W.A. Birkemeier).

Azimuth of line BE -6 = 290-42



DA FORM 1959

REPLACES DA FORMS 1958 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

COUNTRY U.S.A.	TYPE OF MARK Standard Disk	STATION B.E. -7. 3+58	
LOCALITY Harvey Cedars, NJ	STAMPING ON MARK B.E. -7 3+58	AGENCY (CAST IN MARKS) Corps of Engineers	ELEVATION 19.29 (FT) (M)
LATITUDE 39°42'41.52"	LONGITUDE 74°07'50.02"	DATUM	DATUM S.L.D. 1929
(NORTHING)(EASTING) (FT) 320 313 (M)	(EASTING)(NORTHING) (FT) 2,150 828 (M)	GRID AND ZONE N.J. Trans. Mercator	ESTABLISHED BY (AGENCY) Corps of Engineers
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE	DATE 11 Nov 1975

TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETIC AZIMUTH
TO OBTAIN	GRID AZ. (ADD)(SUB.)	TO THE GEODETIC AZIMUTH

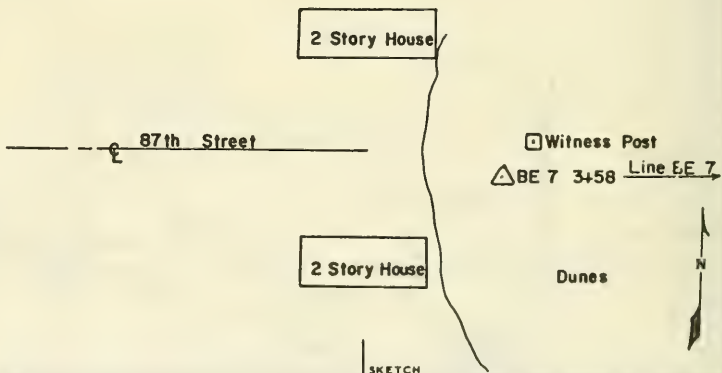
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

The station is located at Harvey Cedars on Long Beach Island at the east end of 87th Street.

The station is 50.64' SE of the SE corner of a house on the north side of 87th Street; 40.30' NE of the NE corner of a house on the south side of 87th Street; and 3.0' SW of a 4" x 4" witness post.

The station is set on top of a high sand dune 0.3' below the surface.

Azimuth of line BE-7 = 289-41



DA FORM 1959
1 OCT 64

REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

For use of this form, see TM 5-237; the proponent
agency is U.S. Continental Army Command.

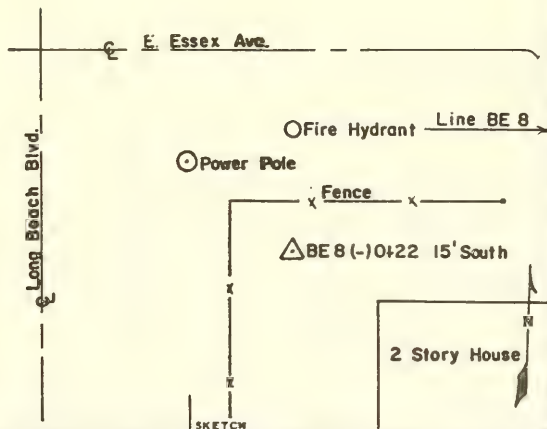
COUNTRY U.S.A.		TYPE OF MARK Standard Disk		STATION CERL PROFILE 8 B.E. - 8 (-)0+22 15' South	
LOCALITY Harvey Cedars, N.J.		STAMPING ON MARK B.E.-8 -0+22 15' So.		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39°41'55.37"		LONGITUDE 74 08'19.30"		ELEVATION (FT) 6.16	
(NORTHING)(EASTING) 315 630		(EASTING)(NORTHING) 2,148 566		DATUM S.L.D. 1929	
(NORTHING)(EASTING) (M)		(EASTING)(NORTHING) (M)		GRID AND ZONE NJ Trans. Mercator	
				ESTABLISHED BY (AGENCY) Corps of Engineers	
				DATE 11 Nov 1975	
TO OBTAIN		GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADD)(SUB.)		TO THE GEODETIC AZIMUTH	
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS)	GRID DISTANCE (METERS)	GRID DISTANCE (FEET)

The Station is located at Harvey Cedars on Long Beach Island at the SE corner of the intersection of Long Beach Blvd. and E. Essex Ave. It is inside the north corner of the fence on the property of house #2.

The station is 35.52' NW of the NW corner of house on the SE corner of the intersection of Long Beach Blvd. and E. Essex Ave.; 21.00' SE of PK nail in telephone pole (#8140); 18.37' west of PK nail in top of east end of fence post; and 15.00' south of fire hydrant on south side of Essex Ave.

The station is set flush with the ground.

Azimuth of line BE-8 = 296-39



DA FORM 1959

REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

For use of this form, see TM 5-237; the preprint agency is U.S. Continental Army Command.

COUNTRY U.S.A.		TYPE OF MARK Standard Disk		STATION CERC. PROFILE 9 B.E. 9 0+82 15' North	
LOCALITY Harvey Cedars, NJ		STAMPING ON MARK B.E. -9 0+82 15' NO.		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39°41'37.17"		LONGITUDE 74°08'30.26"		ELEVATION (FT) 7.60	
(NORTHING)(EASTING) (FT)		(EASTING)(NORTHING) (FT)		DATUM S.L.D. 1929	
313 783		2,147 721		ESTABLISHED BY (AGENCY) Corps of Engineers	
(NORTHING)(EASTING) (FT)		(EASTING)(NORTHING) (FT)		DATE 19 Nov 75	
(M)		(M)		ORDER	
TO OBTAIN		GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADDISUB.)		TO THE GEODETIC AZIMUTH	

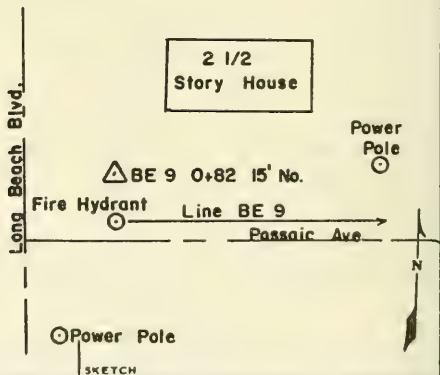
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS)	GRID DISTANCE (FEET)	GRID DISTANCE (METERS)	(FEET)

The station is located on Long Beach Island in Harvey Cedars on NE corner of the intersection of Passaic Ave. and Long Beach Blvd. on the SW corner of the Pearlstein property.

The station is 118.19' west of PK nail in pole (T3917); 67.00' NE of PK nail in pole (T1877); 41.82' SW of SW corner of 2½ story house; and 15.00' north of fire hydrant on north side of Passaic Ave.

The station is set flush with the ground.

Azimuth of line BE 9 = 296-52



DA FORM 1959
OCT 64

REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-237; the proponent
agency is U.S. Continental Army Command.

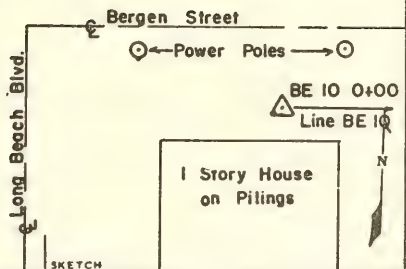
COUNTRY U.S.A.	TYPE OF MARK Standard Disk	STATION CERC PROFILE 10 B.E. 10 0+00	
LOCALITY Harvey Cedars, NJ	STAMPING ON MARK B.E. -10 0+00	AGENCY (CAST IN MARKS) Corps of Engineers	ELEVATION 9.23 (FT) (M)
LATITUDE 39° 41' 12.76"	LONGITUDE 74° 08' 44.23"	DATUM	DATUM S.L.D. 1929
(NORTHING)(EASTING) (FT) 311 307 (M)	(EASTING)(NORTHING) (FT) 2,146 643 (M)	GRID AND ZONE NJ Trans. Mercator	ESTABLISHED BY (AGENCY) Corps of Engineers
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE	DATE 19 Nov 75

TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETTIC AZIMUTH
TO OBTAIN	GRID AZ. (ADD)(SUB.)	TO THE GEODETTIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETTIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

The station is located on Long Beach Island at Harvey Cedars south of south edge of Bergen Ave. near the intersection of Bergen St. and Long Beach Blvd.
 The station is 36.69' SE of PK nail in pole (T15248); 32.46' SW of PK nail in pole (T3484; and 17.00' NE of NW corner of one story house on piling which is the second house from the beach.
 The station is set 0.3' below the surface of the ground.

Azimuth of line BE 10 = 297-31



DA FORM 1959
 1 OCT 64 REPLACES DA FORMS 1959
 AND 1960, 1 FEB 57, WHICH
 ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
 For use of this form, see TM 5-237; the proponent
 agency is U.S. Continental Army Command.

COUNTRY U.S.A.	TYPE OF MARK Standard Disk	STATION B.E. 11 3+25	CEAL PROFILE II	
LOCALITY North Beach, NJ	STAMPING ON MARK B.E.-11 3+25	AGENCY (CAST IN MARKS) Corps of Engineers	ELEVATION 19.50 (FT) (M)	
LATITUDE 39°40'41.05"	LONGITUDE 74°09'05.15"	DATUM	DATUM S.L.D. 1929	
(NORTHING)(EASTING) (FT) 308 089	(EASTING)(NORTHING) (FT) 2,145 026	GRID AND ZONE NJ Trans. Mercator	ESTABLISHED BY (AGENCY) Corps of Engineers	
(NORTHING)(EASTING) (M)	(EASTING)(NORTHING) (M)	GRID AND ZONE	DATE 19 Nov 75	ORDER

TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETIC AZIMUTH
TO OBTAIN	GRID AZ. (ADDISUB.)	TO THE GEODETIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

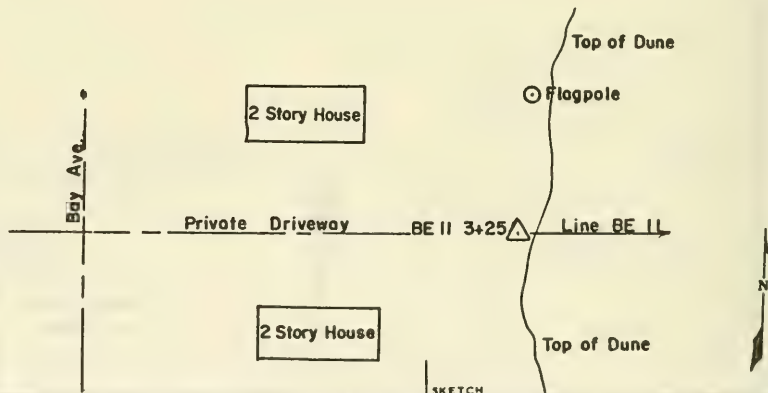
The station is located on Long Beach Island in North Beach, west of Bay Ave. at east end of a private driveway which intersects Bay Ave. in the vicinity of pole #8066.

The station is NE of NE corner of porch on south side of the driveway; 51.15' SE of SE corner of house on north side of driveway; 48.47' south of flagpole on beach; and 1.0' east of 4"x4" witness post.

The station is set flush with the ground.

Immediately east of witness post.

Azimuth of line BE 11 = 302-13



DA FORM 1959
1 OCT 64

REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-237; the proponent
agency is U.S. Continental Army Command.

COUNTRY U.S.A.		TYPE OF MARK Standard Disk		STATION B.E. 12 0+00	
LOCALITY Surf City, N.J.		STAMPING ON MARK B.E. 12 1962		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39°39'59.37"		LONGITUDE 74°09'37.54"		ELEVATION (FT) 14.88 (M)	
(NORTHING)(EASTING) (FT) (M)		(EASTING)(NORTHING) (FT) (M)		DATUM S.L.D. 1929	
303 857		2,142 518		ESTABLISHED BY (AGENCY) Corps of Engineers	
(NORTHING)(EASTING) (FT) (M)		(EASTING)(NORTHING) (FT) (M)		DATE Oct 1962	
				ORDEP	

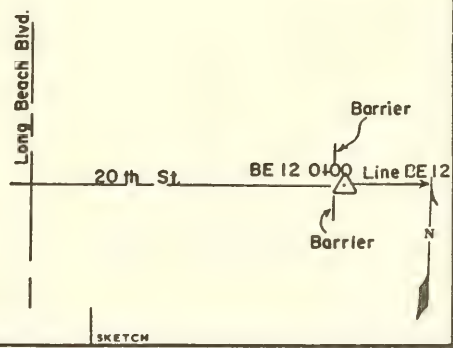
TO OBTAIN GRID AZIMUTH, ADD TO THE GEODETIC AZIMUTH
 TO OBTAIN GRID AZ. (ADD)(SUB.) TO THE GEODETIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

The Station is located on Long Beach Island in Surf City at the east end of 20th Street and 497.0' east of Long Beach Blvd, along the centerline of 20th Street.

Disc reported missing March 1978 (W.A. Warkemeier).

Azimuth of line BE 12 = 301-59



DA FORM 1959

REPLACES DA FORMS 1958 AND 1960, 1 FEB 67, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

COUNTRY U.S.A.	TYPE OF MARK Standard Disk	STATION B.E. 13A 0+50	CERC PROFILE 13	
LOCALITY Ship Bottom, NJ	STAMPING ON MARK B.E. -13A 0+50	AGENCY (CAST IN MARKS) Corps of Engineers	ELEVATION 14.52	(FT) (NO)
LATITUDE 39°38'47.99"	LONGITUDE 74°10'35.18"	DATUM	DATUM S.L.D. 1929	
(NORTHING)(EASTING) 296 610	(FT) (NO)	(EASTING)(NORTHING) 2,138 049	(FT) (NO)	GRID AND ZONE NJ Trans. Mercator
(NORTHING)(EASTING) (M)	(EASTING)(NORTHING) (M)	(FT) (M)	(FT) (M)	GRID AND ZONE
TO OBTAIN TO OBTAIN		GRID AZIMUTH, ADD GRID AZ. (ADD/SUB.)	TO THE GEODETIC AZIMUTH TO THE GEODETIC AZIMUTH	

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

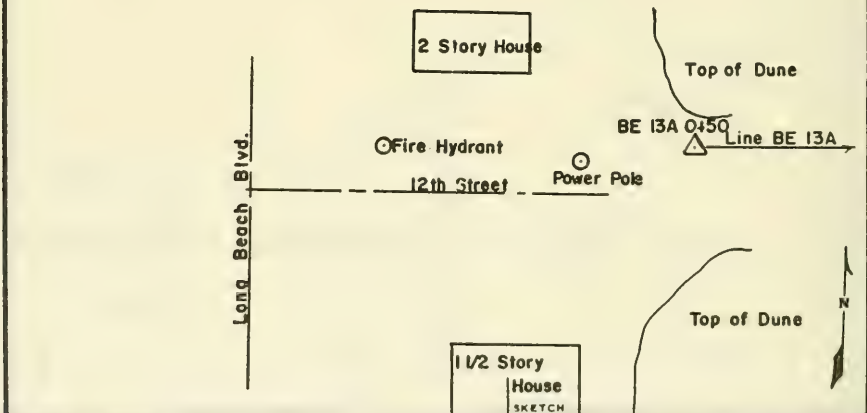
Station is located on Long Beach Island in Ship Bottom at the east end of 12th Street.

Station is 64.00' NE of NE corner of house south of 12th St.; 50.00' east of fire hydrant on north side of street; 31.50' SE of SE corner of house north of street; and 11.90' east of PK nail in pole #P9015.

Station is set flush with the ground.

Just south of entrance onto island.

Azimuth of line BE 13A = 301-52



DA FORM 1959

REPLACES DA FORMS 1959 AND 1960, 1 FEB 67, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

COUNTRY U. S. A.		TYPE OF MARK Standard Disk	STATION B. E. -14 0+79		CERC PROFILE 14	
LOCALITY Long Beach Isl Ship Bottom, NJ		STAMPING ON MARK B. E. -14 0+79		AGENCY (LAST IN MARKS) Corps of Engineers	ELEVATION (FT) 14.12	
LATITUDE 39°38'05.33"		LONGITUDE 74°11'07.63"		DATUM S. L. D. 1929		
(NORTHING)(EASTING) 292 280	(FT) X	(EASTING)(NORTHING) 2 135 534	(FT) X	GRID AND ZONE NJ Trans Mercator	ESTABLISHED BY (AGENCY) Corps of Engineers	
(NORTHING)(EASTING)	(FT) (M)	(EASTING)(NORTHING)	(FT) (M)	GRID AND ZONE	DATE 17 Feb 78	ORDER

TO OBTAIN GRID AZIMUTH, ADD TO THE GEODETIC AZIMUTH
TO OBTAIN GRID AZ. (ADD)(SUB.) TO THE GEODETIC AZIMUTH

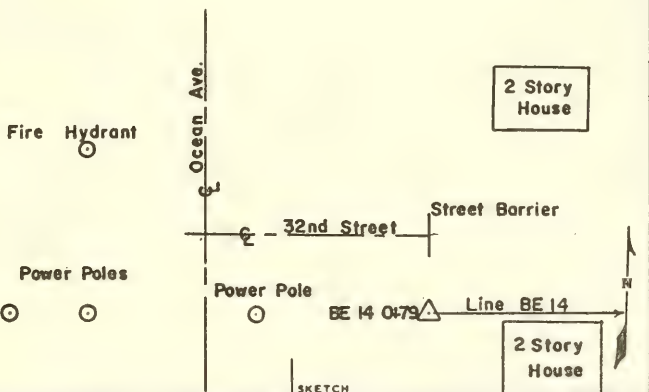
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

Station is on Long Beach Island at Ship Bottom at east end of 32nd Street near intersection of 32nd Street and Ocean Ave.

Station is 85.60' SE of top of fire hydrant NW of intersection of 32nd Street and Ocean Ave., 50.65' SE of SW corner of dwelling NE corner intersection 32nd Street and Ocean Ave., 50.00' east of Ocean Ave. C, 29.20' east of PK nail in pole (AC25775) 19.30' west of NW corner of swelling at SE corner intersection 32nd Street and Ocean Ave.

Station is flush with the ground.

Azimuth of Line BE-14 = 299-18



DA FORM 1959

REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

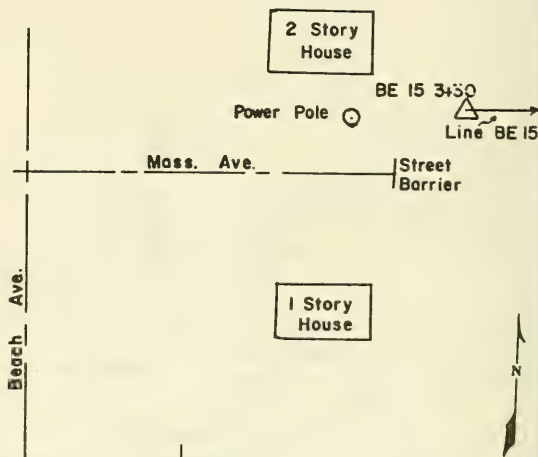
COUNTRY U. S. A.		TYPE OF MARK Standard Disk		STATION B. E. 15 3+30	
LOCALITY Beach Haven Crest NJ		STAMPING ON MARK B. E. -15 3+30		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39° 36' 30.98"		LONGITUDE 74° 12' 11.61"		ELEVATION (FT) 14.98	
(NORTHING)(EASTING) (FT)		(EASTING)(NORTHING) (FT)		DATUM S. L. D. 1929	
282 707		2,130 578		ESTABLISHED BY (AGENCY) Corps of Engineers	
(NORTHING)(EASTING) (FT)		(EASTING)(NORTHING) (FT)		DATE 17 Feb 78	
TO OBTAIN		GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADD)(SUB.)		TO THE GEODETIC AZIMUTH	
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS)	GRID DISTANCE (METERS)	(FEET)

The station is located on Long Beach Island in Beach Haven Crest, one mile south of Beach Arlington Tank at the east end of Massachusetts Ave. at the toe of the sand dunes.

The station is 43.28' NE of NE corner of porch of house south of east end of Mass. Ave.; 40.00' east of PK nail in pole T-98 on north side of Mass. Ave.; and 17.90' SE of SE corner of porch of house north of Mass. Ave.

The station is set 1.0' below the ground surface.

Azimuth of line BE 15 = 300-35



SKETCH

DA FORM 1959
1 OCT 64

REPLACES DA FORMS 1959
AND 1960, 1 FEB 67, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

For use of this form, see TM 5-237; the proponent
agency is U.S. Continental Army Command.

COUNTRY U.S.A.		TYPE OF MARK Standard Disk		STATION B.E. 16 0+81	
LOCALITY Beach Haven Terrace		STAMPING ON MARK B. E. -16 0+81		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39°35'17.72"		LONGITUDE 74°13'06.46"		ELEVATION (FT) 16.13 (M)	
(NORTHING)(EASTING) (FT)		(EASTING)(NORTHING) (FT)		DATUM S. L. D. 1929	
275 273 (M)		2,126 322 (M)		ESTABLISHED BY (AGENCY) Corps of Engineers	
(NORTHING)(EASTING) (FT)		(EASTING)(NORTHING) (FT)		DATE 16 Feb 78	
(M)		(M)		ORDER	

TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETIC AZIMUTH
TO OBTAIN	GRID AZ. (ADD)(SUB.)	TO THE GEODETIC AZIMUTH

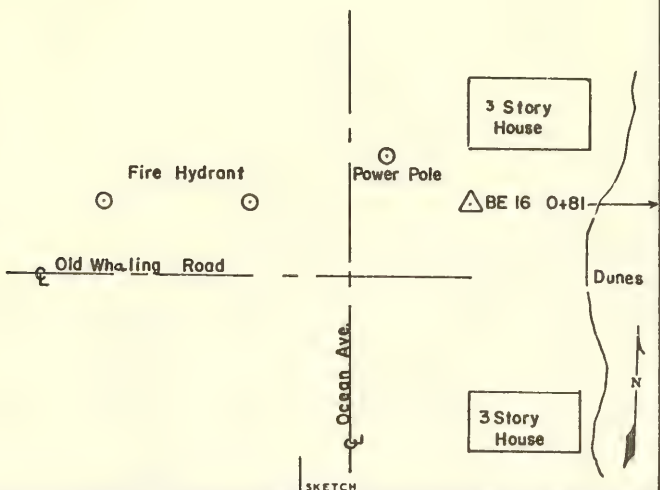
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

The station is on Long Beach Island in Beach Haven Terrace on the north side and east end of Old Whaling Rd. near the centerline of Ocean Ave. and Old Whaling Rd.

The station is 53.40' north of NW corner of house at SE corner of intersection 48.00' east of Ocean Ave. centerline; 35.00' SE of PK nail in pole #ACT-4745; and 23.89' south of SW corner of house at NE corner of intersection.

The station is set flush with the ground.

Azimuth of line BE 16 = 297-11



DA FORM 1959

REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

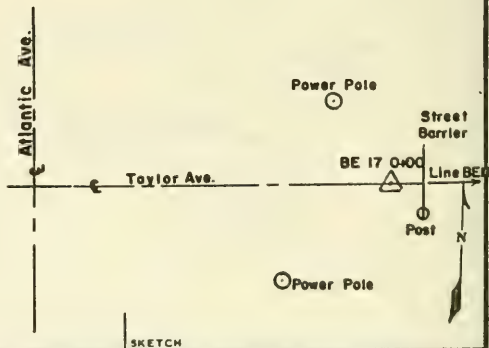
COUNTRY U. S. A.		TYPE OF MARK Standard Disk		STATION B. E. 17 0+00	
LOCALITY Beach Haven N. J.		STAMPING ON MARK B. E. -17-62, ELEY. 13. 49		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39°34'01.59"		LONGITUDE 74°13'57.66"		ELEVATION (FT) 13.49	
NORTHING (EASTING) (FT) 267 551		EASTING (NORTHING) (FT) 2,122 350		DATUM S. L. D. 1929	
NORTHING (EASTING) (M)		EASTING (NORTHING) (M)		ESTABLISHED BY (AGENCY) Corps of Engineers	
				DATE 25 Nov 75	
				ORDER	

TO OBTAIN GRID AZIMUTH, ADD TO THE GEODETIC AZIMUTH
 TO OBTAIN GRID AZ. (ADDI(SUB.) TO THE GEODETIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE		GRID DISTANCE	
			(METERS)	(FEET)	(METERS)	(FEET)

The station is on Long Beach Island at Beach Haven on the centerline and east end of Taylor Ave.
 Station is 50.45' SE of PK nail in pole #t-5093; 42.60' NE of PK nail in pole #ACT568; and 6.08' NW of PK nail in street barrier post.
 Station is set flush with the ground.

Azimuth of line BE 17 = 295-58



DA FORM 1959
 OCT 64

REPLACES DA FORMS 1959
 AND 1960, 1 FEB 57, WHICH
 ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
 For use of this form, see TM 5-237; the proponent
 agency is U.S. Continental Army Command.

COUNTRY U.S.A.		TYPE OF MARK Standard Disk		STATION BE 18 1+90	
LOCALITY Beach Haven, N.J.		STAMPING ON MARK B.E. -18 1+90		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39° 33' 07.57"		LONGITUDE 74° 14' 44.49"		ELEVATION (FT) 14.99	
(NORTHING) (FEET)		(EASTING) (FEET)		DATUM S.L.D. 1929	
262 067		2,118 709		ESTABLISHED BY (AGENCY) Corps of Engineers	
(NORTHING) (FEET)		(EASTING) (FEET)		DATE 16 Feb 78	
(M)		(M)		ORDER	

TO OBTAIN GRID AZIMUTH ADD TO THE GEODETIC AZIMUTH
TO OBTAIN GRID AZ. (ADD)(SUB.) TO THE GEODETIC AZIMUTH

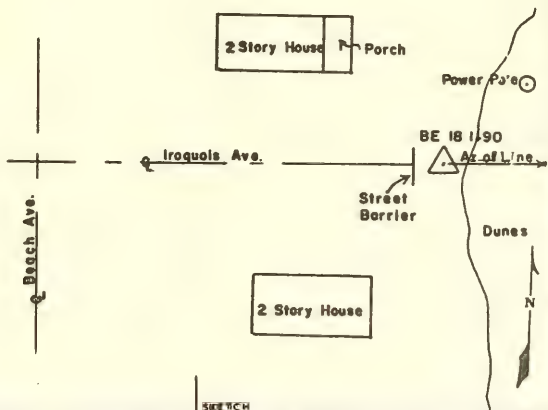
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

The station is located on Long Beach Island in Beach Haven at the east end of Iroquois Ave. extended.

Station is 51.51' NE of corner of porch of house at SE end of Iroquois Ave.; 41.40' SW of PK nail in pole (no number); 41.00' SE of SE corner of porch at the NE end of Iroquois Ave.; and 3.0' east of street barrier at the end of Iroquois Ave.

Station is set 0.2' below the ground.

Azimuth of line BE 18 = 297-50



DA FORM 1959
1 OCT 64

REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-237; the proponent
agency is U.S. Continental Army Command.

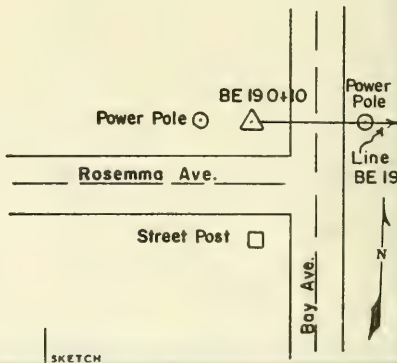
COUNTRY U. S. A.		TYPE OF MARK Standard Disc		STATION CERC PROFILE 19 B. E. - 19 0+10	
LOCALITY Long Beach Isl Holgate, NJ		STAMPING ON MARK B. E. - 19 0+10		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39°32' 33.04"		LONGITUDE 74°15' 20.91"		ELEVATION (FT) 7.31	
NORTHING (EASTING) (FT) 258 561		EASTING (NORTHING) (FT) 2 115 872		DATUM S. L. D. 1929	
NORTHING (EASTING) (MI)		EASTING (NORTHING) (MI)		ESTABLISHED BY (AGENCY) Corps of Engineers	
TO OBTAIN		GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADD) (SUB.)		TO THE GEODETIC AZIMUTH	

OBJECT	AZIMUTH OR DIRECTION (GEODETIC) (GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)

Station is on Long Beach Island in Holgate at NW corner of intersection of Bay and Rosemma Ave.

Station is 52.90' west of a PK nail in power pole #T782; 44.00' north of street post at SW corner of intersection of Bay and Rosemma Ave; and 11.00' east of PK nail in power pole #P1198.

Station is flush with the ground.



SKETCH

DA FORM 1959

REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

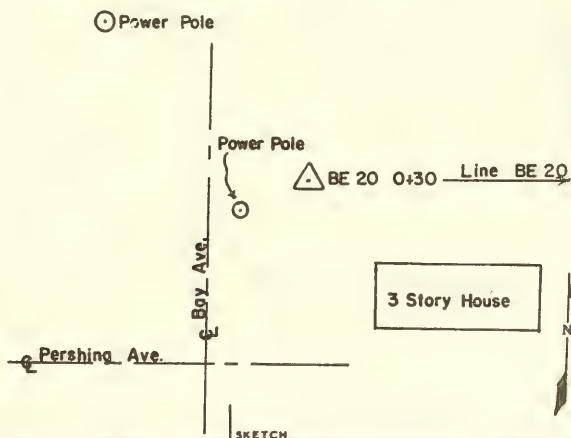
COUNTRY U. S. A.		TYPE OF MARK Standard Disk		STATION <i>CERC PROFILE 20</i> B. E. -20 0+30	
LOCALITY Long Beach Isl. Holgate, NJ		STAMPING ON MARK B. E. -20 0+30		AGENCY (CAST IN MARKS) Corps of Engineers	
LATITUDE 39 32 05.48		LONGITUDE 74 15 39.08		ELEVATION (FT) 6.48 DNK	
(NORTHING) (EASTING) (FT) (M) 255 766 XXXX		(EASTING) (NORTHING) (FT) (M) 2 114 461 XXXX		DATUM S. L. D. 1929	
(NORTHING) (EASTING) (FT) (M)		(EASTING) (NORTHING) (FT) (M)		GRID AND ZONE NJ Trans Merc	
TO OBTAIN		GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADD) (SUB.)		TO THE GEODETIC AZIMUTH	
OBJECT	AZIMUTH OR DIRECTION (GEODETIC) (GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS)	GRID DISTANCE (METERS)	(FEET) (FEET)

Station is on Long Beach Island in Holgate east of Bay Ave. and north of Pershing Ave.

Station is 118.00' north of Pershing Ave., 76.65' SE of PK nail in pole #P11218, 64.70' NW of NW corner of house at NE corner of intersection, 30.00' east of Bay Ave., 7.39' NE of FK nail in pole #71.

Station is flush with the ground surface.

Azimuth of Line = 299-04



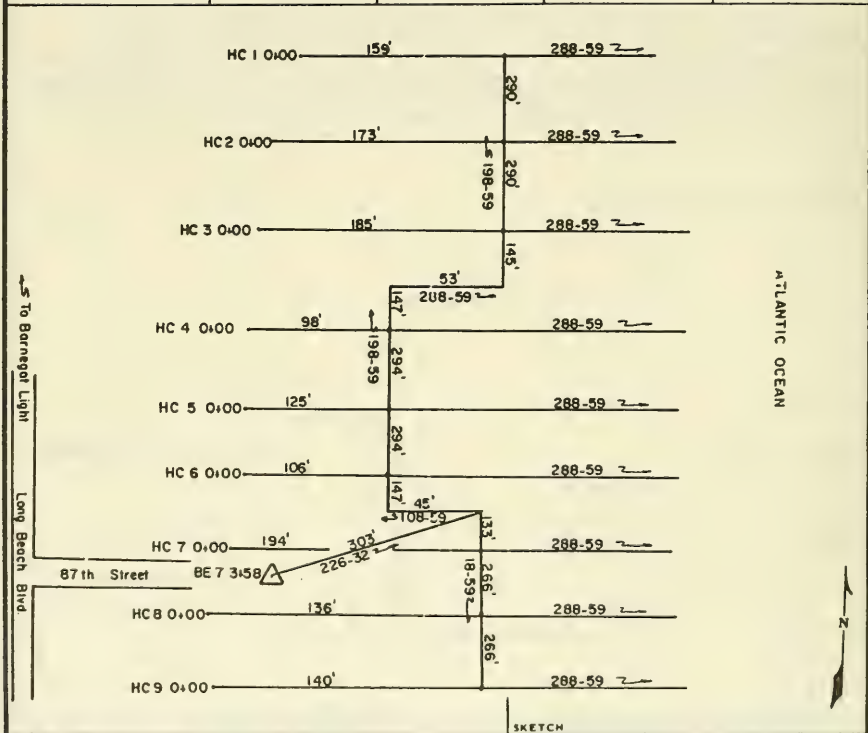
DA FORM 1959
1 OCT 64

REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-237; the proponent
agency is U.S. Continental Army Command.

COUNTRY U. S. A.		TYPE OF MARK		STATION Harvey Cedars Beach Erosion Lines			
LOCALITY Harvey Cedars, NJ		STAMPING ON MARK		AGENCY (CAST IN MARKS)		ELEVATION (FT) (M)	
LATITUDE		LONGITUDE		DATUM		DATUM	
(NORTHING)(EASTING) (M)	(FT)	(EASTING)(NORTHING) (M)	(FT)	GRID AND ZONE (M)		ESTABLISHED BY (AGENCY)	
(NORTHING)(EASTING) (M)	(FT)	(EASTING)(NORTHING) (M)	(FT)	GRID AND ZONE (M)		DATE	ORDER
TO OBTAIN				GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN				GRID AZ. (ADD)(SUB.)		TO THE GEODETIC AZIMUTH	

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)		BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)		GRID DISTANCE (METERS) (FEET)	



DA FORM 1959 REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE. DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

COUNTRY U. S. A.		TYPE OF MARK		STATION Harvey Cedars Beach Erosion Lines	
LOCALITY Long Beach Is. Harvey Cedars, NJ		STAMPING ON MARK		AGENCY (CAST IN MARKS) ELEVATION (FT) (M)	
LATITUDE		LONGITUDE		DATUM N. G. V. D. 1929	
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE N. J. Transverse Mer.		ESTABLISHED BY (AGENCY) Corps of Engineers	
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE		DATE	ORDER
TO OBTAIN		GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADD)(SUB.)		TO THE GEODETIC AZIMUTH	
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS)	(FEET)	GRID DISTANCE (METERS) (FEET)

The Beach Erosion lines are located on Long Beach Island at Harvey Cedars in the vicinity of the intersection of 87th St. and Long Beach Blvd. The coordinates and elevations of the stations were established from B.E. 7 3+58. A list of coordinates and elevations follows:

STATION	<u>PROFILE</u>	LATITUDE	DEPARTURE	ELEV. (ft.)	TYPE OF MARK
BE 7 3+58	7	320 313	2,150 828	19.29	Bronze Disk
HC 1 0+00	22	322 089	2,151 427	14.26	1½" plugged pipe
HC 2 0+00	23	321 820	2,151 320	14.79	1½" open end pipe
HC 3 0+00	24	321 550	2,151 215	12.98	1½" open end pipe
HC 4 0+00	25	321 263	2,151 152	15.51	1½" capped pipe
HC 5 0+00	26	320 994	2,151 031	17.42	1½" capped pipe
HC 6 0+00	27	320 710	2,150 953	12.54	1½" capped pipe
HC 7 0+00	28	320 459	2,150 821	13.98*	1½" open end pipe
HC 8 0+00	29	320 188	2,150 790	15.04	1½" plugged pipe
HC 9 0+00	30	319 938	2,150 700	16.22	1½" plugged pipe

*note: this is elevation of P.K. nail in pole(T-1729); 4' above ground and 18' north of HC 7 0+00.

SKETCH

DA FORM 1959
1 OCT 64

REPLACES DA FORMS 1059
AND 1060, 1 FEB 57, WHICH
ARE OBSOLETE.

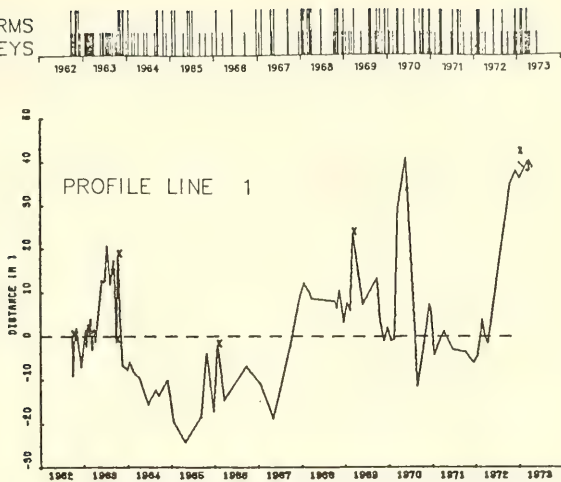
DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-237; the proponent
agency is U.S. Continental Army Command.

APPENDIX B

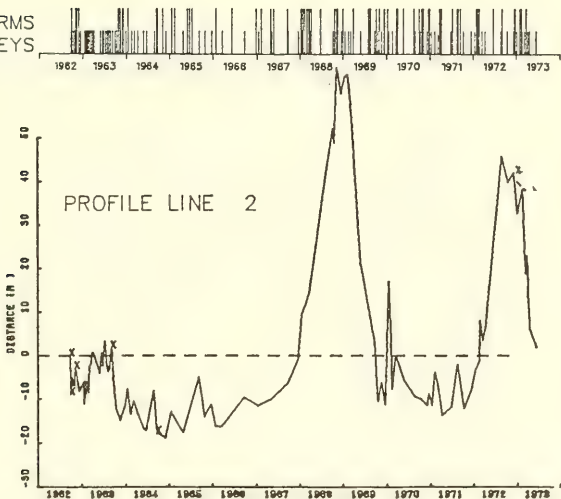
MSL SHORELINE POSITION CHANGE

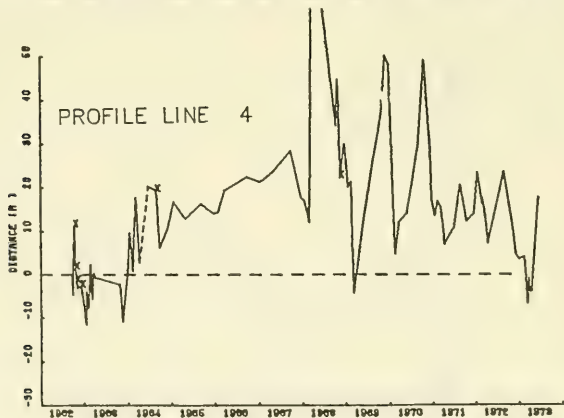
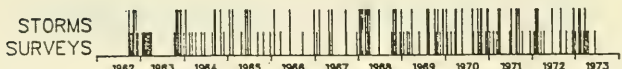
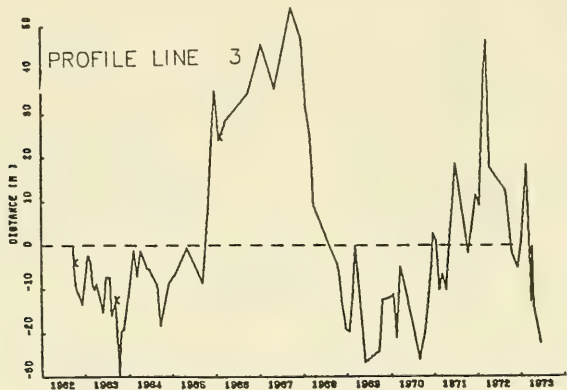
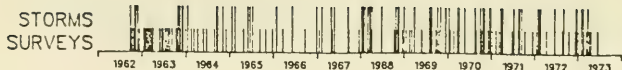
Distance measured from shoreline of first survey.
Symbol "x" indicates extrapolated value.

STORMS
SURVEYS

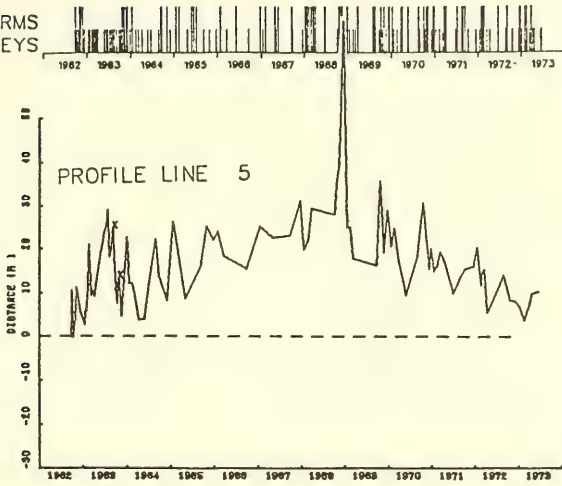


STORMS
SURVEYS

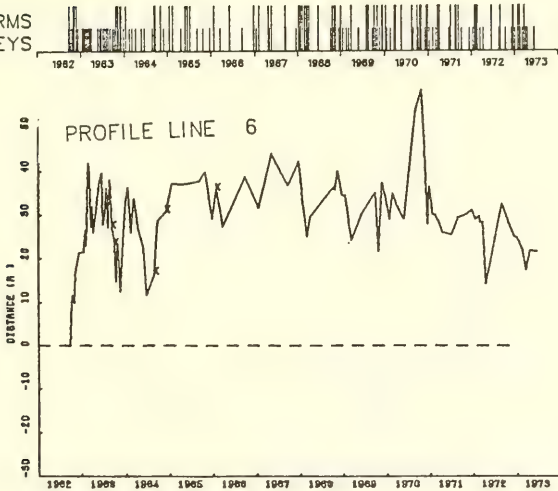


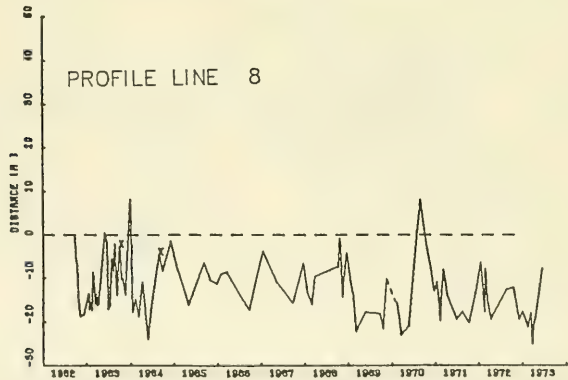
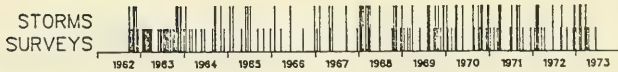
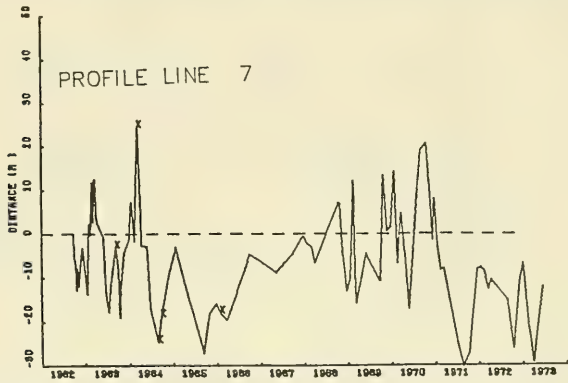
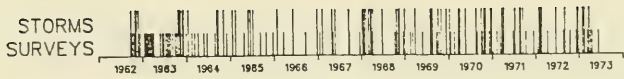


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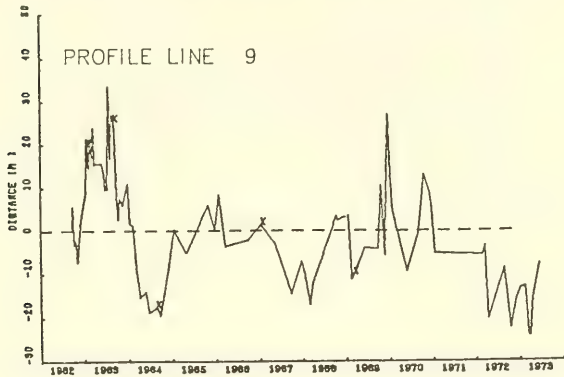
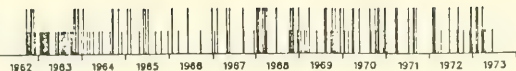


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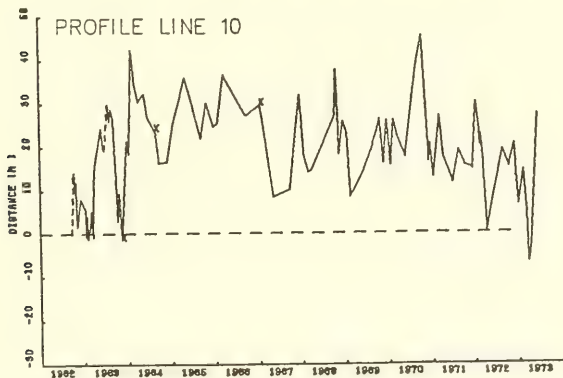
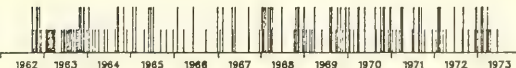


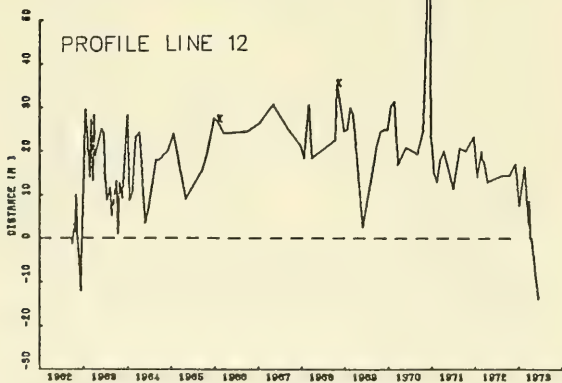
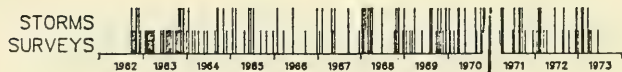
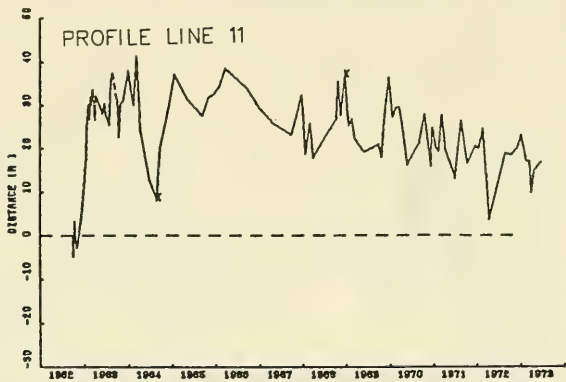
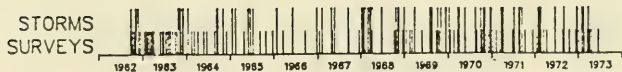


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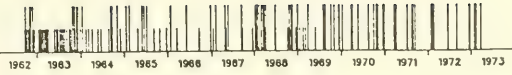


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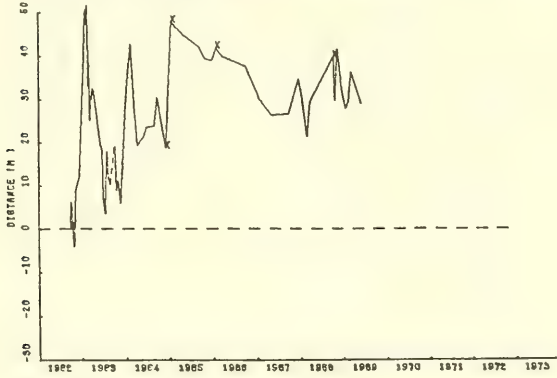




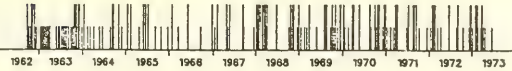
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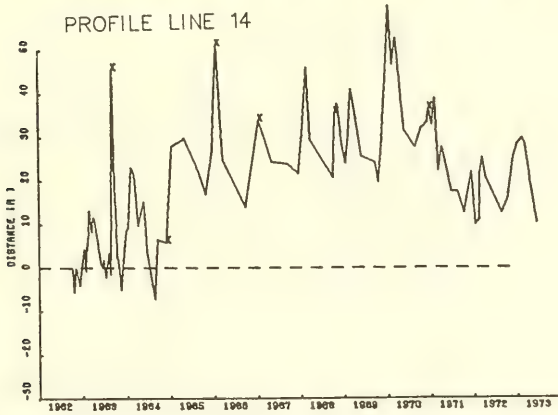
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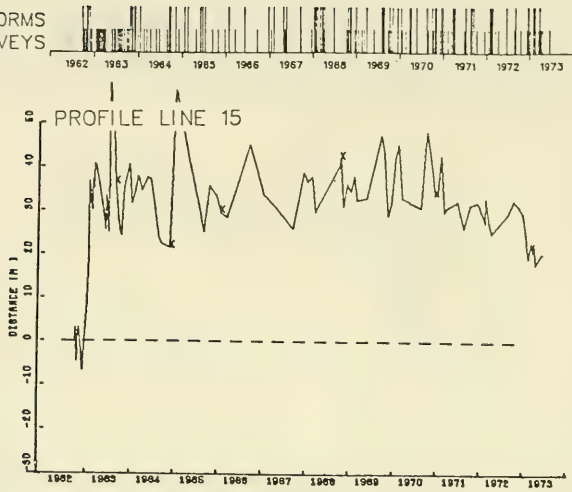
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SURVEYS



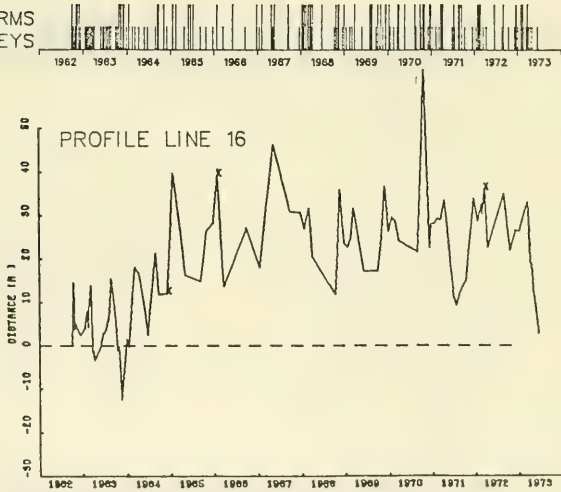
PROFILE LINE 14



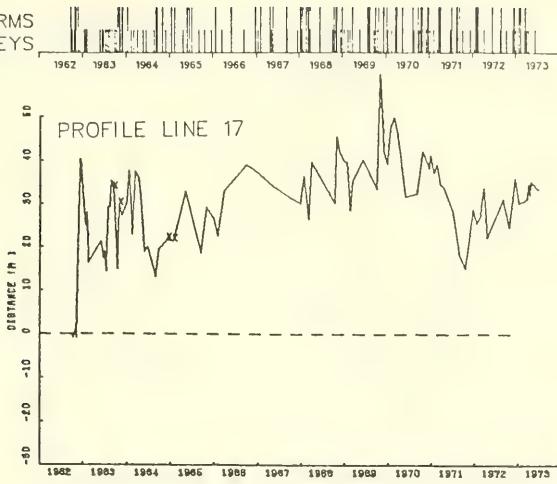
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SURVEYS



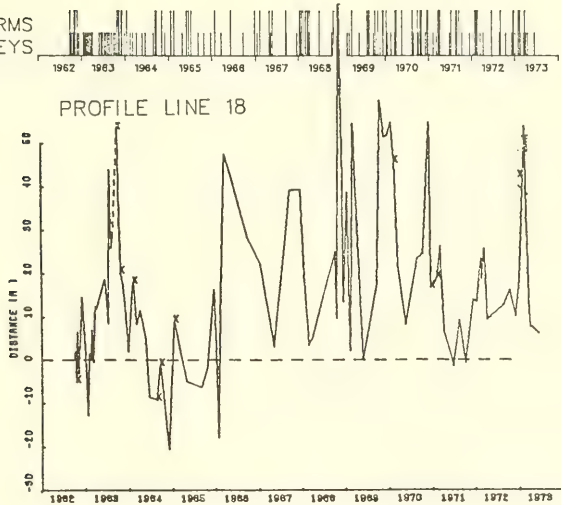
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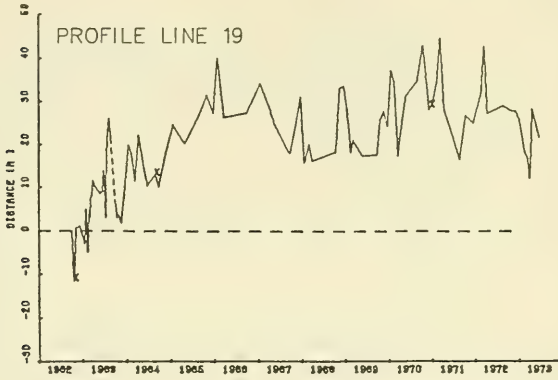
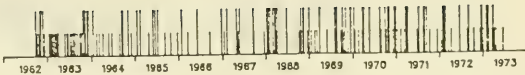
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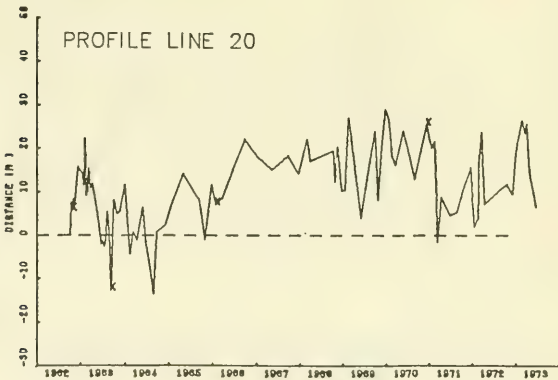
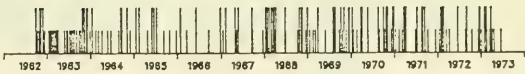
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SURVEYS



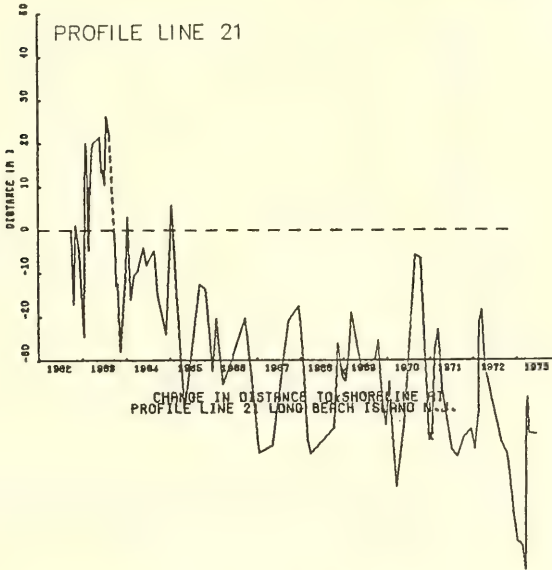
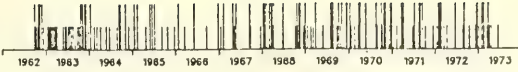
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SURVEYS



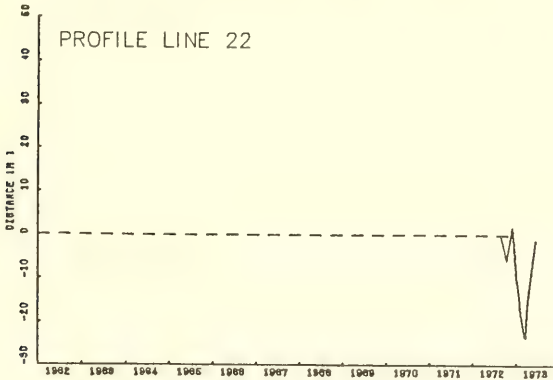
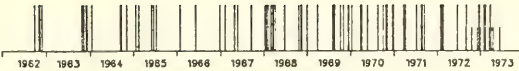
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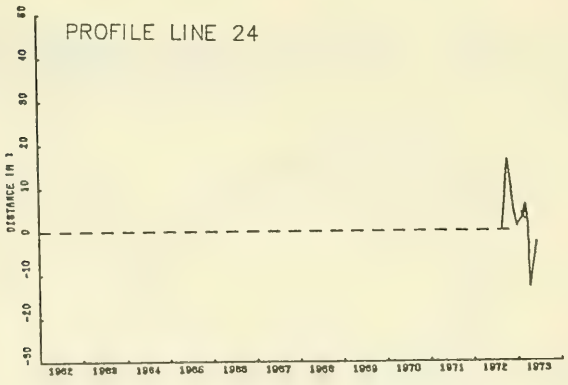
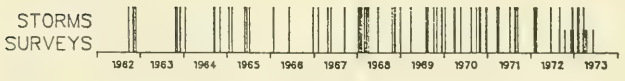
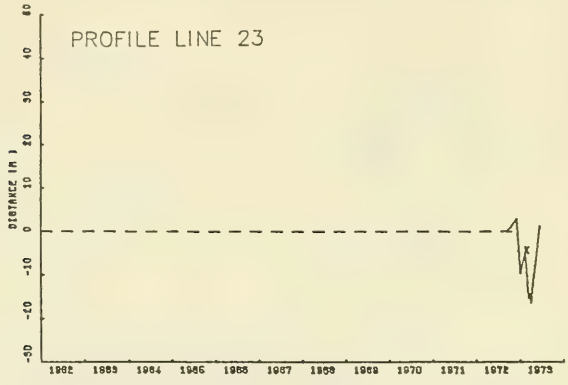
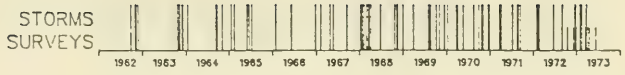


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SURVEYS

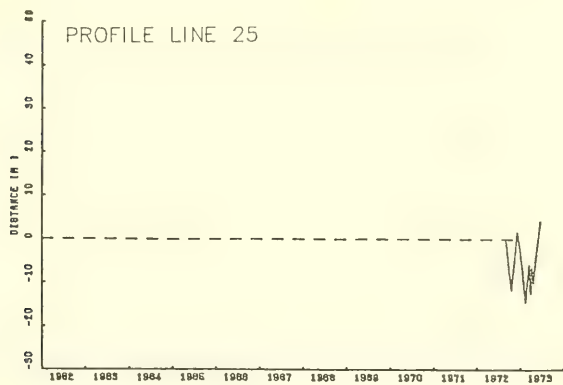
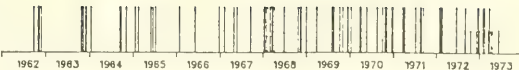


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SURVEYS

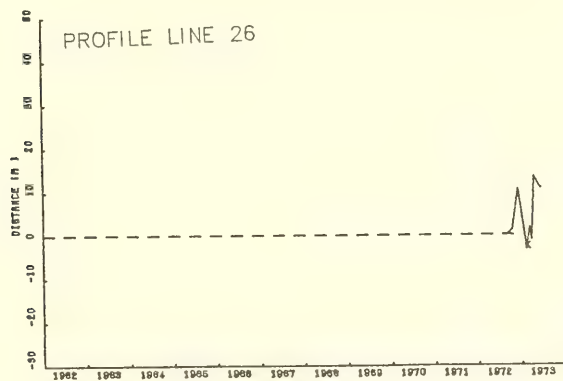
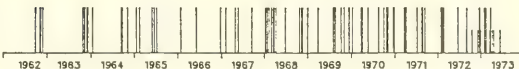


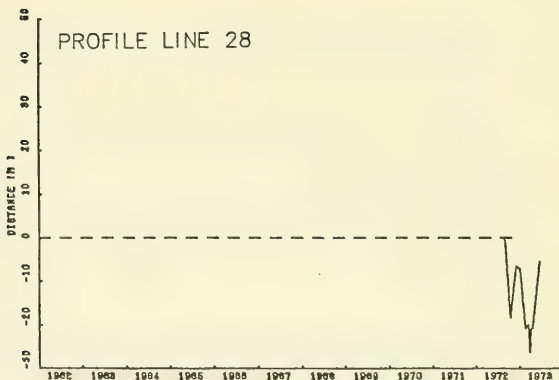
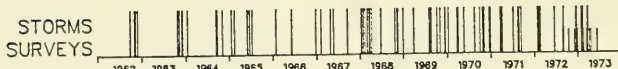
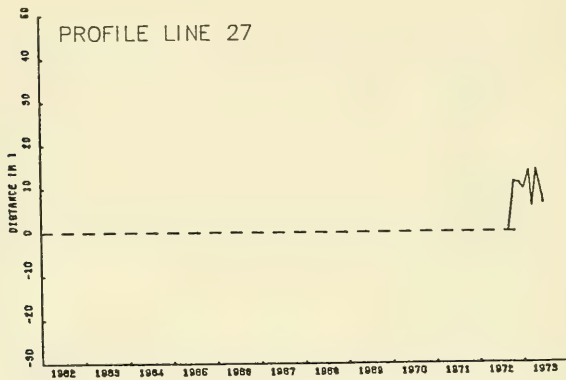
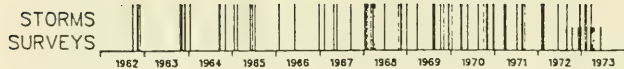


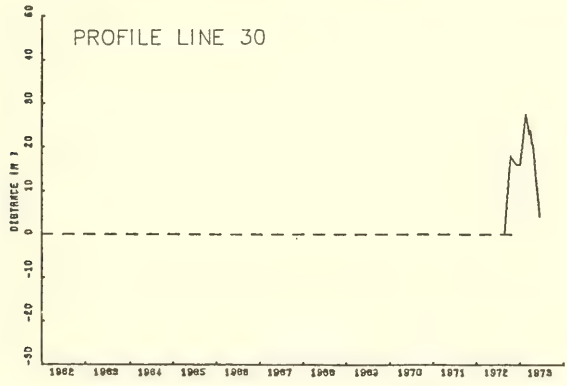
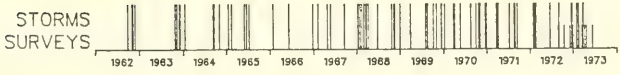
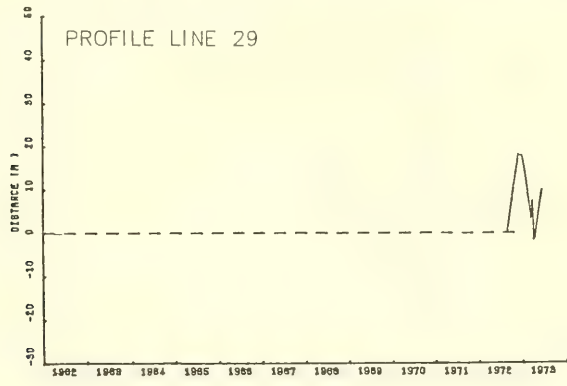
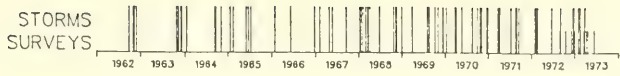
STORMS
SURVEYS



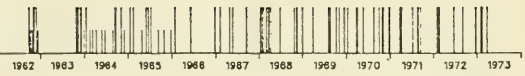
STORMS
SURVEYS



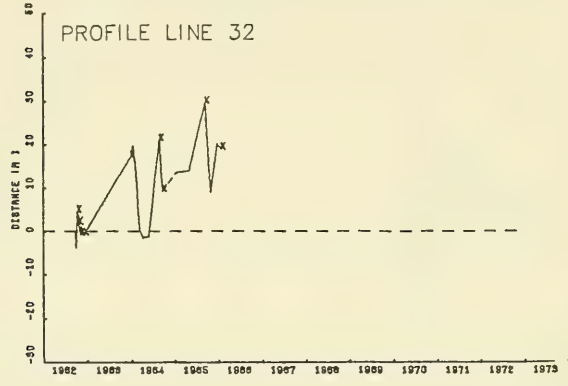




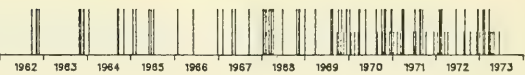
STORMS SURVEYS



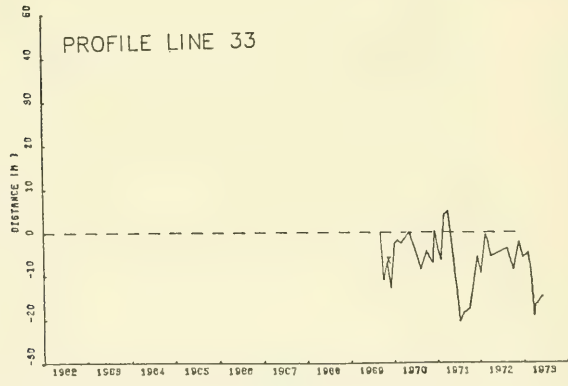
PROFILE LINE 32



STORMS SURVEYS



PROFILE LINE 33



APPENDIX C

PROFILE LINE SURVEY DATA

The survey data for Long Beach Island are tabulated by profile line number and survey date (in the form YYYYMMDD). Distances are in feet from the profile line bench mark; elevations are in feet above or below MSL.

LONG BEACH ISLAND N.J.
 DATUM IS GSL MEASUREMENT IS FT

PROFILE 1

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME
620926	1	7:40	620928	2	7:50	621011	4	7:70	621023	5	7:50	621029	6	7:60
17:00	7:40	1+00	17:00	7:50	1+00	19:00	9:30	9:30	19:00	9:30	9:00	19:00	9:30	9:00
27:00	7:50	17:00	27:00	7:50	17:00	48:00	9:30	9:30	49:00	9:30	49:00	9:30	9:30	9:00
46:00	9:50	26:00	46:00	7:40	26:00	55:00	9:00	9:00	55:00	9:00	55:00	9:30	9:30	9:00
52:00	9:20	46:00	52:00	9:40	46:00	57:00	9:20	9:20	57:00	9:20	58:00	9:30	9:30	9:00
55:00	8:30	50:00	55:00	9:00	50:00	62:00	9:00	9:00	62:00	9:00	64:00	9:30	9:30	9:00
65:00	7:40	52:00	65:00	8:30	52:00	125:00	7:10	7:10	125:00	7:40	125:00	7:20	7:20	7:00
85:00	7:20	67:00	85:00	7:40	67:00	148:00	7:40	7:40	148:00	7:40	160:00	7:20	7:20	7:00
132:00	7:20	157:00	132:00	7:40	157:00	168:00	7:40	7:40	168:00	7:40	180:00	7:20	7:20	7:00
150:00	4:00	190:00	150:00	3:40	190:00	180	7:00	7:00	177:00	4:20	202:00	4:20	202:00	4:00
177:00	2:20		177:00	2:40		202:00	4:70	4:70	223:00	4:70	223:00	4:70	223:00	4:50

PROFILE 1

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME
650121	10	5:06	650128	11	7:50	650204	12	7:00	650212	13	8:30	650220	14	6:30
200:00	5:10	34:00	200:00	11:00	34:00	100:00	6:40	100:00	105:00	6:30	105:00	6:30	100:00	6:30
251:00	2:10	91:00	251:00	11:00	91:00	150:00	4:00	150:00	151:00	3:40	151:00	3:40	126:00	6:40
		51:00		9:40	226:00	226:00	4:00	226:00	4:00	145:00	1:40	174:00	1:40	174:00
		56:00		11:50	251:00	251:00	1:70	251:00	2:50	202:00	1:00	225:00	1:00	201:00
		66:00		11:10	261:00	261:00	4:40	261:00	4:40	225:00	0:60	251:00	0:60	201:00
		71:00		8:30	271:00	271:00	8:30	271:00	8:30	225:00	1:00	251:00	1:00	201:00
		102:00		6:50	281:00	281:00	6:50	281:00	6:50	251:00	1:00	251:00	1:00	201:00
		123:00		4:60	291:00	291:00	4:60	291:00	4:60	251:00	1:00	251:00	1:00	201:00
		151:00		3:20	301:00	301:00	3:20	301:00	3:20	251:00	1:00	251:00	1:00	201:00
		174:00		2:40	311:00	311:00	2:40	311:00	2:40	251:00	1:00	251:00	1:00	201:00
		220:00		2:70	321:00	321:00	2:70	321:00	2:70	251:00	1:00	251:00	1:00	201:00
		251:00		1:20	331:00	331:00	1:20	331:00	1:20	251:00	1:00	251:00	1:00	201:00

LONG BEACH ISLAND N.W.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 1

DATE 630319	DATE 630326	DATE 630404	DATE 630528	DATE 630613	DATE 630625	DATE 630711	DATE 630723
SVY 1A	SVY 1Q	SVY 20	SVY 21	SVY 22	SVY 23	SVY 24	SVY 25
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
0+00	71+00	6+00	6+00	7+60	150+00	5+60	75+00
35+00	101+00	6+50	36+00	7+60	181+00	5+30	100+00
41+00	101+00	5+00	45+00	10+30	201+00	4+20	120+00
49+00	175+00	1+50	50+00	18+00	230+00	0+00	120+00
76+00	14+30	0+00	71+00	12+00	279+00	+450	200+00
131+00	14+50	+160	71+00	6+00	252+00	0+00	225+00
131+00	6+50	-1+20	101+00	6+00	276+00	-1+10	275+00
132+00	5+00		181+00	5+00			301+00
176+00	2+30		201+00	3+60			
202+00	+20		227+00	2+00			
227+00	-1+20		252+00	0+00			
251+00	-1+00		301+00	-800			
			302+00	-1+00			

PROFILE 1

DATE 630906	DATE 630920	DATE 630906	DATE 630926	DATE 631010	DATE 631025	DATE 631115	DATE 631227
SVY 2b	SVY 2T	SVY 2R	SVY 2Q	SVY 30	SVY 31	SVY 32	SVY 33
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
107+00	5+80	150+00	48+00	10+30	151+00	5+80	17+00
175+00	5+90	175+00	46+00	12+80	177+00	5+70	28+00
201+00	4+50	201+00	75+00	6+80	262+00	2+80	42+00
226+00	2+50	251+00	101+00	6+80	227+00	1+00	52+00
249+00	0+00	301+00	126+00	6+00	253+00	400	61+00
277+00	-2+10		151+00	4+80			176+00
			177+00	2+80			117+00
			202+00	+80			128+00
							151+00
							177+00
							202+00

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 1

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME		
-117.00	7.50	41.00	13.50	21.00	7.90	19.00	8.00	21.00	7.90	0.00	7.90	21.00	8.00	21.00	8.00	21.00	8.00	19.00	8.10
-76.00	7.20	65.00	9.70	54.00	12.40	58.00	12.40	58.00	12.40	12.40	12.40	58.00	12.40	58.00	12.40	58.00	12.40	58.00	12.40
-31.00	7.50	157.00	1.40	67.00	18.20	71.00	17.70	70.00	17.50	27.00	9.30	51.00	11.90	45.00	11.90	45.00	11.90	45.00	11.90
20.00	7.90	202.00	-1.80	101.00	5.60	102.00	5.40	101.00	5.40	41.00	12.60	72.00	8.70	65.00	8.70	65.00	8.70	65.00	8.70
61.00	13.50	223.00	-1.60	152.00	2.40	152.00	2.10	147.00	4.40	53.00	12.60	117.00	6.10	93.00	6.10	93.00	6.10	93.00	6.10
62.00	8.30			183.00	-1.10	180.00	-2.10	182.00	1.70	126.00	3.60	177.00	-2.00	155.00	-2.00	155.00	-2.00	155.00	-2.00
101.00	5.30			202.00	-1.20	202.00	-2.00	177.00	-1.50	177.00	-2.00	202.00	-3.00	172.00	-3.00	172.00	-3.00	172.00	-3.00
152.00	2.50			220.00	-2.40	220.00	-3.10	202.00	-2.30										
177.00	4.40																		
202.00	5.50																		
220.00	-2.20																		

PROFILE 1

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME		
19.00	4.50	51.00	11.70	46.00	12.90	47.00	12.60	47.00	12.40	40.00	12.10	40.00	12.10	40.00	12.10	40.00	12.10	40.00	12.10
38.00	11.90	53.00	10.50	52.00	12.10	60.00	8.70	61.00	8.60	63.00	8.70	20.00	7.50	20.00	7.50	20.00	7.50	20.00	7.50
45.00	12.40	57.00	7.10	66.00	7.10	75.00	6.60	101.00	6.00	78.00	8.00	45.00	9.00	45.00	9.00	45.00	9.00	45.00	9.00
60.00	9.00	78.00	4.70	101.00	3.60	91.00	7.20	202.00	-4.30	101.00	4.70	60.00	9.50	75.00	6.50	60.00	9.50	75.00	6.50
83.00	8.00	126.00	1.00	126.00	1.60	101.00	5.70	218.00	-4.40	127.00	2.60	62.00	7.00	100.00	5.30	62.00	7.00	100.00	5.30
101.00	6.40	151.00	-2.00	151.00	-2.00	151.00	-2.00	151.00	-2.00	152.00	-1.10	101.00	4.20	126.00	5.00	101.00	4.20	126.00	5.00
126.00	3.80	172.00	-1.90	177.00	-1.70	166.00	-1.20			177.00	-1.50	121.00	2.20	151.00	4.40	121.00	2.20	151.00	4.40
192.00	-2.20									202.00	-3.00	202.00	1.50	176.00	-1.00	202.00	1.50	176.00	-1.00
202.00	-2.40																		

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 1

DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME
670022	50	1200	670505	52	1200	670920	54	1200	671219	55	1200	680227	57	1200
18.00	8.00	24.00	24.00	8.20	24.00	7.60	7.60	4.00	7.60	4.00	7.60	11.00	7.70	4.00
19.00	9.00	25.00	11.00	11.00	25.00	40.00	40.00	20.00	37.00	37.00	40.00	25.00	40.00	25.00
47.00	47.00	53.00	53.00	11.30	53.00	100.00	13.20	80.00	12.40	80.00	13.20	35.00	40.00	40.00
59.00	8.80	76.00	76.00	6.00	85.00	6.00	12.40	6.00	9.70	9.70	10.50	51.00	40.00	40.00
75.00	7.50	100.00	56.00	8.30	125.00	5.90	10.00	151.00	5.30	60.00	9.20	62.00	40.00	40.00
104.00	7.60	124.00	75.00	6.00	150.00	5.00	8.00	174.00	0.00	75.00	8.30	100.00	7.00	7.00
130.00	5.00	151.00	101.00	3.20	174.00	1.80	7.50	205.00	7.00	100.00	7.00	126.00	7.00	154.00
152.00	3.00	175.00	126.00	2.00	224.00	1.80	4.00	250.00	5.10	275.00	5.20	181.00	6.10	181.00
201.00	1.50	201.00	151.00	1.00	226.00	1.90	3.20	250.00	1.50	151.00	2.50	275.00	5.00	275.00
222.00	2.30	201.00	175.00	1.90	250.00	1.90	3.20	276.00	1.50	174.00	2.50	250.00	2.20	250.00
			201.00	3.00	276.00	2.60				226.00	1.00	250.00	1.00	250.00
				3.00						250.00	1.00	250.00	1.00	250.00

PROFILE 1

DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME
681009	59	1200	681115	61	1200	681219	62	1200	690115	63	1200	690213	65	1200
22.00	8.00	20.00	20.00	7.80	20.00	0.00	7.70	25.00	8.10	25.00	8.20	40.00	10.10	25.00
40.00	12.00	40.00	14.00	13.00	40.00	25.00	7.00	45.00	10.60	45.00	15.10	50.00	13.20	45.00
50.00	12.60	50.00	13.50	13.50	40.00	42.00	13.70	52.00	13.90	52.00	13.50	70.00	9.20	52.00
70.00	9.20	65.00	30.60	10.60	57.00	30.60	68.00	68.00	8.90	80.00	9.90	100.00	7.50	52.00
100.00	7.50	75.00	100.00	8.00	100.00	9.00	100.00	6.80	175.00	6.60	150.00	4.20	150.00	6.60
150.00	7.20	150.00	150.00	8.00	150.00	6.50	175.00	5.80	125.00	7.00	200.00	2.60	125.00	8.00
175.00	5.70	156.00	250.00	4.00	175.00	6.20	200.00	2.20	156.00	5.00	200.00	1.10	125.00	8.00
225.00	3.00	168.00	260.00	1.60	260.00	2.20	225.00	1.00	176.00	3.80	200.00	3.00	176.00	5.00
225.00	1.00	172.00	285.00	4.00	285.00	1.40	250.00	1.00	200.00	3.80	200.00	3.00	200.00	3.00
250.00	1.10	200.00	250.00	2.90	275.00	2.00	275.00	2.00	250.00	1.30	250.00	1.30	250.00	1.30
260.00	1.00	265.00	275.00	2.00	300.00	3.00	300.00	3.00	275.00	1.30	275.00	1.30	250.00	1.00
			275.00	1.40						3.30				

LONG BEACH ISLAND "A.J."
DATUM IS MSL MEASUREMENT IS FT

PROFILE 1

DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME
25+00	69020	69118	69128	69118	700120	700218	700120	700218	700318	700521			
45+00	14+00	17+00	14+00	14+00	13+00	15+00	14+00	13+00	11+00	10+00	14+00	13+00	12+00
50+00	14+00	14+30	14+00	14+00	14+00	14+00	14+50	14+50	14+50	14+50	14+50	14+50	14+50
55+00	12+00	13+10	13+00	13+00	13+00	13+00	13+00	13+00	13+00	13+00	13+00	13+00	13+00
79+00	9+00	9+30	8+00	8+30	100+00	6+50	9+20	50+00	49+00	49+00	49+00	49+00	49+00
100+00	7+10	9+10	7+00	7+50	100+00	4+90	100+00	100+00	100+00	100+00	100+00	100+00	100+00
115+00	6+20	110+00	6+00	118+00	6+00	150+00	4+20	150+00	150+00	150+00	150+00	150+00	150+00
155+00	7+30	110+00	6+00	118+00	4+30	148+00	4+00	200+00	200+00	200+00	200+00	200+00	200+00
175+00	107+00	175+00	7+00	175+00	2+00	175+00	2+00	200+00	200+00	200+00	200+00	200+00	200+00
200+00	4+50	175+00	4+50	175+00	2+00	175+00	2+00	200+00	200+00	200+00	200+00	200+00	200+00
200+00	2+30	200+00	2+30	200+00	1+00	200+00	1+00	200+00	200+00	200+00	200+00	200+00	200+00
225+00	1+70	200+00	1+40	200+00	2+00	200+00	2+00	200+00	200+00	200+00	200+00	200+00	200+00
250+00	1+40	200+00	1+40	200+00	2+00	200+00	2+00	200+00	200+00	200+00	200+00	200+00	200+00
275+00	1+00	275+00	1+00	275+00	1+00	275+00	1+00	275+00	275+00	275+00	275+00	275+00	275+00
300+00	1+00	275+00	1+00	275+00	1+00	275+00	1+00	275+00	275+00	275+00	275+00	275+00	275+00
300+00	1+00	275+00	1+00	275+00	1+00	275+00	1+00	275+00	275+00	275+00	275+00	275+00	275+00

PROFILE 1

DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME
0+00	70028	70120	70128	70120	71012	71018	71012	71018	71030	71038	71048	71058	71068
10+00	7+00	17+00	7+00	7+00	17+00	17+00	17+00	17+00	17+00	17+00	17+00	17+00	17+00
15+00	7+00	17+00	7+00	7+00	17+00	17+00	17+00	17+00	17+00	17+00	17+00	17+00	17+00
45+00	13+00	52+00	13+00	13+00	13+00	13+00	13+00	13+00	13+00	13+00	13+00	13+00	13+00
53+00	13+00	52+00	13+00	13+00	13+00	13+00	13+00	13+00	13+00	13+00	13+00	13+00	13+00
75+00	6+00	100+00	6+00	100+00	6+00	100+00	6+00	100+00	100+00	100+00	100+00	100+00	100+00
100+00	6+00	100+00	6+00	100+00	6+00	100+00	6+00	100+00	100+00	100+00	100+00	100+00	100+00
130+00	7+00	130+00	7+00	130+00	7+00	130+00	7+00	130+00	130+00	130+00	130+00	130+00	130+00
139+00	5+70	175+00	0+00	200+00	2+00	200+00	2+00	200+00	200+00	200+00	200+00	200+00	200+00
174+00	1+00	225+00	0+00	225+00	0+00	225+00	0+00	225+00	225+00	225+00	225+00	225+00	225+00
200+00	1+00	225+00	0+00	225+00	0+00	225+00	0+00	225+00	225+00	225+00	225+00	225+00	225+00
225+00	1+00	225+00	0+00	225+00	0+00	225+00	0+00	225+00	225+00	225+00	225+00	225+00	225+00
250+00	1+00	225+00	0+00	225+00	0+00	225+00	0+00	225+00	225+00	225+00	225+00	225+00	225+00
250+00	1+00	225+00	0+00	225+00	0+00	225+00	0+00	225+00	225+00	225+00	225+00	225+00	225+00

LONG BEACH ISLAND N.J.
DATUM TO WSL MEASUREMENT IS FT

PROFILE 1

DATE 710620	DATE 710617	DATE 711007	DATE 711214	DATE 720112	DATE 720215	DATE 720225	DATE 720313
SBVY 43	SBVY 45	SBVY 46	SBVY 47	SBVY 48	SBVY 49	SBVY 50	SBVY 51
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
0.00	0.00	7.90	15.00	15.00	16.00	25.00	25.00
17.00	13.00	13.60	31.00	31.00	30.00	47.00	46.00
29.00	12.60	08.00	12.50	12.50	12.40	12.00	12.20
36.00	12.60	08.00	10.10	10.40	12.40	04.00	02.00
43.00	14.30	100.00	63.00	62.00	45.00	04.00	14.20
47.00	12.50	124.00	77.00	67.00	63.00	12.40	62.00
52.00	15.00	150.00	100.00	100.00	83.00	75.00	82.00
57.00	17.20	54.20	172.00	172.00	150.00	100.00	100.00
61.00	14.90	172.00	172.00	150.00	150.00	100.00	172.00
66.00	2.80	250.00	172.00	175.00	200.00	250.00	200.00
100.00	6.60	200.00	200.00	200.00	250.00	250.00	225.00
125.00	6.60	225.00	225.00	225.00	250.00	250.00	250.00
150.00	6.30	250.00	245.00	245.00	250.00	250.00	250.00
200.00	0.00						
250.00	2.10						

PROFILE 1

DATE 720311	DATE 720321	DATE 721017	DATE 721205	DATE 730103	DATE 730213	DATE 730313	DATE 730324
SBVY 52	SBVY 53	SBVY 54	SBVY 55	SBVY 56	SBVY 57	SBVY 58	SBVY 59
TIME 1200	TIME 1200	TIME 800	TIME 800	TIME 900	TIME 900	TIME 1100	TIME 1000
25.00	6.30	20.00	28.00	6.30	0.00	7.70	25.00
39.00	12.00	10.60	43.00	15.10	25.00	7.40	06.00
47.00	13.80	15.40	57.00	10.60	47.00	15.00	50.00
52.00	14.40	14.40	67.00	7.80	54.00	15.30	66.00
65.00	12.50	10.20	100.00	6.90	67.00	12.90	71.00
72.00	9.00	150.00	150.00	6.20	90.00	7.40	100.00
100.00	6.50	200.00	200.00	6.00	100.00	7.80	100.00
150.00	6.00	200.00	200.00	6.30	150.00	7.00	150.00
200.00	5.30	244.00	275.00	7.40	180.00	7.20	200.00
250.00	-2.70	275.00	300.00	5.30	250.00	6.90	250.00
		300.00	325.00	3.00	300.00	5.90	300.00
		310.00	340.00	1.20	300.00	7.40	300.00
		310.00	350.00	-1.20	350.00	8.20	350.00
		325.00	350.00	350.00	350.00	8.20	350.00
		397.00	-2.50				

LONG BEACH ISLAND 'N' J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 1

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME		
710002	100	710017	101	710012	103	710012	100	710012	100	710012	100	710012	100	710012	100	710012	100	710012	100	710012	100
25.00	7.40	23.00	7.90	22.00	7.70	22.00	7.70	22.00	7.70	22.00	7.70	22.00	7.70	22.00	7.70	22.00	7.70	22.00	7.70	22.00	7.70
08.00	17.50	07.00	16.20	07.00	16.00	07.00	16.00	07.00	16.00	07.00	16.00	07.00	16.00	07.00	16.00	07.00	16.00	07.00	16.00	07.00	16.00
03.00	15.00	05.00	17.30	04.00	17.70	04.00	17.70	04.00	17.70	04.00	17.70	04.00	17.70	04.00	17.70	04.00	17.70	04.00	17.70	04.00	17.70
100.00	7.30	100.00	7.40	100.00	7.40	100.00	7.40	100.00	7.40	100.00	7.40	100.00	7.40	100.00	7.40	100.00	7.40	100.00	7.40	100.00	7.40
150.00	4.70	150.00	4.80	150.00	4.80	150.00	4.80	150.00	4.80	150.00	4.80	150.00	4.80	150.00	4.80	150.00	4.80	150.00	4.80	150.00	4.80
200.00	9.40	200.00	9.40	200.00	9.40	200.00	9.40	200.00	9.40	200.00	9.40	200.00	9.40	200.00	9.40	200.00	9.40	200.00	9.40	200.00	9.40
300.00	21.50	300.00	41.50	300.00	61.10	300.00	61.10	300.00	61.10	300.00	61.10	300.00	61.10	300.00	61.10	300.00	61.10	300.00	61.10	300.00	61.10
350.00	-3.40	350.00	1.50	350.00	2.10	350.00	2.10	350.00	2.10	350.00	2.10	350.00	2.10	350.00	2.10	350.00	2.10	350.00	2.10	350.00	2.10
375.00		375.00	-1.60	375.00	-1.10	375.00	-1.10	375.00	-1.10	375.00	-1.10	375.00	-1.10	375.00	-1.10	375.00	-1.10	375.00	-1.10	375.00	-1.10

PROFILE 2

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME		
420026	100	420026	101	420026	102	420026	103	420026	104	420026	105	420026	106	420026	107	420026	108	420026	109	420026	110	420026	111
11.00	10.50	27.00	13.20	20.00	12.60	14.00	12.60	17.00	12.60	17.00	12.60	17.00	12.60	17.00	12.60	17.00	12.60	17.00	12.60	17.00	12.60	17.00	12.60
27.00	15.20	30.00	10.80	34.00	9.60	39.00	9.60	36.00	10.20	39.00	9.60	36.00	10.20	39.00	9.60	36.00	10.20	39.00	9.60	36.00	10.20	39.00	9.60
34.00	4.50	38.00	4.90	54.00	4.90	61.00	4.90	72.00	4.90	72.00	4.90	72.00	4.90	72.00	4.90	72.00	4.90	72.00	4.90	72.00	4.90	72.00	4.90
57.00	7.30	62.00	4.90	64.00	7.40	69.00	7.60	71.00	7.50	110.00	5.70	106.00	6.10	106.00	6.10	106.00	6.10	106.00	6.10	106.00	6.10	106.00	6.10
90.00	7.20	84.00	4.60	102.00	7.50	103.00	7.60	108.00	7.60	108.00	7.60	108.00	7.60	108.00	7.60	108.00	7.60	108.00	7.60	108.00	7.60	108.00	7.60
140.00	7.20	97.00	7.50	137.00	7.70	135.00	4.10	135.00	4.50	148.00	5.20	148.00	5.20	148.00	5.20	148.00	5.20	148.00	5.20	148.00	5.20	148.00	5.20
180.00	7.20	135.00	7.20	154.00	5.40	165.00	4.50	165.00	4.50	172.00	2.90	172.00	2.90	172.00	2.90	172.00	2.90	172.00	2.90	172.00	2.90	172.00	2.90
180.00	5.70	157.00	4.60	144.00	2.20	149.00	2.00	203.00	0.00	193.00	1.50	193.00	1.50	193.00	1.50	193.00	1.50	193.00	1.50	193.00	1.50	193.00	1.50
200.00	2.60	175.00	2.50	227.00	-2.10	214.00	-1.90	240.00	-3.20	240.00	-3.20	240.00	-3.20	240.00	-3.20	240.00	-3.20	240.00	-3.20	240.00	-3.20	240.00	-3.20
200.00	2.60	190.00	-7.0	200.00	13.20	20.00	12.60	14.00	12.60	17.00	12.60	17.00	12.60	17.00	12.60	17.00	12.60	17.00	12.60	17.00	12.60	17.00	12.60

PROFILE 2

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME		
630121	100	630121	101	630121	102	630121	103	630121	104	630121	105	630121	106	630121	107	630121	108	630121	109	630121	110	630121	111
100.00	7.40	25.00	11.50	100.00	7.40	25.00	11.50	101.00	7.00	101.00	7.00	101.00	7.00	101.00	7.00	101.00	7.00	101.00	7.00	101.00	7.00	101.00	7.00
200.00	-4.90	50.00	9.50	151.00	3.40	38.00	9.60	121.00	5.90	151.00	4.60	151.00	4.60	151.00	4.60	151.00	4.60	151.00	4.60	151.00	4.60	151.00	4.60
		75.00	4.00	176.00	1.00	79.00	4.90	151.00	3.80	201.00	-2.00	201.00	-2.00	201.00	-2.00	201.00	-2.00	201.00	-2.00	201.00	-2.00	201.00	-2.00
		130.00	2.80	101.00	6.90	109.00	1.10	122.00	-1.60	122.00	-1.60	122.00	-1.60	122.00	-1.60	122.00	-1.60	122.00	-1.60	122.00	-1.60	122.00	-1.60
		150.00	2.80	126.00	6.50	221.00	-1.50	221.00	-1.50	221.00	-1.50	221.00	-1.50	221.00	-1.50	221.00	-1.50	221.00	-1.50	221.00	-1.50	221.00	-1.50
		150.00	4.50	201.00	3.20	226.00	-1.60	226.00	-1.60	226.00	-1.60	226.00	-1.60	226.00	-1.60	226.00	-1.60	226.00	-1.60	226.00	-1.60	226.00	-1.60
		226.00	-1.50	226.00	-1.50	226.00	-1.50	226.00	-1.50	226.00	-1.50	226.00	-1.50	226.00	-1.50	226.00	-1.50	226.00	-1.50	226.00	-1.50	226.00	-1.50

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 2

DATE 630119	DATE 630126	DATE 630404	DATE 630528	DATE 630613	DATE 630626	DATE 630711	DATE 630727
SVY 18	SVY 19	SVY 20	SVY 21	SVY 22	SVY 23	SVY 24	SVY 25
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
176.00	100.00	100.00	0.00	50.00	50.00	119.00	100.00
225.00	6.90	6.90	25.00	74.00	74.00	151.00	120.00
251.00	-1.80	6.50	12.50	124.00	124.00	201.00	151.00
		5.40	51.00	10.20	10.20	226.00	2.90
		2.80	50.00	8.00	8.00	251.00	175.00
		227.00	48.00	101.00	101.00		231.00
		251.00	167.00	6.90	195.00		227.00
		251.00	175.00	3.10	176.00		
			226.00	3.00	226.00		
			226.00	-1.20	251.00		

PROFILE 2

DATE 630906	DATE 630920	DATE 630926	DATE 631010	DATE 631026	DATE 631115	DATE 631227
SVY 26	SVY 27	SVY 28	SVY 30	SVY 31	SVY 32	SVY 33
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
75.00	8.50	100.00	100.00	99.00	76.00	24.00
101.00	7.10	7.10	12.00	126.00	126.00	35.00
151.00	6.20	6.20	20.00	12.50	9.00	52.00
175.00	1.80	1.80	24.00	12.50	7.40	5.80
201.00	3.10	3.10	54.00	10.10	176.00	131.00
201.00	3.10	226.00	7.40	8.40	150.00	121.00
251.00	1.00	151.00	202.00	3.40	202.00	127.00
251.00	-2.20	202.00	202.00	-4.50	202.00	192.00
						202.00
						224.00

LONG BEACH ISLAND N-J
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 2

DATE TIME	441145 34	DATE TIME	600310 36	DATE TIME	600607 37	DATE TIME	600525 38	DATE TIME	600223 39	DATE TIME	600229 40	DATE TIME	600224 41
-103.00	7.56	1.00	11.80	25.00	12.10	10.00	12.10	24.00	12.20	00.00	12.80	12.80	-152.00
-526.00	7.50	07.00	17.80	46.00	12.40	65.00	17.30	53.00	15.80	51.00	9.90	27.40	7.80
-262.00	7.50	02.00	8.00	74.00	7.40	64.00	8.00	60.00	16.50	77.00	7.80	-234.00	7.80
-158.00	7.80	05.00	7.10	101.00	6.20	76.00	7.50	101.00	6.70	101.00	6.70	-150.00	7.80
-137.00	7.50	03.00	5.70	127.00	0.70	102.00	6.00	126.00	5.00	132.00	7.50	-125.00	7.50
-50.00	9.80	05.00	5.10	152.00	2.00	120.00	4.30	151.00	1.90	152.00	3.90	-24.00	10.00
0.00	11.90	02.00	3.10	203.00	-1.40	152.00	2.00	177.00	-0.90	177.00	2.00	1.00	12.10
39.00	12.50	202.00	-0.00	227.00	-2.90	177.00	-0.60	202.00	-2.40	202.00	-0.40	42.00	12.40
46.00	11.20	223.00	-11.70			202.00	-2.70					51.00	12.00
51.00	9.80											79.00	9.80
76.00	6.80											103.00	2.00
101.00	9.70											103.00	1.00
124.00	5.70											162.00	1.00
202.00	8.00												
226.00	-1.00												
253.00	-2.00												

PROFILE 2

DATE TIME	601201 42	DATE TIME	600119 43	DATE TIME	650027 44	DATE TIME	650907 45	DATE TIME	651027 46	DATE TIME	651222 47	DATE TIME	600125 48	DATE TIME	600121 49
35.00	12.20	25.00	12.10	08.00	11.20	05.00	13.20	05.00	11.10	05.00	13.10	01.00	11.90	02.00	12.10
58.00	12.20	58.00	11.40	62.00	9.60	57.00	47.00	47.00	4.00	49.20	49.20	72.00	12.10	02.00	02.00
05.00	12.90	55.00	9.20	79.00	7.00	75.00	7.80	101.00	7.80	80.00	6.50	30.00	6.00	75.00	7.50
51.00	10.80	78.00	6.90	151.00	1.30	101.00	6.80	151.00	1.90	101.00	6.90	50.00	7.20	100.00	6.20
76.00	7.70	101.00	5.60	178.00	-0.40	126.00	7.10	179.00	0.00	126.00	4.50	101.00	5.80	100.00	6.20
101.00	5.60	152.00	2.10	202.00	-2.10	108.00	7.00	187.00	-1.00	152.00	2.30	126.00	3.00	152.00	2.10
151.00	8.00	218.00	-2.40	202.00	-2.40	177.00	3.20	202.00	-0.90	202.00	-0.90	151.00	2.00	151.00	-0.90
202.00	-2.40			202.00	-0.80	222.00	-1.60	222.00	-1.60	227.00	-3.50	172.00	0.00	201.00	-2.50

LONG BEACH ISLAND P.A.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 2

DATE 660922	DATE 670116	DATE 670505	DATE 670920	DATE 671218	DATE 680117	DATE 680227	DATE 680327
SVY 50	SVY 51	SVY 52	SVY 54	SVY 55	SVY 56	SVY 57	SVY 58
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
-1.00 12.10	21.00 12.30	6.00 12.40	25.00 12.70	-1.00 12.10	36.00 12.40	0.00 12.40	0.00 12.10
20.00 12.20	76.00 7.70	25.00 11.90	39.00 12.30	41.00 12.60	52.00 12.40	45.00 12.40	50.00 12.00
48.00 8.70	100.00 6.00	40.00 11.20	76.00 8.40	52.00 12.10	67.00 9.60	60.00 12.20	62.00 13.50
76.00 8.20	125.00 5.40	50.00 10.20	101.00 6.80	65.00 9.70	120.00 4.90	76.00 8.20	83.00 12.40
98.00 8.40	151.00 3.20	75.00 8.10	126.00 5.60	101.00 7.30	151.00 4.00	99.00 6.90	80.00 9.80
125.00 7.50	201.00 -1.20	100.00 6.40	156.00 6.20	138.00 4.80	172.00 2.60	120.00 6.20	103.00 7.10
131.00 1.40	227.00 -3.20	126.00 3.90	206.00 3.30	158.00 2.40	176.00 1.60	150.00 5.00	130.00 5.50
138.00 1.00		136.00 3.50	206.00 1.90	229.00 2.00	250.00 1.60	150.00 5.00	200.00 5.20
228.00 -2.10		225.00 1.80	208.00 -1.90	251.00 -1.10	275.00 -1.90	250.00 1.20	212.00 5.00
		201.00	201.00	276.00 -1.80	290.00 -2.80	290.00 -1.70	250.00 -1.50
		225.00 -2.70		276.00 -2.40			126.00 -3.10
		211.00 -3.40					

PROFILE 2

DATE 681009	DATE 681023	DATE 681113	DATE 681218	DATE 690113	DATE 690118	DATE 690213	DATE 690314
SVY 59	SVY 60	SVY 61	SVY 62	SVY 63	SVY 63	SVY 64	SVY 65
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
0.00 12.00	35.00 13.10	15.90 15.90	35.00 10.50	16.10 16.10	38.00 10.50	104.50 17.50	36.00 17.50
35.00 13.70	60.00 12.50	15.00 05.00	45.00 05.00	16.10 16.10	45.00 17.50	60.00 16.20	60.00 16.20
60.00 12.40	75.00 9.60	62.00 12.90	62.00 13.40	10.00 10.00	55.00 15.50	66.00 12.70	60.00 16.20
75.00 9.30	100.00 7.60	70.00 9.90	70.00 10.20	9.70 66.00 13.30	66.00 13.30	80.00 9.50	66.00 13.30
100.00 7.50	150.00 6.90	100.00 7.00	100.00 7.50	100.00 7.50	60.00 9.50	100.00 7.90	77.00 9.90
150.00 6.90	200.00 6.60	150.00 7.90	150.00 7.30	150.00 7.20	100.00 7.80	150.00 7.10	130.00 7.70
200.00 6.30	250.00 6.60	200.00 8.00	200.00 7.70	100.00 7.60	200.00 7.10	200.00 8.10	150.00 7.80
250.00 6.60	300.00 7.90	250.00 7.80	250.00 6.80	250.00 6.90	200.00 7.00	200.00 7.50	200.00 7.50
300.00 8.00	300.00 7.90	300.00 6.40	300.00 6.10	300.00 6.80	250.00 7.30	250.00 7.40	200.00 7.50
305.00 6.20	350.00 5.90	350.00 4.90	350.00 4.50	337.00 6.40	300.00 7.50	300.00 7.50	250.00 6.30
308.00 4.00	375.00 3.10	375.00 3.10	400.00 1.70	350.00 5.60	325.00 6.30	350.00 7.40	250.00 6.30
350.00 2.20	375.00 1.00	400.00 1.20	425.00 -2.20	375.00 4.40	350.00 6.30	400.00 6.60	250.00 6.30
400.00 1.30	425.00 -1.30	425.00 -1.30	475.00 -2.20	425.00 2.40	400.00 6.60	450.00 -1.60	150.00 -3.00
425.00 -1.60	425.00 -1.60	425.00 -1.60	500.00 -3.40	425.00 1.50	450.00 1.50		
	450.00 -2.40		500.00 -3.40	475.00 -1.10	425.00 1.50		
			475.00 -2.20	500.00 -1.80	475.00 -1.80		
			500.00 -2.60	475.00 -1.80			

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 2

DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME
0+00	12+60	15+00	11+30	10+00	12+70	0+00	12+50	0+00	12+30	27+00	12+90	0+00	12+00	0+00	12+00	15+00	13+20
35+00	15+40	43+00	17+50	42+00	17+80	39+00	17+20	50+00	16+50	55+00	15+90	17+00	15+20	47+00	16+50	22+00	13+90
43+00	17+50	65+00	13+20	49+00	17+00	49+00	17+00	66+00	13+30	80+00	0+70	45+00	16+50	47+00	16+70	47+00	16+70
62+00	13+30	88+00	8+00	55+00	13+20	67+00	13+20	85+00	10+40	109+00	2+30	77+00	14+20	61+00	13+00	61+00	13+00
86+00	8+10	102+00	5+50	65+00	7+80	100+00	7+70	85+00	6+40	150+00	0+00	97+00	8+50	100+00	7+50	100+00	7+50
110+00	8+20	125+00	3+20	105+00	5+60	124+00	5+20	150+00	3+50	250+00	-1+50	150+00	3+60	140+00	4+50	140+00	4+50
125+00	7+10	175+00	1+20	150+00	4+80	175+00	3+50	200+00	3+60	250+00	-1+50	200+00	3+60	140+00	4+50	200+00	4+00
150+00	4+20	200+00	-1+70	175+00	2+20	175+00	1+60	250+00	-1+50	250+00	-1+50	250+00	-1+20	200+00	4+00	250+00	-2+60
175+00	2+30	225+00	-1+60	200+00	1+10	200+00	-1+80	281+00	0+00								
200+00	1+00	250+00	-2+20	225+00	-8+40	225+00	-1+80										
225+00	0+00	275+00	-2+90	250+00	-1+20	250+00	-2+60										
250+00	-6+60	275+00	0+00	275+00	-2+00	300+00	-3+60										
275+00	-2+70			300+00	-2+80	300+00	-3+60										

PROFILE 2

DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME
0+00	12+70	0+00	12+30	11+00	12+50	0+00	12+60	0+00	12+00	0+00	12+50	0+00	12+70	0+00	12+70	0+00	13+10
9+00	12+70	45+00	15+80	49+00	16+70	39+00	14+60	25+00	13+60	25+00	13+50	11+00	12+40	15+00	13+10	15+00	13+10
33+00	14+00	54+00	15+70	55+00	15+00	49+00	16+40	34+00	14+60	38+00	13+00	50+00	16+20	35+00	15+50	35+00	15+50
46+00	17+10	67+00	13+10	65+00	12+30	67+00	13+20	48+00	16+20	50+00	16+20	58+00	15+70	45+00	16+90	45+00	16+90
52+00	15+50	98+00	9+20	73+00	8+40	71+00	8+60	62+00	14+00	59+00	14+20	62+00	14+00	60+00	13+70	60+00	13+70
66+00	13+10	100+00	8+00	100+00	6+50	100+00	5+50	70+00	4+10	68+00	6+40	72+00	6+40	70+00	5+90	70+00	5+90
86+00	8+20	119+00	7+70	125+00	4+20	125+00	4+30	100+00	5+90	75+00	7+70	100+00	5+40	100+00	4+60	100+00	4+60
100+00	7+90	150+00	3+80	150+00	2+90	150+00	2+70	125+00	4+10	100+00	5+40	125+00	4+20	125+00	4+20	125+00	4+20
125+00	6+30	175+00	1+80	175+00	1+10	175+00	1+10	150+00	2+20	125+00	3+40	172+00	4+20	150+00	1+20	150+00	1+20
172+00	1+30	225+00	1+00	200+00	-9+00	200+00	-8+60	275+00	-2+70	175+00	5+30	275+00	0+00	200+00	-2+40	200+00	-2+40
200+00	-4+40	250+00	-2+90	225+00	-2+10	225+00	-2+00	225+00	-2+40	200+00	-2+40	200+00	-1+10	225+00	-1+10	225+00	-1+10
225+00	-2+30			250+00	-2+40	250+00	-2+40	250+00	-3+20	250+00	-2+30	250+00	-2+50	250+00	-2+50	250+00	-2+50
250+00	-5+00																

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 2

DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY
0+00	12+00	85+00	12+40	0+00	13+40	0+00	13+20	45+00	13+40	0+00	13+40	0+00	13+00	0+00
25+00	16+00	05+00	18+70	02+00	13+70	27+00	13+70	45+00	14+90	22+00	13+90	26+00	14+50	26+00
67+00	9+70	60+00	9+00	75+00	50+00	13+70	41+00	15+70	16+20	41+00	10+00	47+00	11+70	47+00
81+00	7+70	100+00	7+00	100+00	9+10	60+00	10+00	48+00	10+70	80+00	18+00	82+00	11+70	82+00
100+00	7+00	100+00	7+00	100+00	7+00	7+00	9+60	100+00	6+30	61+00	11+00	60+00	6+30	60+00
125+00	6+60	175+00	3+70	113+00	3+40	150+00	7+30	150+00	2+90	62+00	11+00	67+00	7+00	67+00
150+00	3+00	200+00	1+50	200+00	2+60	200+00	3+90	200+00	1+20	80+00	7+00	70+00	7+00	70+00
200+00	-1+10	250+00	-2+60	225+00	-2+10	225+00	-1+10	250+00	-1+60	100+00	5+30	100+00	5+10	100+00
225+00	-2+00	275+00	-3+80	225+00	-2+10	225+00	-0+60	275+00	-2+20	150+00	2+60	150+00	4+50	150+00
										250+00	1+00	250+00	1+00	250+00
										300+00	-3+00	300+00	-2+00	300+00

PROFILE 2

DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY
0+00	12+00	0+00	13+10	0+00	13+10	0+00	14+70	0+00	14+00	0+00	13+00	0+00	13+00	0+00
40+00	16+00	37+00	10+80	27+00	16+80	42+00	17+70	37+00	18+70	32+00	18+00	28+00	10+50	28+00
47+00	15+00	40+00	15+20	42+00	17+00	50+00	18+10	48+00	18+30	42+00	18+00	38+00	10+50	38+00
58+00	12+20	45+00	7+60	57+00	16+00	38+00	18+00	17+00	17+00	17+00	18+00	18+00	8+70	18+00
64+00	8+50	100+00	6+50	7+50	7+50	150+00	7+70	16+00	7+60	7+60	08+00	16+00	7+50	16+00
82+00	6+00	100+00	6+10	60+00	12+70	150+00	7+70	150+00	8+00	100+00	7+50	100+00	7+50	100+00
100+00	6+00	150+00	6+10	150+00	6+10	190+00	7+40	179+00	8+00	150+00	7+50	150+00	7+50	150+00
150+00	3+00	250+00	6+10	200+00	7+10	200+00	6+50	200+00	6+30	192+00	7+00	200+00	6+00	192+00
200+00	1+00	300+00	2+40	228+00	7+10	350+00	5+00	250+00	3+10	231+00	1+50	250+00	1+50	250+00
250+00	-1+10	350+00	2+40	288+00	6+30	200+00	1+80	300+00	2+00	250+00	1+70	300+00	1+70	300+00
300+00	-3+10	400+00	-2+00	308+00	5+20	250+00	-1+00	350+00	0+00	300+00	-1+60	300+00	-1+60	300+00
										381+00	-2+10	381+00	-2+60	381+00
										42+00	18+00	42+00	18+00	42+00
										92+00	18+00	92+00	18+00	92+00
										170+00	18+00	170+00	18+00	170+00
										7+60	08+00	7+60	08+00	7+60
										100+00	7+50	100+00	7+50	100+00
										150+00	7+50	150+00	7+50	150+00
										200+00	7+50	200+00	7+50	200+00
										250+00	7+50	250+00	7+50	250+00
										300+00	7+50	300+00	7+50	300+00
										350+00	7+50	350+00	7+50	350+00
										400+00	7+50	400+00	7+50	400+00
										450+00	7+50	450+00	7+50	450+00
										500+00	7+50	500+00	7+50	500+00
										550+00	7+50	550+00	7+50	550+00
										600+00	7+50	600+00	7+50	600+00
										650+00	7+50	650+00	7+50	650+00
										700+00	7+50	700+00	7+50	700+00
										750+00	7+50	750+00	7+50	750+00
										800+00	7+50	800+00	7+50	800+00
										850+00	7+50	850+00	7+50	850+00
										900+00	7+50	900+00	7+50	900+00
										950+00	7+50	950+00	7+50	950+00
										1000+00	7+50	1000+00	7+50	1000+00

LONG BEACH ISLAND N.J.
 DATUM TS WSL MEASUREMENT IS FT

PROFILE 2

DATE	DATE	DATE	DATE	DATE	DATE
750402	750817	750612	750101	621023	621029
SRVY	SRVY	SRVY	SRVY	SRVY	SRVY
101	101	101	101	5	6
TIME	TIME	TIME	TIME	TIME	TIME
1100	1000	900	1000	1200	1200
0.00	0.00	0.00	0.00	13.80	14.80
13.80	13.80	13.80	13.80	14.80	14.80
35.00	19.20	31.00	18.10	36.00	18.90
81.00	18.70	47.00	17.70	83.00	18.00
90.00	8.10	79.00	9.30	90.00	8.40
106.00	8.00	105.00	7.90	100.00	8.10
150.00	5.10	137.00	7.70	150.00	7.30
200.00	2.80	169.00	4.20	190.00	5.80
250.00	1.20	205.00	4.80	200.00	3.80
300.00	1.80	250.00	1.70	225.00	8.90
		275.00	-2.80	250.00	-2.80
			-2.80		

PROFILE 3

DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
620926	620928	621011	621023	621029	621108	621210	621210	621210	621210
SRVY	SRVY	SRVY	SRVY	SRVY	SRVY	SRVY	SRVY	SRVY	SRVY
1	2	4	5	6	7	A	A	A	A
TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
9.00	10.60	14.60	106.00	15.40	123.00	14.80	103.00	14.70	1.00
18.00	12.10	126.00	13.80	140.00	18.70	185.00	10.30	136.00	20.00
175.00	15.20	166.00	12.70	228.00	6.50	214.00	9.50	332.00	12.80
175.00	12.10	197.00	11.80	238.00	10.50	214.00	9.50	332.00	14.90
212.00	10.50	214.00	10.30	284.00	9.30	225.00	7.10	277.00	7.00
235.00	9.10	215.00	9.30	284.00	9.40	312.00	6.90	316.00	4.60
266.00	9.10	259.00	9.30	304.00	7.20	342.00	1.80	360.00	4.10
307.00	6.90	272.00	9.30	342.00	5.40	374.00	-5.50	400.00	7.00
330.00	4.80	300.00	10.00	342.00	2.40	374.00	-5.50	400.00	3.50
357.00	2.00	322.00	7.80	388.00	-1.40	415.00	-3.10	450.00	-5.10
407.00	-1.00	388.00	5.10						400.00
425.00	-1.00								425.00

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 3

DATE 610121	DATE 610128	DATE 610204	DATE 610212	DATE 610220	DATE 610228	DATE 610228	DATE 610304	DATE 610311
SVY 10	SVY 11	SVY 12	SVY 13	SVY 14	SVY 15	SVY 15	SVY 16	SVY 17
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
250.00	-1.00	200.00	9.60	24.00	10.10	142.00	12.00	174.00
300.00	9.00	18.70	200.00	9.60	10.20	177.00	10.70	222.00
350.00	7.10	14.50	225.00	8.90	5.00	18.00	10.70	222.00
400.00	3.60	10.30	250.00	8.50	75.00	14.20	222.00	8.30
450.00	-3.30	19.50	275.00	8.50	106.00	19.50	276.00	8.10
426.00	-1.50	78.00	14.60	300.00	6.90	175.00	10.20	301.00
		100.00	14.60	350.00	3.40	208.00	9.80	324.00
		176.00	11.60	401.00	-3.30	275.00	8.70	357.00
		200.00	9.80	425.00	-1.60	301.00	7.80	426.00
		225.00	9.80	450.00	2.00	350.00	7.80	450.00
		276.00	8.20	481.00	-0.30	401.00	7.80	481.00
		305.00	7.10					
		351.00	4.50					
		425.00	0.00					
		425.00	-1.30					

PROFILE 3

DATE 610319	DATE 610326	DATE 610404	DATE 610428	DATE 610613	DATE 610625	DATE 610711	DATE 610723
SVY 18	SVY 19	SVY 20	SVY 21	SVY 22	SVY 23	SVY 24	SVY 25
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
25.00	251.00	14.10	-1.00	10.00	276.00	7.90	126.00
150.00	11.20	19.50	6.00	14.00	324.00	4.30	200.00
227.00	11.20	276.00	8.60	50.00	12.90	351.00	9.20
276.00	7.60	277.00	7.70	75.00	13.90	376.00	8.60
302.00	6.80	302.00	6.80	100.00	13.90	402.00	7.90
325.00	4.50	326.00	6.90	128.00	12.90	426.00	8.10
378.00	-1.10	377.00	0.00	152.00	11.70	450.00	8.20
401.00	-1.00	401.00	-1.60	200.00	9.20	481.00	8.20
				252.00	7.80	500.00	8.20
				302.00	4.90	525.00	8.20
				352.00	-1.10	550.00	8.20
				402.00	-2.00	575.00	8.20
						600.00	8.20

LUNG REACH ISLAND N.W.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 5

DATE 630006	DATE 631010	DATE 631025	DATE 631115	DATE 631227	DATE 640115	DATE 641201
SVY 28	SVY 30	SVY 31	SVY 32	SVY 33	SVY 34	SVY 34
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
140.00	-1.00	18.30	151.00	11.30	202.00	8.40
150.00	7.00	19.40	202.00	9.30	227.00	8.80
160.00	11.40	14.20	250.00	8.50	19.00	14.30
170.00	101.00	14.20	6.50	19.00	14.30	177.00
180.00	201.00	9.20	275.00	25.00	10.10	-101.00
190.00	8.80	13.80	227.00	8.50	252.00	10.10
200.00	250.00	42.90	252.00	6.30	303.00	10.90
210.00	8.50	252.00	303.00	2.40	329.00	1.80
220.00	277.00	16.00	303.00	2.40	329.00	1.80
230.00	289.00	6.70	276.00	8.80	350.00	6.60
240.00	327.00	3.00	327.00	5.00	353.00	8.90
250.00	350.00	3.30	349.00	5.50	151.00	11.40
260.00	377.00	2.40	376.00	-1.00	202.00	9.00
270.00	1.00	202.00	7.50	229.00	7.50	229.00
280.00	253.00	6.50	253.00	6.50	278.00	6.30
290.00	303.00	4.00	303.00	4.00	278.00	6.30
300.00	328.00	-1.30	328.00	-1.30	303.00	11.00
310.00	353.00	4.00	353.00	4.00	329.00	11.00
320.00	377.00	7.40	377.00	7.40	353.00	11.00
330.00	400.00	-2.00	400.00	-2.00	377.00	6.10
340.00	429.00	3.00	429.00	3.00	303.00	5.00
350.00	454.00	1.50	454.00	1.50	329.00	5.00
360.00	483.00	7.00	483.00	7.00	353.00	1.50
370.00	450.00	-2.50	450.00	-2.50	377.00	2.50

DATE 640212	DATE 640310	DATE 640325	DATE 640623	DATE 640629	DATE 640929	DATE 641201
SVY 35	SVY 36	SVY 37	SVY 39	SVY 40	SVY 41	SVY 42
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
127.00	14.00	18.00	8.00	19.40	9.00	19.20
152.00	11.30	20.00	14.50	20.00	21.00	13.90
177.00	10.50	50.00	13.00	50.00	15.00	12.90
203.00	9.30	101.00	13.00	77.00	13.40	17.50
229.00	8.00	128.00	12.60	101.00	14.00	78.00
259.00	7.00	151.00	11.00	127.00	13.50	101.00
289.00	4.00	172.00	10.00	176.00	11.00	14.70
315.00	2.30	209.00	9.10	227.00	8.20	126.00
349.00	-1.10	227.00	7.70	277.00	7.20	126.00
380.00	6.30	253.00	6.30	325.00	5.10	151.00
410.00	-1.60	329.00	4.10	377.00	3.10	176.00
440.00	2.10	400.00	2.10	455.00	-1.90	151.00
470.00	0.00	470.00	0.00	503.00	3.80	151.00
500.00	-1.40	500.00	-1.40	554.00	4.10	151.00
530.00	0.00	530.00	0.00	605.00	4.00	151.00
560.00	-1.40	560.00	-1.40	656.00	3.80	151.00
590.00	0.00	590.00	0.00	707.00	3.60	151.00
620.00	-1.40	620.00	-1.40	758.00	3.40	151.00
650.00	0.00	650.00	0.00	809.00	3.20	151.00
680.00	-1.40	680.00	-1.40	860.00	3.00	151.00
710.00	0.00	710.00	0.00	911.00	2.80	151.00
740.00	-1.40	740.00	-1.40	962.00	2.60	151.00
770.00	0.00	770.00	0.00	1013.00	2.40	151.00
800.00	-1.40	800.00	-1.40	1064.00	2.20	151.00
830.00	0.00	830.00	0.00	1115.00	2.00	151.00
860.00	-1.40	860.00	-1.40	1166.00	1.80	151.00
890.00	0.00	890.00	0.00	1217.00	1.60	151.00
920.00	-1.40	920.00	-1.40	1268.00	1.40	151.00
950.00	0.00	950.00	0.00	1319.00	1.20	151.00
980.00	-1.40	980.00	-1.40	1370.00	1.00	151.00
1010.00	0.00	1010.00	0.00	1421.00	0.80	151.00
1040.00	-1.40	1040.00	-1.40	1472.00	0.60	151.00
1070.00	0.00	1070.00	0.00	1523.00	0.40	151.00
1100.00	-1.40	1100.00	-1.40	1574.00	0.20	151.00
1130.00	0.00	1130.00	0.00	1625.00	0.00	151.00
1160.00	-1.40	1160.00	-1.40	1676.00	-0.20	151.00
1190.00	0.00	1190.00	0.00	1727.00	-0.40	151.00
1220.00	-1.40	1220.00	-1.40	1778.00	-0.60	151.00
1250.00	0.00	1250.00	0.00	1829.00	-0.80	151.00
1280.00	-1.40	1280.00	-1.40	1880.00	-1.00	151.00
1310.00	0.00	1310.00	0.00	1931.00	-1.20	151.00
1340.00	-1.40	1340.00	-1.40	1982.00	-1.40	151.00
1370.00	0.00	1370.00	0.00	2033.00	-1.60	151.00
1400.00	-1.40	1400.00	-1.40	2084.00	-1.80	151.00
1430.00	0.00	1430.00	0.00	2135.00	-2.00	151.00
1460.00	-1.40	1460.00	-1.40	2186.00	-2.20	151.00
1490.00	0.00	1490.00	0.00	2237.00	-2.40	151.00
1520.00	-1.40	1520.00	-1.40	2288.00	-2.60	151.00
1550.00	0.00	1550.00	0.00	2339.00	-2.80	151.00
1580.00	-1.40	1580.00	-1.40	2390.00	-3.00	151.00
1610.00	0.00	1610.00	0.00	2441.00	-3.20	151.00
1640.00	-1.40	1640.00	-1.40	2492.00	-3.40	151.00
1670.00	0.00	1670.00	0.00	2543.00	-3.60	151.00
1700.00	-1.40	1700.00	-1.40	2594.00	-3.80	151.00
1730.00	0.00	1730.00	0.00	2645.00	-4.00	151.00
1760.00	-1.40	1760.00	-1.40	2696.00	-4.20	151.00
1790.00	0.00	1790.00	0.00	2747.00	-4.40	151.00
1820.00	-1.40	1820.00	-1.40	2798.00	-4.60	151.00
1850.00	0.00	1850.00	0.00	2849.00	-4.80	151.00
1880.00	-1.40	1880.00	-1.40	2900.00	-5.00	151.00
1910.00	0.00	1910.00	0.00	2951.00	-5.20	151.00
1940.00	-1.40	1940.00	-1.40	3002.00	-5.40	151.00
1970.00	0.00	1970.00	0.00	3053.00	-5.60	151.00
2000.00	-1.40	2000.00	-1.40	3104.00	-5.80	151.00
2030.00	0.00	2030.00	0.00	3155.00	-6.00	151.00
2060.00	-1.40	2060.00	-1.40	3206.00	-6.20	151.00
2090.00	0.00	2090.00	0.00	3257.00	-6.40	151.00
2120.00	-1.40	2120.00	-1.40	3308.00	-6.60	151.00
2150.00	0.00	2150.00	0.00	3359.00	-6.80	151.00
2180.00	-1.40	2180.00	-1.40	3410.00	-7.00	151.00
2210.00	0.00	2210.00	0.00	3461.00	-7.20	151.00
2240.00	-1.40	2240.00	-1.40	3512.00	-7.40	151.00
2270.00	0.00	2270.00	0.00	3563.00	-7.60	151.00
2300.00	-1.40	2300.00	-1.40	3614.00	-7.80	151.00
2330.00	0.00	2330.00	0.00	3665.00	-8.00	151.00
2360.00	-1.40	2360.00	-1.40	3716.00	-8.20	151.00
2390.00	0.00	2390.00	0.00	3767.00	-8.40	151.00
2420.00	-1.40	2420.00	-1.40	3818.00	-8.60	151.00
2450.00	0.00	2450.00	0.00	3869.00	-8.80	151.00
2480.00	-1.40	2480.00	-1.40	3920.00	-9.00	151.00
2510.00	0.00	2510.00	0.00	3971.00	-9.20	151.00
2540.00	-1.40	2540.00	-1.40	4022.00	-9.40	151.00
2570.00	0.00	2570.00	0.00	4073.00	-9.60	151.00
2600.00	-1.40	2600.00	-1.40	4124.00	-9.80	151.00
2630.00	0.00	2630.00	0.00	4175.00	-10.00	151.00
2660.00	-1.40	2660.00	-1.40	4226.00	-10.20	151.00
2690.00	0.00	2690.00	0.00	4277.00	-10.40	151.00
2720.00	-1.40	2720.00	-1.40	4328.00	-10.60	151.00
2750.00	0.00	2750.00	0.00	4379.00	-10.80	151.00
2780.00	-1.40	2780.00	-1.40	4430.00	-11.00	151.00
2810.00	0.00	2810.00	0.00	4481.00	-11.20	151.00
2840.00	-1.40	2840.00	-1.40	4532.00	-11.40	151.00
2870.00	0.00	2870.00	0.00	4583.00	-11.60	151.00
2900.00	-1.40	2900.00	-1.40	4634.00	-11.80	151.00
2930.00	0.00	2930.00	0.00	4685.00	-12.00	151.00
2960.00	-1.40	2960.00	-1.40	4736.00	-12.20	151.00
2990.00	0.00	2990.00	0.00	4787.00	-12.40	151.00
3020.00	-1.40	3020.00	-1.40	4838.00	-12.60	151.00
3050.00	0.00	3050.00	0.00	4889.00	-12.80	151.00
3080.00	-1.40	3080.00	-1.40	4940.00	-13.00	151.00
3110.00	0.00	3110.00	0.00	4991.00	-13.20	151.00
3140.00	-1.40	3140.00	-1.40	5042.00	-13.40	151.00
3170.00	0.00	3170.00	0.00	5093.00	-13.60	151.00
3200.00	-1.40	3200.00	-1.40	5144.00	-13.80	151.00
3230.00	0.00	3230.00	0.00	5195.00	-14.00	151.00
3260.00	-1.40	3260.00	-1.40	5246.00	-14.20	151.00
3290.00	0.00	3290.00	0.00	5297.00	-14.40	151.00
3320.00	-1.40	3320.00	-1.40	5348.00	-14.60	151.00
3350.00	0.00	3350.00	0.00	5399.00	-14.80	151.00
3380.00	-1.40	3380.00	-1.40	5450.00	-1	

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASURED FROM IS FT

PROFILE 3

DATE SVY	DATE SVY	DATE SVY	DATE SVY	DATE SVY	DATE SVY	DATE SVY	DATE SVY	DATE SVY	DATE SVY
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
126+00	13+10	101+00	13+20	0+00	13+70	-25+00	15+70	100+00	13+00
152+00	11+10	152+00	11+20	101+00	13+70	0+00	13+70	151+00	11+80
176+00	11+00	179+00	12+20	126+00	11+50	101+00	13+00	177+00	13+80
201+00	10+20	192+00	10+80	151+00	12+40	127+00	11+40	186+00	10+80
227+00	10+20	252+00	8+80	177+00	10+10	151+00	12+80	201+00	9+80
247+00	8+00	282+00	7+50	192+00	7+50	171+00	11+00	251+00	8+30
277+00	5+00	318+00	5+00	218+00	5+00	195+00	11+80	281+00	7+40
307+00	5+40	358+00	4+20	247+00	4+20	211+00	8+20	307+00	6+20
337+00	5+40	378+00	4+90	278+00	5+20	202+00	10+10	343+00	7+60
403+00	-2+20	429+00	0+00	353+00	0+00	252+00	8+60	403+00	6+50
		479+00	-1+70	378+00	0+00	302+00	8+20	484+00	3+50
		458+00	-2+50	392+00	-1+00	312+00	9+20	479+00	2+60
						328+00	6+90	504+00	1+60
						353+00	5+90	555+00	1+10
						444+00	-9+90	579+00	-2+10
							605+00	605+00	-2+70

PROFILE 5

DATE SVY	DATE SVY	DATE SVY	DATE SVY	DATE SVY	DATE SVY	DATE SVY	DATE SVY	DATE SVY	DATE SVY
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
100+00	12+90	100+00	13+90	100+00	14+60	100+00	15+40	100+00	15+70
126+00	12+40	150+00	12+30	151+00	12+50	114+00	11+40	127+00	10+00
174+00	14+00	173+00	14+10	176+00	15+50	136+00	12+10	184+00	12+60
200+00	12+90	201+00	13+30	216+00	10+60	150+00	12+90	185+00	12+60
220+00	4+20	221+00	4+90	251+00	8+30	164+00	14+90	194+00	18+60
252+00	8+30	276+00	7+20	276+00	7+60	175+00	17+30	176+00	17+20
302+00	7+50	301+00	7+20	301+00	7+20	180+00	16+20	182+00	16+90
352+00	8+00	371+00	6+00	371+00	6+00	220+00	18+20	217+00	16+20
432+00	8+00	432+00	8+00	432+00	8+00	220+00	18+20	217+00	16+20
453+00	8+00	402+00	6+80	402+00	7+80	250+00	8+90	211+00	10+80
453+00	5+20	427+00	7+00	425+00	6+40	301+00	8+10	249+00	8+30
502+00	1+10	477+00	5+00	451+00	5+40	352+00	8+60	289+00	7+60
528+00	-4+00	502+00	-4+50	502+00	7+50	389+00	8+70	349+00	8+20
552+00	-2+50	522+00	-2+50	522+00	7+60	422+00	8+20	409+00	5+10
603+00	-3+40	582+00	-3+30	477+00	3+30	452+00	5+70	500+00	1+90
		588+00	-1+40	502+00	1+50	502+00	1+50	550+00	-1+10
				553+00	2+20	527+00	2+60	575+00	-2+00
				578+00	-8+60				
				602+00	-2+00				

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 3

DATE 691023	DATE 691113	DATE 691218	DATE 690115	DATE 690213	DATE 690309	DATE 690524	DATE 690924
SRVY 60	SRVY 61	SRVY 42	SRVY 63	SRVY 64	SRVY 65	SRVY 66	SRVY 67
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
100.00	100.00	16.30	100.00	100.00	153.10	100.00	100.00
120.00	125.00	11.70	125.00	130.00	177.00	118.00	178.00
140.00	150.00	11.10	150.00	150.00	204.00	148.00	184.00
160.00	165.00	10.50	165.00	170.00	231.00	170.00	211.00
180.00	175.00	9.90	175.00	190.00	258.00	185.00	238.00
200.00	185.00	9.30	185.00	210.00	285.00	190.00	265.00
220.00	195.00	8.70	195.00	230.00	312.00	200.00	292.00
240.00	205.00	8.10	205.00	250.00	339.00	210.00	319.00
260.00	215.00	7.50	215.00	270.00	366.00	220.00	346.00
280.00	225.00	6.90	225.00	290.00	393.00	230.00	373.00
300.00	235.00	6.30	235.00	310.00	420.00	240.00	400.00
320.00	245.00	5.70	245.00	330.00	447.00	250.00	427.00
340.00	255.00	5.10	255.00	350.00	474.00	260.00	454.00
360.00	265.00	4.50	265.00	370.00	501.00	270.00	481.00
380.00	275.00	3.90	275.00	390.00	528.00	280.00	508.00
400.00	285.00	3.30	285.00	410.00	555.00	290.00	535.00
420.00	295.00	2.70	295.00	430.00	582.00	300.00	562.00
440.00	305.00	2.10	305.00	450.00	609.00	310.00	589.00
460.00	315.00	1.50	315.00	470.00	636.00	320.00	616.00
480.00	325.00	0.90	325.00	490.00	663.00	330.00	643.00
500.00	335.00	0.30	335.00	510.00	690.00	340.00	670.00
520.00	345.00	-0.30	345.00	530.00	717.00	350.00	697.00
540.00	355.00	-0.90	355.00	550.00	744.00	360.00	724.00
560.00	365.00	-1.50	365.00	570.00	771.00	370.00	751.00
580.00	375.00	-2.10	375.00	590.00	798.00	380.00	778.00
600.00	385.00	-2.70	385.00	610.00	825.00	390.00	805.00
620.00	395.00	-3.30	395.00	630.00	852.00	400.00	832.00
640.00	405.00	-3.90	405.00	650.00	879.00	410.00	859.00
660.00	415.00	-4.50	415.00	670.00	906.00	420.00	886.00
680.00	425.00	-5.10	425.00	690.00	933.00	430.00	913.00
700.00	435.00	-5.70	435.00	710.00	960.00	440.00	940.00
720.00	445.00	-6.30	445.00	730.00	987.00	450.00	967.00
740.00	455.00	-6.90	455.00	750.00	1014.00	460.00	994.00
760.00	465.00	-7.50	465.00	770.00	1041.00	470.00	1021.00
780.00	475.00	-8.10	475.00	790.00	1068.00	480.00	1048.00
800.00	485.00	-8.70	485.00	810.00	1095.00	490.00	1075.00
820.00	495.00	-9.30	495.00	830.00	1122.00	500.00	1102.00
840.00	505.00	-9.90	505.00	850.00	1149.00	510.00	1129.00
860.00	515.00	-10.50	515.00	870.00	1176.00	520.00	1156.00
880.00	525.00	-11.10	525.00	890.00	1203.00	530.00	1183.00
900.00	535.00	-11.70	535.00	910.00	1230.00	540.00	1210.00
920.00	545.00	-12.30	545.00	930.00	1257.00	550.00	1237.00
940.00	555.00	-12.90	555.00	950.00	1284.00	560.00	1264.00
960.00	565.00	-13.50	565.00	970.00	1311.00	570.00	1291.00
980.00	575.00	-14.10	575.00	990.00	1338.00	580.00	1318.00
1000.00	585.00	-14.70	585.00	1010.00	1365.00	590.00	1345.00

PROFILE 3

DATE 691026	DATE 691114	DATE 691214	DATE 700120	DATE 700216	DATE 700319	DATE 700521	DATE 700924
SRVY 68	SRVY 69	SRVY 70	SRVY 71	SRVY 72	SRVY 73	SRVY 74	SRVY 75
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
100.00	100.00	16.10	100.00	100.00	184.50	100.00	100.00
110.00	120.00	13.80	120.00	130.00	210.00	118.00	133.00
120.00	130.00	13.40	130.00	150.00	235.00	135.00	158.00
130.00	140.00	13.00	140.00	160.00	260.00	150.00	183.00
140.00	150.00	12.60	150.00	170.00	285.00	165.00	208.00
150.00	160.00	12.20	160.00	180.00	310.00	180.00	233.00
160.00	170.00	11.80	170.00	190.00	335.00	195.00	258.00
170.00	180.00	11.40	180.00	200.00	360.00	210.00	283.00
180.00	190.00	11.00	190.00	210.00	385.00	225.00	308.00
190.00	200.00	10.60	200.00	220.00	410.00	240.00	333.00
200.00	210.00	10.20	210.00	230.00	435.00	255.00	358.00
210.00	220.00	9.80	220.00	240.00	460.00	270.00	383.00
220.00	230.00	9.40	230.00	250.00	485.00	285.00	408.00
230.00	240.00	9.00	240.00	260.00	510.00	300.00	433.00
240.00	250.00	8.60	250.00	270.00	535.00	315.00	458.00
250.00	260.00	8.20	260.00	280.00	560.00	330.00	483.00
260.00	270.00	7.80	270.00	290.00	585.00	345.00	508.00
270.00	280.00	7.40	280.00	300.00	610.00	360.00	533.00
280.00	290.00	7.00	290.00	310.00	635.00	375.00	558.00
290.00	300.00	6.60	300.00	320.00	660.00	390.00	583.00
300.00	310.00	6.20	310.00	330.00	685.00	405.00	608.00
310.00	320.00	5.80	320.00	340.00	710.00	420.00	633.00
320.00	330.00	5.40	330.00	350.00	735.00	435.00	658.00
330.00	340.00	5.00	340.00	360.00	760.00	450.00	683.00
340.00	350.00	4.60	350.00	370.00	785.00	465.00	708.00
350.00	360.00	4.20	360.00	380.00	810.00	480.00	733.00
360.00	370.00	3.80	370.00	390.00	835.00	495.00	758.00
370.00	380.00	3.40	380.00	400.00	860.00	510.00	783.00
380.00	390.00	3.00	390.00	410.00	885.00	525.00	808.00
390.00	400.00	2.60	400.00	420.00	910.00	540.00	833.00
400.00	410.00	2.20	410.00	430.00	935.00	555.00	858.00
410.00	420.00	1.80	420.00	440.00	960.00	570.00	883.00
420.00	430.00	1.40	430.00	450.00	985.00	585.00	908.00
430.00	440.00	1.00	440.00	460.00	1010.00	600.00	933.00
440.00	450.00	0.60	450.00	470.00	1035.00	615.00	958.00
450.00	460.00	0.20	460.00	480.00	1060.00	630.00	983.00
460.00	470.00	-0.20	470.00	490.00	1085.00	645.00	1008.00
470.00	480.00	-0.80	480.00	500.00	1110.00	660.00	1033.00
480.00	490.00	-1.40	490.00	510.00	1135.00	675.00	1058.00
490.00	500.00	-2.00	500.00	520.00	1160.00	690.00	1083.00
500.00	510.00	-2.60	510.00	530.00	1185.00	705.00	1108.00
510.00	520.00	-3.20	520.00	540.00	1210.00	720.00	1133.00
520.00	530.00	-3.80	530.00	550.00	1235.00	735.00	1158.00
530.00	540.00	-4.40	540.00	560.00	1260.00	750.00	1183.00
540.00	550.00	-5.00	550.00	570.00	1285.00	765.00	1208.00
550.00	560.00	-5.60	560.00	580.00	1310.00	780.00	1233.00
560.00	570.00	-6.20	570.00	590.00	1335.00	795.00	1258.00
570.00	580.00	-6.80	580.00	600.00	1360.00	810.00	1283.00
580.00	590.00	-7.40	590.00	610.00	1385.00	825.00	1308.00
590.00	600.00	-8.00	600.00	620.00	1410.00	840.00	1333.00
600.00	610.00	-8.60	610.00	630.00	1435.00	855.00	1358.00
610.00	620.00	-9.20	620.00	640.00	1460.00	870.00	1383.00
620.00	630.00	-9.80	630.00	650.00	1485.00	885.00	1408.00
630.00	640.00	-10.40	640.00	660.00	1510.00	900.00	1433.00
640.00	650.00	-11.00	650.00	670.00	1535.00	915.00	1458.00
650.00	660.00	-11.60	660.00	680.00	1560.00	930.00	1483.00
660.00	670.00	-12.20	670.00	690.00	1585.00	945.00	1508.00
670.00	680.00	-12.80	680.00	700.00	1610.00	960.00	1533.00
680.00	690.00	-13.40	690.00	710.00	1635.00	975.00	1558.00
690.00	700.00	-14.00	700.00	720.00	1660.00	990.00	1583.00
700.00	710.00	-14.60	710.00	730.00	1685.00	1005.00	1608.00
710.00	720.00	-15.20	720.00	740.00	1710.00	1020.00	1633.00
720.00	730.00	-15.80	730.00	750.00	1735.00	1035.00	1658.00
730.00	740.00	-16.40	740.00	760.00	1760.00	1050.00	1683.00
740.00	750.00	-17.00	750.00	770.00	1785.00	1065.00	1708.00
750.00	760.00	-17.60	760.00	780.00	1810.00	1080.00	1733.00
760.00	770.00	-18.20	7				

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 3

DATE 701012	DATE 701207	DATE 701218	DATE 710112	DATE 710204	DATE 710304	DATE 710304	DATE 710304	DATE 710316	DATE 720316	DATE 720311	
SVY 76	SVY 77	SVY 78	SVY 79	SVY 1200	SVY 1200	SVY 1200	SVY 1200	SVY 1200	SVY 91	SVY 92	
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	
100.00	14.90	100.00	14.10	90.00	13.00	80.00	11.60	100.00	15.60	100.00	14.20
122.00	14.20	119.00	15.50	100.00	15.70	100.00	15.70	130.00	13.60	101.00	14.20
150.00	14.40	125.00	16.70	125.00	15.00	121.00	12.40	160.00	15.40	174.00	16.50
177.00	16.40	150.00	13.60	150.00	14.80	163.00	14.40	180.00	16.40	200.00	14.40
200.00	11.90	147.00	16.40	175.00	16.30	180.00	15.60	205.00	16.40	235.00	14.30
220.00	11.90	175.00	15.90	187.00	15.10	192.00	14.40	225.00	16.40	250.00	7.10
237.00	8.30	180.00	14.40	201.00	13.60	200.00	14.30	250.00	7.60	300.00	8.40
250.00	7.20	213.00	11.40	225.00	9.30	218.00	15.90	300.00	5.80	350.00	8.40
260.00	6.20	205.00	9.40	250.00	6.50	210.00	16.10	350.00	1.80	360.00	8.40
300.00	5.40	275.00	6.30	275.00	4.50	250.00	7.10	400.00	-2.20	400.00	5.50
350.00	3.90	303.00	4.40	300.00	5.70	300.00	5.40	425.00	-5.20	450.00	8.40
400.00	-3.60	325.00	4.40	325.00	5.10	325.00	5.40	450.00	4.25.00	500.00	-1.60
		375.00	3.70	375.00	4.80	375.00	5.70				
		400.00	1.70	400.00	4.00	400.00	2.10				
		425.00	-2.60	425.00	-1.00	425.00	2.10				
		475.00	-2.10	475.00	-2.40	475.00	2.40				
		475.00	-3.00	475.00	-2.70	475.00	-2.10				

PROFILE 3

DATE 710117	DATE 711007	DATE 711214	DATE 720112	DATE 720215	DATE 720223	DATE 720316	DATE 720316	DATE 720311	
SVY 85	SVY 86	SVY 87	SVY 88	SVY 89	SVY 90	SVY 91	SVY 92	SVY 92	
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	
0.00	14.70	100.00	14.70	100.00	14.20	100.00	14.20	100.00	14.20
100.00	14.40	150.00	14.10	148.00	15.10	150.00	14.80	160.00	15.20
150.00	15.10	175.00	15.60	177.00	15.80	180.00	15.70	180.00	16.10
175.00	14.20	200.00	13.70	200.00	13.40	200.00	13.80	180.00	14.00
201.00	12.90	217.00	10.40	210.00	10.20	210.00	9.20	210.00	13.40
218.00	7.40	250.00	7.90	234.00	9.10	234.00	8.60	210.00	15.20
275.00	7.40	300.00	8.40	300.00	8.00	300.00	7.40	217.00	9.20
300.00	7.10	322.00	8.00	341.00	6.30	350.00	5.90	240.00	4.50
350.00	5.40	350.00	5.60	371.00	7.60	350.00	3.60	300.00	7.20
400.00	2.40	400.00	0.00	400.00	2.90	400.00	2.60	350.00	5.80
450.00	-1.10	450.00	-2.70	450.00	2.00	450.00	2.10	400.00	5.40
500.00	-2.40	500.00	-2.10	500.00	1.60	500.00	1.40	400.00	5.40
550.00	-2.60	475.00	-4.10	500.00	-1.60	550.00	1.70	500.00	5.40
		575.00	-2.10	575.00	-2.10	575.00	1.70	500.00	5.40
								550.00	1.70
								600.00	1.70
								650.00	-2.60
								650.00	-2.40

LONG BEACH ISLAND No. 1,
DATUM IS MSL MEASUREMENT IS FT

PROFILE 3

DATE 720423	DATE 721017	DATE 721205	DATE 730103	DATE 730213	DATE 730314	DATE 730324	DATE 730407
SVY 01	SVY 04	SVY 00	SVY 00	SVY 07	SVY 08	SVY 09	SVY 100
TIME 1100	TIME 900	TIME 000	TIME 1000	TIME 000	TIME 1100	TIME 1100	TIME 1100
100.00	14.20	100.00	15.30	100.00	15.20	100.00	100.00
150.00	15.00	150.00	15.60	100.00	15.50	100.00	104.60
177.00	16.10	170.00	16.10	200.00	16.30	133.00	156.30
203.00	16.60	200.00	15.50	211.00	16.30	154.00	150.00
231.00	9.10	210.00	10.60	237.00	9.60	170.00	175.00
250.00	8.00	210.00	8.40	250.00	8.20	200.00	200.00
300.00	7.30	250.00	5.40	300.00	5.00	210.00	211.00
350.00	7.30	300.00	7.20	300.00	6.50	200.00	227.00
400.00	3.80	330.00	5.00	350.00	2.40	220.00	200.00
475.00	-1.20	350.00	3.40	400.00	2.80	250.00	200.00
500.00	-2.90	370.00	2.20	425.00	0.90	300.00	150.00
		425.00	-2.10	450.00	0.90	400.00	000.00
							025.00
							-1.60

PROFILE 3

DATE 730417	DATE 730612
SVY 101	SVY 103
TIME 1000	TIME 900
0.00	100.00
100.00	100.00
129.00	120.00
170.00	170.00
200.00	200.00
211.00	213.00
211.00	213.00
201.00	200.00
250.00	250.00
273.00	270.00
325.00	325.00
350.00	350.00
475.00	475.00
500.00	500.00

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE a

DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY
620926	1200	1	621024	1200	2	621025	1200	5	621029	1200	6	621104	1200	7
52.00	13.60	145.00	12.70	145.00	12.70	145.00	12.70	145.00	12.70	132.00	8.10	121.00	9.50	8.10
58.00	11.30	152.00	11.80	155.00	9.20	155.00	9.20	173.00	6.70	195.00	7.10	132.00	8.10	132.00
70.00	13.80	158.00	6.80	170.00	8.80	170.00	7.80	177.00	6.70	155.00	6.80	159.00	7.60	78.00
77.00	13.80	165.00	5.80	177.00	4.90	198.00	6.20	198.00	5.40	177.00	4.50	167.00	6.20	78.00
80.00	13.80	198.00	3.00	198.00	2.80	220.00	3.50	198.00	4.20	177.00	3.80	177.00	6.70	96.00
92.00	14.90	218.00	1.70	225.00	1.30	220.00	3.50	220.00	4.20	198.00	1.80	197.00	6.60	106.00
115.00	14.00	248.00	0.80	235.00	0.90	265.00	1.20	235.00	0.40	225.00	1.80	225.00	5.30	118.00
145.00	12.70									245.00	0.10	244.00	0.10	128.00
185.00	3.50													150.00
198.00	2.00													201.00
205.00	0.70													251.00
265.00	-1.00													-2.00
285.00	-1.50													
300.00	-2.10													

PROFILE a

DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY	DATE	TIME	SRVY
630121	1200	11	630128	1200	11	630212	1200	13	630220	1200	14	630224	1200	15
122.00	10.40	121.00	11.80	150.00	4.20	129.00	9.50	129.00	9.40	151.00	7.50	136.00	8.80	119.00
106.00	7.90	128.00	9.20	176.00	5.70	175.00	5.00	175.00	6.30	178.00	7.50	189.00	7.50	139.00
150.00	7.70	151.00	6.00	200.00	2.00	200.00	1.70	200.00	2.70	218.00	6.90	185.00	7.20	150.00
194.00	2.10	174.00	4.00	225.00	-1.00	226.00	-0.80	226.00	2.70	252.00	-2.70	179.00	5.20	102.00
270.00	-1.50	203.00	3.20	251.00	-4.00	251.00	-4.00	270.00	-1.50	276.00	-2.60	194.00	4.10	176.00
		229.00	0.50	276.00	-2.70	276.00	-2.70			226.00	0.80	226.00	0.80	200.00
		274.00	-3.00							250.00	-1.30	250.00	-1.30	225.00
														251.00

LONG BEACH ISLAND No. J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE #

DATE 630310	DATE 630326	DATE 631010	DATE 631025	DATE 631115	DATE 631227	DATE 640115
SVY 1R	SVY 1Q	SVY 30	SVY 31	SVY 32	SVY 33	SVY 43
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
119.00	176.00	165.00	161.00	100.00	9.00	52.00
127.00	191.00	167.00	166.00	116.00	12.50	75.00
151.00	222.00	175.00	172.00	128.00	15.00	100.00
200.00	252.00	191.00	182.00	172.00	18.50	123.00
226.00	277.00	201.00	196.00	202.00	21.00	150.00
251.00	320.00	227.00	218.00	227.00	24.00	175.00
270.00	350.00	246.00	235.00	250.00	26.00	200.00
		276.00	276.00	276.00	28.00	225.00
			279.00		30.00	250.00
					33.00	275.00
					35.00	300.00
					37.00	325.00

PROFILE #

DATE 640112	DATE 640225	DATE 640323	DATE 640424	DATE 640520	DATE 640624	DATE 641201
SVY 35	SVY 38	SVY 39	SVY 40	SVY 41	SVY 42	SVY 42
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
131.00	52.00	52.00	11.90	65.00	11.50	85.00
202.00	78.00	75.00	12.50	97.00	14.50	97.00
227.00	100.00	86.00	16.10	115.00	16.50	115.00
251.00	100.00	100.00	18.90	135.00	18.50	135.00
274.00	123.00	117.00	21.00	150.00	20.00	150.00
301.00	150.00	139.00	23.00	175.00	23.00	175.00
	150.00	150.00	25.00	200.00	25.00	200.00
	175.00	175.00	28.00	225.00	28.00	225.00
	200.00	200.00	30.00	250.00	30.00	250.00
	225.00	225.00	32.00	275.00	32.00	275.00
	250.00	250.00	34.00	300.00	34.00	300.00
	275.00	275.00	36.00	325.00	36.00	325.00
	300.00	300.00	38.00	350.00	38.00	350.00
	325.00	325.00	40.00	375.00	40.00	375.00

LONG BLACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT

PROFILE 4

DATE 650110	SRVY 43	TIME 1200	DATE 650127	SRVY 44	TIME 1200	DATE 650907	SRVY 45	TIME 1200	DATE 651027	SRVY 46	TIME 1200	DATE 651222	SRVY 47	TIME 1200	DATE 660125	SRVY 48	TIME 1200	DATE 660321	SRVY 49	TIME 1200	DATE 660922	SRVY 50	TIME 1200	
130.00	10.90		105.00	18.60		130.00	10.80		72.00	18.80		50.00	11.50		105.00	11.50		17.70	115.00		115.00	11.50		11.50
150.00	5.80		131.00	14.80		136.00	9.30		165.00	11.20		125.00	12.80		125.00	15.40		38.50	156.00		156.00	17.40		17.40
200.00	0.70		175.00	8.00		236.00	7.80		156.00	8.10		133.00	11.20		91.00	17.60		17.80	170.00		170.00	11.10		11.10
250.00	5.00		200.00	7.70		250.00	4.90		200.00	7.40		150.00	9.20		100.00	18.10		15.30	190.00		190.00	14.20		14.20
275.00	1.10		225.00	7.20		275.00	2.70		255.00	6.30		250.00	4.60		120.00	13.60		8.50	220.00		220.00	6.50		6.50
300.00	0.50		250.00	4.60		300.00	0.90		275.00	4.80		275.00	2.20		134.00	11.00		4.50	240.00		240.00	5.40		5.40
325.00	-1.00		325.00	3.40		325.00	-1.10		300.00	2.60		300.00	-1.10		200.00	6.80		2.90	275.00		275.00	5.90		5.90
			300.00	-8.80		300.00	3.00		300.00	-2.50		325.00	-2.10		225.00	5.80		2.90	290.00		290.00	5.80		5.80
			325.00	-1.20		325.00	-1.10		325.00	-2.50		350.00	-2.10		250.00	3.60		3.90	320.00		320.00	4.80		4.80
															275.00	1.60		1.80	300.00		300.00	1.60		1.60
															300.00	0.00		0.00	300.00		300.00	0.00		0.00

PROFILE 4

DATE 670116	SRVY 51	TIME 1200	DATE 670505	SRVY 52	TIME 1200	DATE 670920	SRVY 53	TIME 1200	DATE 671218	SRVY 54	TIME 1200	DATE 680117	SRVY 55	TIME 1200	DATE 680227	SRVY 56	TIME 1200	DATE 680327	SRVY 57	TIME 1200	DATE 680927	SRVY 58	TIME 1200	
115.00	20.30		100.00	20.10		100.00	20.00		100.00	20.00		110.00	20.10		110.00	20.10		20.50	115.00		115.00	20.50		20.50
125.00	18.30		102.00	18.90		110.00	21.00		100.00	20.10		140.00	19.30		130.00	19.40		19.20	130.00		130.00	19.40		19.40
142.00	13.90		109.00	13.60		170.00	17.70		150.00	21.70		172.00	16.10		150.00	19.10		18.20	150.00		150.00	19.10		19.10
190.00	13.90		100.00	5.80		150.00	15.60		150.00	17.80		175.00	8.30		180.00	18.60		18.50	180.00		180.00	18.50		18.50
210.00	10.90		223.00	6.30		222.00	7.20		178.00	15.70		202.00	6.70		200.00	16.50		16.50	200.00		200.00	16.50		16.50
217.00	8.90		248.00	4.30		274.00	5.30		180.00	16.20		190.00	1.90		240.00	17.00		17.00	240.00		240.00	17.00		17.00
240.00	7.80		248.00	4.30		296.00	2.80		228.00	16.00		270.00	1.90		250.00	17.00		17.00	250.00		250.00	17.00		17.00
270.00	6.90		407.00	-1.60		378.00	-1.10		268.00	15.10		320.00	-1.00		270.00	17.00		17.00	300.00		300.00	17.00		17.00
323.00	0.00		407.00	-2.30		374.00	-1.10		273.00	13.60		305.00	-2.00		300.00	17.00		17.00	320.00		320.00	17.00		17.00
									300.00	1.20		300.00	-1.50		320.00	2.80		2.80	400.00		400.00	2.80		2.80
									373.00	-2.10		373.00	-2.10		400.00	1.00		1.00	400.00		400.00	1.00		1.00

LONG REACH ISLAND S.S.J.
 DATUM IS NSL MEASUREMENT IS FT

PROFILE a

DATE SVY TIME	441024 42 1200	DATE SVY TIME	441214 42 1200	DATE SVY TIME	441111 41 1200	DATE SVY TIME	441115 43 1200	DATE SVY TIME	440213 64 1200	DATE SVY TIME	440300 65 1200	DATE SVY TIME	440528 66 1200	DATE SVY TIME	441020 68 1200
110.00	19.90	110.00	19.90	110.00	20.00	110.00	19.90	110.00	19.90	110.00	20.00	110.00	20.00	110.00	19.90
135.00	19.70	135.00	20.00	135.00	19.450	133.00	19.80	135.00	20.20	135.00	20.20	135.00	20.20	135.00	20.20
160.00	17.30	155.00	17.80	155.00	17.80	153.00	17.80	156.00	7.50	156.00	7.50	156.00	7.70	156.00	7.50
192.00	4.50	160.00	9.30	167.00	9.00	166.00	9.10	171.00	6.10	200.00	7.10	200.00	7.10	182.00	7.20
225.00	4.10	200.00	6.00	200.00	6.80	200.00	6.80	200.00	6.10	210.00	7.20	210.00	7.20	210.00	7.40
250.00	4.20	250.00	3.20	250.00	6.00	250.00	6.40	250.00	6.80	250.00	6.80	250.00	6.20	210.00	7.40
260.00	4.30	300.00	1.10	267.00	6.80	250.00	6.00	220.00	6.30	300.00	6.150	250.00	6.20	210.00	7.40
275.00	4.50			275.00	6.90	275.00	6.40	275.00	6.60			300.00	6.20	210.00	7.40
320.00	4.20			320.00	7.00	320.00	7.10	320.00	7.20			300.00	6.20	210.00	7.40
350.00	2.30			350.00	7.50	350.00	7.70	300.00	7.20			350.00	6.20	210.00	7.40
375.00	1.10			375.00	8.00	350.00	8.10	350.00	8.10			350.00	6.20	210.00	7.40
400.00	0.00			400.00	8.30			375.00	8.80			350.00	6.20	210.00	7.40
425.00	-1.00							400.00	9.50			350.00	6.20	210.00	7.40
								425.00	10.50						

PROFILE u

DATE SVY TIME	441114 49 1200	DATE SVY TIME	441214 76 1200	DATE SVY TIME	441216 72 1200	DATE SVY TIME	441219 73 1200	DATE SVY TIME	441221 74 1200	DATE SVY TIME	441224 75 1200	DATE SVY TIME	441226 76 1200
110.00	20.00	110.00	20.00	110.00	20.00	110.00	20.00	110.00	19.80	110.00	19.80	110.00	19.80
130.00	20.30	130.00	20.00	135.00	20.40	135.00	20.40	135.00	20.80	135.00	20.80	135.00	20.80
139.00	19.50	137.00	17.30	150.00	10.40	145.00	10.50	150.00	7.20	150.00	7.20	150.00	7.20
150.00	10.10	156.00	9.80	150.00	9.10	223.00	5.90	214.00	7.20	175.00	8.20	175.00	8.20
151.00	8.80	175.00	4.50	180.00	8.80	200.00	7.60	250.00	4.30	200.00	7.20	210.00	7.20
175.00	4.00	210.00	7.00	200.00	5.50	225.00	6.40	250.00	6.10	250.00	6.10	250.00	6.10
200.00	4.80	225.00	5.80	235.00	6.10	250.00	6.40	250.00	6.10	250.00	6.10	250.00	6.10
225.00	5.00	250.00	5.20	250.00	6.00	267.00	6.10	250.00	6.10	250.00	6.10	250.00	6.10
250.00	4.00	267.00	2.80	300.00	6.90			300.00	6.20	300.00	6.20	300.00	6.20
275.00	1.00	275.00	2.20	275.00	7.20	275.00	7.20	275.00	7.20	275.00	7.20	275.00	7.20
320.00	1.00	320.00	1.60	320.00	1.50	320.00	1.50	320.00	1.50	320.00	1.50	320.00	1.50
350.00	2.00	300.00	2.20	411.00	2.50			400.00	2.50	400.00	2.50	400.00	2.50
375.00	1.30	450.00	-2.70					450.00	-1.50	450.00	-1.50	450.00	-1.50
400.00	0.50	495.00	-3.00					475.00	-2.20	475.00	-2.20	475.00	-2.20
450.00	-2.20							495.00	-3.80	495.00	-3.80	495.00	-3.80

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE a

DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME
110.00	19.80	110.00	19.90	110.00	19.90	110.00	20.00	110.00	20.00	110.00	19.90	110.00
132.00	20.30	134.00	20.90	125.00	20.00	130.00	20.20	139.00	20.40	134.00	20.30	135.00
152.00	11.30	176.00	11.30	130.00	20.20	130.00	20.20	146.00	19.30	150.00	19.30	155.00
157.00	12.10	181.00	11.80	150.00	11.60	150.00	12.70	156.00	11.70	178.00	8.00	182.00
189.00	4.00	200.00	4.60	155.00	12.60	175.00	8.40	205.00	9.10	200.00	8.70	192.00
200.00	7.20	250.00	4.00	175.00	8.40	175.00	8.40	235.00	5.00	230.00	8.40	200.00
225.00	5.80	300.00	1.30	200.00	6.70	200.00	7.10	260.00	2.00	250.00	5.30	238.00
250.00	4.30	350.00	-1.30	230.00	5.20	250.00	3.30	269.00	5.60	265.00	-1.00	240.00
280.00	1.50	400.00	-2.70	280.00	5.20	300.00	2.00	275.00	4.20	300.00	-2.00	250.00
300.00	-1.70	450.00	-3.30	300.00	-0.30	320.00	1.60	300.00	1.60	300.00	-1.30	280.00
375.00	-1.70	500.00	-3.30	400.00	-1.60	360.00	-1.60	315.00	-1.60	315.00	-1.60	280.00

PROFILE u

DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME
110.00	19.90	110.00	19.90	110.00	19.90	110.00	20.00	110.00	20.00	110.00	19.90	110.00
133.00	20.30	135.00	20.30	135.00	20.30	135.00	20.30	139.00	20.40	133.00	20.30	135.00
155.00	12.40	181.00	11.80	150.00	11.80	150.00	12.70	156.00	11.80	178.00	8.00	182.00
172.00	9.10	200.00	8.60	180.00	8.60	180.00	8.60	205.00	9.10	200.00	8.70	192.00
200.00	9.00	225.00	5.50	200.00	7.00	200.00	7.70	235.00	5.50	230.00	8.40	200.00
225.00	8.60	250.00	4.70	250.00	3.50	250.00	2.00	260.00	7.70	260.00	2.00	250.00
250.00	6.10	300.00	3.60	300.00	2.40	300.00	1.60	300.00	1.60	300.00	1.60	280.00
300.00	-1.00	350.00	-1.30	350.00	-2.40	350.00	-2.40	375.00	-2.40	375.00	-2.40	350.00
350.00	-2.00	400.00	-2.30	400.00	-2.40	400.00	-2.40	425.00	-2.40	425.00	-2.40	400.00

LONG BEACH ISLAND N.S.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 4

DATE SRVY TIME	721017 90 00	DATE SRVY TIME	721205 90 00	DATE SRVY TIME	740103 90 00	DATE SRVY TIME	760213 90 00	DATE SRVY TIME	770313 90 00	DATE SRVY TIME	770320 90 00	DATE SRVY TIME	780402 100 1200	DATE SRVY TIME	780402 100 1200
110.00	19.90	110.00	19.90	110.00	19.90	110.00	20.00	110.00	20.20	110.00	20.10	110.00	19.90	110.00	19.90
130.00	20.00	130.00	20.60	130.00	20.20	132.00	20.70	132.00	20.60	135.00	20.50	132.00	20.50	132.00	20.50
139.00	17.60	151.00	13.70	149.00	14.60	158.00	17.70	161.00	16.50	169.00	14.90	138.00	17.70	147.00	15.30
160.00	14.70	171.00	10.70	166.00	11.00	169.00	14.60	162.00	11.30	160.00	7.00	148.00	15.20	157.00	9.20
156.00	13.30	193.00	9.20	188.00	7.00	163.00	11.00	166.00	9.70	160.00	3.00	150.00	7.80	200.00	5.10
163.00	11.30	200.00	8.00	200.00	6.80	165.00	10.00	200.00	4.30	250.00	0.00	178.00	5.80	285.00	1.90
200.00	8.50	225.00	5.50	225.00	5.70	178.00	8.00	250.00	-2.60	267.00	-1.50	200.00	4.80	250.00	-1.10
280.00	5.20	250.00	2.20	250.00	2.00	162.00	6.10	200.00	4.30	250.00	4.90	250.00	4.90	250.00	4.90
300.00	4.20	275.00	-2.70	275.00	-1.80	200.00	-1.90	300.00	-1.90	300.00	-1.90	300.00	-1.90	300.00	-1.90
325.00	-2.20														

PROFILE 4

DATE SRVY TIME	730612 103 00
110.00	20.00
120.00	20.70
133.00	20.10
147.00	18.10
156.00	7.00
200.00	6.80
275.00	0.50
300.00	1.10
325.00	-1.60

LONG BEACH ISLAND No. J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE d

DATE 630319	DATE 630326	DATE 630404	DATE 631010	DATE 631025	DATE 631115	DATE 631227	DATE 640115
SRVY 1A	SRVY 1Q	SRVY 20	SRVY 30	SRVY 31	SRVY 32	SRVY 33	SRVY 34
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
119.00	174.00	165.00	6.70	10.50	101.00	9.30	100.00
127.00	191.00	167.00	6.40	50.50	116.00	10.00	114.00
151.00	7.40	175.00	6.30	70.00	139.00	9.30	126.00
206.00	5.90	191.00	6.40	101.00	9.30	126.00	5.50
226.00	4.20	201.00	6.40	127.00	10.10	172.00	1.40
251.00	4.20	227.00	6.40	171.00	9.80	227.00	4.90
270.00	4.20	276.00	6.40	205.00	9.90	276.00	1.60
				226.00	1.40	262.00	4.40
				270.00	1.60		
						276.00	1.90
						310.00	1.70
						326.00	1.30

PROFILE u

DATE 640212	DATE 640310	DATE 640407	DATE 640525	DATE 640623	DATE 640629	DATE 640629	DATE 641201
SRVY 35	SRVY 36	SRVY 37	SRVY 38	SRVY 39	SRVY 40	SRVY 41	SRVY 42
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
131.00	52.00	52.00	12.50	52.00	12.00	25.00	85.00
202.00	74.00	75.00	16.20	75.00	16.20	50.00	97.00
227.00	1.60	100.00	19.20	86.00	17.10	75.00	115.00
254.00	1.10	123.00	13.70	100.00	18.80	100.00	145.00
279.00	4.20	150.00	9.40	117.00	14.20	132.00	150.00
303.00	2.00	150.00	8.70	139.00	9.00	150.00	175.00
	150.00	175.00	7.40	175.00	8.60	175.00	200.00
	200.00	200.00	6.90	200.00	8.00	200.00	200.00
	200.00	250.00	4.50	200.00	5.80	225.00	250.00
	250.00	250.00	1.70	250.00	4.50	250.00	275.00
	300.00	275.00	1.60	300.00	2.50	300.00	300.00
	300.00	300.00	1.10	300.00	2.50	300.00	300.00
	325.00	325.00	1.60	325.00	2.60	325.00	325.00

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 5

DATE 620926	DATE 621011	DATE 621023	DATE 621029	DATE 621104	DATE 621210	DATE 621115
SRVY 1	SRVY 4	SRVY 5	SRVY 6	SRVY 7	SRVY A	SRVY 9
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
333.00	398.00	385.00	385.00	389.00	380.00	317.00
351.00	426.00	417.00	417.00	410.00	382.00	352.00
363.00	459.00	440.00	440.00	440.00	383.00	361.00
368.00	487.00	473.00	473.00	463.00	414.00	382.00
385.00	486.00	500.00	507.00	529.00	481.00	442.00
389.00	503.00	528.00	528.00	539.00	502.00	462.00
408.00	518.00	563.00	569.00	612.00	579.00	467.00
422.00	539.00	724.00	724.00	609.00	579.00	509.00
498.00	570.00			609.00	609.00	517.00
518.00	533.00					569.00
538.00						
560.00						
580.00						

PROFILE 5

DATE 630121	DATE 630128	DATE 630212	DATE 630226	DATE 630316	DATE 630331	DATE 630419
SRVY 0	SRVY 11	SRVY 1200	SRVY 1200	SRVY 1200	SRVY 17	SRVY 18
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
507.00	318.00	418.00	418.00	468.00	493.00	444.00
517.00	348.00	442.00	442.00	503.00	517.00	467.00
568.00	358.00	494.00	468.00	518.00	521.00	504.00
	382.00	530.00	568.00	543.00	544.00	568.00
	417.00	10.90	543.00	568.00	568.00	592.00
	517.00	4.10	569.00	592.00	593.00	592.00
	568.00	-1.80	594.00	618.00		
	618.00	-2.80				

LONG REACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 5

DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	
489.00	7.50	418.00	610.00	11.00	318.00	18.30	492.00	7.00	402.00	7.00	417.00	11.00	493.00	9.00	532.00	4.80		
490.00	7.50	408.00	610.00	8.60	308.00	16.00	523.00	7.50	519.00	7.00	402.00	9.00	460.00	7.50	543.00	4.80		
521.00	6.70	493.00	6.90	367.00	16.50	6.10	323.00	6.10	323.00	6.00	467.00	7.60	493.00	7.30	614.00	1.20	-72.00	
524.00	6.70	520.00	6.70	362.00	16.70	370.00	2.80	5.00	576.00	3.00	576.00	7.50	544.00	6.00				
525.00	2.40	523.00	3.30	417.00	7.00	478.00	2.00	218.00	0.00	511.00	8.10	503.00	6.20					
526.00	2.40	522.00	2.50	492.00	6.20	604.00	-2.10	602.00	-2.10	563.00	2.40	563.00	3.00					
527.00	2.40	521.00	2.20	492.00	6.80	518.00	6.80			568.00	2.40	568.00	1.50					
528.00	-2.20	520.00	1.90	502.00	6.90	502.00	5.30			619.00	2.40	619.00	1.00					
				566.00	2.70	566.00	2.70			632.00	1.00	632.00	1.00					
				618.00	-1.10	618.00	-1.10			633.00	-1.70	633.00	-1.70					
				604.00	-2.40	604.00	-2.40											

PROFILE 5

DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME
401.00	4.70	492.00	7.20	373.00	16.50	418.00	10.70	403.00	8.60	418.00	10.90	318.00	18.00	18.00	18.00	7.40	
407.00	7.30	519.00	8.50	418.00	10.90	468.00	6.50	469.00	6.90	404.00	9.00	502.00	18.00	18.00	65.00	7.40	
408.00	7.30	520.00	6.30	418.00	9.50	493.00	7.60	493.00	7.90	409.00	8.30	378.00	18.00	117.00	117.00	7.40	
423.00	4.20	500.00	4.40	449.00	7.80	512.00	8.10	519.00	7.00	405.00	7.00	418.00	11.00	113.00	113.00	5.50	
533.00	4.30	568.00	2.60	480.00	6.40	519.00	5.90	505.00	2.40	520.00	4.50	493.00	9.00	166.00	166.00	5.50	
542.00	5.90	599.00	1.50	519.00	7.30	570.00	-2.70	571.00	6.80	500.00	4.80	493.00	7.50	191.00	191.00	6.90	
567.00	2.80	620.00	0.10	500.00	6.00	585.00	-2.50			569.00	-1.00	520.00	3.70	217.00	217.00	7.70	
619.00	-8.00			570.00	1.20					598.00	2.40	261.00	3.00	261.00	11.10		
										599.00	1.00	267.00	2.00	267.00	12.10		
										620.00	-1.00	318.00	18.00	18.00	18.00	16.30	
										695.00	-2.60	695.00	-2.60	363.00	16.50		
														318.00	10.40		
														409.00	5.30		
														600.00	4.90		
														520.00	3.60		
														545.00	1.20		
														587.00	-1.60		
														621.00	-2.60		

LONG BEACH ISLAND N.J.
 DATUM IS - MSL MEASUREMENT IS FT

PROFILE 5

DATE SVY TIME	640212 35 1200	DATE SVY TIME	640310 36 1200	DATE SVY TIME	640407 37 1200	DATE SVY TIME	640525 3A 1200	DATE SVY TIME	640623 39 1200	DATE SVY TIME	640729 40 1200	DATE SVY TIME	640824 41 1200	DATE SVY TIME	641201 42 1200
409.00	31.10	3602.00	16.50	303.00	16.60	3184.00	18.40	317.00	18.00	318.00	18.00	362.00	17.20	359.00	18.50
408.00	8.20	371.00	17.90	372.00	16.30	3483.00	16.50	396.00	18.20	378.00	17.50	469.00	14.00	392.00	17.00
408.00	7.40	470.00	16.70	386.00	17.00	3831.00	17.70	414.00	18.00	408.00	17.50	489.00	14.00	392.00	17.00
408.00	4.80	482.00	16.50	405.00	16.20	3931.00	15.70	424.00	18.00	403.00	17.00	479.00	11.10	414.00	12.00
408.00	5.80	486.00	18.50	405.00	16.20	3931.00	15.70	424.00	18.00	403.00	17.00	479.00	11.10	414.00	12.00
520.00	1.70	082.00	6.60	463.00	9.10	4063.00	12.00	469.00	9.50	480.00	8.50	460.00	10.50	460.00	10.10
570.00	1.80	520.00	2.90	497.00	6.90	4002.00	5.10	495.00	7.40	519.00	7.10	405.00	8.60	390.00	9.50
509.00	-1.10	505.00	1.10	520.00	8.00	4099.00	8.80	514.00	8.00	500.00	7.50	518.00	6.70	519.00	6.00
		571.00	-1.10	505.00	8.70	4904.00	7.90	533.00	5.40	561.00	7.50	552.00	3.10	526.00	3.90
		502.00	-1.20	500.00	-1.60	519.00	3.80	595.00	-3.10	620.00	-2.60	587.00	-1.00	569.00	-2.00

PROFILE 5

DATE SVY TIME	650119 33 1200	DATE SVY TIME	650227 34 1200	DATE SVY TIME	650907 35 1200	DATE SVY TIME	651027 36 1200	DATE SVY TIME	651222 37 1200	DATE SVY TIME	640124 38 1200	DATE SVY TIME	640621 39 1200	DATE SVY TIME	640923 40 1200
409.00	12.10	360.00	16.50	360.00	16.50	380.00	16.40	377.00	17.90	317.00	18.50	407.00	12.50	340.00	20.00
419.00	11.00	483.00	17.00	388.00	17.80	3833.00	18.30	395.00	17.00	350.00	18.00	402.00	9.70	402.00	12.00
408.00	10.50	417.00	12.50	410.00	12.30	419.00	12.50	413.00	12.10	371.00	19.00	467.00	7.00	463.00	8.00
458.00	9.50	405.00	9.80	404.00	9.70	409.00	11.40	465.00	8.70	392.00	17.00	493.00	7.60	463.00	8.00
405.00	9.50	496.00	7.60	468.00	8.00	468.00	8.00	524.00	8.00	411.00	12.50	518.00	7.80	506.00	8.00
419.00	4.80	520.00	6.10	490.00	6.10	519.00	8.50	557.00	6.00	418.00	11.90	543.00	4.50	517.00	3.50
550.00	5.10	585.00	-3.40	537.00	7.80	539.00	8.50	569.00	5.00	468.00	8.00	502.00	4.50	503.00	8.20
595.00	1.70	595.00	1.70	570.00	2.80	620.00	-1.50	595.00	1.60	519.00	5.60	619.00	-1.50	619.00	-2.50
606.00	-1.00	606.00	-2.20	595.00	8.00	635.00	-1.60	606.00	-1.70	568.00	2.00	669.00	-3.40	669.00	-2.50
671.00	-2.00	616.00	-2.10	616.00	-2.10	616.00	-2.10	616.00	-2.10	616.00	0.00	616.00	-3.70	616.00	-3.70

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 5

DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY
670105	19:30	51	670205	19:20	54	670218	19:10	56	670227	18:50	57	670237	18:40	58
364.00	18.20	394.00	365.00	17.90	362.00	372.00	19.10	318.00	378.00	18.60	367.00	384.00	17.90	381.00
384.00	18.20	394.00	365.00	17.90	362.00	372.00	19.10	318.00	378.00	18.60	367.00	384.00	17.90	381.00
399.00	15.00	411.00	412.00	405.00	415.00	415.00	9.00	364.00	391.00	18.50	384.00	384.00	19.20	383.00
422.00	11.50	418.00	11.80	405.00	10.10	409.00	10.10	381.00	381.00	17.10	391.00	391.00	19.20	383.00
440.00	9.00	468.00	9.90	518.00	7.90	518.00	7.70	358.00	365.00	13.50	411.00	411.00	15.30	393.00
493.00	4.50	519.00	4.50	503.00	7.90	602.00	4.00	417.00	422.00	10.50	464.00	464.00	9.00	418.00
519.00	7.00	569.00	5.80	569.00	5.90	669.00	-2.70	518.00	492.00	6.90	468.00	468.00	9.10	418.00
554.00	2.00	618.00	2.80	593.00	2.90			518.00	6.80	493.00	8.90	568.00	6.50	468.00
570.00	6.00	618.00	-8.50	619.00	-4.00			518.00	6.80	493.00	8.90	568.00	6.50	468.00
594.00	2.30	600.00	-2.40	603.00	-1.60			518.00	3.90	517.00	6.80	616.00	1.80	543.00
619.00	1.10	654.00	-3.00	657.00	-2.90			606.00	-1.10	567.00	4.70	667.00	-2.90	568.00
634.00	-1.10							617.00	-1.30	593.00	1.40			568.00
								632.00	-2.30	618.00	-1.30			593.00
														618.00
														634.00
														662.00
														700.00
														725.00

PROFILE 5

DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY
681023	18:40	60	681113	18:00	61	681218	18:50	62	690304	18:00	64	690324	18:50	67
318.00	18.20	318.00	318.00	18.00	318.00	318.00	18.50	318.00	318.00	18.00	318.00	318.00	18.50	318.00
353.00	18.30	378.00	378.00	19.00	378.00	378.00	18.50	350.00	350.00	18.30	385.00	385.00	18.40	385.00
363.00	19:20	395.00	395.00	15.40	395.00	398.00	18.40	382.00	382.00	18.40	378.00	378.00	18.40	378.00
385.00	19:40	418.00	418.00	13.00	418.00	418.00	13.20	398.00	398.00	18.10	429.00	429.00	11.30	432.00
393.00	16:40	468.00	468.00	8:20	468.00	468.00	13.10	403.00	403.00	13.20	450.00	450.00	11:50	450.00
418.00	12:70	518.00	518.00	5:50	468.00	468.00	8:20	403.00	403.00	10.70	472.00	472.00	9:90	472.00
443.00	10:40	568.00	568.00	3:00	518.00	518.00	6:00	468.00	468.00	10:90	505.00	505.00	9:60	505.00
468.00	-4:40	618.00	618.00	2:10	554.00	554.00	6:00	493.00	493.00	9:10	525.00	525.00	9:10	525.00
		668.00	668.00	1:10	568.00	568.00	6:40	518.00	518.00	8:60	540.00	540.00	8:60	540.00
		693.00	693.00	-1:40	593.00	593.00	2:80	543.00	543.00	6:20	550.00	550.00	4:00	550.00
					618.00	618.00	2:10	618.00	618.00	3:30	600.00	600.00	-9:00	600.00
					643.00	643.00	-1:50	643.00	643.00	4:40	625.00	625.00	-1:50	625.00
					668.00	668.00	-1:20	668.00	668.00	3:20	650.00	650.00	-2:60	650.00
					693.00	693.00	-1:80	693.00	693.00	2:10	700.00	700.00	-1:80	700.00
					718.00	718.00	-1:50	718.00	718.00	1:40	725.00	725.00	-1:80	725.00
					743.00	743.00	1:40	743.00	743.00	1:40				
					768.00	768.00	2:70	768.00	768.00	1:40				
					793.00	793.00	-2:70	793.00	793.00	-2:70				

LONG BEACH ISLAND No. 2
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 5

DATE 691118	DATE 691218	DATE 700120	DATE 700216	DATE 700310	DATE 700521	DATE 700628	DATE 710112	DATE 710208	DATE 710308	DATE 710508	DATE 710629	DATE 710712
SVY 69	SVY 70	SVY 71	SVY 72	SVY 73	SVY 74	SVY 75	SVY 79	SVY 80	SVY 81	SVY 82	SVY 83	SVY 85
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
350.00	17.00	350.00	16.70	350.00	17.20	300.00	300.00	300.00	15.50	350.00	17.50	500.00
341.00	18.00	375.00	18.80	380.00	17.50	400.00	16.00	350.00	16.70	368.00	18.00	382.00
374.00	18.00	395.00	15.70	400.00	15.20	450.00	11.10	400.00	17.70	379.00	18.00	400.00
400.00	15.00	431.00	12.10	430.00	12.40	500.00	8.00	441.00	11.40	400.00	18.00	420.00
431.00	11.00	450.00	11.00	450.00	11.00	510.00	8.10	483.00	8.50	455.00	12.10	450.00
450.00	11.10	484.00	5.80	500.00	7.50	550.00	3.80	500.00	7.40	500.00	10.80	500.00
475.00	9.10	475.00	9.20	530.00	4.80	600.00	0.00	550.00	2.70	500.00	10.80	500.00
500.00	7.10	500.00	4.80	600.00	4.20	600.00	-1.30	670.00	-1.50	525.00	9.20	500.00
525.00	6.30	525.00	3.80	600.00	3.20	600.00	-1.30	700.00	-1.20	550.00	11.00	600.00
550.00	5.50	550.00	1.00	600.00	1.70	700.00	-2.70	600.00	-2.60	550.00	11.00	650.00
575.00	3.70	600.00	1.20	600.00	1.20	600.00	-2.30	650.00	-2.30	575.00	11.00	700.00
600.00	3.30	600.00	1.20	600.00	1.20	600.00	-2.30	650.00	-2.30	575.00	11.00	725.00
613.00	-2.70	600.00	-2.50	600.00	-2.50	600.00	0.00	600.00	0.00	600.00	0.00	725.00
625.00	-1.50	700.00	-2.30	700.00	-2.30	700.00	-2.70	625.00	-2.70	625.00	-2.70	725.00
650.00	-1.00	755.00	-2.60	755.00	-2.60	755.00	-2.60	675.00	-2.60	675.00	-2.60	700.00
680.00	-1.80	800.00	-2.00	800.00	-2.00	800.00	-2.00	700.00	-2.00	700.00	-2.00	700.00
693.00	-2.70	800.00	-2.70	800.00	-2.70	800.00	-2.70	700.00	-2.70	700.00	-2.70	700.00
700.00	-1.80	800.00	-1.80	800.00	-1.80	800.00	-1.80	700.00	-1.80	700.00	-1.80	700.00
725.00	-1.20	800.00	-1.20	800.00	-1.20	800.00	-1.20	700.00	-1.20	700.00	-1.20	700.00
750.00	-2.80	800.00	-2.80	800.00	-2.80	800.00	-2.80	700.00	-2.80	700.00	-2.80	700.00
770.00	-3.00	800.00	-3.00	800.00	-3.00	800.00	-3.00	700.00	-3.00	700.00	-3.00	700.00

PROFILE 5

DATE 701207	DATE 701218	DATE 710112	DATE 710208	DATE 710308	DATE 710508	DATE 710629	DATE 710712
SVY 77	SVY 78	SVY 79	SVY 80	SVY 81	SVY 82	SVY 83	SVY 85
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
350.00	18.00	357.00	350.00	343.00	305.00	315.00	315.00
372.00	18.00	375.00	305.00	305.00	19.10	335.00	335.00
380.00	18.00	375.00	375.00	383.00	19.10	350.00	350.00
400.00	16.00	425.00	400.00	400.00	18.00	380.00	380.00
425.00	13.00	450.00	425.00	425.00	17.20	400.00	400.00
450.00	10.00	480.00	450.00	450.00	16.00	400.00	400.00
480.00	10.00	475.00	480.00	480.00	10.50	415.00	415.00
500.00	9.00	510.00	510.00	510.00	9.20	420.00	420.00
525.00	6.00	521.00	485.00	500.00	8.00	450.00	450.00
550.00	4.00	552.00	480.00	539.00	6.90	470.00	470.00
575.00	2.20	575.00	550.00	550.00	6.20	500.00	500.00
600.00	2.20	600.00	600.00	600.00	3.00	525.00	525.00
625.00	1.0	650.00	600.00	600.00	0.00	550.00	550.00
650.00	-1.0	650.00	600.00	600.00	-1.00	550.00	550.00
675.00	-3.0	650.00	615.00	619.00	-1.70	600.00	600.00
700.00	-1.00	650.00	615.00	619.00	-1.00	600.00	600.00

LONG REACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 5

DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME
711007 SVVY 86	711210 SVVY 87	720112 SVVY 88	720215 SVVY 89	720223 SVVY 90	720313 SVVY 91	730324 SVVY 92	730324 SVVY 93	730324 SVVY 94	730324 SVVY 95	730324 SVVY 96	730324 SVVY 97	730324 SVVY 98	730324 SVVY 99
335.00 16.80	335.00 17.30	338.00 16.80	338.00 16.80	339.00 16.90	337.00 16.70	338.00 16.90	338.00 16.90	338.00 16.90	337.00 16.70	337.00 16.70	337.00 16.70	337.00 16.70	337.00 16.70
350.00 18.00	355.00 19.50	351.00 18.40	357.00 19.40	350.00 19.00	360.00 19.50	350.00 18.50	350.00 18.50	350.00 18.50	360.00 19.50	360.00 19.50	360.00 19.50	360.00 19.50	360.00 19.50
378.00 19.00	400.00 17.10	389.00 17.70	400.00 17.20	384.00 17.90	400.00 18.10	363.00 19.20	363.00 19.20	363.00 19.20	400.00 17.70	400.00 17.70	400.00 17.70	400.00 17.70	400.00 17.70
400.00 16.70	450.00 11.20	460.00 16.80	469.00 9.20	400.00 16.80	443.00 13.50	495.00 17.20	495.00 17.20	495.00 17.20	450.00 16.70	450.00 16.70	450.00 16.70	450.00 16.70	450.00 16.70
450.00 10.80	476.00 10.50	450.00 11.80	500.00 7.00	433.00 13.60	450.00 9.60	429.00 13.50	429.00 13.50	429.00 13.50	400.00 10.80	400.00 10.80	400.00 10.80	400.00 10.80	400.00 10.80
486.00 10.50	500.00 8.60	500.00 9.00	550.00 2.60	442.00 10.10	500.00 7.80	493.00 10.20	493.00 10.20	493.00 10.20	450.00 10.50	450.00 10.50	450.00 10.50	450.00 10.50	450.00 10.50
500.00 9.00	550.00 4.70	507.00 8.30	600.00 -1.90	450.00 8.80	518.00 8.00	450.00 10.10	450.00 10.10	450.00 10.10	500.00 9.00	500.00 9.00	500.00 9.00	500.00 9.00	500.00 9.00
525.00 8.00	600.00 -8.80	550.00 4.90	550.00 4.90	500.00 5.20	550.00 4.10	460.00 8.50	460.00 8.50	460.00 8.50	500.00 8.00	500.00 8.00	500.00 8.00	500.00 8.00	500.00 8.00
550.00 2.30	605.00 -2.90	600.00 4.00	600.00 4.00	600.00 4.40	600.00 -1.00	500.00 6.80	500.00 6.80	500.00 6.80	600.00 2.30	600.00 2.30	600.00 2.30	600.00 2.30	600.00 2.30
600.00 -8.50	628.00 -1.10	628.00 -1.10	628.00 -1.10	600.00 -1.60	628.00 -1.60	500.00 8.10	500.00 8.10	500.00 8.10	500.00 -8.50	500.00 -8.50	500.00 -8.50	500.00 -8.50	500.00 -8.50
650.00 -1.50	650.00 -3.10	650.00 -3.10	650.00 -3.10	650.00 -2.60	650.00 -2.60	600.00 8.20	600.00 8.20	600.00 8.20	650.00 -1.50	650.00 -1.50	650.00 -1.50	650.00 -1.50	650.00 -1.50

PROFILE 5

DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME
721017 SVVY 94	721205 SVVY 95	730103 SVVY 96	730213 SVVY 97	730313 SVVY 98	730313 SVVY 99	730324 SVVY 100	730324 SVVY 101	730324 SVVY 102	730324 SVVY 103	730324 SVVY 104	730324 SVVY 105	730324 SVVY 106	730324 SVVY 107
335.00 16.80	335.00 16.40	335.00 15.50	350.00 19.00	350.00 18.90	350.00 18.90	350.00 18.90	350.00 18.90	350.00 18.90	350.00 18.90	350.00 18.90	350.00 18.90	350.00 18.90	350.00 18.90
350.00 17.80	350.00 18.50	350.00 18.00	357.00 19.50	360.00 17.70	360.00 17.70	360.00 17.70	360.00 17.70	360.00 17.70	350.00 17.80	350.00 17.80	350.00 17.80	350.00 17.80	350.00 17.80
392.00 17.80	380.00 19.50	380.00 18.10	387.00 17.50	400.00 17.00	400.00 17.00	400.00 17.00	400.00 17.00	400.00 17.00	380.00 17.80	380.00 17.80	380.00 17.80	380.00 17.80	380.00 17.80
400.00 16.40	400.00 17.20	400.00 15.20	409.00 16.50	418.00 12.60	418.00 12.60	418.00 12.60	418.00 12.60	418.00 12.60	400.00 16.40	400.00 16.40	400.00 16.40	400.00 16.40	400.00 16.40
432.00 13.00	452.00 11.20	442.00 11.80	456.00 11.50	450.00 11.20	450.00 11.20	450.00 11.20	450.00 11.20	450.00 11.20	432.00 13.00	432.00 13.00	432.00 13.00	432.00 13.00	432.00 13.00
480.00 11.00	480.00 10.30	466.00 10.00	500.00 6.20	487.00 10.10	500.00 6.20	488.00 15.00	488.00 15.00	488.00 15.00	480.00 11.00	480.00 11.00	480.00 11.00	480.00 11.00	480.00 11.00
500.00 7.30	525.00 4.50	468.00 8.90	500.00 6.50	487.00 8.10	500.00 6.50	488.00 12.00	488.00 12.00	488.00 12.00	500.00 7.30	500.00 7.30	500.00 7.30	500.00 7.30	500.00 7.30
518.00 5.90	550.00 1.20	500.00 7.60	570.00 -2.00	550.00 1.30	570.00 -2.00	500.00 8.70	500.00 8.70	500.00 8.70	518.00 5.90	518.00 5.90	518.00 5.90	518.00 5.90	518.00 5.90
525.00 2.80	575.00 -4.60	525.00 5.10	575.00 -4.60	575.00 -4.60	575.00 -4.60	525.00 5.10	525.00 5.10	525.00 5.10	525.00 2.80	525.00 2.80	525.00 2.80	525.00 2.80	525.00 2.80
575.00 -1.10	575.00 -2.10	575.00 -2.10	575.00 -2.10	575.00 -2.10	575.00 -2.10	575.00 -2.10	575.00 -2.10	575.00 -2.10	575.00 -1.10	575.00 -1.10	575.00 -1.10	575.00 -1.10	575.00 -1.10
600.00 -8.50	600.00 -1.70	600.00 -1.70	600.00 -1.70	600.00 -1.70	600.00 -1.70	600.00 -1.70	600.00 -1.70	600.00 -1.70	600.00 -8.50	600.00 -8.50	600.00 -8.50	600.00 -8.50	600.00 -8.50

LONG REACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 5

DATE 720612
SVY 103
TIME 1000

380.00 14.60
380.00 14.60
280.00 19.10
280.00 11.70
500.00 9.70
503.00 8.00
522.00 7.70
525.00 7.30
550.00 3.30
575.00 -6.10
592.00 -1.00

PROFILE A

DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME							
620926	1	1200	620926	2	1200	621011	4	1200	621023	5	1200	621029	6	1200	621108	7	1200	621210	A	1200	621210	9	1200	
209.00	5.60		376.00	14.00		378.00	14.50		375.00	14.50		466.00	12.60		415.00	14.00		380.00	13.30		415.00	13.30	6.00	4.40
226.00	6.90		397.00	14.30		413.00	14.00		407.00	14.00		462.00	9.10		415.00	12.50		415.00	13.50		415.00	13.50	100.00	6.00
326.00	10.20		415.00	14.60		468.00	13.00		468.00	13.00		508.00	8.50		473.00	9.00		435.00	12.20		435.00	12.20	200.00	5.40
397.00	12.90		437.00	13.30		480.00	8.00		480.00	8.00		525.00	6.30		505.00	6.20		465.00	12.80		465.00	12.80	275.00	4.80
358.00	12.60		461.00	12.70		500.00	7.90		486.00	8.90		525.00	5.50		538.00	6.80		472.00	10.00		472.00	10.00	300.00	11.20
370.00	14.60		463.00	13.50		518.00	6.80		526.00	6.20		568.00	5.20		552.00	24.30		505.00	6.80		505.00	6.80	300.00	11.20
398.00	19.00		473.00	10.10		541.00	3.80		591.00	1.70		603.00	2.00		623.00	-23.20		603.00	1.90		603.00	1.90	410.00	13.40
415.00	12.60		485.00	8.10		546.00	4.70		590.00	-6.40		633.00	-1.00		631.00	-2.20		631.00	-2.20		631.00	-2.20	400.00	12.00
440.00	12.60		485.00	9.20		596.00	4.20		626.00	2.00		643.00	-4.10		643.00	-4.10		643.00	-4.10		643.00	-4.10	453.00	12.00
470.00	10.00		511.00	2.00		626.00	-1.00		643.00	-4.10		643.00	-4.10		643.00	-4.10		643.00	-4.10		643.00	-4.10	447.00	11.50
495.00	6.80		555.00	2.00		643.00	-1.00		643.00	-1.00		643.00	-1.00		643.00	-1.00		643.00	-1.00		643.00	-1.00	500.00	9.00
520.00	3.60		576.00	-1.00		643.00	-1.00		643.00	-1.00		643.00	-1.00		643.00	-1.00		643.00	-1.00		643.00	-1.00	515.00	9.00
543.00	4.00		643.00	-1.00		643.00	-1.00		643.00	-1.00		643.00	-1.00		643.00	-1.00		643.00	-1.00		643.00	-1.00	572.00	4.40
565.00	-1.70		643.00	-1.00		643.00	-1.00		643.00	-1.00		643.00	-1.00		643.00	-1.00		643.00	-1.00		643.00	-1.00	601.00	1.30
																							651.00	-2.40

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 6

DATE 610121	DATE 610122	DATE 610204	DATE 610212	DATE 610220	DATE 610224	DATE 610104	DATE 610111
SRVY 10	SRVY 11	SRVY 12	SRVY 13	SRVY 14	SRVY 15	SRVY 16	SRVY 17
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
551.00 7.10	421.00 12.90	500.00 8.50	400.00 13.00	471.00 9.70	409.00 14.10	551.00 7.00	459.00 12.20
574.00 4.70	454.00 12.20	524.00 8.50	410.00 12.30	501.00 8.70	422.00 12.40	575.00 6.20	470.00 9.40
600.00 1.60	460.00 9.40	551.00 7.20	422.00 12.70	551.00 7.40	458.00 12.50	600.00 4.20	501.00 6.20
651.00 -1.70	500.00 8.50	576.00 5.30	458.00 9.50	583.00 4.90	470.00 9.50	624.00 3.00	525.00 7.50
	525.00 8.50	601.00 1.90	471.00 9.50	628.00 2.00	501.00 8.20	651.00 1.40	551.00 7.10
	542.00 8.30	625.00 -0.20	501.00 8.50	702.00 -1.10	504.00 7.50	674.00 0.00	577.00 4.00
	552.00 6.80	676.00 -0.50	525.00 8.00		577.00 5.84	701.00 -1.20	604.00 5.50
	601.00 2.40		562.00 8.00		598.00 4.10		651.00 3.40
	625.00 -0.50		577.00 5.80		613.00 4.50		674.00 -1.50
	646.00 -0.70		602.00 2.60		650.00 1.50		
			627.00 -0.40		677.00 -0.40		
			651.00 -0.90		702.00 -0.90		

PROFILE 6

DATE 610319	DATE 610328	DATE 610404	DATE 610528	DATE 610613	DATE 610625	DATE 610711	DATE 610723
SRVY 1A	SRVY 19	SRVY 20	SRVY 21	SRVY 22	SRVY 23	SRVY 24	SRVY 25
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
542.00 7.10	410.00 12.60	400.00 13.60	0.00 0.00	450.00 10.70	450.00 10.80	550.00 7.60	375.00 14.50
577.00 5.90	450.00 11.80	410.00 14.20	10.00 0.00	501.00 7.80	473.00 6.90	575.00 4.50	401.00 14.10
601.00 2.40	471.00 8.90	420.00 12.00	100.00 5.90	525.00 7.80	501.00 7.80	600.00 4.70	425.00 13.40
625.00 -0.40	501.00 9.10	490.00 12.40	150.00 6.00	575.00 7.20	525.00 7.30	625.00 1.20	451.00 10.50
677.00 -1.60	562.00 7.80	470.00 16.00	200.00 5.00	601.00 5.00	551.00 7.60	651.00 -0.20	472.00 8.80
	572.00 6.40	525.00 7.90	324.00 6.90	651.00 2.00	645.00 7.50	677.00 -1.40	501.00 7.80
	583.00 6.50	550.00 7.60	335.00 7.00	671.00 2.00	624.00 1.20		550.00 6.00
	601.00 4.00	575.00 7.00	305.00 13.80	671.00 0.00	635.00 -0.20		625.00 8.40
	625.00 0.00	578.00 5.40	351.00 15.90	702.00 -1.10	651.00 -0.70		646.00 2.40
	677.00 -2.10	600.00 3.00	354.00 15.10				674.00 -1.70
		625.00 -0.20	376.00 14.40				
		650.00 -0.50	401.00 13.00				
		675.00 -1.70	410.00 14.30				
			425.00 12.50				
			475.00 9.20				
			501.00 7.90				
			525.00 7.30				
			552.00 7.50				
			576.00 7.40				
			601.00 5.60				
			624.00 2.80				
			651.00 -1.00				
			702.00 -1.00				

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 6

DATE 610000	DATE 610020	DATE 610040	DATE 610060	DATE 610080	DATE 610100	DATE 610120	DATE 610140	DATE 610160	DATE 610180	DATE 610200	DATE 610220	DATE 610240	DATE 610260	DATE 610280	DATE 610300
SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20	SRVY 20
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
550.00	12.30	339.00	10.20	353.00	16.80	338.00	14.40	352.00	10.80	352.00	10.80	352.00	10.80	352.00	10.80
576.00	10.90	352.00	17.40	378.00	13.40	353.00	18.20	378.00	12.70	378.00	12.70	378.00	12.70	378.00	12.70
621.00	9.20	377.00	13.70	403.00	13.00	378.00	14.00	400.00	13.20	400.00	13.20	400.00	13.20	400.00	13.20
652.00	-1.90	400.00	7.90	403.00	13.70	431.00	11.60	429.00	10.00	429.00	10.00	429.00	10.00	429.00	10.00
		400.00	13.30	528.00	10.30	478.00	7.50	429.00	9.40	455.00	9.40	455.00	9.40	455.00	9.40
		411.00	10.10	528.00	8.00	480.00	8.70	458.00	10.50	481.00	8.20	481.00	8.20	481.00	8.20
		428.00	12.20	575.00	5.90	509.00	7.00	509.00	7.00	505.00	7.80	505.00	7.80	505.00	7.80
		476.00	9.90	602.00	3.00	532.00	4.40	530.00	7.70	530.00	5.20	530.00	5.20	530.00	5.20
		521.00	7.80	627.00	7.40	585.00	4.00	585.00	8.20	585.00	5.20	585.00	5.20	585.00	5.20
		552.00	4.30	605.00	7.10	603.00	-1.00	603.00	2.50	603.00	2.50	603.00	2.50	603.00	2.50
		577.00	4.30	605.00	1.90	606.00	2.50	606.00	2.50	606.00	2.50	606.00	2.50	606.00	2.50
		602.00	8.20	602.00	8.20	631.00	-1.00	631.00	-1.00	631.00	-1.00	631.00	-1.00	631.00	-1.00
		652.00	1.30	652.00	1.30	652.00	1.30	652.00	1.30	652.00	1.30	652.00	1.30	652.00	1.30
		678.00	-2.20	678.00	-2.20	678.00	-2.20	678.00	-2.20	678.00	-2.20	678.00	-2.20	678.00	-2.20
		702.00	-1.00	702.00	-1.00	702.00	-1.00	702.00	-1.00	702.00	-1.00	702.00	-1.00	702.00	-1.00

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 6

DATE 640115	DATE 640119	DATE 640121	DATE 640122	DATE 640123	DATE 640124	DATE 640125	DATE 640126
SVY 34	SVY 35	SVY 36	SVY 37	SVY 38	SVY 39	SVY 40	SVY 41
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
-204.00	183.00	290.00	7.50	310.00	350.00	16.20	355.00
-178.00	401.00	309.00	16.10	398.00	385.00	17.20	392.00
-152.00	573.00	377.00	30.70	376.00	483.00	13.40	428.00
-125.00	42.80	396.00	30.60	421.00	450.00	9.30	458.00
-83.00	41.30	396.00	5.80	421.00	450.00	9.30	458.00
-27.00	41.30	396.00	3.80	421.00	450.00	9.30	458.00
-43.00	41.30	396.00	11.60	424.00	477.00	8.60	477.00
48.00	603.00	477.00	7.70	477.00	502.00	9.20	502.00
109.00	650.00	527.00	7.80	502.00	528.00	9.30	528.00
159.00	610.00	583.00	5.40	528.00	553.00	4.80	553.00
290.00	610.00	603.00	2.40	553.00	603.00	-2.60	595.00
300.00	610.00	639.00	6.90	573.00	603.00	-2.60	595.00
366.00	610.00	655.00	2.00	604.00	603.00	-2.60	595.00
383.00	610.00	680.00	1.50	604.00	603.00	-2.60	595.00
402.00	610.00	680.00	-1.50	604.00	603.00	-2.60	595.00
428.00	610.00	680.00	-3.10	603.00	603.00	-2.60	595.00
452.00	610.00	680.00	-3.10	603.00	603.00	-2.60	595.00
523.00	610.00	680.00	-3.10	603.00	603.00	-2.60	595.00
553.00	610.00	680.00	-3.10	603.00	603.00	-2.60	595.00
576.00	610.00	680.00	-3.10	603.00	603.00	-2.60	595.00
655.00	610.00	680.00	-3.10	603.00	603.00	-2.60	595.00
705.00	610.00	680.00	-3.10	603.00	603.00	-2.60	595.00

PROFILE 6

DATE 641201	DATE 650119	DATE 650427	DATE 650907	DATE 651027	DATE 651222	DATE 660125	DATE 660321
SVY 42	SVY 43	SVY 44	SVY 45	SVY 46	SVY 47	SVY 48	SVY 49
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
325.00	452.00	381.00	15.00	379.00	401.00	16.20	410.00
302.00	481.00	409.00	42.70	403.00	411.00	16.20	410.00
384.00	527.00	428.00	9.50	423.00	423.00	12.30	376.00
403.00	552.00	451.00	8.40	451.00	451.00	9.10	409.00
428.00	510.00	440.00	582.00	7.70	501.00	8.20	436.00
452.00	603.00	470.00	615.00	7.80	551.00	8.30	451.00
479.00	603.00	470.00	628.00	5.80	594.00	8.10	502.00
504.00	603.00	470.00	658.00	2.00	612.00	5.10	551.00
529.00	603.00	470.00	674.00	-8.60	626.00	2.80	601.00
554.00	703.00	653.00	1.70	699.00	652.00	1.70	652.00
603.00	3.30	678.00	-1.00	703.00	677.00	-1.50	677.00
631.00	1.30	703.00	-1.70	703.00	703.00	-9.00	720.00
		729.00	-2.00	729.00	755.00	-1.30	755.00
		740.00	-3.70	740.00	803.00	-2.70	803.00

LONG BEACH ISLAND N-J
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 6

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME
680000	4	16.20	670505	52	16.50	670920	50	16.00	671218	55	15.50	680117	56	16.10	680227	57	15.50	680327	58	15.00	680427	59	15.50	680527	60	15.00
007.00		12.46	008.00		16.80	005.00		16.70	010.00	16.20	006.00	16.60	007.00	16.60	384.00	15.50	403.00	365.00	403.00	365.00	403.00	365.00	403.00	365.00	403.00	365.00
501.00		9.60	400.00		10.70	400.00		11.10	431.00	19.80	450.00	17.00	405.00	17.00	405.00	17.00	405.00	17.00	405.00	17.00	405.00	17.00	405.00	17.00	405.00	17.00
511.00		7.90	076.00		9.70	053.00		10.60	065.00	11.30	500.00	9.20	450.00	9.20	450.00	9.20	450.00	9.20	450.00	9.20	450.00	9.20	450.00	9.20	450.00	9.20
551.00		8.70	526.00		8.00	500.00		9.60	501.00	9.70	531.00	7.10	500.00	7.10	500.00	7.10	500.00	7.10	500.00	7.10	500.00	7.10	500.00	7.10	500.00	7.10
576.00		5.90	592.00		7.10	551.00		8.50	551.00	8.10	550.00	6.30	550.00	6.30	550.00	6.30	550.00	6.30	550.00	6.30	550.00	6.30	550.00	6.30	550.00	6.30
601.00		4.00	618.00		4.20	576.00		4.00	551.00	7.10	601.00	5.10	581.00	5.50	600.00	1.80	650.00	5.80	650.00	5.80	650.00	5.80	650.00	5.80	650.00	5.80
651.00		1.80	651.00		0.00	651.00		3.70	577.00	6.50	631.00	4.00	600.00	4.50	600.00	4.50	600.00	4.50	600.00	4.50	600.00	4.50	600.00	4.50	600.00	4.50
677.00		-2.20	727.00		-0.90	727.00		-2.60	601.00	-2.20	702.00	-1.30	625.00	-1.50	625.00	-1.50	625.00	-1.50	625.00	-1.50	625.00	-1.50	625.00	-1.50	625.00	-1.50
		4.00	677.00		-1.10	677.00		-1.10	701.00	-2.40	701.00	-2.40	701.00	-2.40	701.00	-2.40	701.00	-2.40	701.00	-2.40	701.00	-2.40	701.00	-2.40	701.00	-2.40

PROFILE 6

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME
345.00		16.20	481009	59	16.00	481113	61	15.90	481218	62	15.90	481315	63	15.80	481415	64	15.90	481515	65	15.70	481615	66	15.70	481715	67	15.70
385.00		15.80	382.00		16.90	382.00		16.70	400.00	15.70	400.00	15.80	400.00	15.80	400.00	15.80	400.00	15.80	400.00	15.80	400.00	15.80	400.00	15.80	400.00	15.80
400.00		16.00	395.00		14.50	395.00		14.70	425.00	14.60	425.00	14.50	425.00	14.50	425.00	14.50	425.00	14.50	425.00	14.50	425.00	14.50	425.00	14.50	425.00	14.50
415.00		14.60	415.00		14.00	420.00		14.30	440.00	13.20	460.00	13.90	460.00	13.90	460.00	13.90	460.00	13.90	460.00	13.90	460.00	13.90	460.00	13.90	460.00	13.90
442.00		11.80	440.00		11.50	440.00		12.00	460.00	10.80	465.00	10.60	465.00	10.60	465.00	10.60	465.00	10.60	465.00	10.60	465.00	10.60	465.00	10.60	465.00	10.60
480.00		10.80	450.00		10.70	450.00		7.50	455.00	13.00	475.00	9.00	500.00	8.80	500.00	8.80	500.00	8.80	500.00	8.80	500.00	8.80	500.00	8.80	500.00	8.80
500.00		8.80	500.00		5.30	500.00		5.30	500.00	7.40	500.00	6.20	525.00	6.00	525.00	6.00	525.00	6.00	525.00	6.00	525.00	6.00	525.00	6.00	525.00	6.00
540.00		9.00	525.00		8.70	520.00		8.50	520.00	6.90	520.00	7.20	535.00	7.00	535.00	7.00	535.00	7.00	535.00	7.00	535.00	7.00	535.00	7.00	535.00	7.00
580.00		6.00	580.00		3.80	620.00		3.80	620.00	3.70	620.00	3.70	620.00	3.70	620.00	3.70	620.00	3.70	620.00	3.70	620.00	3.70	620.00	3.70	620.00	3.70
620.00		8.00	620.00		-0.20	650.00		-0.20	650.00	4.80	590.00	7.60	600.00	3.80	600.00	3.80	600.00	3.80	600.00	3.80	600.00	3.80	600.00	3.80	600.00	3.80
650.00		2.50	680.00		6.20	675.00		-1.00	675.00	3.70	625.00	1.40	625.00	-1.40	625.00	-1.40	625.00	-1.40	625.00	-1.40	625.00	-1.40	625.00	-1.40	625.00	-1.40
675.00		1.00	600.00		4.80	700.00		-1.80	625.00	1.00	625.00	3.70	650.00	-1.40	650.00	-1.40	650.00	-1.40	650.00	-1.40	650.00	-1.40	650.00	-1.40	650.00	-1.40
700.00		-1.50	650.00		3.30	725.00		-2.30	675.00	-1.40	675.00	-3.30	675.00	-3.30	675.00	-3.30	675.00	-3.30	675.00	-3.30	675.00	-3.30	675.00	-3.30	675.00	-3.30
		1.50	760.00		-1.10	760.00		-1.10	760.00	-1.10	760.00	-1.10	760.00	-1.10	760.00	-1.10	760.00	-1.10	760.00	-1.10	760.00	-1.10	760.00	-1.10	760.00	-1.10

LONG BEACH ISLAND N.J.
DATUM IS NSL MEASUREMENT IS FT.

PROFILE 6

DATE 40024	DATE 40120	DATE 40118	DATE 40121A	DATE 700120	DATE 70021A	DATE 700319	DATE 7005,21
SPVY 97	SPVY 6A	SPVY 49	SPVY 70	SPVY 71	SPVY 72	SPVY 73	SPVY 74
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
365.00	365.00	365.00	365.00	365.00	365.00	365.00	364.00
400.00	400.00	400.00	381.00	381.00	400.00	381.00	420.00
420.00	420.00	420.00	405.00	405.00	425.00	429.00	450.00
450.00	450.00	450.00	420.00	420.00	465.00	465.00	500.00
470.00	470.00	475.00	440.00	440.00	485.00	485.00	520.00
500.00	500.00	500.00	460.00	460.00	500.00	500.00	550.00
519.00	519.00	519.00	475.00	475.00	550.00	550.00	580.00
548.00	548.00	550.00	500.00	500.00	600.00	600.00	600.00
575.00	575.00	575.00	516.00	516.00	625.00	625.00	650.00
600.00	600.00	600.00	539.00	539.00	650.00	650.00	680.00
625.00	625.00	625.00	569.00	569.00	675.00	675.00	700.00
650.00	650.00	650.00	590.00	590.00	700.00	700.00	750.00
675.00	675.00	675.00	613.00	613.00	725.00	725.00	780.00
700.00	700.00	700.00	625.00	625.00	750.00	750.00	785.00
			650.00	650.00			
			675.00	675.00			
			700.00	700.00			
			725.00	725.00			
			750.00	750.00			
			775.00	775.00			
			800.00	800.00			

PROFILE 6

DATE 700828	DATE 701012	DATE 701207	DATE 70121A	DATE 70111P	DATE 701202H	DATE 701318	DATE 701404
SPVY 75	SPVY 6A	SPVY 49	SPVY 7A	SPVY 79	SPVY 50	SPVY 51	SPVY 42
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00
381.00	381.00	381.00	375.00	375.00	375.00	375.00	385.00
392.00	392.00	392.00	383.00	383.00	383.00	383.00	405.00
400.00	400.00	400.00	400.00	400.00	400.00	400.00	425.00
441.00	441.00	441.00	425.00	425.00	425.00	425.00	465.00
500.00	500.00	500.00	450.00	450.00	450.00	450.00	500.00
550.00	550.00	550.00	475.00	475.00	475.00	475.00	520.00
600.00	600.00	600.00	490.00	490.00	490.00	490.00	540.00
650.00	650.00	650.00	500.00	500.00	500.00	500.00	560.00
700.00	700.00	700.00	510.00	510.00	510.00	510.00	580.00
750.00	750.00	750.00	520.00	520.00	520.00	520.00	600.00
800.00	800.00	800.00	530.00	530.00	530.00	530.00	620.00
830.00	830.00	830.00	540.00	540.00	540.00	540.00	640.00
			550.00	550.00	550.00	550.00	660.00
			560.00	560.00	560.00	560.00	680.00
			570.00	570.00	570.00	570.00	700.00
			580.00	580.00	580.00	580.00	720.00
			590.00	590.00	590.00	590.00	740.00
			600.00	600.00	600.00	600.00	760.00
			610.00	610.00	610.00	610.00	780.00
			620.00	620.00	620.00	620.00	800.00
			630.00	630.00	630.00	630.00	820.00
			640.00	640.00	640.00	640.00	840.00
			650.00	650.00	650.00	650.00	860.00
			660.00	660.00	660.00	660.00	880.00
			670.00	670.00	670.00	670.00	900.00
			680.00	680.00	680.00	680.00	920.00
			690.00	690.00	690.00	690.00	940.00
			700.00	700.00	700.00	700.00	960.00
			710.00	710.00	710.00	710.00	980.00
			720.00	720.00	720.00	720.00	1000.00

LONG BEACH ISLAND N.J.
 DATUM IS CSL MEASUREMENT IS FT

PROFILE 7

DATE	SVV	TIME	DATE	SVV	TIME	DATE	SVV	TIME	DATE	SVV	TIME	DATE	SVV	TIME
553.00	5.80		630121	11.30		630204	8.50		630212	13.30		630226	9.50	
601.00	7.00		630122	11.40		630205	7.80		630213	13.20		630227	9.20	
636.00	1.40		630123	8.50		630206	4.30		630214	12.40		630228	8.20	
			630124	8.60		630207	3.80		630215	13.60		630229	7.80	
			630125	7.90		630208	3.80		630216	13.60		630230	7.50	
			630126	7.90		630209	4.20		630217	12.20		630231	7.50	
			630127	8.60		630210	4.20		630218	12.20		630232	7.50	
			630128	2.20		630211	4.20		630219	13.60		630233	7.50	
			630129	1.50		630212	4.20		630220	13.60		630234	7.50	
			630130	1.50		630213	4.20		630221	13.60		630235	7.50	
			630131	1.50		630214	4.20		630222	13.60		630236	7.50	
			630132	1.50		630215	4.20		630223	13.60		630237	7.50	
			630133	1.50		630216	4.20		630224	13.60		630238	7.50	
			630134	1.50		630217	4.20		630225	13.60		630239	7.50	
			630135	1.50		630218	4.20		630226	13.60		630240	7.50	
			630136	1.50		630219	4.20		630227	13.60		630241	7.50	
			630137	1.50		630220	4.20		630228	13.60		630242	7.50	
			630138	1.50		630221	4.20		630229	13.60		630243	7.50	
			630139	1.50		630222	4.20		630230	13.60		630244	7.50	
			630140	1.50		630223	4.20		630231	13.60		630245	7.50	
			630141	1.50		630224	4.20		630232	13.60		630246	7.50	
			630142	1.50		630225	4.20		630233	13.60		630247	7.50	
			630143	1.50		630226	4.20		630234	13.60		630248	7.50	
			630144	1.50		630227	4.20		630235	13.60		630249	7.50	
			630145	1.50		630228	4.20		630236	13.60		630250	7.50	
			630146	1.50		630229	4.20		630237	13.60		630251	7.50	
			630147	1.50		630230	4.20		630238	13.60		630252	7.50	
			630148	1.50		630231	4.20		630239	13.60		630253	7.50	
			630149	1.50		630232	4.20		630240	13.60		630254	7.50	
			630150	1.50		630233	4.20		630241	13.60		630255	7.50	
			630151	1.50		630234	4.20		630242	13.60		630256	7.50	
			630152	1.50		630235	4.20		630243	13.60		630257	7.50	
			630153	1.50		630236	4.20		630244	13.60		630258	7.50	
			630154	1.50		630237	4.20		630245	13.60		630259	7.50	
			630155	1.50		630238	4.20		630246	13.60		630260	7.50	
			630156	1.50		630239	4.20		630247	13.60		630261	7.50	
			630157	1.50		630240	4.20		630248	13.60		630262	7.50	
			630158	1.50		630241	4.20		630249	13.60		630263	7.50	
			630159	1.50		630242	4.20		630250	13.60		630264	7.50	
			630160	1.50		630243	4.20		630251	13.60		630265	7.50	
			630161	1.50		630244	4.20		630252	13.60		630266	7.50	
			630162	1.50		630245	4.20		630253	13.60		630267	7.50	
			630163	1.50		630246	4.20		630254	13.60		630268	7.50	
			630164	1.50		630247	4.20		630255	13.60		630269	7.50	
			630165	1.50		630248	4.20		630256	13.60		630270	7.50	
			630166	1.50		630249	4.20		630257	13.60		630271	7.50	
			630167	1.50		630250	4.20		630258	13.60		630272	7.50	
			630168	1.50		630251	4.20		630259	13.60		630273	7.50	
			630169	1.50		630252	4.20		630260	13.60		630274	7.50	
			630170	1.50		630253	4.20		630261	13.60		630275	7.50	
			630171	1.50		630254	4.20		630262	13.60		630276	7.50	
			630172	1.50		630255	4.20		630263	13.60		630277	7.50	
			630173	1.50		630256	4.20		630264	13.60		630278	7.50	
			630174	1.50		630257	4.20		630265	13.60		630279	7.50	
			630175	1.50		630258	4.20		630266	13.60		630280	7.50	
			630176	1.50		630259	4.20		630267	13.60		630281	7.50	
			630177	1.50		630260	4.20		630268	13.60		630282	7.50	
			630178	1.50		630261	4.20		630269	13.60		630283	7.50	
			630179	1.50		630262	4.20		630270	13.60		630284	7.50	
			630180	1.50		630263	4.20		630271	13.60		630285	7.50	
			630181	1.50		630264	4.20		630272	13.60		630286	7.50	
			630182	1.50		630265	4.20		630273	13.60		630287	7.50	
			630183	1.50		630266	4.20		630274	13.60		630288	7.50	
			630184	1.50		630267	4.20		630275	13.60		630289	7.50	
			630185	1.50		630268	4.20		630276	13.60		630290	7.50	
			630186	1.50		630269	4.20		630277	13.60		630291	7.50	
			630187	1.50		630270	4.20		630278	13.60		630292	7.50	
			630188	1.50		630271	4.20		630279	13.60		630293	7.50	
			630189	1.50		630272	4.20		630280	13.60		630294	7.50	
			630190	1.50		630273	4.20		630281	13.60		630295	7.50	
			630191	1.50		630274	4.20		630282	13.60		630296	7.50	
			630192	1.50		630275	4.20		630283	13.60		630297	7.50	
			630193	1.50		630276	4.20		630284	13.60		630298	7.50	
			630194	1.50		630277	4.20		630285	13.60		630299	7.50	
			630195	1.50		630278	4.20		630286	13.60		630300	7.50	
			630196	1.50		630279	4.20		630287	13.60		630301	7.50	
			630197	1.50		630280	4.20		630288	13.60		630302	7.50	
			630198	1.50		630281	4.20		630289	13.60		630303	7.50	
			630199	1.50		630282	4.20		630290	13.60		630304	7.50	
			630200	1.50		630283	4.20		630291	13.60		630305	7.50	
			630201	1.50		630284	4.20		630292	13.60		630306	7.50	
			630202	1.50		630285	4.20		630293	13.60		630307	7.50	
			630203	1.50		630286	4.20		630294	13.60		630308	7.50	
			630204	1.50		630287	4.20		630295	13.60		630309	7.50	
			630205	1.50		630288	4.20		630296	13.60		630310	7.50	
			630206	1.50		630289	4.20		630297	13.60		630311	7.50	
			630207	1.50		630290	4.20		630298	13.60		630312	7.50	
			630208	1.50		630291	4.20		630299	13.60		630313	7.50	
			630209	1.50		630292	4.20		630300	13.60		630314	7.50	
			630210	1.50		630293	4.20		630301	13.60		630315	7.50	
			630211	1.50		630294	4.20		630302	13.60		630316	7.50	
			630212	1.50		630295	4.20		630303	13.60		630317	7.50	
			630213	1.50		630296	4.20		630304	13.60		630318	7.50	
			630214	1.50		630297	4.20		630305	13.60		630319	7.50	
			630215	1.50		630298	4.20		630306	13.60		630320	7.50	
			630216	1.50		630299	4.20		630307	13.60		630321	7.50	
			630217	1.50		630300	4.20		630308	13.60		630322	7.50	
			630218	1.50		630301	4.20		630309	13.60		630323	7.50	
			630219	1.50		630302	4.20		630310	13.60		630324	7.50	
			630220	1.50		630303	4.20		630311	13.60		630325	7.50	
			630221	1.50		630304	4.20		630312	13.60		630326	7.50	
			630222	1.50		630305	4.20		630313	13.60		630327	7.50	
			630223	1.50		630306	4.20		630314	13.60		630328	7.50	
			630224	1.50		630307	4.20		630315	13.60		630329	7.50	
			630225	1.50		630308	4.20		630316	13.60		630330	7.50	
			630226	1.50		630309	4.20		630317	13.60		630331	7.50	

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT JS FT

PROFILE 7

DATE 6612M1	DATE 650119	DATE 650427	DATE 650907	DATE 651027	DATE 651222	DATE 660125	DATE 660121
SVY 42	SVY 43	SVY 44	SVY 45	SVY 46	SVY 47	SVY 48	SVY 49
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
312+00	396+00	16+20	377+00	377+00	385+00	302+00	406+00
350+00	439+00	15+20	391+00	401+00	401+00	362+00	465+00
376+00	477+00	14+80	456+00	451+00	451+00	382+00	465+00
425+00	507+00	9+80	493+00	471+00	451+00	385+00	501+00
450+00	527+00	7+80	493+00	471+00	464+00	425+00	550+00
476+00	548+00	6+10	527+00	502+00	476+00	451+00	577+00
501+00	628+00	3+30	552+00	527+00	512+00	501+00	591+00
526+00	653+00	-1+50	578+00	552+00	553+00	527+00	591+00
551+00	602+00	-2+50	626+00	602+00	628+00	576+00	446
602+00	653+00	-1+20	653+00	626+00	643+00	602+00	
653+00							

PROFILE 7

DATE 660922	DATE 670505	DATE 670920	DATE 671218	DATE 680117	DATE 680227	DATE 680121
SVY 50	SVY 52	SVY 54	SVY 55	SVY 56	SVY 57	SVY 58
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
008+00	393+00	15+80	340+00	359+00	358+00	358+00
405+00	407+00	15+40	382+00	382+00	370+00	375+00
451+00	426+00	14+50	400+00	410+00	406+00	428+00
476+00	476+00	14+30	426+00	432+00	430+00	428+00
501+00	472+00	14+50	450+00	448+00	450+00	430+00
511+00	486+00	11+20	471+00	469+00	465+00	475+00
551+00	420+00	8+20	501+00	550+00	476+00	550+00
602+00	488+00	7+20	526+00	592+00	500+00	592+00
602+00	502+00	7+30	531+00	577+00	484+00	592+00
627+00	527+00	6+20	540+00	628+00	528+00	628+00
	572+00	5+10	601+00	630+00	530+00	650+00
	602+00	6+20	626+00	645+00	500+00	626+00
	621+00	6+20	651+00	685+00	626+00	626+00
	621+00	0+00			650+00	650+00

LONG REACH ISLAND N.J.
DATUM IS PSL MEASUREMENT IS FT

PROFILE 7

DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME
370.00	16.80	370.00	16.80	360.00	16.80	358.00	16.50	358.00	16.50	358.00	16.50	358.00	16.50	358.00	16.50
395.00	17.00	395.00	16.80	395.00	16.80	375.00	16.50	375.00	16.50	375.00	16.50	375.00	16.50	375.00	16.50
420.00	17.20	420.00	16.80	420.00	16.80	420.00	16.50	420.00	16.50	420.00	16.50	420.00	16.50	420.00	16.50
445.00	17.40	445.00	17.00	445.00	17.00	445.00	16.70	445.00	16.70	445.00	16.70	445.00	16.70	445.00	16.70
470.00	17.60	470.00	17.20	470.00	17.20	470.00	16.90	470.00	16.90	470.00	16.90	470.00	16.90	470.00	16.90
495.00	17.80	495.00	17.40	495.00	17.40	495.00	17.10	495.00	17.10	495.00	17.10	495.00	17.10	495.00	17.10
520.00	18.00	520.00	17.60	520.00	17.60	520.00	17.30	520.00	17.30	520.00	17.30	520.00	17.30	520.00	17.30
545.00	18.20	545.00	17.80	545.00	17.80	545.00	17.50	545.00	17.50	545.00	17.50	545.00	17.50	545.00	17.50
570.00	18.40	570.00	18.00	570.00	18.00	570.00	17.70	570.00	17.70	570.00	17.70	570.00	17.70	570.00	17.70
595.00	18.60	595.00	18.20	595.00	18.20	595.00	17.90	595.00	17.90	595.00	17.90	595.00	17.90	595.00	17.90
620.00	18.80	620.00	18.40	620.00	18.40	620.00	18.10	620.00	18.10	620.00	18.10	620.00	18.10	620.00	18.10
645.00	19.00	645.00	18.60	645.00	18.60	645.00	18.30	645.00	18.30	645.00	18.30	645.00	18.30	645.00	18.30
670.00	19.20	670.00	18.80	670.00	18.80	670.00	18.50	670.00	18.50	670.00	18.50	670.00	18.50	670.00	18.50
700.00	19.40	700.00	19.00	700.00	19.00	700.00	18.70	700.00	18.70	700.00	18.70	700.00	18.70	700.00	18.70

PROFILE 7

DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME
358.00	16.80	358.00	16.80	358.00	16.80	358.00	16.80	358.00	16.80	358.00	16.80	358.00	16.80	358.00	16.80
390.00	17.00	390.00	17.00	390.00	17.00	390.00	17.00	390.00	17.00	390.00	17.00	390.00	17.00	390.00	17.00
434.00	17.20	434.00	17.20	434.00	17.20	434.00	17.20	434.00	17.20	434.00	17.20	434.00	17.20	434.00	17.20
478.00	17.40	478.00	17.40	478.00	17.40	478.00	17.40	478.00	17.40	478.00	17.40	478.00	17.40	478.00	17.40
522.00	17.60	522.00	17.60	522.00	17.60	522.00	17.60	522.00	17.60	522.00	17.60	522.00	17.60	522.00	17.60
566.00	17.80	566.00	17.80	566.00	17.80	566.00	17.80	566.00	17.80	566.00	17.80	566.00	17.80	566.00	17.80
610.00	18.00	610.00	18.00	610.00	18.00	610.00	18.00	610.00	18.00	610.00	18.00	610.00	18.00	610.00	18.00
654.00	18.20	654.00	18.20	654.00	18.20	654.00	18.20	654.00	18.20	654.00	18.20	654.00	18.20	654.00	18.20
698.00	18.40	698.00	18.40	698.00	18.40	698.00	18.40	698.00	18.40	698.00	18.40	698.00	18.40	698.00	18.40
742.00	18.60	742.00	18.60	742.00	18.60	742.00	18.60	742.00	18.60	742.00	18.60	742.00	18.60	742.00	18.60
786.00	18.80	786.00	18.80	786.00	18.80	786.00	18.80	786.00	18.80	786.00	18.80	786.00	18.80	786.00	18.80
830.00	19.00	830.00	19.00	830.00	19.00	830.00	19.00	830.00	19.00	830.00	19.00	830.00	19.00	830.00	19.00
874.00	19.20	874.00	19.20	874.00	19.20	874.00	19.20	874.00	19.20	874.00	19.20	874.00	19.20	874.00	19.20
918.00	19.40	918.00	19.40	918.00	19.40	918.00	19.40	918.00	19.40	918.00	19.40	918.00	19.40	918.00	19.40

LONG BEACH ISLAND N.J.
DATUM IS WSL MEASUREMENT IS FT

PROFILE 7

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
700628	75	701012	76	701207	77	710112	78	710112	79	710204	80	710308	81
SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
358.00	17.30	358.00	17.30	358.00	16.80	358.00	17.50	358.00	17.60	358.00	17.40	358.00	17.20
395.00	17.40	394.00	17.00	400.00	17.30	375.00	17.40	375.00	17.40	400.00	17.40	400.00	16.90
411.00	18.00	400.00	16.00	430.00	17.20	400.00	17.30	400.00	17.10	400.00	16.90	420.00	16.50
426.00	17.00	410.00	15.70	450.00	19.00	425.00	16.90	425.00	16.20	425.00	16.50	420.00	16.50
460.00	13.00	425.00	17.00	500.00	7.70	450.00	13.90	425.00	17.20	450.00	16.20	401.00	14.00
480.00	12.50	450.00	12.30	500.00	7.80	450.00	13.20	471.00	17.50	475.00	10.00	450.00	13.50
500.00	8.20	500.00	8.60	502.00	3.70	475.00	9.00	475.00	7.40	460.00	9.10	460.00	10.60
511.00	8.40	500.00	8.60	502.00	3.70	475.00	9.00	475.00	7.40	460.00	9.10	460.00	10.60
520.00	8.40	500.00	8.60	502.00	3.70	475.00	9.00	475.00	7.40	460.00	9.10	460.00	10.60
550.00	5.20	583.00	7.50	650.00	-1.20	500.00	8.20	550.00	7.10	500.00	8.10	500.00	8.10
600.00	4.70	600.00	3.60	670.00	-2.20	550.00	5.10	650.00	2.90	528.00	8.50	535.00	5.30
631.00	3.30	650.00	2.10	700.00	-1.00	650.00	5.80	650.00	-1.50	550.00	4.50	550.00	4.20
650.00	2.00	700.00	1.10	750.00	-4.00	700.00	1.10	692.00	-3.80	600.00	1.00	575.00	3.90
700.00	1.10	750.00	-3.40	800.00	-3.40	700.00	-1.90	692.00	-3.80	638.00	-1.50	600.00	1.70
750.00	-1.10	790.00	-3.40	800.00	-3.40	700.00	-1.90	692.00	-3.80	650.00	-3.00	625.00	-2.90
800.00	-2.70									650.00	-3.00	638.00	-2.10

PROFILE 7

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
710624	84	720117	85	711007	86	711214	87	720112	88	720215	89	720225	91
SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY	SVY
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
358.00	18.70	358.00	18.90	358.00	18.30	358.00	18.00	358.00	18.60	358.00	18.30	358.00	18.20
390.00	18.00	410.00	15.00	400.00	17.40	406.00	17.70	371.00	18.40	400.00	18.00	382.00	18.90
400.00	17.10	431.00	16.50	424.00	17.50	428.00	17.30	400.00	17.70	415.00	17.00	400.00	18.20
426.00	17.10	400.00	13.90	477.00	13.60	450.00	14.00	419.00	16.90	428.00	17.70	420.00	18.20
447.00	13.70	460.00	11.30	450.00	11.80	467.00	10.20	442.00	13.90	450.00	13.60	445.00	12.50
475.00	4.70	480.00	9.70	462.00	11.00	450.00	8.00	455.00	11.60	475.00	7.20	455.00	6.70
500.00	7.50	487.00	5.90	463.00	10.50	450.00	9.00	450.00	10.20	475.00	6.20	450.00	6.10
525.00	3.20	520.00	2.10	520.00	3.60	600.00	5.60	600.00	0.20	575.00	4.90	502.00	4.80
550.00	3.50	550.00	2.60	550.00	3.60	600.00	3.00	600.00	1.00	575.00	2.50	566.00	4.40
600.00	-3.20	600.00	-1.30	600.00	-3.10	650.00	-1.80	650.00	-1.80	600.00	1.10	600.00	-2.20
		650.00	-1.80	650.00	-3.10	650.00	-1.80	650.00	-1.80	600.00	1.10	600.00	-1.20
		700.00	-2.30							600.00	-2.90	600.00	-5.20

LONG REACH ISLAND No. J.
 DATUM IS MSL MEASUREMENT TS FT

PROFILE A

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME				
195+00	62092A	1200	621011	4	1200	621023	5	1200	621029	6	1200	62110A	7	1200	430304	1A	1200	430304	1A	1200	
237+00																					
273+00																					
295+00																					
305+00																					
395+00																					
375+00																					
403+00																					
448+00																					
493+00																					
517+00																					
504+00																					
576+00																					
630+00																					
656+00																					

PROFILE A

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME				
200+00	610121	1000	61012A	11	1200	630204	12	1200	630212	13	1200	630220	14	1200	63022A	15	1200	430304	1A	1200	
280+00																					
294+00																					
350+00																					
383+00																					
401+00																					
452+00																					
506+00																					
551+00																					

LONG BEACH ISLAND No. 3
 DATUM IS MSL MEASUREMENT IS FT

PROFILE B

DATE	NO	DATE	NO	DATE	NO	DATE	NO	DATE	NO	DATE	NO
TIME	34	TIME	35	TIME	36	TIME	37	TIME	38	TIME	39
TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200
-255.00	1.50	004.00	10.00	320.00	6.50	350.00	6.70	350.00	6.50	347.00	12.00
-270.00	1.50	024.00	7.20	350.00	7.00	353.00	6.70	375.00	11.50	370.00	10.00
-270.00	4.50	026.00	9.00	373.00	9.80	379.00	10.50	400.00	11.00	402.00	11.10
-102.00	0.50	553.00	-1.00	403.00	6.80	403.00	7.30	425.00	7.80	424.00	7.50
-103.00	0.50	574.00	-1.00	422.00	6.80	422.00	6.80	451.00	6.80	451.00	6.20
-53.00	0.50	594.00	-2.60	451.00	5.20	460.00	4.20	502.00	1.30	474.00	4.60
-23.00	0.50			471.00	4.70	502.00	3.60	552.00	-2.80	501.00	3.40
198.00	5.00			527.00	4.30	531.00	1.60	549.00	3.10	542.00	3.10
250.00	5.00			545.00	-0.70	555.00	4.30	574.00	-0.10	572.00	4.00
299.00	12.00			585.00	-1.10	582.00	-1.10	574.00	-5.80		
350.00	13.70			604.00	-1.50	601.00	-2.10				
375.00	12.00			624.00	-2.10						
450.00	12.50										
472.00	2.80										
503.00	1.50										
532.00	1.10										
574.00	-0.60										
629.00	-2.60										

PROFILE B

DATE	NO	DATE	NO	DATE	NO	DATE	NO	DATE	NO	DATE	NO
TIME	40	TIME	41	TIME	42	TIME	43	TIME	44	TIME	45
TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200
366.00	12.00	341.00	9.50	345.00	13.00	364.00	13.10	365.00	12.90	374.00	11.20
390.00	12.70	401.00	8.10	461.00	7.40	381.00	11.50	464.00	13.50	400.00	7.60
420.00	9.70	474.00	5.00	477.00	5.00	400.00	7.50	391.00	8.20	451.00	5.60
451.00	6.00	501.00	4.50	502.00	5.30	451.00	5.20	401.00	6.80	491.00	4.00
477.00	5.00	525.00	3.00	552.00	-1.00	502.00	5.00	451.00	5.80	524.00	4.00
503.00	5.70	537.00	3.50	574.00	-0.90	524.00	3.20	527.00	3.70	552.00	3.60
520.00	4.10	552.00	1.60	602.00	-2.50	603.00	2.20	550.00	1.10	574.00	-1.60
552.00	2.00	574.00	-0.20	602.00	-1.10	624.00	-0.70	577.00	-1.70	602.00	-0.50
603.00	-0.80	602.00	-1.10					593.00	-2.60	622.00	-0.80
624.00	-2.70	624.00	-3.20					652.00	-3.50	677.00	-1.50

LONG BEACH ISLAND N.W.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE A

DATE 660222	DATE 670116	DATE 670505	DATE 670920	DATE 671218	DATE 680117	DATE 680227	DATE 680427
SVV 50	SVV 51	SVV 52	SVV 54	SVV 55	SVV 56	SVV 57	SVV 58
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
372.00	351.00	340.00	339.00	351.00	358.00	317.00	317.00
395.00	378.00	365.00	361.00	360.00	375.00	359.00	345.00
400.00	380.00	360.00	393.00	376.00	390.00	376.00	370.00
426.00	400.00	390.00	400.00	397.00	400.00	399.00	390.00
476.00	426.00	410.00	426.00	451.00	449.00	449.00	440.00
501.00	476.00	460.00	476.00	501.00	498.00	494.00	480.00
551.00	501.00	490.00	501.00	501.00	513.00	479.00	537.00
	576.00	560.00	529.00	552.00	579.00	522.00	550.00
	601.00	627.00	551.00	602.00	598.00	575.00	605.00
			577.00	632.00	580.00	579.00	605.00

PROFILE B

DATE 681009	DATE 681023	DATE 681113	DATE 681218	DATE 690115	DATE 690213	DATE 690309	DATE 690428
SVV 59	SVV 60	SVV 61	SVV 62	SVV 63	SVV 64	SVV 65	SVV 66
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
305.00	305.00	302.00	358.00	357.00	357.00	358.00	357.00
360.00	360.00	355.00	377.00	375.00	375.00	375.00	378.00
375.00	375.00	377.00	390.00	393.00	390.00	390.00	397.00
390.00	390.00	390.00	400.00	425.00	425.00	420.00	450.00
400.00	400.00	400.00	450.00	450.00	450.00	450.00	450.00
450.00	450.00	450.00	500.00	500.00	475.00	470.00	525.00
500.00	500.00	500.00	550.00	550.00	550.00	550.00	550.00
525.00	525.00	525.00	600.00	600.00	600.00	600.00	600.00
550.00	550.00	550.00	625.00	615.00	615.00	615.00	615.00
575.00	575.00	575.00	600.00	600.00	600.00	600.00	600.00
600.00	600.00	600.00	625.00	615.00	615.00	615.00	615.00
625.00	625.00	625.00	600.00	600.00	600.00	600.00	600.00
650.00	650.00	650.00	625.00	615.00	615.00	615.00	615.00

LONG REACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 6

DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME
609924	609120	609118	609218	700120	700216	700319	700421	700319	700216	700319	700421
317.00	317.00	317.00	317.00	317.00	317.00	317.00	317.00	317.00	317.00	317.00	317.00
405.00	335.00	335.00	335.00	332.00	332.00	332.00	332.00	332.00	332.00	332.00	332.00
348.00	370.00	370.00	370.00	362.00	362.00	362.00	362.00	362.00	362.00	362.00	362.00
378.00	382.00	381.00	381.00	369.00	369.00	369.00	369.00	369.00	369.00	369.00	369.00
400.00	400.00	400.00	400.00	388.00	388.00	388.00	388.00	388.00	388.00	388.00	388.00
425.00	425.00	425.00	425.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00
450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00
475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00
500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00
525.00	525.00	525.00	525.00	525.00	525.00	525.00	525.00	525.00	525.00	525.00	525.00
575.00	575.00	575.00	575.00	575.00	575.00	575.00	575.00	575.00	575.00	575.00	575.00
600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00
625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00

PROFILE 8

DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME
700R28	701R12	701R12	701R18	701R20	701R21	701R21	701R21	701R21	701R21	701R21	701R21
317.00	317.00	317.00	317.00	317.00	317.00	317.00	317.00	317.00	317.00	317.00	317.00
335.00	335.00	335.00	335.00	332.00	332.00	332.00	332.00	332.00	332.00	332.00	332.00
370.00	370.00	370.00	370.00	362.00	362.00	362.00	362.00	362.00	362.00	362.00	362.00
378.00	382.00	381.00	381.00	369.00	369.00	369.00	369.00	369.00	369.00	369.00	369.00
400.00	400.00	400.00	400.00	388.00	388.00	388.00	388.00	388.00	388.00	388.00	388.00
425.00	425.00	425.00	425.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00
450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00
475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00
500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00
525.00	525.00	525.00	525.00	525.00	525.00	525.00	525.00	525.00	525.00	525.00	525.00
575.00	575.00	575.00	575.00	575.00	575.00	575.00	575.00	575.00	575.00	575.00	575.00
600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00
625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 8

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
710620	711007	711214	720112	720215	720314	720314	720314	720323	720315	720323	720315	720315	720315
SVV 43	SVV A6	SVV A7	SVV AR	SVV AR	SVV 90	SVV 90	SVV 90	SVV 90	SVV 90	SVV 90	SVV 90	SVV 90	SVV 90
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
317.00	13.40	317.00	12.80	317.00	12.80	317.00	12.80	317.00	12.70	317.00	12.80	317.00	12.80
333.00	16.10	334.00	16.70	338.00	17.40	350.00	18.20	350.00	18.50	340.00	18.00	335.00	17.50
304.00	14.80	304.00	14.90	304.00	14.90	304.00	14.90	304.00	14.90	304.00	14.90	304.00	14.90
325.00	14.00	325.00	14.00	325.00	14.00	325.00	14.00	325.00	14.00	325.00	14.00	325.00	14.00
326.00	14.00	326.00	14.00	326.00	14.00	326.00	14.00	326.00	14.00	326.00	14.00	326.00	14.00
323.00	13.60	323.00	13.60	323.00	13.60	323.00	13.60	323.00	13.60	323.00	13.60	323.00	13.60
450.00	4.00	450.00	4.00	450.00	4.00	450.00	4.00	450.00	4.00	450.00	4.00	450.00	4.00
486.00	5.10	486.00	5.10	486.00	5.10	486.00	5.10	486.00	5.10	486.00	5.10	486.00	5.10
525.00	1.20	525.00	1.20	525.00	1.20	525.00	1.20	525.00	1.20	525.00	1.20	525.00	1.20
600.00	0.40	600.00	0.40	600.00	0.40	600.00	0.40	600.00	0.40	600.00	0.40	600.00	0.40
650.00	0.10	650.00	0.10	650.00	0.10	650.00	0.10	650.00	0.10	650.00	0.10	650.00	0.10

PROFILE 8

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
720411	720423	720411	720423	720411	720423	720411	720423	720411	720423	720411	720423	720411	720423
SVV 92	SVV 92	SVV 92	SVV 92	SVV 92	SVV 92	SVV 92	SVV 92	SVV 92	SVV 92	SVV 92	SVV 92	SVV 92	SVV 92
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
317.00	12.70	317.00	12.80	317.00	12.80	317.00	12.80	317.00	12.80	317.00	12.80	317.00	12.80
333.00	16.20	333.00	16.50	334.00	17.00	334.00	17.00	334.00	17.00	334.00	17.00	334.00	17.00
308.00	17.10	308.00	17.50	308.00	17.50	308.00	17.50	308.00	17.50	308.00	17.50	308.00	17.50
335.00	13.90	335.00	13.50	337.00	14.20	337.00	14.20	337.00	14.20	337.00	14.20	337.00	14.20
400.00	8.70	400.00	9.00	400.00	9.00	400.00	9.00	400.00	9.00	400.00	9.00	400.00	9.00
450.00	4.00	450.00	4.00	450.00	4.00	450.00	4.00	450.00	4.00	450.00	4.00	450.00	4.00
450.00	4.00	450.00	4.00	450.00	4.00	450.00	4.00	450.00	4.00	450.00	4.00	450.00	4.00
500.00	1.00	500.00	1.00	500.00	1.00	500.00	1.00	500.00	1.00	500.00	1.00	500.00	1.00
600.00	0.30	600.00	0.30	600.00	0.30	600.00	0.30	600.00	0.30	600.00	0.30	600.00	0.30
650.00	0.10	650.00	0.10	650.00	0.10	650.00	0.10	650.00	0.10	650.00	0.10	650.00	0.10

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 9

DATE 630121	DATE 610128	DATE 630208	DATE 630212	DATE 630220	DATE 630226	DATE 630304	DATE 630311
SVU 10	SVU 11	SVU 12	SVU 13	SVU 14	SVU 15	SVU 16	SVU 17
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
528.00	7.00	526.00	7.50	525.00	6.70	631.00	6.90
529.00	7.40	7.00	7.80	555.00	6.20	671.00	5.1.00
529.00	7.40	652.00	7.80	622.00	6.20	671.00	5.25.00
629.00	6.50	652.00	3.50	603.00	1.80	626.00	6.00
652.00	5.10	601.00	-2.20	652.00	3.50	703.00	3.80
672.00	2.90	627.00	-4.90	677.00	1.90	751.00	6.50
	675.00	1.80	651.00	3.50	703.00	6.00	633.00
	701.00	4.00	678.00	1.00	728.00	-6.00	633.00
	751.00	-6.60	701.00	6.00	728.00	-6.70	672.00
	785.00	-1.00	726.00	-6.60	751.00	-1.70	702.00
							727.00
							727.00

PROFILE 9

DATE 630110	DATE 610126	DATE 630208	DATE 630228	DATE 630613	DATE 630625	DATE 630711	DATE 630723
SVU 16	SVU 19	SVU 20	SVU 21	SVU 22	SVU 23	SVU 24	SVU 25
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
635.00	5.60	475.00	11.20	526.00	7.30	551.00	6.80
657.00	3.60	508.00	8.60	550.00	7.00	576.00	5.20.00
676.00	1.70	528.00	7.30	578.00	6.00	601.00	7.50
752.00	-6.70	572.00	6.40	601.00	6.30	651.00	6.00.00
		631.00	6.50	628.00	6.20	650.00	6.50
		636.00	4.70	651.00	2.50	677.00	7.60
		656.00	2.80	677.00	1.10	702.00	6.30.00
		679.00	1.20	702.00	0.00	717.00	7.52.00
		703.00	-1.10	727.00	-1.20	747.00	7.52.00
		728.00	-1.00	747.00	-1.00	762.00	7.52.00
							778.00
							778.00

LONG REACH ISLAND M.S.L.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 9

DATE 630800	DATE 630820	DATE 630906	DATE 630926	DATE 631010	DATE 631025	DATE 631115	DATE 631227											
SVVY 26	SVVY 27	SVVY 28	SVVY 29	SVVY 30	SVVY 31	SVVY 32	SVVY 33											
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200											
552.00	6.70	551.00	6.60	577.00	6.60	479.00	10.70	539.00	7.60	0.00	6.10	581.00	6.10	302.00	10.70	484.00	10.70	
601.00	6.50	602.00	7.20	609.00	7.20	529.00	8.00	559.00	8.00	50.00	6.60	581.00	7.70	484.00	10.70	484.00	10.70	484.00
645.00	6.80	628.00	7.30	628.00	8.00	580.00	6.20	605.00	7.50	101.00	8.00	605.00	6.50	495.00	15.20	495.00	15.20	495.00
670.00	7.00	725.00	6.00	652.00	3.30	685.00	6.50	629.00	3.50	201.00	10.80	631.00	3.85	484.00	10.70	484.00	10.70	484.00
725.00	-1.10	730.00	1.60	677.00	1.70	631.00	4.60	672.00	-1.80	252.00	12.40	681.00	-1.20	484.00	10.70	484.00	10.70	484.00
776.00	-2.20	778.00	-2.40	726.00	0.20	681.00	-4.40	682.00	-4.40	304.00	13.40	681.00	-1.20	585.00	6.50	585.00	6.50	585.00
										353.00	14.30	681.00	6.50	581.00	6.50	581.00	6.50	581.00
										407.00	14.70	681.00	6.50	581.00	6.50	581.00	6.50	581.00
										417.00	14.90	681.00	6.50	581.00	6.50	581.00	6.50	581.00
										426.00	14.80	681.00	6.50	581.00	6.50	581.00	6.50	581.00
										439.00	13.20	681.00	6.50	581.00	6.50	581.00	6.50	581.00
										479.00	10.80	681.00	6.50	581.00	6.50	581.00	6.50	581.00
										532.00	10.80	681.00	6.50	581.00	6.50	581.00	6.50	581.00
										586.00	8.10	681.00	6.50	581.00	6.50	581.00	6.50	581.00
										576.00	7.10	681.00	6.50	581.00	6.50	581.00	6.50	581.00
										605.00	7.40	681.00	6.50	581.00	6.50	581.00	6.50	581.00
										631.00	5.30	681.00	6.50	581.00	6.50	581.00	6.50	581.00
										661.00	-4.70	681.00	6.50	581.00	6.50	581.00	6.50	581.00

PROFILE 9

DATE 640115	DATE 640212	DATE 640310	DATE 640327	DATE 640328	DATE 640329	DATE 640330	DATE 640331											
SVVY 34	SVVY 35	SVVY 36	SVVY 37	SVVY 38	SVVY 39	SVVY 40	SVVY 41											
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200											
-115.00	978.00	9.50	404.00	15.60	400.00	14.80	389.00	14.70	399.00	16.20	400.00	15.40	400.00	15.40	400.00	15.40	400.00	
-50.00	501.00	7.30	425.00	12.90	424.00	13.20	394.00	14.70	400.00	15.90	420.00	12.50	420.00	12.50	420.00	12.50	420.00	
07.00	572.00	3.80	450.00	13.70	450.00	14.50	425.00	12.70	425.00	13.50	405.00	14.30	405.00	14.30	405.00	14.30	405.00	
206.00	124.00	6.50	476.00	8.50	476.00	9.20	450.00	14.40	450.00	13.80	474.00	7.80	474.00	7.80	474.00	7.80	474.00	
309.00	104.00	6.20	521.00	7.10	522.00	6.30	475.00	9.10	470.00	9.60	501.00	8.60	501.00	8.60	475.00	16.50	475.00	
389.00	104.00	6.50	521.00	6.60	521.00	4.10	501.00	7.50	502.00	7.60	526.00	7.90	526.00	7.90	526.00	7.90	526.00	
491.00	154.00	6.70	578.00	3.10	602.00	2.20	526.00	7.20	526.00	6.80	551.00	4.80	551.00	4.80	551.00	4.80	551.00	
526.00	134.00	6.90	624.00	1.80	627.00	-2.10	526.00	6.80	553.00	3.80	576.00	2.40	576.00	2.40	576.00	2.40	576.00	
552.00	3.50	677.00	-1.90	677.00	-1.90	677.00	-1.90	677.00	-1.90	677.00	-1.90	677.00	-1.90	677.00	-1.90	677.00	-1.90	677.00
605.00	1.40																	
678.00	-1.00																	
686.00	-1.80																	

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 9

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
6/11/20	4:2	6/11/20	4:5	6/11/20	4:8	6/11/20	4:11	6/11/20	4:14	6/11/20	4:17	6/11/20	4:20
389.00	14.50	485.00	11.50	480.00	15.80	434.00	15.70	438.00	15.90	400.00	15.90	385.00	14.10
400.00	15.20	490.00	9.90	459.00	15.90	476.00	10.50	452.00	14.70	470.00	10.50	409.00	16.10
425.00	13.90	501.00	7.50	465.00	12.00	500.00	8.10	474.00	10.00	450.00	10.50	420.00	15.50
451.00	14.10	512.00	4.60	501.00	8.00	551.00	7.80	501.00	7.80	507.00	8.00	435.00	13.80
475.00	10.50	584.00	5.70	552.00	6.00	607.00	7.00	582.00	7.00	551.00	8.20	460.00	16.20
501.00	8.10	625.00	2.60	602.00	1.70	657.00	3.70	582.00	5.00	561.00	7.00	551.00	11.50
526.00	6.50	678.00	0.40	610.00	1.10	677.00	1.50	679.00	5.00	601.00	7.10	602.00	3.50
552.00	4.50	678.00	0.90	613.00	1.10	677.00	1.50	679.00	1.00	601.00	7.10	602.00	3.50
602.00	2.10	703.00	2.80	613.00	1.10	688.00	2.70	703.00	2.10	653.00	5.80	626.00	1.80
627.00	2.00									679.00	1.20	672.00	1.50
652.00	2.00									703.00	1.20	692.00	1.70
										726.00	1.60		
										753.00	1.10		
										778.00	1.10		
										803.00	2.10		

PROFILE 9

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
6/11/22	4:2	6/11/22	4:5	6/11/22	4:8	6/11/22	4:11	6/11/22	4:14	6/11/22	4:17	6/11/22	4:20
400.00	15.20	427.00	17.40	399.00	18.00	405.00	11.90	424.00	17.90	427.00	17.90	400.00	16.80
450.00	15.00	453.00	14.50	423.00	17.10	427.00	18.50	458.00	13.80	453.00	13.80	422.00	17.80
480.00	11.90	501.00	8.80	435.00	17.10	441.00	15.40	476.00	10.00	461.00	10.50	457.00	14.20
500.00	8.70	531.00	7.50	453.00	14.60	451.00	13.20	500.00	6.60	501.00	6.70	441.00	9.20
526.00	8.80	578.00	7.90	460.00	10.40	475.00	10.50	526.00	4.10	510.00	5.90	525.00	4.80
551.00	5.90	601.00	5.40	500.00	8.70	501.00	8.30	551.00	5.10	575.00	3.20	551.00	5.00
600.00	4.30	624.00	2.50	525.00	7.30	526.00	7.50	581.00	3.00	600.00	7.0	600.00	4.00
627.00	1.20	651.00	4.00	551.00	8.30	551.00	6.10	601.00	2.20	629.00	4.00	600.00	4.50
										653.00	1.80	626.00	2.50
										678.00	1.10	675.00	1.80
										703.00	1.10	675.00	1.80
										728.00	1.10	675.00	1.80
										753.00	1.10	675.00	1.80
										778.00	1.10	675.00	1.80
										803.00	2.10	675.00	1.80

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT TS FT

PROFILE 9

DATE	TIME	DATE	TIME
780417	101	780417	101
SVVY	101	SVVY	101
TIME	1300	TIME	1100
---	---	---	---
187.00	14.00	387.00	14.90
400.00	16.00	400.00	16.90
625.00	18.20	431.00	17.90
459.00	15.00	439.00	15.50
463.00	14.50	450.00	15.30
470.00	11.00	473.00	11.10
500.00	8.10	500.00	6.50
516.00	6.00	548.00	7.30
539.00	8.20	575.00	5.50
600.00	8.10	600.00	3.00
610.00	6.00	620.00	1.10
650.00	-2.30	641.00	-2.50
675.00	-3.00		

PROFILE 10

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
620524	1	620524	2	621011	4	621023	5	621029	6	621108	7	621210	8
SVVY	1	SVVY	2	SVVY	4	SVVY	5	SVVY	6	SVVY	7	SVVY	8
TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200
---	---	---	---	---	---	---	---	---	---	---	---	---	---
58.00	12.00	96.00	8.00	95.00	8.60	113.00	12.10	148.00	11.70	-3.00	12.20	117.00	12.50
75.00	7.00	100.00	12.00	100.00	12.00	132.00	12.70	161.00	12.10	112.00	12.50	199.00	11.90
94.00	8.00	116.00	7.20	116.00	13.00	127.00	11.60	232.00	6.50	152.00	12.10	171.00	11.50
103.00	12.00	143.00	7.60	151.00	8.40	171.00	8.40	235.00	6.10	183.00	10.90	172.00	8.50
107.00	12.00	170.00	8.40	189.00	8.40	235.00	8.40	267.00	6.10	183.00	7.40	192.00	8.00
117.00	8.00	180.00	4.80	210.00	7.00	281.00	6.10	298.00	1.10	217.00	6.40	272.00	8.00
140.00	7.00	180.00	4.80	210.00	6.20	330.00	-1.10	370.00	-2.20	274.00	8.00	272.00	7.00
171.00	8.50	203.00	4.00	243.00	2.90	243.00	2.90	311.00	1.50	300.00	-0.70	324.00	-1.50
189.00	5.30	240.00	8.00	243.00	2.90	311.00	1.50	311.00	1.50	300.00	-0.70	324.00	-1.50
241.00	8.00	240.00	8.00	341.00	-1.00								
304.00	-1.10												
330.00	-2.00												
308.00	-2.70												
360.00	-3.10												

LONG BEACH ISLAND, N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 10

DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME
430121	610121	610204	610128	610204	610212	410220	430226	610304	610326	610326	610326	610311
SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME
7:10	171.00	9.00	151.00	11:50	169.00	10:00	167.00	11:40	175.00	9:20	201.00	6:10
2:40	178.00	5.40	170.00	10:70	175.00	9:00	169.00	10:50	200.00	7:00	205.00	5:40
1:30	220.00	4:10	186.00	7:80	217.00	5:00	176.00	9:10	226.00	5:10	241.00	5:00
1:30	252.00	3:00	196.00	5:90	250.00	2:30	192.00	7:40	251.30	3:00	275.00	1:90
1:10	276.00	1:20	253.00	3:20	276.00	4:50	194.00	6:40	276.00	1:10	300.00	4:70
4:30	302.00	1:50	277.00	4:30	301.00	1:10	226.00	5:40	326.00	1:20	326.00	4:20
1:40	326.00	1:40	301.00	4:00	301.00	4:10	270.00	3:10	351.00	4:00	351.00	4:00
							293.00	4:70				
							301.00	4:70				
							324.00	4:90				

PROFILE 10

DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME
610319	610326	630404	610326	630404	610328	630613	630624	630624	630711	630711	630711	630711
SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME	SRVY TIME
8:00	146.00	7:50	104.00	7:50	12:20	231.00	6:00	201.00	6:50	182.00	6:50	262.00
6:00	173.00	7:00	170.00	7:00	12:50	275.00	7:00	234.00	7:30	200.00	7:30	276.00
11:00	183.00	6:30	201.00	6:30	12:50	291.00	6:30	276.00	7:50	221.00	6:50	326.00
11:20	193.00	6:30	210.00	6:30	15:00	301.00	6:30	302.00	4:50	277.30	7:00	377.00
12:00	205.00	5:40	250.00	5:40	14:00	320.00	1:00	326.00	4:00	302.00	4:00	401.00
12:50	255.00	1:40	276.00	1:40	10:00	335.00	1:20	351.00	4:10	377.00	4:10	401.00
1:00	285.00	1:00	301.00	1:00	11:00	350.00	1:20	376.00	4:10	376.00	4:10	401.00
1:30	325.00	1:30	352.00	1:30	12:25	350.00	1:40	376.00	4:10	376.00	4:10	401.00
1:30	352.00	1:30	352.00	1:30	12:50	350.00	1:40	376.00	4:10	376.00	4:10	401.00
2:00	377.00	2:00	377.00	2:00	200.00	7:20	200.00	7:20	200.00	7:20	200.00	200.00
2:30	377.00	2:30	377.00	2:30	226.00	6:00	226.00	6:00	226.00	6:00	226.00	226.00
3:00	377.00	3:00	377.00	3:00	292.00	6:50	292.00	6:50	292.00	6:50	292.00	292.00
3:01.00	377.00	3:01.00	377.00	3:01.00	351.00	4:00	351.00	4:00	351.00	4:00	351.00	351.00
					377.00	4:10	377.00	4:10	377.00	4:10	377.00	377.00

LONG BEACH ISLAND N.J.
DATUM IS WSL MEASUREMENT IS FT

PROFILE 10

DATE 630806	DATE 630906	DATE 630926	DATE 631010	DATE 631025	DATE 631115	DATE 631227							
SHVV 26	SHVV 28	SHVV 29	SHVV 30	SHVV 31	SHVV 32	SHVV 33							
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200							
226.00	7.00	184.00	7.50	151.00	11.60	227.00	7.10	0.00	12.30	177.00	9.00	65.00	12.60
251.00	7.40	202.00	7.30	251.00	7.00	232.00	5.80	50.00	13.00	202.00	8.90	90.00	12.20
276.00	7.60	220.00	7.00	228.00	6.30	252.00	3.60	101.00	13.00	250.00	8.90	114.00	14.00
302.00	6.70	252.00	7.50	250.00	6.50	303.00	-0.90	114.00	13.20	277.00	9.20	103.00	13.60
327.00	5.00	277.00	6.80	376.00	-0.40	329.00	-0.60	125.00	14.10			171.00	9.90
376.00	-0.70	302.00	6.90					201.00	7.00			232.00	6.70
426.00	-1.30	327.00	3.40					237.00	5.20			270.00	7.90
		376.00	1.30					304.00	5.20			320.00	7.90
		401.00	-1.30					328.00	-0.80			350.00	1.60
												379.00	-1.90

PROFILE 19

DATE 640115	DATE 640310	DATE 640407	DATE 640525	DATE 640624	DATE 640629	DATE 640629							
SHVV 34	SHVV 30	SHVV 37	SHVV 34	SHVV 30	SHVV 30	SHVV 30							
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200							
-109.00	5.00	110.00	10.50	110.00	11.00	110.00	12.90	110.00	12.90	110.00	12.90	110.00	13.00
-278.00	5.20	102.00	13.50	125.00	10.90	125.00	13.90	116.00	10.20	126.00	14.50	121.00	13.00
-253.00	5.60	165.00	8.60	134.00	13.80	102.00	12.80	134.00	14.20	106.00	13.00	103.00	13.00
-203.00	6.00	177.00	7.10	176.00	10.40	160.00	9.30	151.00	12.40	201.00	7.50	152.00	11.10
-153.00	7.00	226.00	6.50	201.00	9.00	176.00	7.80	163.00	9.20	227.00	8.10	201.00	9.10
-02.00	8.00	277.00	4.90	251.00	6.60	224.00	5.90	194.00	8.60	251.00	6.20	252.00	4.70
09.00	12.00	302.00	3.40	302.00	0.70	252.00	5.70	252.00	7.00	277.00	6.90	277.00	5.00
65.00	12.00	328.00	2.40	277.00	5.20	277.00	5.00	227.00	7.20	302.00	7.30	303.00	1.20
87.00	12.10	403.00	1.20	302.00	4.40	327.00	4.10	302.00	5.40	327.00	3.50	328.00	4.00
113.00	13.40	429.00	0.20	364.00	-1.10	403.00	-1.90	326.00	5.40	352.00	0.90	352.00	-0.20
162.00	13.50			418.00	-1.90			374.00	5.80			374.00	-0.90
165.00	9.60							393.00	-1.60				
276.00	6.10												
251.00	3.50												
251.00	2.80												
302.00	2.50												
327.00	1.10												
353.00	-0.30												
403.00	-3.30												

LONG BEACH ISLAND N₁J₂
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 10

DATE	SHVV	TIME	DATE	SHVV	TIME	DATE	SHVV	TIME	DATE	SHVV	TIME	DATE	SHVV	TIME
110.00	12.50	154.00	13.80	150.00	134.00	147.00	33.70	149.00	12.90	79.00	9.00	170.00	100.70	
125.00	11.40	202.00	7.50	161.00	9.80	160.00	11.20	179.00	12.90	120.00	13.50	260.00	64.20	
145.00	12.70	252.00	4.60	201.00	8.80	171.00	10.40	172.00	9.80	201.00	13.70	301.00	52.70	
161.00	12.80	277.00	3.90	227.00	6.90	202.00	8.00	201.00	7.80	251.00	7.60	176.00	10.70	324.00
176.00	10.60	329.00	1.40	252.00	6.70	252.00	7.20	251.00	4.00	289.00	8.50	251.00	6.30	352.00
201.00	9.70	378.00	-0.50	277.00	6.20	302.00	7.00	286.00	4.80	302.00	7.00	302.00	3.50	374.00
226.00	8.20	438.00	-1.60	302.00	5.10	307.00	6.20	306.00	6.80	327.00	3.90	352.00	0.50	408.00
252.00	5.80	498.00	-3.00	327.00	3.90	352.00	2.80	352.00	2.10	352.00	3.10	377.00	0.00	474.00
278.00	3.30	528.00		352.00	2.80	352.00	1.90	378.00	3.10	377.00	-1.00			
302.00	2.20			379.00	1.10	379.00	-0.90	417.00	-2.50	402.00	-2.00			
327.00	0.80			427.00	-2.20									
352.00	-1.20													

PROFILE 10

DATE	SHVV	TIME	DATE	SHVV	TIME	DATE	SHVV	TIME	DATE	SHVV	TIME	DATE	SHVV	TIME
163.00	13.00	156.00	14.30	120.00	13.80	107.00	12.00	140.00	14.10	118.00	13.00	120.00	13.70	
182.00	10.80	179.00	13.30	150.00	12.70	150.00	11.20	160.00	10.30	169.00	13.40	150.00	12.00	
202.00	8.80	179.00	10.90	170.00	11.70	174.00	11.20	200.00	9.50	200.00	9.00	171.00	13.50	
226.00	8.20	201.00	8.90	195.00	9.20	194.00	9.10	226.00	6.70	209.00	6.90	227.00	9.00	
251.00	8.00	251.00	7.20	226.00	6.50	224.00	6.90	251.00	4.80	274.00	6.40	250.00	4.30	193.00
302.00	4.20	300.00	7.50	251.00	4.80	251.00	7.10	276.00	4.30	325.00	1.50	276.00	2.50	256.00
327.00	3.00	320.00	6.50	276.00	1.70	278.00	4.40	301.00	4.80	359.00	-1.50	300.00	1.40	284.00
352.00	1.80	351.00	2.30	301.00	-1.70	301.00	-1.70	352.00	2.80	350.00	-1.00	350.00	-1.00	349.00
377.00	-0.00	374.00	0.30	327.00	-1.30	327.00	-1.30	402.00	-1.20	402.00	-1.20	402.00	-1.20	374.00

LONG BEACH ISLAND N.J.
 DATUM IS HSL MEASUREMENT TS FT

PROFILE 10

DATE 681009	DATE 681021	DATE 681113	DATE 681218	DATE 690115	DATE 690213	DATE 690304	DATE 690428
SVY 59	SVY 60	SVY 61	SVY 62	SVY 63	SVY 64	SVY 65	SVY 66
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
180.00	194.00	115.00	134.30	120.00	144.10	115.00	115.00
165.00	165.00	145.00	145.00	145.00	145.00	145.00	145.00
177.00	177.00	170.00	137.00	170.00	137.00	170.00	170.00
185.00	185.00	185.00	185.00	185.00	185.00	185.00	185.00
206.00	206.00	200.00	200.00	200.00	200.00	200.00	200.00
300.00	310.00	250.00	44.50	250.00	44.50	250.00	250.00
350.00	370.00	300.00	44.50	275.00	44.50	275.00	275.00
400.00	410.00	350.00	325.00	300.00	325.00	300.00	300.00
425.00	425.00	375.00	375.00	375.00	375.00	375.00	375.00
			400.00	400.00	400.00	400.00	400.00
			475.00	475.00	475.00	475.00	475.00
			500.00	500.00	500.00	500.00	500.00
			575.00	575.00	575.00	575.00	575.00
			600.00	600.00	600.00	600.00	600.00
			625.00	625.00	625.00	625.00	625.00

PROFILE 10

DATE 680324	DATE 691028	DATE 691118	DATE 691218	DATE 700120	DATE 700218	DATE 700310	DATE 700521
SVY 67	SVY 68	SVY 69	SVY 70	SVY 71	SVY 72	SVY 73	SVY 74
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00
104.00	104.00	115.00	134.60	117.00	145.00	145.00	145.00
120.00	120.00	134.60	134.60	134.60	134.60	134.60	134.60
150.00	150.00	167.00	167.00	167.00	167.00	167.00	167.00
167.00	167.00	182.00	182.00	182.00	182.00	182.00	182.00
177.00	177.00	177.00	177.00	177.00	177.00	177.00	177.00
194.00	194.00	200.00	200.00	200.00	200.00	200.00	200.00
225.00	225.00	250.00	250.00	250.00	250.00	250.00	250.00
246.00	246.00	241.00	241.00	241.00	241.00	241.00	241.00
275.00	275.00	275.00	275.00	275.00	275.00	275.00	275.00
300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00
325.00	325.00	325.00	325.00	325.00	325.00	325.00	325.00
375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00
400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00
425.00	425.00	425.00	425.00	425.00	425.00	425.00	425.00
450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00
475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00
500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00
525.00	525.00	525.00	525.00	525.00	525.00	525.00	525.00

LONG REACH ISLAND N.J.
DATUM IS HSL MEASUREMENT IS FT

PROFILE 11

DATE SERV TIME	DATE 620928 SERV 2 TIME 1200	DATE 621011 SERV 11 TIME 1200	DATE 621023 SERV 5 TIME 1200	DATE 621029 SERV 6 TIME 1200	DATE 621108 SERV 7 TIME 1200	DATE 621210 SERV 8 TIME 1200	DATE 621210 SERV 9 TIME 1200								
302.00	12.00	299.00	330.00	14.50	327.00	15.00	333.00	15.30	329.00	15.90	307.00	10.90	-1.00	5.10	
312.00	12.70	310.00	352.00	14.50	347.00	14.10	345.00	386.00	8.70	341.00	14.10	319.00	14.00	100.00	6.90
318.00	15.80	315.00	392.00	14.70	392.00	9.30	390.00	9.20	407.00	7.40	366.00	10.60	200.00	9.40	
335.00	16.10	325.00	409.00	8.30	406.00	7.80	405.00	423.00	5.30	367.00	8.20	371.00	7.00	300.00	11.60
353.00	13.80	333.00	433.00	12.20	431.00	4.80	428.00	466.00	1.20	390.00	4.50	409.00	3.00	306.00	11.90
365.00	9.80	358.00	439.00	12.70	439.00	5.90	453.00	1.90	466.00	-1.30	485.00	2.20	407.00	12.90	
399.00	9.40	386.00	471.00	8.70	471.00	2.20	494.00	-1.60	506.00	-3.10	490.00	9.00	437.00	11.30	
412.00	6.30	396.00	482.00	6.10	482.00	6.40									
462.00	2.80	425.00	2.10	462.00	2.80										
489.00	4.80	451.00	4.50	489.00	4.80										
507.00	-2.20	486.00	-5.0	507.00	-2.20	510.00	-1.20								
533.00	-2.80	506.00	-2.50	533.00	-2.80	540.00	-2.50								
552.00	-5.10	558.00	-5.10	552.00	-5.10										

PROFILE 11

DATE SERV TIME	DATE 630121 SERV 10 TIME 1200	DATE 630204 SERV 12 TIME 1200	DATE 630212 SERV 13 TIME 1200	DATE 630220 SERV 14 TIME 1200	DATE 630226 SERV 15 TIME 1200	DATE 630304 SERV 16 TIME 1200	DATE 630311 SERV 17 TIME 1200								
600.00	8.00	160.00	340.00	17.00	351.00	12.00	401.00	11.60	451.00	8.50	451.00	8.70	500.00	5.90	
412.00	8.90	401.00	353.00	11.90	376.00	12.60	428.00	9.70	501.00	5.90	501.00	6.20	526.00	9.60	
418.00	7.00	425.00	386.00	12.60	401.00	11.60	477.00	7.50	524.00	3.90	551.00	2.70	551.00	2.90	
450.00	6.10	451.00	430.00	12.80	451.00	8.40	542.00	5.40	551.00	1.90	601.00	6.00	576.00	6.00	
500.00	3.30	475.00	480.00	11.50	501.00	6.30	525.00	3.40	576.00	9.20	626.00	-2.90	602.00	-9.00	
550.00	4.70	525.00	4.80	425.00	10.20	551.00	1.20	570.00	1.70	601.00	-1.20				
575.00	-4.80	551.00	2.00	476.00	7.20	601.00	-9.40	601.00	-1.20						
		601.00	0.00	501.00	6.00	601.00	-1.10								
		601.00	-9.00	526.00	5.10										
		601.00	-1.00	601.00	-1.00										

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 11

DATE	TIME	SVY	STN	DATE	TIME	SVY	STN	DATE	TIME	SVY	STN	DATE	TIME	SVY	STN
-132.00	4:10			295.00	11:70	305.00	11:70	300.00	16:00	300.00	13:40	300.00	11:40	300.00	13:40
-103.00	4:20			312.00	16:40	325.00	17:40	320.00	16:00	310.00	16:40	310.00	11:40	310.00	16:40
-53.00	5:00			322.00	12:10	365.00	12:10	362.00	16:20	350.00	17:10	325.00	11:40	325.00	17:20
-33.00	5:10			402.00	16:50	402.00	16:50	381.00	12:20	350.00	11:40	345.00	11:40	345.00	11:40
07.00	5:30			602.00	16:50	602.00	16:50	402.00	10:10	370.00	11:50	359.00	12:00	359.00	12:00
98.00	6:20			916.00	6:10	916.00	6:10	452.00	8:10	405.00	8:20	370.00	11:40	370.00	11:40
108.00	7:20			953.00	6:50	953.00	6:50	402.00	10:20	426.00	7:40	405.00	8:20	405.00	8:20
109.00	9:20			977.00	6:20	977.00	6:20	425.00	7:50	476.00	6:10	477.00	3:40	427.00	4:40
209.00	10:50			528.00	5:60	528.00	5:60	478.00	6:60	502.00	3:50	527.00	8:50	452.00	7:10
284.00	11:40			528.00	1:90	528.00	1:90	508.00	6:90	527.00	1:20	503.00	8:50	503.00	8:50
308.00	17:00			605.00	7:00	605.00	7:00	512.00	6:60	553.00	-1:70		560.00	560.00	5:40
332.00	17:00			653.00	1:00	653.00	1:00	527.00	6:20				502.00	502.00	4:40
353.00	17:00			654.00	-1:00	654.00	-1:00	598.00	-2:70						
377.00	17:00														
402.00	11:10														
411.00	9:30														
472.00	3:00														
492.00	5:10														
551.00	2:00														
579.00	2:00														
600.00	-5:30														
650.00	-2:20														

PROFILE 11

DATE	TIME	SVY	STN	DATE	TIME	SVY	STN	DATE	TIME	SVY	STN	DATE	TIME	SVY	STN
299.00	12:20			332.00	18:10	332.00	18:10	345.00	17:40	345.00	13:40	345.00	13:40	345.00	13:40
310.00	16:50			364.00	12:80	365.00	16:90	350.00	13:60	310.00	17:40	370.00	13:40	370.00	13:40
325.00	17:00			406.00	9:70	406.00	9:70	396.00	9:60	325.00	19:40	401.00	6:40	401.00	6:40
343.00	16:40			451.00	7:90	451.00	10:10	451.00	7:80	355.00	12:80	400.00	7:30	400.00	7:30
365.00	12:40			502.00	7:20	502.00	7:20	472.00	8:40	451.00	7:20	451.00	7:30	451.00	7:30
376.00	11:90			502.00	7:00	502.00	7:00	502.00	6:70	451.00	6:40	500.00	6:40	500.00	6:40
401.00	10:70			527.00	1:50	527.00	1:50	527.00	5:40	401.00	6:40	526.00	6:40	526.00	6:40
440.00	9:40			578.00	1:00	578.00	1:00	578.00	3:30	551.00	2:20	551.00	4:40	551.00	4:40
452.00	7:00			603.00	-1:40	603.00	-1:40	578.00	1:40	578.00	4:60	577.00	6:10	577.00	6:10
477.00	7:40			628.00	-2:40	628.00	-2:40	603.00	-2:60	603.00	-2:60	602.00	4:20	602.00	4:20
502.00	6:10														
528.00	8:00														
576.00	0:00														
629.00	-2:00														

LONG BEACH ISLAND N.J.
 DATUM IS NSL MEASUREMENT IS FT

PROFILE 11

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME		
660922	50	1200	670505	52	1200	670920	54	1200	671218	55	1200	680117	56	1200	680227	57	1200	680327	
302.00	17.30	142.00	168.00	16.70	140.00	18.50	325.00	18.00	325.00	19.00	19.00	325.00	18.00	18.00	325.00	17.80	17.80	325.00	17.00
369.00	12.70	371.00	18.80	368.00	17.80	369.00	17.80	369.00	18.00	18.00	18.00	367.00	18.70	18.70	365.00	18.40	18.40	365.00	18.20
400.00	9.10	401.00	9.50	304.00	17.50	376.00	12.50	369.00	15.00	386.00	11.10	365.00	19.80	19.80	365.00	19.80	19.80	365.00	19.40
426.00	7.40	425.00	8.20	358.00	12.70	402.00	9.70	594.00	10.50	397.00	9.90	580.00	10.70	10.70	450.00	10.70	10.70	450.00	10.20
451.00	8.10	450.00	10.80	380.00	10.80	450.00	6.50	425.00	8.50	409.00	6.70	424.00	6.90	6.90	500.00	6.90	6.90	500.00	6.40
469.00	8.00	469.00	6.70	400.00	9.60	476.00	7.10	451.00	7.80	484.00	6.70	450.00	7.70	7.70	500.00	7.70	7.70	500.00	7.20
494.00	5.60	494.00	0.10	451.00	6.90	501.00	5.80	475.00	6.70	507.00	3.40	500.00	4.90	4.90	550.00	4.90	4.90	550.00	4.50
506.00	4.90	527.00	3.20	486.00	4.80	526.00	4.20	501.00	6.00	550.00	0.70	525.00	3.30	3.30	575.00	3.30	3.30	575.00	3.00
526.00	4.20	526.00	3.10	451.00	5.50	526.00	4.80	526.00	5.10	560.00	1.80	560.00	1.80	1.80	575.00	1.80	1.80	575.00	1.50
551.00	2.40	552.00	1.20	576.00	2.50	551.00	3.30	551.00	3.30	560.00	1.80	560.00	1.80	1.80	575.00	1.80	1.80	575.00	1.50
577.00	1.30	577.00	1.10	601.00	1.10	617.00	2.70	617.00	2.70	600.00	2.30	600.00	2.30	2.30	650.00	2.30	2.30	650.00	2.00
601.00	1.40	601.00	2.80	601.00	2.80	601.00	2.80	601.00	2.80	600.00	2.30	600.00	2.30	2.30	650.00	2.30	2.30	650.00	2.00

PROFILE 11

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	
681009	59	1200	681113	61	1200	681218	62	1200	690115	63	1200	690211	64	1200	690309	65	1200	
325.00	19.00	325.00	19.30	325.00	19.30	325.00	19.30	325.00	19.30	325.00	19.30	325.00	19.10	19.10	325.00	19.10	19.10	325.00
395.00	18.00	395.00	18.30	350.00	17.80	350.00	17.80	350.00	17.80	350.00	17.70	350.00	17.70	17.70	350.00	17.90	17.90	350.00
465.00	15.70	465.00	15.50	367.00	14.50	367.00	14.50	367.00	14.90	366.00	14.40	366.00	14.40	14.40	360.00	14.90	14.90	360.00
500.00	10.40	500.00	11.10	390.00	10.00	390.00	10.00	378.00	13.20	391.00	9.60	380.00	13.10	13.10	390.00	13.10	13.10	390.00
525.00	9.80	525.00	10.00	400.00	5.40	400.00	5.40	400.00	9.90	425.00	9.90	425.00	9.90	9.90	400.00	10.00	10.00	400.00
545.00	8.50	545.00	8.10	400.00	4.30	400.00	4.30	425.00	7.70	475.00	6.30	425.00	6.30	6.30	450.00	6.10	6.10	450.00
565.00	8.90	565.00	7.20	500.00	2.20	500.00	2.20	500.00	3.60	525.00	2.70	525.00	2.70	2.70	550.00	3.00	3.00	550.00
595.00	8.90	595.00	2.20	500.00	2.20	500.00	2.20	500.00	3.60	525.00	2.70	525.00	2.70	2.70	550.00	3.00	3.00	550.00
625.00	5.60	625.00	5.20	580.00	4.80	600.00	5.10	525.00	3.90	550.00	2.20	550.00	2.20	2.20	600.00	2.20	2.20	600.00
650.00	1.30	650.00	1.70	575.00	1.70	575.00	1.70	575.00	1.30	600.00	2.30	600.00	2.30	2.30	650.00	2.30	2.30	650.00
680.00	2.40	680.00	2.30	625.00	2.30	625.00	2.30	625.00	1.80	600.00	2.30	600.00	2.30	2.30	650.00	2.30	2.30	650.00

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 11

DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME
67 1200	68 1200	69118 1200	69121A 1200	70012B 1200	70021A 1200	700319 1200	700521 1200	70072 1200	70071A 1200	70071B 1200	70071C 1200	70071D 1200
325.00	19.70	325.00	19.10	325.00	19.30	325.00	19.00	325.00	19.40	325.00	19.46	307.00
327.00	19.20	327.00	19.30	327.00	19.30	327.00	19.30	327.00	19.10	327.00	19.00	376.00
340.00	18.40	345.00	18.30	347.00	18.30	347.00	18.30	347.00	18.30	347.00	18.30	468.00
375.00	17.20	349.00	17.10	349.00	17.10	349.00	17.10	349.00	17.10	349.00	17.10	468.00
392.00	16.00	349.00	16.00	349.00	16.00	349.00	16.00	349.00	16.00	349.00	16.00	468.00
420.00	9.30	425.00	9.40	418.00	9.70	425.00	8.90	431.00	7.20	450.00	8.10	468.00
456.00	9.50	466.00	9.50	437.00	7.00	467.00	8.00	467.00	7.20	450.00	8.10	468.00
475.00	6.30	466.00	9.60	450.00	6.50	475.00	6.50	475.00	6.50	475.00	6.50	468.00
500.00	3.60	475.00	8.30	475.00	5.50	475.00	5.50	475.00	5.50	475.00	5.50	468.00
525.00	1.80	500.00	5.30	500.00	5.00	500.00	4.80	500.00	4.80	500.00	4.80	468.00
550.00	0.00	525.00	1.90	525.00	2.60	531.00	2.40	531.00	2.40	531.00	2.40	468.00
575.00	-1.80	550.00	-2.50	575.00	0.10	600.00	0.00	600.00	0.00	600.00	0.00	468.00
600.00	-0.10	575.00	-3.40	600.00	-2.30	630.00	0.00	630.00	0.00	630.00	0.00	468.00
						635.00	-3.70	635.00	-3.70	635.00	-3.70	468.00

PROFILE 11

DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME
70082A 1200	70082B 1200	70082C 1200	701012 1200	701207 1200	70121A 1200	70121B 1200	70121C 1200	70121D 1200	70121E 1200	70121F 1200	70121G 1200	70121H 1200
325.00	19.60	325.00	19.50	325.00	19.70	325.00	19.80	325.00	19.70	325.00	19.50	325.00
336.00	19.70	335.00	19.40	336.00	20.00	335.00	20.20	336.00	19.40	336.00	19.80	325.00
371.00	19.70	358.00	19.00	350.00	18.40	350.00	18.50	368.00	15.30	368.00	15.10	376.00
376.00	13.70	362.00	16.00	375.00	18.60	375.00	18.40	400.00	10.10	400.00	9.80	468.00
450.00	9.80	450.00	8.70	466.00	10.30	466.00	10.30	466.00	10.30	466.00	10.30	468.00
492.00	7.90	498.00	7.70	495.00	7.40	495.00	6.00	500.00	2.80	500.00	2.30	500.00
500.00	6.50	525.00	3.00	450.00	5.20	478.00	6.00	550.00	-3.50	550.00	5.70	550.00
567.00	-2.00	600.00	0.90	550.00	4.20	500.00	4.00	568.00	-3.50	568.00	4.90	575.00
578.00	-1.00	650.00	-1.60	475.00	4.70	550.00	-1.0	500.00	4.20	575.00	4.90	575.00
600.00	-3.80	700.00	-2.70	525.00	2.40	525.00	-2.10	550.00	0.90	550.00	0.90	600.00
650.00	-9.10	750.00	-8.00	550.00	0.90	575.00	-0.90	575.00	-0.90	575.00	-0.90	600.00
700.00	-8.00	800.00	-8.20	600.00	-5.70	600.00	-5.70	600.00	-5.70	600.00	-5.70	600.00

LONG BEACH ISLAND H.A.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 11

DATE 710624	DATE 710617	DATE 711007	DATE 711214	DATE 720112	DATE 720215	DATE 720223	DATE 720315
SVY 83	SVY 85	SVY 86	SVY 87	SVY 88	SVY 89	SVY 90	SVY 91
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
325.00	325.00	19.40	325.00	325.00	19.40	325.00	19.40
350.00	310.00	19.40	350.00	19.40	300.00	19.40	325.00
400.00	370.00	19.40	400.00	19.40	360.00	19.40	375.00
450.00	400.00	19.40	450.00	19.40	410.00	19.40	420.00
500.00	430.00	19.40	500.00	19.40	440.00	19.40	460.00
550.00	460.00	19.40	550.00	19.40	470.00	19.40	490.00
600.00	490.00	19.40	600.00	19.40	500.00	19.40	520.00
650.00	520.00	19.40	650.00	19.40	510.00	19.40	540.00
700.00	550.00	19.40	700.00	19.40	520.00	19.40	560.00
750.00	580.00	19.40	750.00	19.40	530.00	19.40	580.00
800.00	610.00	19.40	800.00	19.40	540.00	19.40	600.00
850.00	640.00	19.40	850.00	19.40	550.00	19.40	620.00
900.00	670.00	19.40	900.00	19.40	560.00	19.40	640.00
950.00	700.00	19.40	950.00	19.40	570.00	19.40	660.00
1000.00	730.00	19.40	1000.00	19.40	580.00	19.40	680.00
1050.00	760.00	19.40	1050.00	19.40	590.00	19.40	700.00
1100.00	790.00	19.40	1100.00	19.40	600.00	19.40	720.00
1150.00	820.00	19.40	1150.00	19.40	610.00	19.40	740.00
1200.00	850.00	19.40	1200.00	19.40	620.00	19.40	760.00
1250.00	880.00	19.40	1250.00	19.40	630.00	19.40	780.00
1300.00	910.00	19.40	1300.00	19.40	640.00	19.40	800.00
1350.00	940.00	19.40	1350.00	19.40	650.00	19.40	820.00
1400.00	970.00	19.40	1400.00	19.40	660.00	19.40	840.00
1450.00	1000.00	19.40	1450.00	19.40	670.00	19.40	860.00
1500.00	1030.00	19.40	1500.00	19.40	680.00	19.40	880.00
1550.00	1060.00	19.40	1550.00	19.40	690.00	19.40	900.00
1600.00	1090.00	19.40	1600.00	19.40	700.00	19.40	920.00
1650.00	1120.00	19.40	1650.00	19.40	710.00	19.40	940.00
1700.00	1150.00	19.40	1700.00	19.40	720.00	19.40	960.00
1750.00	1180.00	19.40	1750.00	19.40	730.00	19.40	980.00
1800.00	1210.00	19.40	1800.00	19.40	740.00	19.40	1000.00
1850.00	1240.00	19.40	1850.00	19.40	750.00	19.40	1020.00
1900.00	1270.00	19.40	1900.00	19.40	760.00	19.40	1040.00
1950.00	1300.00	19.40	1950.00	19.40	770.00	19.40	1060.00
2000.00	1330.00	19.40	2000.00	19.40	780.00	19.40	1080.00
2050.00	1360.00	19.40	2050.00	19.40	790.00	19.40	1100.00
2100.00	1390.00	19.40	2100.00	19.40	800.00	19.40	1120.00
2150.00	1420.00	19.40	2150.00	19.40	810.00	19.40	1140.00
2200.00	1450.00	19.40	2200.00	19.40	820.00	19.40	1160.00
2250.00	1480.00	19.40	2250.00	19.40	830.00	19.40	1180.00
2300.00	1510.00	19.40	2300.00	19.40	840.00	19.40	1200.00
2350.00	1540.00	19.40	2350.00	19.40	850.00	19.40	1220.00
2400.00	1570.00	19.40	2400.00	19.40	860.00	19.40	1240.00
2450.00	1600.00	19.40	2450.00	19.40	870.00	19.40	1260.00
2500.00	1630.00	19.40	2500.00	19.40	880.00	19.40	1280.00
2550.00	1660.00	19.40	2550.00	19.40	890.00	19.40	1300.00
2600.00	1690.00	19.40	2600.00	19.40	900.00	19.40	1320.00
2650.00	1720.00	19.40	2650.00	19.40	910.00	19.40	1340.00
2700.00	1750.00	19.40	2700.00	19.40	920.00	19.40	1360.00
2750.00	1780.00	19.40	2750.00	19.40	930.00	19.40	1380.00
2800.00	1810.00	19.40	2800.00	19.40	940.00	19.40	1400.00
2850.00	1840.00	19.40	2850.00	19.40	950.00	19.40	1420.00
2900.00	1870.00	19.40	2900.00	19.40	960.00	19.40	1440.00
2950.00	1900.00	19.40	2950.00	19.40	970.00	19.40	1460.00
3000.00	1930.00	19.40	3000.00	19.40	980.00	19.40	1480.00
3050.00	1960.00	19.40	3050.00	19.40	990.00	19.40	1500.00
3100.00	1990.00	19.40	3100.00	19.40	1000.00	19.40	1520.00
3150.00	2020.00	19.40	3150.00	19.40	1010.00	19.40	1540.00
3200.00	2050.00	19.40	3200.00	19.40	1020.00	19.40	1560.00
3250.00	2080.00	19.40	3250.00	19.40	1030.00	19.40	1580.00
3300.00	2110.00	19.40	3300.00	19.40	1040.00	19.40	1600.00
3350.00	2140.00	19.40	3350.00	19.40	1050.00	19.40	1620.00
3400.00	2170.00	19.40	3400.00	19.40	1060.00	19.40	1640.00
3450.00	2200.00	19.40	3450.00	19.40	1070.00	19.40	1660.00
3500.00	2230.00	19.40	3500.00	19.40	1080.00	19.40	1680.00
3550.00	2260.00	19.40	3550.00	19.40	1090.00	19.40	1700.00
3600.00	2290.00	19.40	3600.00	19.40	1100.00	19.40	1720.00
3650.00	2320.00	19.40	3650.00	19.40	1110.00	19.40	1740.00
3700.00	2350.00	19.40	3700.00	19.40	1120.00	19.40	1760.00
3750.00	2380.00	19.40	3750.00	19.40	1130.00	19.40	1780.00
3800.00	2410.00	19.40	3800.00	19.40	1140.00	19.40	1800.00
3850.00	2440.00	19.40	3850.00	19.40	1150.00	19.40	1820.00
3900.00	2470.00	19.40	3900.00	19.40	1160.00	19.40	1840.00
3950.00	2500.00	19.40	3950.00	19.40	1170.00	19.40	1860.00
4000.00	2530.00	19.40	4000.00	19.40	1180.00	19.40	1880.00
4050.00	2560.00	19.40	4050.00	19.40	1190.00	19.40	1900.00
4100.00	2590.00	19.40	4100.00	19.40	1200.00	19.40	1920.00
4150.00	2620.00	19.40	4150.00	19.40	1210.00	19.40	1940.00
4200.00	2650.00	19.40	4200.00	19.40	1220.00	19.40	1960.00
4250.00	2680.00	19.40	4250.00	19.40	1230.00	19.40	1980.00
4300.00	2710.00	19.40	4300.00	19.40	1240.00	19.40	2000.00
4350.00	2740.00	19.40	4350.00	19.40	1250.00	19.40	2020.00
4400.00	2770.00	19.40	4400.00	19.40	1260.00	19.40	2040.00
4450.00	2800.00	19.40	4450.00	19.40	1270.00	19.40	2060.00
4500.00	2830.00	19.40	4500.00	19.40	1280.00	19.40	2080.00
4550.00	2860.00	19.40	4550.00	19.40	1290.00	19.40	2100.00
4600.00	2890.00	19.40	4600.00	19.40	1300.00	19.40	2120.00
4650.00	2920.00	19.40	4650.00	19.40	1310.00	19.40	2140.00
4700.00	2950.00	19.40	4700.00	19.40	1320.00	19.40	2160.00
4750.00	2980.00	19.40	4750.00	19.40	1330.00	19.40	2180.00
4800.00	3010.00	19.40	4800.00	19.40	1340.00	19.40	2200.00
4850.00	3040.00	19.40	4850.00	19.40	1350.00	19.40	2220.00
4900.00	3070.00	19.40	4900.00	19.40	1360.00	19.40	2240.00
4950.00	3100.00	19.40	4950.00	19.40	1370.00	19.40	2260.00
5000.00	3130.00	19.40	5000.00	19.40	1380.00	19.40	2280.00
5050.00	3160.00	19.40	5050.00	19.40	1390.00	19.40	2300.00
5100.00	3190.00	19.40	5100.00	19.40	1400.00	19.40	2320.00
5150.00	3220.00	19.40	5150.00	19.40	1410.00	19.40	2340.00
5200.00	3250.00	19.40	5200.00	19.40	1420.00	19.40	2360.00
5250.00	3280.00	19.40	5250.00	19.40	1430.00	19.40	2380.00
5300.00	3310.00	19.40	5300.00	19.40	1440.00	19.40	2400.00
5350.00	3340.00	19.40	5350.00	19.40	1450.00	19.40	2420.00
5400.00	3370.00	19.40	5400.00	19.40	1460.00	19.40	2440.00
5450.00	3400.00	19.40	5450.00	19.40	1470.00	19.40	2460.00
5500.00	3430.00	19.40	5500.00	19.40	1480.00	19.40	2480.00
5550.00	3460.00	19.40	5550.00	19.40	1490.00	19.40	2500.00
5600.00	3490.00	19.40	5600.00	19.40	1500.00	19.40	2520.00
5650.00	3520.00	19.40	5650.00	19.40	1510.00	19.40	2540.00
5700.00	3550.00	19.40	5700.00	19.40	1520.00	19.40	2560.00
5750.00	3580.00	19.40	5750.00	19.40	1530.00	19.40	2580.00
5800.00	3610.00	19.40	5800.00	19.40	1540.00	19.40	2600.00
5850.00	3640.00	19.40	5850.00	19.40	1550.00	19.40	2620.00
5900.00	3670.00	19.40	5900.00	19.40	1560.00	19.40	2640.00
5950.00	3700.00	19.40	5950.00	19.40	1570.00	19.40	2660.00
6000.00	3730.00	19.40	6000.00	19.40	1580.00	19.	

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 11

DATE 730003	DATE 730107	DATE 730612
SVY 100	SVY 101	SVY 103
TIME 1100	TIME 1300	TIME 1100
19.00	19.00	19.50
125.00	129.00	135.00
350.00	335.00	360.00
318.00	360.00	360.00
301.00	360.00	391.00
390.00	400.00	400.00
388.00	450.00	445.00
432.00	440.00	464.00
450.00	460.00	487.00
475.00	480.00	500.00
500.00	500.00	525.00
550.00	550.00	550.00
-3.10	-2.50	-2.10

PROFILE 12

DATE 420028	DATE 420028	DATE 421011	DATE 421023	DATE 421029	DATE 421108	DATE 421210	DATE 421215
SVY 1	SVY 2	SVY 4	SVY 5	SVY 6	SVY 7	SVY 8	SVY 9
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
16.00	15.50	16.00	15.20	16.00	16.30	17.00	16.00
34.00	15.90	123.00	30.00	15.80	63.00	15.30	33.00
40.00	14.90	160.00	45.00	16.00	97.00	8.00	65.00
72.00	14.20	144.00	66.00	15.20	120.00	6.70	96.00
45.00	11.20	240.00	100.00	14.50	162.00	8.20	122.00
195.00	7.90	267.00	125.00	6.00	215.00	4.00	195.00
132.00	6.00	286.00	183.00	4.00	501.00	5.90	286.00
150.00	7.00	207.00	207.00	4.30	501.00	-1.30	226.00
185.00	5.00	220.00	220.00	5.00	307.00	-1.70	253.00
215.00	-1.0	220.00	262.00	-1.40	262.00	-1.40	262.00
245.00	-1.70	245.00	285.00	4.80	274.00	4.80	274.00
300.00	-1.90	300.00	324.00	1.00	324.00	1.00	324.00
320.00	-2.00	320.00	666.00	-1.70	666.00	-1.70	666.00

LONG BEACH ISLAND No. 4
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 12

DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME
-1.00	641201	650119	650427	650907	651027	651222	660125	660127	660127	660127
35.00	14.00	92.00	19.80	50.00	18.90	47.00	20.00	51.00	17.90	44.00
48.00	18.00	112.00	13.00	91.00	10.20	71.00	13.30	75.00	15.70	34.00
101.00	9.00	152.00	9.00	102.00	9.70	101.00	9.50	101.00	9.70	55.00
126.00	9.00	172.00	7.90	104.00	7.70	152.00	7.40	152.00	7.40	75.00
172.00	9.00	202.00	4.00	167.00	6.00	167.00	6.10	202.00	7.40	101.00
202.00	9.00	227.00	4.80	202.00	7.00	202.00	6.00	202.00	7.40	151.00
222.00	9.00	324.00	8.20	227.00	7.40	218.00	6.00	227.00	7.40	151.00
303.00	9.00	333.00	-1.70	278.00	1.50	278.00	1.50	324.00	8.20	151.00
324.00	-1.00			303.00	-1.70	324.00	-1.50	351.00	-1.80	274.00
				350.00	-1.70			404.00	-3.20	427.00
										427.00

PROFILE 12

DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME	DATE SHVY TIME
150.00	660922	670116	670505	670920	671218	680117	680227	680227	680227	680227
221.00	7.00	50.00	20.30	40.00	20.50	35.00	20.00	50.00	20.90	0.00
251.00	6.30	106.00	19.60	73.00	14.90	50.00	20.00	75.00	13.80	30.00
277.00	3.30	124.00	11.20	95.00	10.80	80.00	13.00	100.00	10.60	41.00
302.00	1.70	151.00	8.40	151.00	8.30	100.00	10.50	151.00	8.90	81.00
327.00	-0.20	206.00	7.90	201.00	7.30	251.00	8.90	206.00	7.90	100.00
351.00	-1.50	227.00	7.50	251.00	6.80	301.00	5.10	228.00	6.30	150.00
		262.00	6.30	251.00	6.80	301.00	1.00	300.00	4.10	100.00
		274.00	5.30	326.00	0.00	325.00	-2.00	350.00	-3.00	200.00
		302.00	2.60	352.00	-2.10	342.00	-2.20	350.00	-3.00	350.00
		352.00	-2.50	377.00	-2.30	427.00	-2.70	350.00	-3.00	350.00
								470.00	-2.70	470.00

LONG BEACH ISLAND N.J.
 DATUM IS WSL MEASUREMENT IS FT

PROFILE 12

DATE 681009	DATE 681023	DATE 681113	DATE 681218	DATE 690115	DATE 690213	DATE 690304	DATE 690528
SRVY 59	SRVY 60	SRVY 61	SRVY 62	SRVY 63	SRVY 64	SRVY 65	SRVY 66
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
30.00 28.80	38.00 21.00	25.00 20.20	45.00 20.70	35.00 21.50	35.00 21.50	54.00 19.90	37.00 22.10
55.00 21.10	55.00 21.20	55.00 21.00	60.00 20.60	58.00 20.50	58.00 20.70	76.00 14.90	57.00 20.60
75.00 17.00	75.00 17.30	75.00 17.00	70.00 17.70	70.00 17.90	83.00 14.00	47.00 13.00	75.00 19.30
95.00 11.00	95.00 11.30	100.00 11.20	60.00 14.20	80.00 14.00	100.00 11.00	100.00 11.00	100.00 11.00
150.00 8.90	150.00 9.00	150.00 7.60	100.00 11.20	150.00 7.20	150.00 8.00	125.00 8.50	250.00 8.40
200.00 8.70	200.00 8.00	200.00 8.60	150.00 7.80	150.00 7.70	200.00 6.50	175.00 7.00	250.00 6.20
230.00 7.80	230.00 8.40	250.00 8.40	200.00 6.40	200.00 6.30	200.00 6.50	200.00 6.50	275.00 6.10
250.00 7.50	250.00 7.60	300.00 3.30	275.00 3.00	275.00 4.30	275.00 4.00	200.00 7.13	275.00 4.10
275.00 3.50	275.00 3.70	350.00 0.10	325.00 2.10	300.00 4.40	300.00 2.80	231.00 7.13	245.00 3.70
320.00 2.70	325.00 1.90		325.00 0.00	325.00 0.10	350.00 1.00	250.00 5.20	
350.00 2.50	350.00 4.50		350.00 0.00	350.00 0.10	350.00 1.60	300.00 2.30	
			375.00 0.00	375.00 0.00	375.00 0.00	350.00 2.80	

PROFILE 12

DATE 690924	DATE 691020	DATE 691118	DATE 691218	DATE 700120	DATE 700216	DATE 700314	DATE 700521
SRVY 67	SRVY 68	SRVY 69	SRVY 70	SRVY 71	SRVY 72	SRVY 73	SRVY 74
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
25.00 19.50	0.00 15.10	40.00 20.50	0.00 15.20	0.00 15.20	33.00 20.00	39.00 20.70	41.00 20.90
50.00 20.40	41.00 20.60	49.00 20.20	45.00 20.50	8.00 17.70	60.00 19.70	47.00 20.60	45.00 12.80
75.00 15.90	98.00 20.20	110.00 11.80	45.00 20.60	38.00 20.60	80.00 15.70	81.00 15.00	150.00 9.50
100.00 11.90	94.00 12.00	120.00 9.70	100.00 12.00	47.00 20.50	100.00 12.40	100.00 12.10	200.00 8.00
125.00 9.50	125.00 9.60	150.00 9.50	119.00 9.80	100.00 12.20	150.00 9.70	117.00 10.10	250.00 7.70
140.00 9.50	150.00 9.50	175.00 9.70	150.00 9.50	115.00 10.60	200.00 8.80	150.00 9.40	300.00 1.50
180.00 9.80	175.00 9.70	200.00 8.50	186.00 9.60	132.00 9.70	250.00 3.80	200.00 6.20	330.00 2.10
200.00 8.10	200.00 7.80	225.00 8.40	150.00 9.70	132.00 9.70	250.00 3.80	200.00 6.20	
225.00 4.90	230.00 8.60	250.00 8.40	229.00 7.90	178.00 9.50	300.00 3.00	290.00 5.40	
250.00 3.10	281.00 7.00	290.00 8.40	245.00 6.30	200.00 7.70	375.00 0.20	300.00 0.00	
275.00 1.80	280.00 6.50	300.00 8.30	271.00 6.20	232.00 6.40			
300.00 4.50	275.00 4.50	325.00 1.10	300.00 3.10	250.00 6.40			
315.00 0.20	300.00 2.10	350.00 0.10	325.00 0.10	250.00 8.20			
325.00 1.50	325.00 1.10	360.00 1.40	325.00 0.10	350.00 3.80			
350.00 0.20	350.00 2.10	375.00 0.00	375.00 0.00	380.00 3.80			
400.00 1.90	375.00 0.90						
	400.00 0.90						
	425.00 1.40						
	450.00 2.10						

LONG REACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 12

DATE	TIME	SVV	DATE	TIME	SVV	DATE	TIME	SVV	DATE	TIME	SVV	DATE	TIME	SVV
720011	10:50	0.00	720023	0:00	10:40	721017	15:00	0.00	730103	0:00	14:90	730125	0:00	14:90
47.00	20:70	50.00	27.00	27.00	42.00	20:50	42.00	20:50	30.00	17:30	21.00	31.00	21.00	0.00
100.00	13:30	107.00	11.00	11.00	103.00	10:30	103.00	10:30	100.00	10:30	100.00	102.00	102.00	0.00
127.00	10:00	150.00	9:50	9:50	126.00	10:50	128.00	10:50	150.00	9:30	113.00	152.00	152.00	0.00
150.00	9:00	185.00	9:70	9:70	150.00	9:40	150.00	9:40	174.00	8:10	155.00	186.00	186.00	0.00
186.00	8:40	200.00	8:40	200.00	200.00	8:90	200.00	8:90	200.00	7:80	155.00	200.00	200.00	0.00
200.00	8:50	235.00	8:10	250.00	250.00	8:10	215.00	7:70	225.00	4:90	150.00	202.00	202.00	0.00
237.00	5:40	250.00	5:00	250.00	250.00	4:50	218.00	6:00	250.00	4:80	200.00	245.00	245.00	0.00
250.00	4:40	300.00	-1.00	300.00	-1.00	275.00	2.00	250.00	3.00	275.00	-0.60	250.00	250.00	0.00
300.00	-1:40	325.00	-3.00	300.00	-3.00	300.00	-1.00	300.00	0.00	300.00	-2:10	275.00	275.00	0.00
320.00	-2:40					325.00	-2:50	330.00	-1:40	325.00	-1:40			

PROFILE 12

DATE	TIME	SVV	DATE	TIME	SVV	DATE	TIME	SVV	DATE	TIME	SVV	DATE	TIME	SVV
710003	1:00	0.00	710017	0:00	14:90	710012	1:03	0.00	730103	0:00	14:90	730125	0:00	14:90
SVV	1:00	0.00	SVV	1:00	14:90	SVV	1:03	0.00	SVV	1:03	14:90	SVV	1:03	0.00
TIME	1:00	0.00	TIME	1:00	14:90	TIME	1:00	0.00	TIME	1:00	14:90	TIME	1:00	0.00
0.00	14:90	0.00	0.00	14:90	0.00	0.00	14:90	0.00	0.00	14:90	0.00	0.00	14:90	0.00
36.00	21:00	37.00	21.00	21.00	37.00	20:00	37.00	20:00	37.00	20:00	37.00	20:00	37.00	20:00
52.00	20:40	60.00	19:70	60.00	19:70	60.00	20:00	60.00	60.00	19:70	60.00	60.00	19:70	60.00
92.00	15:50	100.00	13:70	100.00	13:70	100.00	13:70	100.00	100.00	13:70	100.00	100.00	13:70	100.00
100.00	13:40	100.00	12:20	100.00	12:20	100.00	9:40	100.00	9:40	100.00	9:40	100.00	10:00	100.00
107.00	12:40	143.00	10:20	140.00	10:20	140.00	9:10	140.00	9:10	140.00	8:10	140.00	100.00	12:50
155.00	10:40	151.00	8:40	149.00	8:40	149.00	0:40	149.00	0:40	149.00	0:40	149.00	100.00	9:40
163.00	9:50	140.00	8:90	200.00	-2:20	200.00	0.00	200.00	0.00	200.00	-2:20	200.00	200.00	0.00
200.00	4:40	200.00	0.00	200.00	0.00	200.00	0.00	200.00	0.00	200.00	0.00	200.00	200.00	0.00
250.00	1:10	250.00	0.00	250.00	0.00	250.00	0.00	250.00	0.00	250.00	0.00	250.00	250.00	0.00
276.00	-1:10	290.00	-3.00	290.00	-3.00	290.00	-2:50	290.00	-1:40	290.00	-1:40	290.00	290.00	-1:40

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 13

DATE SVNY TIME	DATE SVNY TIME	DATE SVNY TIME	DATE SVNY TIME	DATE SVNY TIME	DATE SVNY TIME	DATE SVNY TIME
620026	620028	621011	621023	621029	621108	621210
1	2	4	5	6	7	8
33.00	13.00	55.00	22.00	82.00	33.00	41.00
57.00	19.00	78.00	31.00	100.00	39.00	74.00
65.00	19.20	98.00	48.00	146.00	58.00	97.00
70.00	19.80	150.00	75.00	196.00	77.00	126.00
75.00	19.70	211.00	98.00	180.00	117.00	151.00
80.00	19.40	255.00	121.00	243.00	162.00	231.00
80.00	19.60	234.00	143.00	203.00	189.00	206.00
103.00	7.80	234.00	169.00	201.00	223.00	179.00
123.00	7.80	234.00	201.00	231.00	255.00	206.00
176.00	7.70	231.00	231.00	255.00	273.00	225.00
209.00	3.40	233.00	231.00	255.00	275.00	275.00
233.00	1.40	235.00	231.00	255.00	300.00	300.00
235.00	1.10				326.00	326.00
					350.00	350.00
					376.00	376.00
					401.00	401.00

PROFILE 13

DATE SVNY TIME	DATE SVNY TIME	DATE SVNY TIME	DATE SVNY TIME	DATE SVNY TIME	DATE SVNY TIME	DATE SVNY TIME
630121	630122	630204	630212	630220	630224	630300
10	11	12	13	14	15	16
226.00	6.20	167.00	202.00	9.30	276.00	147.00
248.00	5.30	166.00	226.00	9.50	300.00	175.00
275.00	4.80	189.00	240.00	9.10	324.00	201.00
300.00	2.90	200.00	276.00	7.20	352.00	224.00
350.00	1.80	247.00	302.00	6.90	401.00	251.00
400.00	0.00	267.00	326.00	5.90	401.00	274.00
451.00	-1.00	287.00	348.00	3.30	401.00	301.00
		301.00	370.00	1.30	401.00	325.00
		350.00	425.00	0.00	401.00	351.00
		376.00	450.00	-0.60	401.00	376.00
		425.00		-0.20		
		450.00		-1.20		

LONG BEACH ISLAND No. J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 13

DATE 630310	DATE 630320	DATE 630400	DATE 630420	DATE 630413	DATE 630425	DATE 630711	DATE 630725
SVY 18	SVY 19	SVY 20	SVY 21	SVY 22	SVY 23	SVY 24	SVY 25
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
-1.00	224.00	151.00	0.00	100.00	100.00	100.00	75.00
50.00	12.00	167.00	9.70	126.00	125.00	124.00	100.00
100.00	12.10	229.00	6.90	151.00	125.00	124.00	124.10
120.00	13.00	229.00	75.00	175.00	151.00	151.00	117.00
145.00	13.50	276.00	5.10	225.00	180.00	176.00	149.00
187.00	9.60	301.00	3.20	250.00	200.00	201.00	175.00
205.00	5.20	376.00	2.20	276.00	225.00	227.00	211.00
276.00	2.00	376.00	-1.40	300.00	251.00	251.00	215.00
301.00	1.00	376.00	50.00	325.00	276.00	276.00	275.00
301.00	1.50	376.00	30.00	351.00	276.00	276.00	301.00
352.00	1.50	376.00	351.00	-1.60	-1.60	-1.40	326.00
376.00	-1.50		-1.50				-1.50

PROFILE 13

DATE 630606	DATE 630620	DATE 630906	DATE 630926	DATE 631010	DATE 631024	DATE 631115	DATE 631227
SVY 26	SVY 27	SVY 28	SVY 29	SVY 30	SVY 31	SVY 32	SVY 33
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
25.00	12.20	75.00	25.00	7.50	-1.00	51.00	0.00
50.00	13.10	101.00	12.10	7.00	24.00	75.00	15.00
75.00	14.50	126.00	15.00	7.30	51.00	101.00	60.00
100.00	11.50	176.00	9.00	7.80	74.00	126.00	78.00
127.00	8.40	192.00	10.10	9.00	101.00	151.00	121.00
151.00	7.50	252.00	7.50	5.60	126.00	176.00	152.00
177.00	7.60	276.00	6.00	2.00	177.00	203.00	178.00
201.00	7.20	277.00	5.50	-0.00	203.00	276.00	202.00
251.00	2.30	303.00	4.50	-0.90	226.00	276.00	263.00
276.00	2.30	303.00	1.00	0.00	276.00	276.00	284.00
301.00	-1.20	305.00	0.00	0.00	305.00	276.00	302.00
			0.00	-0.40	-0.40		302.00

LUNG HEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 13

DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	
-101.00	8.70	60.00	12.60	14.00	12.60	15.00	12.20	15.00	12.20	15.00	12.20	14.00	12.20	15.00	12.20	14.00	12.20	14.00	12.20	15.00	12.20
-121.00	10.00	75.00	17.70	54.00	16.10	25.00	13.60	26.00	14.10	09.00	14.00	14.00	14.00	09.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
-141.00	10.00	101.00	9.90	74.00	10.20	61.00	14.30	62.00	14.30	61.00	14.30	61.00	14.30	61.00	14.30	61.00	14.30	61.00	14.30	61.00	14.30
-161.00	11.90	151.00	8.70	101.00	11.00	76.00	15.10	77.00	15.10	76.00	15.10	76.00	15.10	76.00	15.10	76.00	15.10	76.00	15.10	76.00	15.10
0.00	11.90	201.00	5.80	162.00	7.90	101.00	11.00	102.00	11.00	101.00	11.00	102.00	11.00	101.00	11.00	102.00	11.00	101.00	11.00	102.00	11.00
14.00	12.00	227.00	6.70	177.00	6.50	128.00	9.00	129.00	8.90	128.00	9.00	129.00	8.90	128.00	9.00	129.00	8.90	128.00	9.00	129.00	8.90
36.00	15.10	217.00	6.70	202.00	6.50	177.00	7.50	178.00	7.40	177.00	7.50	178.00	7.40	177.00	7.50	178.00	7.40	177.00	7.50	178.00	7.40
59.00	17.20	279.00	3.70	228.00	3.30	203.00	6.50	204.00	6.40	203.00	6.50	204.00	6.40	203.00	6.50	204.00	6.40	203.00	6.50	204.00	6.40
78.00	18.60	308.00	2.00	278.00	1.00	227.00	4.00	228.00	3.90	227.00	4.00	228.00	3.90	227.00	4.00	228.00	3.90	227.00	4.00	228.00	3.90
101.00	19.60	324.00	0.70	304.00	0.00	278.00	1.80	279.00	1.70	278.00	1.80	279.00	1.70	278.00	1.80	279.00	1.70	278.00	1.80	279.00	1.70
127.00	8.90	350.00	0.70	346.00	0.00	324.00	1.80	325.00	1.70	324.00	1.80	325.00	1.70	324.00	1.80	325.00	1.70	324.00	1.80	325.00	1.70
153.00	7.80	380.00	0.10	354.00	0.00	303.00	0.10	304.00	0.00	303.00	0.10	304.00	0.00	303.00	0.10	304.00	0.00	303.00	0.10	304.00	0.00
202.00	9.60	400.00	-1.00	379.00	-1.60	328.00	-0.60	329.00	-0.50	328.00	-0.60	329.00	-0.50	328.00	-0.60	329.00	-0.50	328.00	-0.60	329.00	-0.50
228.00	3.60	420.00	-2.20	400.00	-2.80	350.00	-2.10	351.00	-2.00	350.00	-2.10	351.00	-2.00	350.00	-2.10	351.00	-2.00	350.00	-2.10	351.00	-2.00
252.00	3.60	450.00	0.00	420.00	0.00	380.00	0.00	381.00	0.00	380.00	0.00	381.00	0.00	380.00	0.00	381.00	0.00	380.00	0.00	381.00	0.00
278.00	3.60	480.00	0.00	450.00	0.00	400.00	0.00	401.00	0.00	400.00	0.00	401.00	0.00	400.00	0.00	401.00	0.00	400.00	0.00	401.00	0.00
304.00	3.60	510.00	0.00	480.00	0.00	420.00	0.00	421.00	0.00	420.00	0.00	421.00	0.00	420.00	0.00	421.00	0.00	420.00	0.00	421.00	0.00
330.00	0.00	540.00	0.00	510.00	0.00	450.00	0.00	451.00	0.00	450.00	0.00	451.00	0.00	450.00	0.00	451.00	0.00	450.00	0.00	451.00	0.00
356.00	0.00	570.00	0.00	540.00	0.00	480.00	0.00	481.00	0.00	480.00	0.00	481.00	0.00	480.00	0.00	481.00	0.00	480.00	0.00	481.00	0.00
382.00	0.00	600.00	0.00	570.00	0.00	510.00	0.00	511.00	0.00	510.00	0.00	511.00	0.00	510.00	0.00	511.00	0.00	510.00	0.00	511.00	0.00
408.00	0.00	630.00	0.00	600.00	0.00	540.00	0.00	541.00	0.00	540.00	0.00	541.00	0.00	540.00	0.00	541.00	0.00	540.00	0.00	541.00	0.00
434.00	0.00	660.00	-2.40	630.00	-3.00	570.00	-2.40	571.00	-2.30	570.00	-2.40	571.00	-2.30	570.00	-2.40	571.00	-2.30	570.00	-2.40	571.00	-2.30

PROFILE 13

DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	DATE	SPVY	TIME	
46.00	11.00	85.00	11.20	62.00	11.00	65.00	19.00	62.00	11.00	62.00	11.00	65.00	19.00	62.00	11.00	62.00	11.00	65.00	19.00	62.00	11.00
74.00	17.90	101.00	11.20	60.00	11.50	104.00	11.60	67.00	11.70	67.00	11.70	106.00	11.70	62.00	11.70	62.00	11.70	106.00	11.70	62.00	11.70
102.00	14.70	129.00	9.10	101.00	10.20	152.00	8.10	101.00	11.60	152.00	8.10	102.00	7.70	63.00	11.20	63.00	11.20	106.00	11.20	63.00	11.20
126.00	9.20	172.00	5.60	151.00	7.60	177.00	6.50	152.00	7.60	152.00	7.60	202.00	6.50	80.00	18.20	80.00	18.20	150.00	18.20	80.00	18.20
152.00	8.00	202.00	4.90	203.00	6.00	203.00	6.20	202.00	6.00	202.00	6.00	207.00	6.00	90.00	12.60	90.00	12.60	201.00	12.60	90.00	12.60
178.00	9.00	253.00	3.90	253.00	6.00	253.00	7.10	253.00	7.00	253.00	7.00	300.00	4.80	151.00	4.00	151.00	4.00	251.00	4.00	151.00	4.00
203.00	9.00	283.00	2.80	303.00	2.90	278.00	7.70	277.00	4.90	354.00	4.80	354.00	4.80	201.00	6.00	201.00	6.00	278.00	6.00	201.00	6.00
215.00	9.50	350.00	1.80	300.00	1.50	350.00	0.00	300.00	1.50	350.00	0.00	300.00	1.50	250.00	5.00	250.00	5.00	378.00	5.00	250.00	5.00
240.00	7.20	370.00	1.80	380.00	0.00	380.00	1.50	381.00	0.00	380.00	1.50	381.00	0.00	327.00	7.00	327.00	7.00	378.00	7.00	327.00	7.00
270.00	3.50	400.00	0.10	400.00	-1.70	400.00	-2.40	400.00	-2.40	400.00	-2.40	400.00	-2.40	350.00	1.10	350.00	1.10	397.00	1.10	350.00	1.10

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 13

DATE TIME	SRVY 50	DATE TIME	SRVY 51	DATE TIME	SRVY 52	DATE TIME	SRVY 54	DATE TIME	SRVY 55	DATE TIME	SRVY 56	DATE TIME	SRVY 57	DATE TIME	SRVY 58
744.00	14.40	670114	17.90	670505	17.30	670920	16.20	671214	12.60	680117	12.60	680227	12.50	680127	12.40
844.00	14.40	60.00	18.40	40.00	18.20	15.00	17.00	15.00	8.60	150.00	8.90	151.00	9.40	150.00	8.50
100.00	12.20	60.00	17.40	83.00	17.20	60.00	17.40	201.00	6.60	200.00	6.30	199.00	4.00	184.00	6.70
151.00	4.50	104.00	12.70	124.00	12.30	74.00	13.50	251.00	3.30	250.00	5.10	250.00	4.00	170.00	3.40
201.00	8.50	150.00	8.20	180.00	7.60	115.00	11.30	301.00	0.60	300.00	-2.60	350.00	-2.70	150.00	-1.90
214.00	5.40	201.00	7.30	201.00	5.10	131.00	6.20	400.00	-2.40	394.00	-3.30				
230.00	4.00	277.00	4.00	301.00	3.90	181.00	5.90								
302.00	4.50	324.00	2.80	326.00	1.20	215.00	5.40								
328.00	1.00	327.00	2.70	342.00	-1.40	256.00	6.10								
352.00	-4.50	352.00	-4.50			282.00	3.70								
377.00	-4.00			432.00	-4.20	432.00	-4.20								
403.00	-1.40			357.00	-2.00	357.00	-2.00								

PROFILE 13

DATE TIME	SRVY 59	DATE TIME	SRVY 60	DATE TIME	SRVY 61	DATE TIME	SRVY 62	DATE TIME	SRVY 63	DATE TIME	SRVY 64	DATE TIME	SRVY 65	DATE TIME	SRVY 66
150.00	9.30	681023	9.20	681113	8.70	681214	9.00	690115	8.90	690213	9.10	690304	9.40	690424	14.40
200.00	7.40	200.00	7.40	200.00	5.60	200.00	6.40	200.00	7.60	200.00	6.20	200.00	5.10	15.00	14.00
250.00	7.10	250.00	7.50	250.00	3.60	250.00	6.10	250.00	6.10	250.00	7.10	250.00	2.90	93.00	11.40
277.00	7.60	255.00	7.50	300.00	3.00	300.00	4.50	300.00	3.30	300.00	3.40	300.00	2.60	125.00	9.10
278.00	5.60	257.00	5.50	350.00	1.50	350.00	-4.30	350.00	-1.70	350.00	-1.00	350.00	4.50	150.00	7.50
300.00	3.60	300.00	1.80	400.00	-1.20	400.00	-4.40	400.00	-4.70	400.00	-3.70	400.00	-1.00	200.00	7.50
350.00	1.10	350.00	-4.50											250.00	5.50
														400.00	3.40
														340.00	-1.20
														340.00	-2.40

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 33

DATE 720A24	DATE 721017	DATE 721205	DATE 730A25	DATE 730Q03	DATE 730Q14
SRVY 93	SRVY 94	SRVY 95	SRVY 99	SRVY 100	SRVY 101
TIME 800	TIME 1100	TIME 1100	TIME 800	TIME 1200	TIME 900
35.00 13.10	44.00 14.00	38.00 13.70	40.00 13.60	39.00 13.60	37.00 13.50
72.00 17.40	56.00 14.50	70.00 16.30	70.00 16.50	69.00 16.60	67.00 16.20
100.00 19.40	76.00 16.40	81.00 17.30	82.00 16.90	80.00 17.30	80.00 17.30
105.00 18.20	76.00 17.00	100.00 16.50	100.00 16.50	100.00 16.80	100.00 16.80
105.00 18.20	76.00 17.00	116.00 17.20	116.00 17.20	116.00 17.20	116.00 17.20
105.00 18.20	76.00 17.00	100.00 16.50	100.00 16.50	100.00 16.80	100.00 16.80
200.00 8.30	100.00 10.10	104.00 10.30	104.00 10.30	104.00 10.30	104.00 10.30
250.00 8.00	104.00 10.10	103.00 10.30	103.00 10.30	103.00 10.30	103.00 10.30
277.00 8.00	170.00 10.20	200.00 8.60	200.00 8.60	200.00 8.60	200.00 8.60
290.00 6.80	210.00 8.70	250.00 8.60	250.00 8.60	250.00 8.60	250.00 8.60
300.00 6.30	250.00 8.00	283.00 8.60	283.00 8.60	283.00 8.60	283.00 8.60
350.00 2.20	300.00 5.80	305.00 7.40	305.00 7.40	305.00 7.40	305.00 7.40
375.00 .20	314.00 5.60	300.00 5.50	300.00 5.50	300.00 5.50	300.00 5.50
400.00 -1.10	314.00 5.10	350.00 1.50	350.00 1.50	350.00 1.50	350.00 1.50
425.00 -2.20	325.00 3.10	400.00 -0.70	400.00 -0.70	400.00 -0.70	400.00 -0.70
	350.00 1.40	405.00 -2.50	405.00 -2.50	405.00 -2.50	405.00 -2.50
	375.00 0.50				
	400.00 -2.40				

PROFILE 14

DATE 621002	DATE 621011	DATE 621023	DATE 621029	DATE 621108	DATE 621210	DATE 630115	DATE 630121
SRVY 3	SRVY 4	SRVY 5	SRVY 6	SRVY 7	SRVY 8	SRVY 9	SRVY 10
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
122.00 10.40	159.00 15.80	99.00 13.80	163.30 16.30	101.00 13.80	102.00 16.50	0.00 10.80	274.00 5.20
120.00 16.80	370.00 8.40	129.00 9.00	162.00 15.40	111.00 13.10	170.00 13.40	50.00 13.60	280.00 2.80
105.00 19.00	370.00 8.00	150.00 12.00	210.00 16.00	182.00 16.20	210.00 9.50	180.00 15.90	374.00 -2.50
231.00 6.70	310.00 3.70	9.00 270.00	5.30 276.00	102.00 9.50	260.00 7.20	191.00 9.60	
282.00 6.30	300.00 2.60	0.00 270.00	4.10 308.00	10.30 260.00	260.00 4.20	226.00 8.80	
310.00 2.20	300.00 -0.20	5.00 322.00	-6.60 345.00	9.20 351.00	-2.50 362.00	251.00 7.20	
347.00 -2.40			278.00 5.30	330.00 3.50	330.00 3.50	330.00 3.50	
			315.00 3.20	374.00 -1.30			

LONG REACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 14

DATE SPVY	TIME	DATE SPVY	TIME	DATE SPVY	TIME	DATE SPVY	TIME	DATE SPVY	TIME	DATE SPVY	TIME	DATE SPVY	TIME
450128	11:00	650204	12:00	650212	13:00	650220	14:00	650226	15:00	650308	17:00	650311	18:00
192.00	9.00	101.00	15.70	229.00	8.40	230.00	8.60	235.00	8.00	175.00	11.70	591.00	3.70
235.00	9.50	204.00	9.70	250.00	6.40	300.00	3.00	274.00	5.20	200.00	10.10	325.00	2.70
251.00	6.00	230.00	8.40	276.00	5.40	325.00	1.50	302.00	0.40	226.00	8.20	351.00	1.70
275.00	3.00	250.00	6.10	301.00	0.10	350.00	0.70	351.00	1.40	251.00	7.00	374.00	0.60
300.00	2.40	300.00	2.10	325.00	1.00	374.00	-0.50	401.00	-1.10	274.00	5.70	401.00	-1.70
352.00	-1.20	324.00	0.80	376.00	-1.10	400.00	-2.10	401.00	-2.10	325.00	2.50	401.00	-1.10
		351.00	0.00							352.00	0.40		
		376.00	-1.50							376.00	0.00		
										401.00	-1.40		

PROFILE 14

DATE SPVY	TIME	DATE SPVY	TIME	DATE SPVY	TIME	DATE SPVY	TIME	DATE SPVY	TIME	DATE SPVY	TIME	DATE SPVY	TIME
450526	10:00	650600	20:00	650528	21:00	650613	22:00	650625	23:00	650711	24:00	650723	25:00
225.00	8.30	139.00	15.40	11.00	10.90	241.00	7.40	200.00	9.40	225.00	8.30	201.00	9.40
251.00	7.20	161.00	10.70	50.00	12.00	245.00	6.00	223.00	8.30	251.00	7.60	227.00	8.60
298.00	3.00	200.00	9.40	94.00	14.50	250.00	5.60	251.00	7.30	275.00	6.50	281.00	6.50
325.00	1.50	220.00	7.40	136.00	17.70	274.00	6.20	276.00	5.80	301.00	5.00	281.00	6.40
352.00	0.00	251.00	6.90	146.00	15.40	286.00	6.20	301.00	3.20	325.00	0.30	301.00	2.00
380.00	-0.10	275.00	5.50	182.00	11.30	326.00	2.10	327.00	1.20	352.00	-0.30	326.00	1.60
		302.00	2.40	200.00	9.70	351.00	-1.60	372.00	-2.50			351.00	-0.40
		324.00	1.40	201.00	6.70			377.00	-1.70				
		351.00	1.20	246.00	0.90								
		375.00	0.10	301.00	3.20								
		401.00	-1.50	326.00	1.40								
				351.00	-0.70								

LONG BEACH ISLAND N.J.
 DATUM IS WSL MEASUREMENT TS FT

PROFILE 14

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME
200.00	9.00	200.00	630926	19.30	228.00	631010	7.00	202.00	631025	10.00	139.00	631114	101.00	18.30
201.00	9.10	231.00	630926	17.30	262.00	631010	6.40	251.00	631025	5.80	151.00	631114	117.00	19.30
202.00	9.20	262.00	630926	15.30	271.00	631010	6.40	278.00	631025	4.20	201.00	631114	141.00	18.00
203.00	9.30	276.00	630926	13.30	270.00	631010	6.40	304.00	631025	2.00	225.00	631114	171.00	11.40
204.00	9.40	276.00	630926	11.30	270.00	631010	6.40	330.00	631025	0.00	252.00	631114	203.00	9.40
205.00	9.50	352.00	630926	9.30	304.00	631010	6.40	354.00	631025	-0.60	278.00	631114	252.00	6.30
206.00	9.60	377.00	630926	7.30	329.00	631010	6.40	354.00	631025	-0.60	301.00	631114	278.00	6.30
207.00	9.70	377.00	630926	5.30	354.00	631010	6.40	354.00	631025	-0.60	328.00	631114	303.00	5.30
208.00	9.80	401.00	630926	3.30	380.00	631010	6.40	380.00	631025	-1.10	354.00	631114	359.00	1.10
209.00	9.90	401.00	630926	1.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
210.00	10.00	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
211.00	10.10	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
212.00	10.20	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
213.00	10.30	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
214.00	10.40	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
215.00	10.50	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
216.00	10.60	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
217.00	10.70	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
218.00	10.80	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
219.00	10.90	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
220.00	11.00	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
221.00	11.10	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
222.00	11.20	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
223.00	11.30	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
224.00	11.40	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
225.00	11.50	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
226.00	11.60	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
227.00	11.70	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
228.00	11.80	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
229.00	11.90	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00
230.00	12.00	401.00	630926	0.30	400.00	631010	6.40	400.00	631025	-0.40	354.00	631114	378.00	-1.00

LONG BEACH ISLAND H.S.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 14

DATE 640212	DATE 640310	DATE 640407	DATE 640525	DATE 640623	DATE 640820	DATE 640924	DATE 641201
SRVY 35	SRVY 34	SRVY 37	SRVY 34	SRVY 34	SRVY 40	SRVY 41	SRVY 50
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
145.00	102.00	114.30	119.00	114.00	117.00	117.00	117.00
13.00	15.20	14.30	14.00	14.30	14.00	14.10	14.00
176.00	153.00	152.00	150.00	151.00	150.00	150.00	150.00
193.00	136.00	148.10	154.00	148.10	154.00	154.00	151.00
191.00	175.00	176.00	175.00	177.00	175.00	181.00	180.00
202.00	6.30	8.70	9.00	8.50	8.50	252.00	200.00
252.00	5.60	6.60	6.60	277.00	6.30	276.00	4.00
252.00	182.00	182.00	185.00	228.00	18.30	302.00	1.10
303.00	4.40	201.00	4.90	252.00	7.60	302.00	2.77.00
353.00	1.40	252.00	5.70	327.00	7.50	354.00	3.30
379.00	1.40	278.00	6.60	352.00	7.60	379.00	2.77.00
404.00	4.40	303.00	7.70	344.00	7.60	403.00	4.24.00
429.00	4.40	320.00	5.80	353.00	7.20	429.00	5.01.00
455.00	2.40	350.00	4.00	403.00	1.70	455.00	352.00
		378.00	1.90	403.00	1.70		
		404.00	2.70				
		404.00	2.40				

PROFILE 14

DATE 650119	DATE 650427	DATE 650907	DATE 651027	DATE 651222	DATE 660124	DATE 660321	DATE 660922
SRVY 43	SRVY 44	SRVY 45	SRVY 46	SRVY 47	SRVY 48	SRVY 49	SRVY 50
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
151.00	118.00	174.60	140.00	172.80	119.00	149.00	151.00
176.00	124.00	84.30	150.00	152.00	119.00	151.00	185.00
192.00	151.00	84.30	200.00	152.00	150.00	151.00	185.00
201.00	176.00	71.00	252.00	71.60	183.00	183.00	212.00
201.00	176.00	71.00	277.00	71.60	201.00	183.00	212.00
272.00	3.60	7.70	301.00	3.90	251.00	251.00	301.00
327.00	2.40	3.70	352.00	1.80	302.00	301.00	352.00
353.00	2.40	2.60	379.00	2.20	352.00	351.00	400.00
429.00	4.40	4.30	402.00	4.00	402.00	402.00	402.00
453.00	1.40	1.10	429.00	2.10	453.00	453.00	402.00
			452.00	2.50	476.00	476.00	453.00
			468.00	2.10			

LONG REACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT TS FT

PROFILE 14

DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	
TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	
194+00	174+00	136+00	18+10	124+00	18+90	136+00	19+10	102+00	19+20	137+00	18+90	137+00	19+30
142+00	16+70	140+00	18+00	143+00	18+00	146+00	18+70	184+00	19+00	148+00	18+90	149+00	18+60
174+00	12+70	163+00	18+60	183+00	18+20	180+00	18+20	250+00	10+30	158+00	18+20	162+00	17+20
204+00	8+50	178+00	13+50	205+00	10+30	219+00	10+30	250+00	7+00	242+00	12+00	247+00	12+50
222+00	5+00	206+00	18+30	223+00	8+40	251+00	7+70	304+00	5+00	290+00	11+20	286+00	11+50
252+00	6+00	244+00	6+30	270+00	5+20	329+00	5+60	368+00	3+00	349+00	6+80	346+00	7+10
301+00	6+30	304+00	5+00	325+00	5+30	351+00	4+00	400+00	1+90	400+00	3+00	399+00	4+90
326+00	5+10	351+00	4+00	425+00	4+90	422+00	-8+00	450+00	-1+50	450+00	2+00	375+00	5+00
376+00	2+20	376+00	3+30	402+00	-1+70	402+00	-1+70	474+00	-1+00	525+00	-1+20	509+00	2+70
402+00	4+30	401+00	1+30	427+00	-1+10	427+00	-1+10			509+00	-1+00	400+00	1+80
418+00	4+20	452+00	-2+90	452+00	-1+50	452+00	-1+50					500+00	-4+10
													424+00
													-1+30

PROFILE 14

DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	DATE SVUY	
TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	
137+00	17+90	125+00	18+50	137+00	19+10	137+00	19+00	137+00	18+90	137+00	19+20	136+00	19+10
147+00	17+70	146+00	18+70	148+00	19+00	147+00	18+00	148+00	18+60	148+00	18+70	146+00	18+60
160+00	17+20	165+00	16+40	163+00	16+60	162+00	16+90	163+00	16+90	163+00	16+60	161+00	17+00
185+00	13+10	210+00	9+90	183+00	12+40	183+00	12+50	203+00	11+50	185+00	12+00	191+00	11+40
210+00	10+10	250+00	6+60	200+00	10+70	205+00	10+80	218+00	9+10	203+00	11+60	200+00	11+70
225+00	8+50	300+00	4+90	225+00	8+20	218+00	8+60	250+00	7+70	215+00	8+20	250+00	7+40
250+00	7+20	350+00	3+00	250+00	6+90	250+00	7+00	300+00	6+20	250+00	9+70	300+00	7+80
300+00	7+40	400+00	2+60	300+00	6+20	300+00	6+60	335+00	4+90	300+00	4+90	350+00	6+00
335+00	5+70	450+00	-2+50	350+00	5+20	336+00	6+20	350+00	4+10	350+00	3+50	362+00	7+10
370+00	4+70	475+00	-8+50	370+00	4+00	370+00	3+60	400+00	1+80	400+00	2+60	400+00	3+60
370+00	4+20	470+00	-7+40	370+00	3+60	370+00	3+60	425+00	1+00	450+00	2+00	450+00	3+60
400+00	3+20	425+00	-6+00	425+00	1+00	425+00	1+00	480+00	-8+00	480+00	-8+00	480+00	1+00
425+00	1+70	450+00	-1+60	425+00	-2+10	425+00	-2+10	450+00	-7+70	450+00	-7+70	450+00	-1+40
450+00	4+30	475+00	-8+30	475+00	-2+60	475+00	-2+60						-1+40

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT TS FT

PROFILE 14

DATE 601020	DATE 601118	DATE 601218	DATE 700120	DATE 700216	DATE 700310	DATE 700521	DATE 700828
SVY 76	SVY 77	SVY 78	SVY 79	SVY 80	SVY 81	SVY 82	SVY 83
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
117.00	117.00	117.00	117.00	117.00	117.00	117.00	117.00
15.10	19.70	14.60	14.50	117.00	14.70	14.90	15.30
100.00	135.00	173.00	182.00	138.00	17.00	161.00	187.00
163.00	162.00	174.00	182.00	177.00	150.00	194.00	150.00
200.00	11.70	210.00	10.20	204.00	170.00	164.50	200.00
225.00	9.30	250.00	8.50	214.00	10.70	185.00	222.00
250.00	8.20	297.00	5.50	214.00	8.90	220.00	250.00
275.00	8.10	350.00	4.30	272.00	7.10	273.00	275.00
300.00	9.00	375.00	4.10	300.00	6.50	300.00	300.00
325.00	6.60	400.00	2.60	398.00	4.20	300.00	315.00
350.00	3.10	425.00	1.90	437.00	7.00	350.00	350.00
375.00	2.00	450.00	1.20	450.00	6.50	400.00	400.00
400.00	1.00	475.00	0.50	520.00	1.00	450.00	450.00
425.00	0.20	500.00	0.80	520.00	0.50	500.00	500.00
450.00	-1.20	500.00	1.70	552.00	2.00	550.00	500.00
475.00	-2.10	535.00	-1.00	525.00	-1.70	571.00	-2.00
500.00	-3.70	535.00	-2.20	535.00	-2.00	650.00	-4.20
525.00	-5.10					650.00	-5.10

PROFILE 14

DATE 701218	DATE 701218	DATE 701218	DATE 701218	DATE 701218	DATE 701218	DATE 701218	DATE 701218
SVY 84	SVY 85	SVY 86	SVY 87	SVY 88	SVY 89	SVY 90	SVY 91
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
117.00	117.00	117.00	117.00	117.00	117.00	117.00	117.00
15.30	15.40	15.40	15.30	117.00	14.40	14.70	14.70
139.00	174.00	164.00	139.00	192.00	182.00	147.00	147.00
194.00	194.00	194.00	167.00	192.00	194.00	150.00	162.00
200.00	13.40	200.00	159.00	204.00	194.00	184.00	184.00
233.00	9.10	200.00	178.00	273.00	194.00	184.00	205.00
250.00	8.30	200.00	140.00	250.00	200.00	184.00	250.00
300.00	7.70	350.00	6.90	300.00	13.50	216.00	300.00
302.00	8.00	400.00	9.90	323.00	9.90	225.00	350.00
350.00	6.20	450.00	7.70	368.00	5.40	250.00	400.00
400.00	2.00	460.00	6.00	400.00	4.20	268.00	450.00
450.00	-1.30	375.00	5.00	450.00	7.10	300.00	500.00
500.00	-6.60	430.00	4.70	400.00	5.20	335.00	400.00
525.00	-5.20	475.00	3.40	450.00	2.70	350.00	400.00
550.00	-1.20	500.00	3.90	500.00	3.00	400.00	400.00
575.00	0.20	525.00	1.60	570.00	-3.10	475.00	-2.60
600.00	1.20	550.00	4.30	594.00	-2.10	490.00	-2.10
625.00	4.30						

LONG BEACH ISLAND No. 3
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 14

DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	
53+00	12+30	53+00	12+40	100+00	14+00	100+00	14+00	100+00	14+00	100+00	14+00
139+00	14+90	113+00	15+10	116+00	15+00	14+00	16+00	166+00	18+50	14+00	14+00
150+00	14+60	163+00	16+00	165+00	16+00	18+30	18+20	187+00	18+20	18+50	14+00
172+00	17+50	200+00	15+30	200+00	15+40	17+80	200+00	203+00	17+30	18+20	14+50
209+00	15+20	200+00	8+80	250+00	9+90	200+00	15+00	223+00	13+50	211+00	15+00
216+00	13+20	250+00	6+40	250+00	4+60	238+00	9+50	255+00	8+40	237+00	7+70
271+00	7+30	300+00	9+70	300+00	5+80	250+00	8+20	250+00	6+80	250+00	7+00
310+00	8+20	300+00	3+60	350+00	4+60	300+00	5+70	350+00	4+50	300+00	6+10
350+00	3+70	350+00	00+00	400+00	00+00	400+00	1+70	400+00	1+50	350+00	2+90
400+00	-4+40	450+00	-2+20	400+00	-2+60	400+00	1+70	400+00	-1+50	400+00	-2+90
450+00	-3+80			400+00	-2+30	425+00	-2+50	450+00	-2+40	450+00	-2+10
										400+00	6+00
										450+00	4+00
										450+00	-2+50

PROFILE 14

DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	
53+00	12+70	53+00	12+20	53+00	12+30	53+00	12+20	53+00	12+20	53+00	12+30
100+00	13+90	103+00	13+80	100+00	13+90	100+00	13+90	100+00	13+90	100+00	13+90
150+00	17+50	150+00	14+00	150+00	17+50	150+00	17+50	150+00	17+50	150+00	17+50
168+00	14+00	200+00	15+00	181+00	18+00	18+20	192+00	17+80	190+00	18+00	17+50
200+00	15+10	200+00	13+10	200+00	15+70	200+00	16+20	200+00	17+00	200+00	17+50
238+00	4+70	230+00	9+80	213+00	13+00	212+00	14+60	217+00	17+60	220+00	15+20
250+00	4+20	250+00	8+70	234+00	9+70	225+00	10+50	225+00	11+50	200+00	14+70
248+00	6+60	300+00	6+70	250+00	6+20	245+00	6+80	245+00	6+50	245+00	6+50
345+00	7+40	332+00	3+30	300+00	6+50	247+00	6+80	300+00	7+60	300+00	6+50
360+00	7+40	335+00	3+30	312+00	4+20	350+00	6+10	250+00	6+30	350+00	6+10
350+00	2+00	350+00	2+80	350+00	3+50	300+00	2+80	300+00	4+60	375+00	5+20
400+00	-1+30	400+00	00+00	450+00	1+20	450+00	-1+50	312+00	4+60	400+00	2+80
		425+00	1+10	450+00	-1+50	500+00	-3+50	352+00	3+10	450+00	-1+80
								373+00	4+30		
								450+00	1+80		
								475+00	-2+10		

LONG BEACH ISLAND, N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 14

DATE 750914	DATE 750612
SWV 101	SWV 105
TIME 1200	TIME 1200
53.00	12.20
100.00	12.00
100.00	14.10
132.00	16.30
140.00	14.00
148.00	16.50
148.00	18.20
213.00	17.20
230.00	14.00
250.00	15.50
250.00	14.00
350.00	14.00
350.00	5.70
400.00	7.20
417.00	3.00
	330.00
	350.00
	375.00
	400.00
	400.00
	-2.20

PROFILE 15

DATE 621002	DATE 621023	DATE 621029	DATE 621108	DATE 621210	DATE 631115	DATE 630121							
SWV 3	SWV 5	SWV 8	SWV 9	SWV 8	SWV 9	SWV 10							
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200							
218.00	10.00	315.00	19.10	329.00	13.50	293.00	13.30	267.00	11.80	0.00	6.00	401.00	6.20
275.00	12.40	328.00	1.50	319.00	7.70	519.00	10.40	320.00	14.70	100.00	7.00	425.00	5.00
312.00	10.40	370.00	6.20	405.00	0.70	345.00	11.20	322.00	11.50	200.00	9.00	405.00	4.00
369.00	8.30	407.00	4.30	448.00	2.00	348.00	8.60	338.00	6.90	301.00	15.50	476.00	2.00
370.00	7.30	450.00	1.30	498.00	-1.90	395.00	6.60	366.00	5.00	316.00	19.00	501.00	4.50
401.00	5.90	482.00	-0.30			425.00	6.60	411.00	1.00	350.00	7.90	424.00	-1.20
427.00	5.60					453.00	5.70	462.00	-0.90	350.00	8.00		
470.00	-2.30					485.00	2.30	511.00	-0.00	514.00	6.00		
502.00	-2.60						-4.40			457.00	4.20		
										451.00	5.20		
										481.00	9.50		
										477.00	2.30		
										501.00	-0.50		

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 15

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
610120	11 1200	610204	12 1200	610212	1200	610220	1200	610226	15 1200	610304	16 1200	610311	17 1200
SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV
401.00	6.00	327.00	9.50	376.00	9.30	316.00	10.20	451.00	6.50	650.00	6.00	450.00	6.30
425.00	4.50	350.00	9.50	401.00	7.90	320.00	9.70	473.00	5.20	477.00	6.00	476.00	5.70
452.00	3.00	375.00	9.30	426.00	7.40	347.00	11.10	501.00	5.00	500.00	3.00	476.00	5.70
476.00	2.40	401.00	6.30	452.00	6.40	351.00	10.10	527.00	2.10	525.00	2.50	526.00	2.50
485.00	2.80	426.00	7.20	476.00	5.80	376.00	9.30	551.00	6.00	551.00	1.20	551.00	1.00
511.00	1.80	450.00	6.50	527.00	2.00	451.00	6.40	601.00	-1.00	576.00	6.50	601.00	6.00
575.00	-1.20	476.00	5.60	509.00	4.80	501.00	3.50	601.00	-1.00	601.00	-1.50	626.00	-1.50
		526.00	7.00	601.00	-4.90	526.00	1.70	626.00	-1.00	626.00	-1.50	602.00	-1.10
		577.00	6.50	601.00	-4.90	601.00	6.00	601.00	-4.90	601.00	-1.50	626.00	-1.10
		601.00	-2.70										

PROFILE 15

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
610326	19 1200	610414	20 1200	610528	21 1200	610613	22 1200	610625	23 1200	610711	24 1200	610723	25 1200
SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV
323.00	9.70	376.00	9.20	421.00	6.50	421.00	7.10	477.00	5.20	445.00	6.00	320.00	11.10
411.00	6.80	425.00	6.20	451.00	6.60	451.00	6.80	500.00	3.40	476.00	6.00	350.00	10.30
474.00	5.90	452.00	6.20	478.00	5.30	478.00	5.30	526.00	2.50	502.00	4.00	350.00	10.30
501.00	3.70	475.00	6.10	501.00	12.10	501.00	4.20	601.00	-1.20	526.00	1.00	427.00	7.40
526.00	1.80	525.00	2.50	530.00	14.30	525.00	2.40	540.00	0.60	452.00	6.00	452.00	6.00
552.00	6.00	552.00	2.30	577.00	10.70	577.00	0.00	576.00	-1.00	576.00	-1.00	375.00	6.20
599.00	9.00	602.00	6.00	576.00	8.90	576.00	-1.50	503.00	6.90	503.00	6.90	502.00	6.90
624.00	-1.70	627.00	-1.50	426.00	7.80	426.00	7.80	451.00	6.00	451.00	6.00	527.00	5.50
652.00	-1.20			451.00	6.20	451.00	6.20	481.00	5.70	481.00	5.70	527.00	5.50
				502.00	5.00	502.00	5.00	502.00	5.00	502.00	5.00	576.00	1.50
				553.00	6.00	553.00	6.00	553.00	6.00	553.00	6.00	626.00	-2.00
				553.00	-6.80	553.00	-6.80	553.00	-6.80	553.00	-6.80	626.00	-2.00

LONG BEACH ISLAND No. 3
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 15

DATE 610820	DATE 610806	DATE 610826	DATE 611010	DATE 611025	DATE 611115	DATE 611227	DATE 601114
SRVY 27	SRVY 28	SRVY 29	SRVY 30	SRVY 31	SRVY 32	SRVY 33	SRVY 34
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
351.00	352.00	353.00	354.00	354.00	355.00	359.00	359.00
375.00	376.00	377.00	378.00	378.00	379.00	379.00	379.00
424.00	424.00	424.00	424.00	424.00	424.00	424.00	424.00
451.00	451.00	451.00	451.00	451.00	451.00	451.00	451.00
478.00	478.00	478.00	478.00	478.00	478.00	478.00	478.00
501.00	501.00	501.00	501.00	501.00	501.00	501.00	501.00
526.00	526.00	526.00	526.00	526.00	526.00	526.00	526.00
577.00	577.00	577.00	577.00	577.00	577.00	577.00	577.00
601.00	601.00	601.00	601.00	601.00	601.00	601.00	601.00
629.00	629.00	629.00	629.00	629.00	629.00	629.00	629.00
641.00	641.00	641.00	641.00	641.00	641.00	641.00	641.00

PROFILE 15

DATE 610212	DATE 600525	DATE 600623	DATE 600829	DATE 600924	DATE 601201
SRVY 35	SRVY 38	SRVY 39	SRVY 40	SRVY 41	SRVY 42
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
384.00	384.00	384.00	384.00	384.00	384.00
391.00	391.00	391.00	391.00	391.00	391.00
427.00	427.00	427.00	427.00	427.00	427.00
484.00	484.00	484.00	484.00	484.00	484.00
477.00	477.00	477.00	477.00	477.00	477.00
502.00	502.00	502.00	502.00	502.00	502.00
574.00	574.00	574.00	574.00	574.00	574.00
556.00	556.00	556.00	556.00	556.00	556.00
579.00	579.00	579.00	579.00	579.00	579.00
629.00	629.00	629.00	629.00	629.00	629.00

LONG BEACH ISLAND, N.J.
DATUM IS WSL MEASUREMENT IS FT

PROFILE 15

DATE 450110	DATE 650027	DATE 650907	DATE 651027	DATE 651222	DATE 660125	DATE 660321	DATE 660922
SVY 43	SVY 44	SVY 45	SVY 46	SVY 47	SVY 48	SVY 49	SVY 50
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
351.00	305.00	11.20	289.00	14.20	361.00	10.60	330.00
375.00	9.90	350.00	14.20	376.00	9.90	385.00	14.10
402.00	9.20	385.00	14.20	409.00	9.20	434.00	11.40
427.00	6.80	414.00	14.20	442.00	6.80	476.00	10.30
452.00	4.90	440.00	7.30	481.00	4.20	520.00	8.20
478.00	6.70	466.00	8.20	520.00	8.20	561.00	6.20
503.00	2.60	491.00	9.90	561.00	5.90	600.00	5.60
527.00	2.50	516.00	11.10	600.00	4.10	638.00	3.80
553.00	2.80	541.00	8.60	627.00	4.10	661.00	2.60
603.00	2.80	566.00	5.73.00	652.00	1.70	681.00	2.60
653.00	2.20	592.00	3.50	677.00	1.40	697.00	2.60
679.00	-1.80	602.00	3.90	678.00	-1.20	682.00	1.50
		629.00	-1.20	694.00	-1.90	698.00	-1.50

PROFILE 15

DATE 470110	DATE 670510	DATE 670920	DATE 671218	DATE 680117	DATE 680227	DATE 680327	DATE 680929
SVY 51	SVY 53	SVY 54	SVY 55	SVY 56	SVY 57	SVY 58	SVY 59
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
308.00	14.60	325.00	14.00	348.00	15.60	360.00	14.80
361.00	19.10	350.00	14.30	366.00	15.60	382.00	14.80
373.00	12.90	376.00	12.80	376.00	9.80	384.00	14.20
383.00	7.70	388.00	9.10	401.00	8.60	409.00	9.70
401.00	6.70	406.00	7.80	425.00	6.40	450.00	6.00
451.00	6.40	451.00	5.40	471.00	5.40	481.00	5.60
476.00	6.10	461.00	5.80	475.00	3.80	501.00	5.60
501.00	5.80	482.00	3.20	502.00	2.20	550.00	1.70
527.00	4.40	515.00	3.20	525.00	1.80	601.00	2.40
555.00	1.80	550.00	-1.80	577.00	-1.20	638.00	3.90
578.00	0.00	602.00	-2.70	602.00	-1.40	617.00	2.50
593.00	-5.50	617.00	-1.40	617.00	-1.40	628.00	3.90

LONG BEACH ISLAND M.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 15

DATE 691025			DATE 691113			DATE 691218			DATE 690115			DATE 690213			DATE 690304			DATE 690528			DATE 690924		
SVY	40	61	SVY	61	SVY	62	SVY	63	SVY	64	SVY	65	SVY	66	SVY	67	SVY	68	SVY	69	SVY	70	
TIME	1200	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	
345.00	15.10	550.00	345.00	15.00	305.00	344.00	15.00	305.00	345.00	15.00	305.00	344.00	14.30	302.00	345.00	15.10	302.00	346.00	15.00	302.00	347.00	15.00	302.00
346.00	15.00	345.00	346.00	14.60	345.00	346.00	14.20	345.00	346.00	14.00	345.00	346.00	12.30	346.00	346.00	15.00	346.00	346.00	15.00	346.00	346.00	15.00	346.00
347.00	12.00	370.00	347.00	14.10	340.00	347.00	12.70	340.00	347.00	10.30	340.00	347.00	8.50	370.00	347.00	15.00	370.00	347.00	15.00	370.00	347.00	15.00	370.00
348.00	9.00	374.00	348.00	10.70	340.00	348.00	9.80	340.00	348.00	7.80	400.00	348.00	6.50	380.00	348.00	15.00	380.00	348.00	15.00	380.00	348.00	15.00	380.00
405.00	7.00	400.00	405.00	6.30	400.00	405.00	4.20	400.00	405.00	2.00	450.00	405.00	2.60	450.00	405.00	7.00	450.00	405.00	7.00	450.00	405.00	7.00	450.00
425.00	7.00	450.00	425.00	3.80	450.00	425.00	4.70	450.00	425.00	4.00	450.00	425.00	2.60	450.00	425.00	7.00	450.00	425.00	7.00	450.00	425.00	7.00	450.00
435.00	4.00	450.00	435.00	1.30	450.00	435.00	3.40	450.00	435.00	2.50	500.00	435.00	2.20	500.00	435.00	6.00	500.00	435.00	6.00	500.00	435.00	6.00	500.00
450.00	4.00	550.00	450.00	1.30	550.00	450.00	3.40	550.00	450.00	2.50	550.00	450.00	1.10	550.00	450.00	5.70	550.00	450.00	5.70	550.00	450.00	5.70	550.00
506.00	4.00	600.00	506.00	-1.70	600.00	506.00	-1.40	600.00	506.00	-1.40	600.00	506.00	-1.30	600.00	506.00	-2.10	600.00	506.00	-2.10	600.00	506.00	-2.10	600.00
525.00	2.00	600.00	525.00	2.00	600.00	525.00	2.30	600.00	525.00	-1.00	600.00	525.00	-1.00	600.00	525.00	-1.00	600.00	525.00	-1.00	600.00	525.00	-1.00	600.00
550.00	1.70	600.00	550.00	1.70	600.00	550.00	1.70	600.00	550.00	1.70	600.00	550.00	1.70	600.00	550.00	1.70	600.00	550.00	1.70	600.00	550.00	1.70	600.00
600.00	1.00	600.00	600.00	1.00	600.00	600.00	1.00	600.00	600.00	1.00	600.00	600.00	1.00	600.00	600.00	1.00	600.00	600.00	1.00	600.00	600.00	1.00	600.00

PROFILE 15

DATE 691029			DATE 691114			DATE 691218			DATE 700120			DATE 700216			DATE 700319			DATE 700521			DATE 700628		
SVY	40	61	SVY	61	SVY	62	SVY	63	SVY	64	SVY	65	SVY	66	SVY	67	SVY	68	SVY	69	SVY	70	
TIME	1200	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	
328.00	11.00	325.00	328.00	13.80	325.00	328.00	13.90	350.00	328.00	14.00	350.00	328.00	14.70	312.00	328.00	14.00	312.00	328.00	14.00	312.00	328.00	14.00	312.00
346.00	14.50	345.00	346.00	14.90	345.00	346.00	14.90	345.00	346.00	14.40	345.00	346.00	14.40	350.00	346.00	12.90	350.00	346.00	12.90	350.00	346.00	12.90	350.00
364.00	14.10	363.00	364.00	14.20	363.00	364.00	14.40	380.00	364.00	11.70	379.00	364.00	11.90	379.00	364.00	11.90	379.00	364.00	11.90	379.00	364.00	11.90	379.00
400.00	7.50	378.00	400.00	10.60	377.00	400.00	10.50	377.00	400.00	10.30	377.00	400.00	8.90	400.00	400.00	8.90	400.00	400.00	8.90	400.00	400.00	8.90	400.00
409.00	7.00	400.00	409.00	9.00	400.00	409.00	9.20	400.00	409.00	8.60	450.00	409.00	8.50	450.00	409.00	7.60	450.00	409.00	7.60	450.00	409.00	7.60	450.00
425.00	7.50	450.00	425.00	5.50	450.00	425.00	7.00	450.00	425.00	5.90	500.00	425.00	4.80	500.00	425.00	4.90	500.00	425.00	4.80	500.00	425.00	4.80	500.00
450.00	8.00	500.00	450.00	3.50	500.00	450.00	5.70	475.00	450.00	4.40	500.00	450.00	4.40	500.00	450.00	4.50	500.00	450.00	4.50	500.00	450.00	4.50	500.00
475.00	9.20	500.00	475.00	4.00	500.00	475.00	4.10	512.00	475.00	5.80	550.00	475.00	3.80	550.00	475.00	1.50	550.00	475.00	1.50	550.00	475.00	1.50	550.00
500.00	8.00	600.00	500.00	2.00	600.00	500.00	2.10	600.00	500.00	2.90	600.00	500.00	3.00	600.00	500.00	3.00	600.00	500.00	3.00	600.00	500.00	3.00	600.00
525.00	2.00	600.00	525.00	-2.00	600.00	525.00	-2.00	600.00	525.00	-2.00	600.00	525.00	-2.00	600.00	525.00	-2.00	600.00	525.00	-2.00	600.00	525.00	-2.00	600.00
550.00	1.00	600.00	550.00	-1.90	600.00	550.00	-1.90	600.00	550.00	-1.90	600.00	550.00	-1.90	600.00	550.00	-1.90	600.00	550.00	-1.90	600.00	550.00	-1.90	600.00
600.00	1.00	600.00	600.00	1.00	600.00	600.00	1.00	600.00	600.00	1.00	600.00	600.00	1.00	600.00	600.00	1.00	600.00	600.00	1.00	600.00	600.00	1.00	600.00
631.00	-1.00	600.00	631.00	-1.10	600.00	631.00	-1.10	600.00	631.00	-1.10	600.00	631.00	-1.10	600.00	631.00	-1.10	600.00	631.00	-1.10	600.00	631.00	-1.10	600.00
650.00	-0.00	600.00	650.00	-0.00	600.00	650.00	-0.00	600.00	650.00	-0.00	600.00	650.00	-0.00	600.00	650.00	-0.00	600.00	650.00	-0.00	600.00	650.00	-0.00	600.00
675.00	-0.00	600.00	675.00	-0.00	600.00	675.00	-0.00	600.00	675.00	-0.00	600.00	675.00	-0.00	600.00	675.00	-0.00	600.00	675.00	-0.00	600.00	675.00	-0.00	600.00
704.00	-1.30	600.00	704.00	-1.30	600.00	704.00	-1.30	600.00	704.00	-1.30	600.00	704.00	-1.30	600.00	704.00	-1.30	600.00	704.00	-1.30	600.00	704.00	-1.30	600.00
750.00	-0.00	600.00	750.00	-0.00	600.00	750.00	-0.00	600.00	750.00	-0.00	600.00	750.00	-0.00	600.00	750.00	-0.00	600.00	750.00	-0.00	600.00	750.00	-0.00	600.00
800.00	-1.20	600.00	800.00	-1.20	600.00	800.00	-1.20	600.00	800.00	-1.20	600.00	800.00	-1.20	600.00	800.00	-1.20	600.00	800.00	-1.20	600.00	800.00	-1.20	600.00
825.00	-2.00	600.00	825.00	-2.00	600.00	825.00	-2.00	600.00	825.00	-2.00	600.00	825.00	-2.00	600.00	825.00	-2.00	600.00	825.00	-2.00	600.00	825.00	-2.00	600.00

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 15

DATE 720824	DATE 721017	DATE 721205	DATE 730103	DATE 730214	DATE 730314	DATE 730325	DATE 730403
SVV 91	SVV 90	SVV 85	SVV 96	SVV 97	SVV 98	SVV 99	SVV 100
TIME 800	TIME 1100	TIME 1200	TIME 1200	TIME 400	TIME 1000	TIME 000	TIME 1200
300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00
320.00	317.00	316.00	316.70	312.00	339.00	341.00	341.00
350.00	342.00	350.00	350.00	330.00	348.00	350.00	350.00
373.00	350.00	375.00	400.00	400.00	383.00	382.00	378.00
380.00	372.00	400.00	450.00	365.00	390.00	388.00	388.00
400.00	395.00	408.00	500.00	384.00	400.00	400.00	388.00
465.00	400.00	460.00	550.00	400.00	450.00	450.00	498.00
500.00	410	500.00	600.00	480.00	495.00	500.00	500.00
550.00	410	550.00	600.00	480.00	500.00	550.00	450.00
575.00	410	575.00	500.00	480.00	500.00	500.00	500.00
600.00	410	600.00	525.00	430	525.00	500.00	500.00
			575.00	490	575.00	500.00	500.00
			600.00	575.00	575.00	575.00	575.00

PROFILE 15

DATE 730418	DATE 730612
SVV 101	SVV 103
TIME 1000	TIME 1200
300.00	300.00
315.00	315.00
375.00	375.00
400.00	400.00
450.00	450.00
500.00	432.00
540.00	476.00
	500.00
	525.00
	550.00

LONG BEACH ISLAND N.W.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 16

DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME
621002	621011	621023	621029	621108	621210	630109	630311	630311	630311	630311	630311
4	4	5	6	8	8	9	9	9	9	9	9
53.00	10.60	86.00	17.00	86.00	101.00	16.98	85.00	17.30	112.00	17.50	81.00
81.00	17.20	100.00	16.50	110.00	15.50	15.50	110.00	16.00	143.00	12.00	174.00
147.00	17.00	141.00	12.90	140.00	12.90	142.00	133.66	14.80	170.00	11.10	204.00
184.00	9.80	165.00	12.00	169.00	11.90	183.00	11.00	175.00	174.00	8.60	241.00
197.00	4.50	240.00	7.00	240.00	7.40	222.00	7.70	176.00	183.00	6.20	262.00
258.00	1.20	320.00	3.10	262.00	4.10	251.00	6.70	180.00	217.00	5.70	300.00
327.00	-1.80	350.00	-1.70	286.00	1.40	298.00	1.10	209.00	252.00	5.20	324.00
403.00	-2.10	350.00	-2.70	314.00	-0.10	340.00	-1.30	280.00	272.00	1.80	350.00
407.00	-3.40							259.00	310.00	-1.00	
								284.00	310.00	-1.00	
								336.00	332.00	-1.00	
									150.00	11.80	
									170.00	10.90	
									226.00	8.20	
									224.00	8.00	
									251.00	5.20	
									276.00	5.10	
									301.00	4.00	
									326.00	-1.40	
									346.00	-1.50	

PROFILE 16

DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME	DATE SVY TIME
630128	630200	630212	630220	630226	630300	630300	630300	630300	630300	630300	630300
11	12	13	14	15	16	16	16	16	16	16	16
177.00	8.40	150.00	12.00	201.00	7.20	150.00	11.90	169.00	10.80	125.00	12.00
240.00	2.80	160.00	11.90	225.00	7.00	165.00	11.10	184.00	8.30	151.00	11.90
266.00	4.60	175.00	10.90	251.00	6.20	176.00	8.20	203.00	6.90	165.00	10.90
286.00	6.40	200.00	7.50	277.00	5.30	199.00	7.00	221.00	6.80	180.00	8.10
324.00	2.50	210.00	6.60	301.00	3.80	222.00	6.80	251.00	5.00	200.00	7.00
337.00	-1.30	250.00	5.00	326.00	-1.50	276.00	2.70	280.00	2.70	226.00	6.70
350.00	-2.70	256.00	5.50	351.00	-1.10	310.00	1.20	301.00	1.10	251.00	4.00
		270.00	5.70	301.00	-1.30	376.00	-1.60	276.00	2.90	301.00	1.50
		301.00	4.70	326.00	-1.00	326.00	-1.00	326.00	-1.00	326.00	-1.00
		325.00	4.10	351.00	-2.20	376.00	-1.10	376.00	-1.10	376.00	-1.10

LONG REACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 16

DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	
50.00	10.70	55.00	12.20	56.00	12.20	57.00	12.20	58.00	12.20	59.00	12.20	60.00	12.20
06.00	17.30	08.00	18.30	10.00	19.30	12.00	20.30	14.00	21.30	16.00	22.30	18.00	23.30
101.00	16.80	101.00	17.70	127.00	18.30	131.00	19.30	135.00	20.30	139.00	21.30	143.00	22.30
127.00	17.20	116.00	17.90	151.00	18.60	127.00	19.30	151.00	20.30	176.00	21.30	176.00	22.30
152.00	17.20	172.00	17.10	177.00	17.70	183.00	18.30	189.00	18.90	195.00	19.50	201.00	20.10
159.00	8.00	144.00	12.00	203.00	7.10	166.00	8.30	165.00	7.80	202.00	8.40	201.00	8.50
178.00	7.00	159.00	8.40	227.00	6.80	178.00	7.40	202.00	7.50	228.00	8.40	227.00	8.50
252.00	4.80	174.00	7.30	252.00	5.90	227.00	7.40	228.00	7.60	253.00	8.40	252.00	8.50
302.00	2.10	201.00	6.70	277.00	6.10	254.00	7.40	263.00	6.80	283.00	7.70	282.00	7.80
328.00	1.80	227.00	7.00	328.00	6.10	259.00	5.70	277.00	6.00	303.00	5.60	303.00	5.60
388.00	2.20	252.00	5.80	353.00	6.20	277.00	2.50	303.00	1.90	304.00	2.50	304.00	2.50
393.00	6.20	353.00	2.80	394.00	6.50	353.00	6.20	394.00	6.20	394.00	6.20	394.00	6.20
410.00	6.10	353.00	2.80	394.00	6.50	353.00	6.20	394.00	6.20	394.00	6.20	394.00	6.20
470.00	6.10	378.00	6.10	470.00	6.10	470.00	6.10	470.00	6.10	470.00	6.10	470.00	6.10
490.00	6.10	490.00	6.10	490.00	6.10	490.00	6.10	490.00	6.10	490.00	6.10	490.00	6.10

PROFILE 16

DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	DATE SPV TIME	
55.00	10.80	129.00	17.60	90.00	17.80	151.00	11.00	59.00	15.10	124.00	16.90	133.00	16.00
90.00	17.10	152.00	10.80	126.00	18.30	202.00	7.20	82.00	17.80	160.00	11.20	162.00	10.10
119.00	16.00	176.00	17.60	152.00	10.90	252.00	7.80	134.00	16.80	160.00	10.00	201.00	7.80
128.00	17.50	201.00	7.00	202.00	7.30	277.00	5.20	155.00	11.10	201.00	7.90	251.00	8.30
150.00	9.50	224.00	7.10	258.00	8.00	303.00	3.60	201.00	7.80	251.00	7.70	275.00	5.60
203.00	7.00	276.00	6.10	278.00	5.30	328.00	2.20	251.00	6.80	276.00	5.70	301.00	3.70
253.00	7.00	327.00	1.10	303.00	3.40	353.00	1.60	271.00	6.80	302.00	3.60	328.00	2.90
303.00	6.70	353.00	6.20	328.00	2.90	403.00	6.40	302.00	4.80	327.00	1.60	352.00	1.60
353.00	3.00	378.00	6.80	328.00	1.80	450.00	6.50	302.00	2.80	351.00	6.50	379.00	6.60
353.00	6.10	393.00	6.20	394.00	6.20	394.00	6.20	394.00	6.20	394.00	6.20	394.00	6.20
413.00	6.20	413.00	6.20	413.00	6.20	413.00	6.20	413.00	6.20	413.00	6.20	413.00	6.20

LONG BEACH ISLAND N.J.
DATUM IS HSL MEASUREMENT TS FT

PROFILE 1b

DATE 670510	DATE 670920	DATE 671218	DATE 680117	DATE 680227	DATE 680327	DATE 681009	DATE 681023
SVVY 53	SVVY 56	SVVY 55	SVVY 54	SVVY 57	SVVY 58	SVVY 59	SVVY 60
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
150.00	80.00	17.00	180.00	9.80	180.00	10.16	180.00
173.00	100.00	17.20	251.00	5.80	230.00	7.50	230.00
200.00	125.00	18.50	301.00	3.90	331.00	2.80	260.00
250.00	150.00	19.60	331.00	1.80	378.00	-8.00	260.00
352.00	177.00	10.10	382.00	.70	430.00	-3.00	333.00
401.00	170.00	8.10	472.00	-2.70	430.00	4.80	360.00
482.00	200.00	5.90	502.00		380.00	-5.50	450.00
502.00	240.00	6.10					
	352.00	5.80					
	381.00	1.20					
	427.00	-1.50					

PROFILE 1c

DATE 681115	DATE 681218	DATE 690115	DATE 690215	DATE 690304	DATE 690528	DATE 690824	DATE 691020
SVVY 61	SVVY 62	SVVY 63	SVVY 64	SVVY 65	SVVY 66	SVVY 67	SVVY 68
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
180.00	140.00	10.20	180.00	10.70	180.00	11.20	180.00
210.00	170.00	8.60	230.00	5.20	240.00	5.60	240.00
280.00	200.00	6.60	280.00	2.90	295.00	2.20	280.00
330.00	330.00	4.10	330.00	2.30	300.00	6.10	280.00
380.00	380.00	-2.20	380.00	1.00	330.00	1.80	280.00
430.00	430.00	-2.80	430.00	-1.10	380.00	-1.80	300.00
				430.00	-2.80	380.00	350.00
							380.00
							400.00
							425.00
							475.00
							500.00
							525.00
							550.00
							575.00
							600.00
							625.00

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 16

DATE 710817	DATE 711007	DATE 711214	DATE 720112	DATE 720215	DATE 720223	DATE 720313	DATE 720411
SVY 85	SVY 86	SVY 87	SVY 88	SVY 89	SVY 90	SVY 91	SVY 92
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
100.00	100.00	100.00	200.00	11.10	200.00	200.00	200.00
120.00	120.00	120.00	250.00	8.00	250.00	250.00	250.00
133.00	133.00	133.00	300.00	7.20	300.00	300.00	300.00
158.00	158.00	158.00	350.00	2.90	350.00	350.00	350.00
189.00	189.00	189.00	400.00	4.40	400.00	400.00	400.00
200.00	200.00	200.00	450.00	-2.40	450.00	450.00	450.00
250.00	250.00	250.00	425.00	-1.70	425.00	425.00	425.00
260.00	260.00	260.00					
280.00	280.00	280.00					
300.00	300.00	300.00					
350.00	350.00	350.00					
375.00	375.00	375.00					

PROFILE 16

DATE 720224	DATE 721017	DATE 721205	DATE 730103	DATE 730214	DATE 730310	DATE 730324	DATE 730403
SVY 93	SVY 94	SVY 95	SVY 96	SVY 97	SVY 98	SVY 99	SVY 100
TIME 0000	TIME 1100	TIME 1200	TIME 1200	TIME 0000	TIME 1100	TIME 0000	TIME 1300
04.00	04.00	04.00	06.00	11.70	06.00	05.00	04.00
71.00	71.00	71.00	16.30	16.30	16.30	16.30	16.30
100.00	100.00	100.00	17.00	17.00	17.00	17.00	17.00
120.00	120.00	120.00	132.00	132.00	132.00	132.00	132.00
135.00	135.00	135.00	150.00	150.00	150.00	150.00	150.00
179.00	179.00	179.00	200.00	190.00	180.00	180.00	180.00
190.00	190.00	190.00	208.00	13.10	211.00	211.00	211.00
200.00	200.00	200.00	215.00	8.70	200.00	200.00	200.00
219.00	219.00	219.00	250.00	6.30	250.00	250.00	250.00
250.00	250.00	250.00	310.00	5.50	310.00	310.00	310.00
300.00	300.00	300.00	310.00	2.60	310.00	310.00	310.00
353.00	353.00	353.00	375.00	1.00	375.00	375.00	375.00
400.00	400.00	400.00	400.00	2.10	400.00	400.00	400.00
450.00	450.00	450.00	425.00	-1.50	425.00	425.00	425.00

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 16

DATE 730418	DATE 730430	DATE 730612
SVVY 101	SVVY 102	SVVY 103
TIME 10:00	TIME 13:00	TIME 12:00
45.00	11.00	65.00
68.00	17.10	75.00
100.00	18.90	107.00
152.00	18.50	121.00
182.00	18.50	133.00
186.00	19.00	159.00
192.00	19.00	174.00
200.00	11.00	182.00
208.00	9.80	192.00
250.00	8.80	200.00
282.00	8.80	215.00
300.00	8.50	250.00
325.00	8.50	254.00
350.00	8.50	255.00
375.00	8.50	275.00
		300.00
		305.00
		305.00
		320.00

PROFILE 17

DATE 621002	DATE 621011	DATE 621023	DATE 621029	DATE 621108	DATE 621210	DATE 650115	DATE 651121
SVVY 3	SVVY 4	SVVY 5	SVVY 6	SVVY 7	SVVY 8	SVVY 9	SVVY 10
TIME 12:00	TIME 12:00	TIME 12:00	TIME 12:00	TIME 12:00	TIME 12:00	TIME 12:00	TIME 12:00
15.00	14.50	13.50	11.00	13.50	20.00	11.00	175.00
37.00	13.00	22.00	21.00	13.20	50.00	14.50	200.00
60.00	7.90	25.00	35.10	8.80	54.00	37.00	250.00
82.00	8.00	49.00	45.00	6.80	107.00	31.00	276.00
117.00	5.30	101.00	183.00	8.00	189.00	62.00	276.00
150.00	1.50	103.00	132.00	8.00	216.00	125.00	276.00
190.00	-3.00	175.00	176.00	2.00	235.00	142.00	276.00
				-1.50	300.00	151.00	276.00
					300.00	174.00	276.00
						201.00	276.00
						251.00	276.00
						281.00	276.00
						300.00	276.00
						305.00	276.00
						320.00	276.00

LONG BEACH ISLAND No. J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 17

DATE 650128	DATE 650204	DATE 650212	DATE 650528	DATE 650613	DATE 650625	DATE 650711	DATE 650725
SVY 11	SVY 12	SVY 13	SVY 21	SVY 22	SVY 23	SVY 24	SVY 25
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
31.00	14.30	-1.00	14.30	0.00	13.50	0.00	13.50
68.00	6.80	41.00	13.50	42.00	13.50	12.50	26.00
100.00	6.80	100.00	7.40	96.00	7.40	101.00	26.00
113.00	5.30	111.00	7.40	101.00	7.40	125.00	50.00
127.00	5.00	124.00	4.80	94.00	4.80	150.00	100.00
150.00	5.20	152.00	4.70	114.00	4.70	186.00	126.00
170.00	5.80	176.00	5.40	150.00	5.40	176.00	201.00
176.00	6.60	176.00	2.80	175.00	3.20	201.00	245.00
226.00	2.80	226.00	6.80	202.00	1.40	174.00	245.00
251.00	2.20	251.00	1.40	201.00	.90	200.00	252.00
275.00	-1.50	277.00	-1.50	251.00	-1.20	226.00	277.00

PROFILE 17

DATE 650806	DATE 650820	DATE 650904	DATE 650924	DATE 651010	DATE 651025	DATE 651115	DATE 651225
SVY 26	SVY 27	SVY 28	SVY 29	SVY 30	SVY 31	SVY 32	SVY 33
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
50.00	12.90	0.00	13.40	45.00	13.10	0.00	0.00
100.00	7.00	24.00	14.50	74.00	100.00	8.00	18.00
157.00	5.20	157.00	18.00	126.00	12.00	7.50	43.00
171.00	5.80	171.00	12.50	126.00	7.70	153.00	65.00
201.00	5.80	201.00	8.60	151.00	5.00	202.00	84.00
227.00	5.80	227.00	2.20	177.00	2.20	226.00	226.00
252.00	6.30	252.00	3.40	226.00	-1.10	253.00	102.00
300.00	-2.10	300.00	-2.60	252.00	-1.10	253.00	152.00
							162.00
							203.00
							226.00
							253.00
							303.00

LONG BEACH ISLAND S+J
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 17

DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME			
0.00	13.30	63.00	11.70	1.00	13.30	1.00	13.30	0.00	13.30	46.00	12.00	0.00	13.30
16.00	13.30	71.00	10.60	22.00	13.30	23.00	13.30	25.00	13.30	26.00	13.30	27.00	13.30
39.00	15.50	102.00	7.60	91.00	16.30	92.00	16.30	93.00	16.30	94.00	16.30	95.00	16.30
51.00	15.10	128.00	6.70	77.00	10.10	45.00	16.20	50.00	16.20	52.00	15.00	53.00	15.00
63.00	11.80	177.00	2.20	102.00	8.00	65.00	11.60	75.00	10.20	76.00	10.70	77.00	10.70
103.00	7.60	227.00	0.20	128.00	6.60	101.00	8.00	101.00	7.90	100.00	8.20	201.00	8.20
127.00	6.10	253.00	-0.30	152.00	6.90	127.00	6.80	151.00	6.30	127.00	6.30	211.00	-0.90
152.00	4.70	303.00	-2.10	177.00	5.70	151.00	6.20	165.00	4.10	151.00	7.10	202.00	7.10
202.00	2.50	329.00	-4.20	229.00	1.90	177.00	5.30	176.00	4.10	178.00	4.20	225.00	0.00
253.00	1.20	383.00	-5.20	250.00	1.00	228.00	7.10	206.00	5.10	225.00	0.00	243.00	0.00
283.00	-1.10	403.00	-6.20	283.00	0.00	306.00	-1.20	282.00	-2.60	292.00	-1.90	302.00	-2.90
353.00	-3.20	433.00	-7.20	333.00	-2.00	326.00	-2.60	326.00	-2.60	326.00	-2.60	326.00	-2.60

PROFILE 17

DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME	DATE SPVY TIME
0.00	13.40	63.00	11.70	1.00	13.40	1.00	13.40	0.00	13.40	46.00	12.00	0.00	13.40
16.00	13.40	71.00	10.60	22.00	13.40	23.00	13.40	25.00	13.40	26.00	13.40	27.00	13.40
39.00	15.70	102.00	7.60	91.00	16.30	92.00	16.30	93.00	16.30	94.00	16.30	95.00	16.30
45.00	11.90	166.00	11.90	57.00	15.00	125.00	7.00	91.00	9.70	131.00	7.00	60.00	12.70
101.00	8.90	277.00	8.90	101.00	7.70	159.00	8.00	156.00	7.80	201.00	8.00	156.00	7.80
126.00	7.60	327.00	7.60	126.00	7.00	176.00	8.00	177.00	6.80	226.00	6.80	201.00	6.80
202.00	1.00	383.00	1.10	228.00	2.40	227.00	0.00	252.00	0.00	252.00	0.00	251.00	0.00
227.00	0.20	403.00	-0.20	227.00	0.40	277.00	-0.40	274.00	-1.30	303.00	-2.50	302.00	-2.50
302.00	-2.20	433.00	-3.20	302.00	-2.20	326.00	-2.60	326.00	-2.60	326.00	-2.60	326.00	-2.60

LONG BEACH ISLAND T.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 17

DATE SBVY TIME	DATE 670114 TIME	DATE 670310 SBVY TIME	DATE 670920 SBVY TIME	DATE 671214 SBVY TIME	DATE 680117 SBVY TIME	DATE 680227 SBVY TIME	DATE 680527 SBVY TIME
54.00	54.00	54.00	54.00	54.00	54.00	45.00	45.00
64.00	64.00	64.00	64.00	64.00	64.00	60.00	60.00
73.00	73.00	70.00	129.00	129.00	79.00	80.00	80.00
94.00	94.00	84.00	151.00	151.00	100.00	90.00	90.00
125.00	94.00	101.00	177.00	177.00	151.00	100.00	100.00
151.00	54.00	152.00	201.00	201.00	200.00	150.00	150.00
177.00	54.00	177.00	225.00	225.00	250.00	200.00	200.00
201.00	54.00	191.00	249.00	249.00	300.00	200.00	200.00
251.00	1.00	252.00	302.00	302.00	325.00	300.00	300.00
302.00	1.00	277.00	302.00	302.00	350.00	300.00	300.00
327.00	1.00	292.00	302.00	302.00	350.00	300.00	300.00

PROFILE 17

DATE SBVY TIME	DATE 681009 SBVY TIME	DATE 681023 SBVY TIME	DATE 681214 SBVY TIME	DATE 690115 SBVY TIME	DATE 690213 SBVY TIME	DATE 690310 SBVY TIME	DATE 690527 SBVY TIME
45.00	45.00	45.00	45.00	40.00	40.00	45.00	45.00
40.00	14.00	14.00	14.00	60.00	60.00	60.00	60.00
70.00	13.00	13.00	14.00	10.00	10.00	40.00	40.00
84.00	9.00	9.00	9.00	80.00	80.00	80.00	80.00
100.00	8.00	8.00	8.00	150.00	150.00	100.00	100.00
170.00	8.00	8.00	8.00	200.00	200.00	125.00	125.00
175.00	8.00	8.00	8.00	220.00	220.00	150.00	150.00
200.00	8.00	8.00	8.00	220.00	220.00	200.00	200.00
225.00	8.00	8.00	8.00	275.00	275.00	250.00	250.00
250.00	8.00	8.00	8.00	325.00	325.00	300.00	300.00
300.00	8.00	8.00	8.00	355.00	355.00	350.00	350.00

LONG BEACH ISLAND N.J.
DATUM IS HSL MEASUREMENT IS FT

PROFILE 17

DATE 690924	DATE 691020	DATE 691118	DATE 691218	DATE 700120	DATE 700214	DATE 700319	DATE 700521
SHVY 67	SHVY 6A	SHVY 69	SHVY 70	SHVY 71	SHVY 72	SHVY 73	SHVY 74
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
30.00	15.00	15.00	15.00	15.00	24.00	15.00	14.00
50.00	19.30	18.00	14.50	14.50	64.00	14.50	54.00
90.00	100.00	90.00	53.00	18.50	29.00	14.10	92.00
100.00	8.70	9.70	61.00	17.20	16.30	14.20	77.00
110.00	7.90	9.00	68.00	17.20	11.50	47.00	100.00
117.00	8.30	100.00	65.00	13.00	9.80	61.00	100.00
158.00	125.00	130.00	77.00	10.50	8.50	78.00	100.00
175.00	8.30	175.00	95.00	10.50	5.70	100.00	11.80
175.00	8.00	175.00	97.70	9.60	4.20	100.00	9.40
200.00	7.40	200.00	125.00	8.70	3.70	100.00	9.40
225.00	2.80	221.00	171.00	8.70	3.70	200.00	250.00
225.00	3.30	250.00	200.00	4.70	3.00	250.00	6.80
250.00	1.30	300.00	5.40	4.70	1.20	300.00	3.00
275.00	3.50	1.80	285.00	5.70	-1.20	300.00	284.00
300.00	-1.90	300.00	250.00	4.50		350.00	800
325.00	-1.70	300.00	300.00	1.80		350.00	-1.80
	500.00	-2.40	300.00	1.80		362.00	-2.50
	530.00	-1.90	325.00	-1.30			
	530.00	-2.70	343.00	-1.30			

PROFILE 17

DATE 700828	DATE 701012	DATE 701207	DATE 701218	DATE 710112	DATE 710208	DATE 710308	DATE 710608
SHVY 75	SHVY 7A	SHVY 77	SHVY 7A	SHVY 79	SHVY 80	SHVY 81	SHVY 82
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
0.00	13.60	0.00	9.00	15.00	14.20	0.00	0.00
15.00	13.50	15.00	14.00	22.00	17.90	15.00	25.00
30.00	19.10	53.00	20.00	18.50	56.00	15.00	147.50
70.00	11.50	15.00	50.00	19.20	60.00	15.20	70.00
70.00	11.50	15.00	55.00	17.00	19.00	15.20	70.00
100.00	9.90	100.00	70.00	17.00	100.00	17.70	100.00
100.00	9.90	100.00	78.00	15.50	7.00	74.00	150.00
150.00	8.10	150.00	100.00	10.50	4.00	84.00	150.00
200.00	8.10	200.00	150.00	6.20	1.50	100.00	10.20
250.00	7.90	260.00	170.00	6.20	0.00	151.00	20.00
300.00	6.10	300.00	200.00	5.70	0.00	166.00	250.00
345.00	2.50	250.00	235.00	2.70		166.00	4.80
350.00	0.00	300.00	275.00	2.70		200.00	5.00
400.00	-2.50	300.00	300.00	-1.30		212.00	2.10
450.00	-4.00	300.00	325.00	-2.40		300.00	-1.90
	-4.50	-1.90	450.00	-2.40		300.00	-2.40

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 17

DATE 710024	DATE 710017	DATE 711007	DATE 711214	DATE 720112	DATE 720215	DATE 720223	DATE 720513
SVVY A3	SVVY A5	SVVY A6	SVVY A7	SVVY A8	SVVY B9	SVVY 90	SVVY 91
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
25.00	28.00	13.00	15.00	14.10	15.00	15.70	15.00
54.00	34.00	32.00	43.00	13.60	27.00	27.00	16.00
76.00	47.00	47.00	43.00	18.00	27.00	14.60	52.00
76.00	77.00	62.00	47.00	18.00	60.00	14.50	17.20
100.00	100.00	78.00	71.00	17.30	60.00	14.50	16.00
150.00	100.00	100.00	100.00	17.30	60.00	17.40	77.00
200.00	121.00	105.00	100.00	16.80	70.00	17.40	100.00
250.00	121.00	105.00	100.00	16.80	70.00	17.40	100.00
250.00	156.00	84.00	150.00	10.00	79.00	15.20	150.00
300.00	175.00	54.00	250.00	8.50	40.00	8.40	200.00
	200.00	200.00	150.00	7.80	100.00	7.50	250.00
	236.00	2.40	250.00	3.20	150.00	4.50	275.00
	250.00	-2.70	250.00	-1.30	200.00	4.60	300.00
	250.00	-2.70	275.00	-1.60	200.00	3.60	300.00
					300.00	-2.40	250.00
						279.00	-1.40

PROFILE 17

DATE 720811	DATE 720820	DATE 721017	DATE 721205	DATE 730103	DATE 730210	DATE 740310	DATE 750525
SVVY 92	SVVY 93	SVVY 90	SVVY 95	SVVY 06	SVVY 97	SVVY 98	SVVY 99
TIME 1200	TIME 900	TIME 1100	TIME 1200	TIME 1300	TIME 1000	TIME 1100	TIME 1000
15.00	15.00	14.00	15.00	13.50	15.00	15.00	15.00
14.70	33.00	14.50	60.00	18.30	20.00	14.80	26.00
31.00	66.00	14.00	72.00	16.90	32.00	14.40	52.00
60.00	73.00	17.50	80.00	12.70	56.00	12.30	57.00
75.00	77.00	13.60	100.00	10.00	70.00	11.50	72.00
78.00	100.00	80.00	100.00	8.10	80.00	8.40	78.00
100.00	152.00	150.00	200.00	3.50	80.00	3.40	80.00
126.00	183.00	163.00	250.00	1.50	100.00	1.50	100.00
164.00	250.00	250.00	325.00	-2.50	100.00	3.80	68.00
200.00	290.00	-2.00	250.00	20.00	104.00	20.00	100.00
250.00	-1.20	275.00	500.00	-2.40	200.00	4.00	200.00
278.00	-2.20		300.00	-2.00	300.00	-2.10	300.00

LONG REACH ISLAND N.W.
DATUM IS MGL MEASUREMENT IS FT

PROFILE 1A

DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY
610128	11	1200	610212	11	1200	610220	11	1200	610228	11	1200	610304	11	1200
SVY	11	1200	SVY	11	1200	SVY	11	1200	SVY	11	1200	SVY	11	1200
300.00	9.50	100.00	276.00	9.50	250.00	10.00	539.00	6.50	249.00	9.50	300.00	9.50	524.00	8.00
351.00	5.00	327.00	401.00	9.50	277.00	9.50	577.00	5.00	326.00	6.00	323.00	6.00	330.00	7.10
361.00	5.00	341.00	342.00	6.50	301.00	9.50	402.00	2.00	381.00	7.40	551.00	7.40	370.00	6.20
379.00	5.00	371.00	6.50	377.00	6.50	326.00	6.20	428.00	1.30	350.00	6.90	401.00	2.20	402.00
401.00	2.50	374.00	5.50	401.00	1.00	341.00	6.70	451.00	4.00	376.00	4.90	451.00	4.20	456.00
451.00	-1.70	402.00	2.50	452.00	-1.10	340.00	3.90	478.00	-2.20	400.00	2.80	474.00	-1.10	474.00
451.00	4.20	467.00	4.20	466.00	-1.60	401.00	2.60	501.00	-1.00	424.00	1.00	501.00	-1.40	501.00
467.00	-1.20					451.00	0.00			451.00	0.00			
						475.00	-4.90			476.00	-2.20			

PROFILE 1A

DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY
610326	19	1200	610400	20	1200	610413	22	1200	610625	23	1200	610711	24	1200
SVY	19	1200	SVY	20	1200	SVY	22	1200	SVY	23	1200	SVY	24	1200
301.00	9.20	250.00	10.10	4.00	250.00	10.20	200.00	15.60	201.00	15.50	225.00	12.00	251.00	10.00
325.00	7.50	275.00	9.20	50.00	300.00	9.00	276.00	9.80	226.00	11.90	251.00	9.00	274.00	9.00
351.00	7.50	301.00	4.20	151.00	10.20	350.00	7.30	328.00	4.70	250.00	9.40	300.00	9.00	301.00
352.00	2.50	325.00	16.50	349.00	16.50	401.00	8.30	348.00	7.70	274.00	9.20	328.00	7.50	328.00
426.00	2.50	402.00	5.00	341.00	8.00	451.00	6.50	400.00	6.30	375.00	6.20	374.00	7.50	374.00
476.00	2.50	462.00	5.00	341.00	8.00	451.00	6.50	400.00	6.30	375.00	6.20	374.00	7.50	374.00
501.00	-2.80	451.00	1.80	350.00	8.10	475.00	1.90	428.00	7.00	401.00	6.00	427.00	4.80	426.00
						373.00	7.50	526.00	-4.90	501.00	0.00	476.00	3.50	456.00
						410.00	6.00			477.00	-1.10	501.00	2.20	474.00
						426.00	2.20			528.00	-5.00	528.00	1.90	527.00
						452.00	4.30			552.00	-1.20	552.00	1.90	551.00
						501.00	2.20					577.00	1.00	577.00
						526.00	-1.10					602.00	-2.00	602.00

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 1A

DATE 63020	DATE 63026	DATE 63100	DATE 631025	DATE 631115	DATE 63127	DATE 641115
SVY 27	SVY 29	SVY 30	SVY 31	SVY 32	SVY 33	SVY 34
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
251.00	252.00	304.00	324.00	185.00	182.00	184.90
8.40	8.40	8.30	8.30	105.00	182.00	184.90
321.00	302.00	352.00	352.00	251.00	182.00	184.90
8.40	8.40	8.20	8.20	251.00	182.00	184.90
326.00	326.00	379.00	379.00	302.00	182.00	184.90
7.80	8.40	8.40	8.40	302.00	182.00	184.90
352.00	352.00	428.00	428.00	328.00	182.00	184.90
8.60	8.60	8.60	8.60	328.00	182.00	184.90
376.00	376.00	457.00	457.00	353.00	182.00	184.90
8.40	8.40	8.60	8.60	353.00	182.00	184.90
420.00	420.00	505.00	505.00	379.00	182.00	184.90
8.30	8.40	8.60	8.60	379.00	182.00	184.90
452.00	452.00	555.00	555.00	403.00	182.00	184.90
8.30	8.40	8.60	8.60	403.00	182.00	184.90
502.00	502.00	606.00	606.00	429.00	182.00	184.90
1.60	2.00	-1.00	-1.00	429.00	182.00	184.90
532.00	504.00	630.00	630.00	453.00	182.00	184.90
1.60	1.30	4.30	4.30	453.00	182.00	184.90
579.00	580.00	674.00	674.00	520.00	182.00	184.90
-1.60	0.60	0.60	1.00	520.00	182.00	184.90
				581.00	182.00	184.90
				607.00	182.00	184.90
				633.00	182.00	184.90
				659.00	182.00	184.90
				685.00	182.00	184.90
				711.00	182.00	184.90
				737.00	182.00	184.90
				763.00	182.00	184.90
				789.00	182.00	184.90
				815.00	182.00	184.90
				841.00	182.00	184.90
				867.00	182.00	184.90
				893.00	182.00	184.90
				919.00	182.00	184.90
				945.00	182.00	184.90
				971.00	182.00	184.90
				997.00	182.00	184.90
				1023.00	182.00	184.90
				1049.00	182.00	184.90
				1075.00	182.00	184.90
				1101.00	182.00	184.90
				1127.00	182.00	184.90
				1153.00	182.00	184.90
				1179.00	182.00	184.90
				1205.00	182.00	184.90
				1231.00	182.00	184.90
				1257.00	182.00	184.90
				1283.00	182.00	184.90
				1309.00	182.00	184.90
				1335.00	182.00	184.90
				1361.00	182.00	184.90
				1387.00	182.00	184.90
				1413.00	182.00	184.90
				1439.00	182.00	184.90
				1465.00	182.00	184.90
				1491.00	182.00	184.90
				1517.00	182.00	184.90
				1543.00	182.00	184.90
				1569.00	182.00	184.90
				1595.00	182.00	184.90
				1621.00	182.00	184.90
				1647.00	182.00	184.90
				1673.00	182.00	184.90
				1699.00	182.00	184.90
				1725.00	182.00	184.90
				1751.00	182.00	184.90
				1777.00	182.00	184.90
				1803.00	182.00	184.90
				1829.00	182.00	184.90
				1855.00	182.00	184.90
				1881.00	182.00	184.90
				1907.00	182.00	184.90
				1933.00	182.00	184.90
				1959.00	182.00	184.90
				1985.00	182.00	184.90
				2011.00	182.00	184.90
				2037.00	182.00	184.90
				2063.00	182.00	184.90
				2089.00	182.00	184.90
				2115.00	182.00	184.90
				2141.00	182.00	184.90
				2167.00	182.00	184.90
				2193.00	182.00	184.90
				2219.00	182.00	184.90
				2245.00	182.00	184.90
				2271.00	182.00	184.90
				2297.00	182.00	184.90
				2323.00	182.00	184.90
				2349.00	182.00	184.90
				2375.00	182.00	184.90
				2401.00	182.00	184.90
				2427.00	182.00	184.90
				2453.00	182.00	184.90
				2479.00	182.00	184.90
				2505.00	182.00	184.90
				2531.00	182.00	184.90
				2557.00	182.00	184.90
				2583.00	182.00	184.90
				2609.00	182.00	184.90
				2635.00	182.00	184.90
				2661.00	182.00	184.90
				2687.00	182.00	184.90
				2713.00	182.00	184.90
				2739.00	182.00	184.90
				2765.00	182.00	184.90
				2791.00	182.00	184.90
				2817.00	182.00	184.90
				2843.00	182.00	184.90
				2869.00	182.00	184.90
				2895.00	182.00	184.90
				2921.00	182.00	184.90
				2947.00	182.00	184.90
				2973.00	182.00	184.90
				2999.00	182.00	184.90
				3025.00	182.00	184.90
				3051.00	182.00	184.90
				3077.00	182.00	184.90
				3103.00	182.00	184.90
				3129.00	182.00	184.90
				3155.00	182.00	184.90
				3181.00	182.00	184.90
				3207.00	182.00	184.90
				3233.00	182.00	184.90
				3259.00	182.00	184.90
				3285.00	182.00	184.90
				3311.00	182.00	184.90
				3337.00	182.00	184.90
				3363.00	182.00	184.90
				3389.00	182.00	184.90
				3415.00	182.00	184.90
				3441.00	182.00	184.90
				3467.00	182.00	184.90
				3493.00	182.00	184.90
				3519.00	182.00	184.90
				3545.00	182.00	184.90
				3571.00	182.00	184.90
				3597.00	182.00	184.90
				3623.00	182.00	184.90
				3649.00	182.00	184.90
				3675.00	182.00	184.90
				3701.00	182.00	184.90
				3727.00	182.00	184.90
				3753.00	182.00	184.90
				3779.00	182.00	184.90
				3805.00	182.00	184.90
				3831.00	182.00	184.90
				3857.00	182.00	184.90
				3883.00	182.00	184.90
				3909.00	182.00	184.90
				3935.00	182.00	184.90
				3961.00	182.00	184.90
				3987.00	182.00	184.90
				4013.00	182.00	184.90
				4039.00	182.00	184.90
				4065.00	182.00	184.90
				4091.00	182.00	184.90
				4117.00	182.00	184.90
				4143.00	182.00	184.90
				4169.00	182.00	184.90
				4195.00	182.00	184.90
				4221.00	182.00	184.90
				4247.00	182.00	184.90
				4273.00	182.00	184.90
				4299.00	182.00	184.90
				4325.00	182.00	184.90
				4351.00	182.00	184.90
				4377.00	182.00	184.90
				4403.00	182.00	184.90
				4429.00	182.00	184.90
				4455.00	182.00	184.90
				4481.00	182.00	184.90
				4507.00	182.00	184.90
				4533.00	182.00	184.90
				4559.00	182.00	184.90
				4585.00	182.00	184.90
				4611.00	182.00	184.90
				4637.00	182.00	184.90
				4663.00	182.00	184.90
				4689.00	182.00	184.90
				4715.00	182.00	184.9

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 1A

DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME
218.00	17.10	203.00	15.40	250.00	15.40	260.00	16.10	280.00	17.60	290.00	16.30	295.00	17.70	295.00	16.50
250.00	19.20	250.00	15.30	280.00	10.00	250.00	25.10	251.00	11.50	275.00	11.50	285.00	11.50	285.00	11.50
265.00	15.60	270.00	11.20	301.00	9.00	258.00	15.10	301.00	11.50	275.00	11.50	285.00	11.50	285.00	11.50
271.00	11.90	301.00	7.60	325.00	9.40	278.00	15.10	301.00	8.20	300.00	5.70	300.00	6.50	300.00	6.50
300.00	8.70	324.00	3.00	351.00	3.00	341.00	9.60	350.00	5.30	350.00	4.70	349.00	6.50	349.00	6.50
326.00	7.40	351.00	3.20	380.00	6.40	351.00	6.50	400.00	2.40	400.00	2.20	364.00	6.50	364.00	6.50
351.00	5.60	374.00	2.40	402.00	3.30	401.00	3.50	450.00	1.40	450.00	1.40	450.00	2.50	450.00	2.50
376.00	3.30	402.00	1.40	427.00	1.40	424.00	1.70	500.00	1.40	500.00	1.70	500.00	1.40	500.00	1.40
426.00	1.90	478.00	1.50	452.00	1.20	462.00	1.80	504.00	1.20	504.00	1.20	500.00	1.40	500.00	1.40
481.00	1.40	478.00	1.50	478.00	1.50	502.00	1.80	504.00	1.20	504.00	1.20	500.00	1.40	500.00	1.40
502.00	1.10	511.00	1.10	526.00	1.10	502.00	1.80	504.00	1.20	504.00	1.20	500.00	1.40	500.00	1.40
527.00	1.10	511.00	1.10	526.00	1.10	633.00	1.30	601.00	1.90	601.00	1.90	601.00	1.90	601.00	1.90

PROFILE 1B

DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME	DATE SVY	TIME
218.00	17.10	203.00	15.40	250.00	15.40	260.00	16.10	280.00	17.60	290.00	16.30	295.00	17.70	295.00	16.50
250.00	19.20	250.00	15.30	280.00	10.00	250.00	25.10	251.00	11.50	275.00	11.50	285.00	11.50	285.00	11.50
265.00	15.60	270.00	11.20	301.00	9.00	258.00	15.10	301.00	11.50	275.00	11.50	285.00	11.50	285.00	11.50
271.00	11.90	301.00	7.60	325.00	9.40	278.00	15.10	301.00	8.20	300.00	5.70	300.00	6.50	300.00	6.50
300.00	8.70	324.00	3.00	351.00	3.00	341.00	9.60	350.00	5.30	350.00	4.70	349.00	6.50	349.00	6.50
326.00	7.40	351.00	3.20	380.00	6.40	351.00	6.50	400.00	2.40	400.00	2.20	364.00	6.50	364.00	6.50
351.00	5.60	374.00	2.40	402.00	3.30	401.00	3.50	450.00	1.40	450.00	1.40	450.00	2.50	450.00	2.50
376.00	3.30	402.00	1.40	427.00	1.40	424.00	1.70	500.00	1.40	500.00	1.70	500.00	1.40	500.00	1.40
426.00	1.90	478.00	1.50	452.00	1.20	462.00	1.80	504.00	1.20	504.00	1.20	500.00	1.40	500.00	1.40
481.00	1.40	478.00	1.50	478.00	1.50	502.00	1.80	504.00	1.20	504.00	1.20	500.00	1.40	500.00	1.40
502.00	1.10	511.00	1.10	526.00	1.10	502.00	1.80	504.00	1.20	504.00	1.20	500.00	1.40	500.00	1.40
527.00	1.10	511.00	1.10	526.00	1.10	633.00	1.30	601.00	1.90	601.00	1.90	601.00	1.90	601.00	1.90

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 1R

DATE 691020	DATE 691114	DATE 691218	DATE 700120	DATE 700216	DATE 700319	DATE 700521	DATE 700624
SRVY 6A	SRVY 69	SRVY 70	SRVY 71	SRVY 72	SRVY 73	SRVY 74	SRVY 75
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
200.00	190.00	15.20	206.00	237.00	15.60	182.00	184.00
231.00	231.00	18.70	228.00	250.00	16.00	200.00	200.00
250.00	250.00	22.20	246.00	264.00	16.40	216.00	216.00
262.00	265.00	18.40	250.00	284.00	17.60	242.00	242.00
264.00	268.00	15.00	300.00	300.00	16.00	262.00	262.00
300.00	295.00	10.70	350.00	325.00	10.00	290.00	290.00
334.00	330.00	6.40	370.00	350.00	6.10	300.00	300.00
374.00	370.00	4.00	400.00	400.00	4.20	334.00	334.00
375.00	400.00	2.60	450.00	460.00	1.40	377.00	377.00
400.00	450.00	2.20	500.00	500.00	1.40	400.00	400.00
429.00	460.00	1.40	550.00	560.00	1.70	400.00	400.00
450.00	470.00	1.40	600.00	600.00	1.20	500.00	500.00
500.00	500.00	2.40	650.00	650.00	1.20	500.00	500.00
550.00	550.00	2.70	650.00	650.00	1.20	513.00	513.00
600.00	600.00	2.80	663.00	663.00	1.90	600.00	600.00
650.00	675.00	1.50	675.00	675.00	1.90	650.00	650.00
700.00	700.00	2.40	697.00	697.00	1.90	700.00	700.00
700.00	700.00	2.10					

PROFILE 1R

DATE 701012	DATE 701207	DATE 701218	DATE 710112	DATE 710208	DATE 710308	DATE 710408	DATE 710624
SRVY 76	SRVY 77	SRVY 78	SRVY 79	SRVY A0	SRVY A1	SRVY A2	SRVY A3
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
200.00	15.60	10.60	200.00	16.70	15.80	230.00	150.00
231.00	17.10	227.00	228.00	280.00	16.90	242.00	150.00
250.00	17.00	250.00	250.00	300.00	17.20	250.00	250.00
262.00	17.10	265.00	265.00	320.00	17.00	262.00	262.00
264.00	9.10	268.00	268.00	340.00	19.00	262.00	262.00
300.00	9.10	295.00	295.00	360.00	19.00	262.00	262.00
350.00	9.10	350.00	350.00	380.00	19.00	262.00	262.00
370.00	4.80	400.00	400.00	400.00	17.70	262.00	262.00
370.00	4.80	450.00	450.00	420.00	17.70	262.00	262.00
400.00	4.80	500.00	500.00	440.00	17.70	262.00	262.00
450.00	4.80	550.00	550.00	460.00	17.70	262.00	262.00
500.00	1.20	600.00	600.00	480.00	17.70	262.00	262.00
550.00	1.20	650.00	650.00	500.00	17.70	262.00	262.00
600.00	1.20	675.00	675.00	520.00	17.70	262.00	262.00
650.00	1.20	700.00	700.00	540.00	17.70	262.00	262.00
700.00	1.20	700.00	700.00	560.00	17.70	262.00	262.00
700.00	1.20	700.00	700.00	580.00	17.70	262.00	262.00
700.00	1.20	700.00	700.00	600.00	17.70	262.00	262.00
700.00	1.20	700.00	700.00	620.00	17.70	262.00	262.00
700.00	1.20	700.00	700.00	640.00	17.70	262.00	262.00
700.00	1.20	700.00	700.00	660.00	17.70	262.00	262.00
700.00	1.20	700.00	700.00	680.00	17.70	262.00	262.00
700.00	1.20	700.00	700.00	700.00	17.70	262.00	262.00

LONG BEACH ISLAND O.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 18

DATE SPVY TIME	TIDU1A 1010 1130	DATE SPVY TIME	TROG1P 1010 1130
190.00	15.10	190.50	15.10
222.00	18.10	200.00	15.90
235.00	18.80	224.00	18.20
263.00	17.90	262.00	18.20
280.00	12.10	283.00	11.70
300.00	9.70	300.00	9.90
350.00	5.80	325.00	6.10
385.00	4.10	362.00	4.50
400.00	4.10	375.00	7.80
450.00	.90	400.00	6.50
500.00	-1.00	425.00	3.90
525.00	-1.80	470.00	.30
		500.00	-1.10
		510.00	-1.80

PROFILE 19

DATE SPVY TIME	621002 3 1200	DATE SPVY TIME	621011 4 1200	DATE SPVY TIME	621023 5 1200	DATE SPVY TIME	621029 6 1200	DATE SPVY TIME	621108 7 1200	DATE SPVY TIME	621210 8 1200	DATE SPVY TIME	621115 9 1200	DATE SPVY TIME	621211 10 1200
71.00	7.30	122.00	9.00	116.00	10.60	119.00	10.00	112.00	10.80	107.00	11.00	90.00	6.50	293.00	5.80
91.00	10.30	122.00	7.80	121.00	9.60	125.00	9.30	119.00	11.60	122.00	12.20	30.00	6.80	276.00	4.80
115.00	10.50	104.00	7.00	119.00	8.20	139.00	8.20	131.00	8.70	135.00	9.10	46.00	6.80	300.00	3.10
131.00	9.80	215.00	8.00	189.00	7.40	192.00	7.40	194.00	8.00	185.00	7.70	50.00	6.30	333.00	0.00
158.00	8.40	268.00	4.20	210.00	8.00	236.00	8.00	193.00	8.20	216.00	5.30	75.00	7.40	351.00	-1.00
188.00	7.20	301.00	1.30	242.00	8.70	263.00	5.80	229.00	8.10	260.00	5.90	90.00	9.00		
229.00	7.80	321.00	-0.30	265.00	4.80	297.00	2.00	271.00	4.90	286.00	4.40	90.00	10.80		
275.00	4.80	330.00	-1.20	286.00	2.80	332.00	-1.50	311.00	2.00	320.00	.90	185.00	11.00		
310.00	1.90			303.00	.80			367.00	-1.50	409.00	-1.80	121.00	12.80		
348.00	-1.70											131.00	12.20		
												141.00	9.80		
												157.00	7.80		
												176.00	7.00		
												213.00	7.80		
												228.00	6.50		
												250.00	5.70		
												277.00	4.80		
												301.00	2.00		
												329.00	.80		
												351.00	-1.10		

LONG BEACH ISLAND N.J.
 DATUM IS PSL MEASUREMENT JS - T

PROFILE 19

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME
630128	31	1200	630204	12	1200	630212	13	1200	630220	14	1200	630226	15	1200
150+00	8.30	151+00	12.30	151+00	8.40	170+00	7.40	230+00	6.70	150+00	8.40	164+00	7.40	252+00
162+00	7.70	100+00	8.40	157+00	7.70	200+00	7.10	251+00	6.10	160+00	7.50	175+00	7.20	275+00
174+00	7.50	170+00	7.70	163+00	7.90	230+00	6.60	277+00	5.50	200+00	7.00	201+00	6.70	301+00
201+00	5.50	201+00	6.40	167+00	7.40	270+00	6.50	295+00	3.40	275+00	5.40	281+00	5.90	326+00
232+00	4.80	257+00	5.90	227+00	6.80	301+00	2.50	351+00	-1.20	302+00	2.90	260+00	5.40	400+00
252+00	4.80	257+00	6.80	251+00	6.80	325+00	2.70	370+00	-1.70	326+00	1.10	351+00	5.40	400+00
312+00	3.80	275+00	6.80	251+00	6.80	325+00	-5.00	377+00	-3.00	351+00	0.00	391+00	-1.00	
353+00	-5.00	300+00	5.10	271+00	3.10	302+00	0.00	377+00	-3.00	401+00	-1.10			
376+00	-2.20	327+00	1.90	325+00	0.00	350+00	-1.40							
		376+00	-1.20											

PROFILE 19

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	
630128	19	1200	630204	20	1200	630208	21	1200	630213	22	1200	630225	23	1200	
168+00	7.40	167+00	7.40	75+00	7.40	124+00	15.50	270+00	6.90	225+00	6.50	170+00	8.10	301+00	
201+00	6.70	175+00	6.90	97+00	10.10	170+00	7.90	300+00	6.70	251+00	6.70	201+00	7.10	310+00	
230+00	6.80	202+00	6.50	124+00	15.40	201+00	6.70	320+00	5.90	301+00	7.90	220+00	6.50	320+00	
277+00	6.50	220+00	6.60	168+00	8.40	247+00	6.40	352+00	3.90	351+00	0.00	250+00	6.50	350+00	
287+00	6.30	252+00	6.30	200+00	7.00	275+00	7.10	375+00	1.80	370+00	-1.20	300+00	7.90	401+00	
320+00	2.20	270+00	6.80	210+00	6.80	301+00	7.00	402+00	-1.10			327+00	6.50	420+00	
351+00	1.20	303+00	6.80	245+00	6.40	325+00	6.00				351+00	5.50	451+00	-5.90	
402+00	-1.60	325+00	2.70	270+00	7.00	352+00	2.10				375+00	1.50			
		351+00	1.50	323+00	6.40	375+00	-0.50				401+00	1.50			
		370+00	1.50	370+00	1.50	400+00	-2.20				407+00	-4.00			
		402+00	-1.20												

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 19

DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY	DATE	TIME	SVY
430220	8:00	27	630926	8:00	29	631010	6:50	227	631115	7:00	32	631227	6:40	33
430212	8:30	35	630926	8:30	28	631010	7:20	251	631115	7:20	31	631227	7:10	34
430212	9:00	36	630926	9:00	27	631010	7:50	202	631115	7:50	30	631227	7:40	35
430212	9:30	37	630926	9:30	26	631010	8:20	177	631115	8:10	29	631227	8:10	36
430212	10:00	38	630926	10:00	25	631010	8:50	152	631115	8:40	28	631227	8:40	37
430212	10:30	39	630926	10:30	24	631010	9:20	127	631115	9:10	27	631227	9:10	38
430212	11:00	40	630926	11:00	23	631010	9:50	92	631115	9:40	26	631227	9:40	39
430212	11:30	41	630926	11:30	22	631010	10:20	67	631115	10:10	25	631227	10:10	40
430212	12:00	42	630926	12:00	21	631010	10:50	42	631115	10:40	24	631227	10:40	41
430212	12:30	43	630926	12:30	20	631010	11:20	17	631115	11:10	23	631227	11:10	42
430212	13:00	44	630926	13:00	19	631010	11:50	0	631115	11:40	22	631227	11:40	43
430212	13:30	45	630926	13:30	18	631010	12:20	0	631115	12:10	21	631227	12:10	44
430212	14:00	46	630926	14:00	17	631010	12:50	0	631115	12:40	20	631227	12:40	45
430212	14:30	47	630926	14:30	16	631010	13:20	0	631115	13:10	19	631227	13:10	46
430212	15:00	48	630926	15:00	15	631010	13:50	0	631115	13:40	18	631227	13:40	47
430212	15:30	49	630926	15:30	14	631010	14:20	0	631115	14:10	17	631227	14:10	48
430212	16:00	50	630926	16:00	13	631010	14:50	0	631115	14:40	16	631227	14:40	49
430212	16:30	51	630926	16:30	12	631010	15:20	0	631115	15:10	15	631227	15:10	50
430212	17:00	52	630926	17:00	11	631010	15:50	0	631115	15:40	14	631227	15:40	51
430212	17:30	53	630926	17:30	10	631010	16:20	0	631115	16:10	13	631227	16:10	52
430212	18:00	54	630926	18:00	9	631010	16:50	0	631115	16:40	12	631227	16:40	53
430212	18:30	55	630926	18:30	8	631010	17:20	0	631115	17:10	11	631227	17:10	54
430212	19:00	56	630926	19:00	7	631010	17:50	0	631115	17:40	10	631227	17:40	55
430212	19:30	57	630926	19:30	6	631010	18:20	0	631115	18:10	9	631227	18:10	56
430212	20:00	58	630926	20:00	5	631010	18:50	0	631115	18:40	8	631227	18:40	57
430212	20:30	59	630926	20:30	4	631010	19:20	0	631115	19:10	7	631227	19:10	58
430212	21:00	60	630926	21:00	3	631010	19:50	0	631115	19:40	6	631227	19:40	59
430212	21:30	61	630926	21:30	2	631010	20:20	0	631115	20:10	5	631227	20:10	60
430212	22:00	62	630926	22:00	1	631010	20:50	0	631115	20:40	4	631227	20:40	61
430212	22:30	63	630926	22:30	0	631010	21:20	0	631115	21:10	3	631227	21:10	62
430212	23:00	64	630926	23:00	0	631010	21:50	0	631115	21:40	2	631227	21:40	63
430212	23:30	65	630926	23:30	0	631010	22:20	0	631115	22:10	1	631227	22:10	64
430212	24:00	66	630926	24:00	0	631010	22:50	0	631115	22:40	0	631227	22:40	65
430212	24:30	67	630926	24:30	0	631010	23:20	0	631115	23:10	0	631227	23:10	66
430212	25:00	68	630926	25:00	0	631010	23:50	0	631115	23:40	0	631227	23:40	67
430212	25:30	69	630926	25:30	0	631010	24:20	0	631115	24:10	0	631227	24:10	68
430212	26:00	70	630926	26:00	0	631010	24:50	0	631115	24:40	0	631227	24:40	69
430212	26:30	71	630926	26:30	0	631010	25:20	0	631115	25:10	0	631227	25:10	70
430212	27:00	72	630926	27:00	0	631010	25:50	0	631115	25:40	0	631227	25:40	71
430212	27:30	73	630926	27:30	0	631010	26:20	0	631115	26:10	0	631227	26:10	72
430212	28:00	74	630926	28:00	0	631010	26:50	0	631115	26:40	0	631227	26:40	73
430212	28:30	75	630926	28:30	0	631010	27:20	0	631115	27:10	0	631227	27:10	74
430212	29:00	76	630926	29:00	0	631010	27:50	0	631115	27:40	0	631227	27:40	75
430212	29:30	77	630926	29:30	0	631010	28:20	0	631115	28:10	0	631227	28:10	76
430212	30:00	78	630926	30:00	0	631010	28:50	0	631115	28:40	0	631227	28:40	77
430212	30:30	79	630926	30:30	0	631010	29:20	0	631115	29:10	0	631227	29:10	78
430212	31:00	80	630926	31:00	0	631010	29:50	0	631115	29:40	0	631227	29:40	79
430212	31:30	81	630926	31:30	0	631010	30:20	0	631115	30:10	0	631227	30:10	80
430212	32:00	82	630926	32:00	0	631010	30:50	0	631115	30:40	0	631227	30:40	81
430212	32:30	83	630926	32:30	0	631010	31:20	0	631115	31:10	0	631227	31:10	82
430212	33:00	84	630926	33:00	0	631010	31:50	0	631115	31:40	0	631227	31:40	83
430212	33:30	85	630926	33:30	0	631010	32:20	0	631115	32:10	0	631227	32:10	84
430212	34:00	86	630926	34:00	0	631010	32:50	0	631115	32:40	0	631227	32:40	85
430212	34:30	87	630926	34:30	0	631010	33:20	0	631115	33:10	0	631227	33:10	86
430212	35:00	88	630926	35:00	0	631010	33:50	0	631115	33:40	0	631227	33:40	87
430212	35:30	89	630926	35:30	0	631010	34:20	0	631115	34:10	0	631227	34:10	88
430212	36:00	90	630926	36:00	0	631010	34:50	0	631115	34:40	0	631227	34:40	89
430212	36:30	91	630926	36:30	0	631010	35:20	0	631115	35:10	0	631227	35:10	90
430212	37:00	92	630926	37:00	0	631010	35:50	0	631115	35:40	0	631227	35:40	91
430212	37:30	93	630926	37:30	0	631010	36:20	0	631115	36:10	0	631227	36:10	92
430212	38:00	94	630926	38:00	0	631010	36:50	0	631115	36:40	0	631227	36:40	93
430212	38:30	95	630926	38:30	0	631010	37:20	0	631115	37:10	0	631227	37:10	94
430212	39:00	96	630926	39:00	0	631010	37:50	0	631115	37:40	0	631227	37:40	95
430212	39:30	97	630926	39:30	0	631010	38:20	0	631115	38:10	0	631227	38:10	96
430212	40:00	98	630926	40:00	0	631010	38:50	0	631115	38:40	0	631227	38:40	97
430212	40:30	99	630926	40:30	0	631010	39:20	0	631115	39:10	0	631227	39:10	98
430212	41:00	100	630926	41:00	0	631010	39:50	0	631115	39:40	0	631227	39:40	99
430212	41:30	101	630926	41:30	0	631010	40:20	0	631115	40:10	0	631227	40:10	100
430212	42:00	102	630926	42:00	0	631010	40:50	0	631115	40:40	0	631227	40:40	101
430212	42:30	103	630926	42:30	0	631010	41:20	0	631115	41:10	0	631227	41:10	102
430212	43:00	104	630926	43:00	0	631010	41:50	0	631115	41:40	0	631227	41:40	103
430212	43:30	105	630926	43:30	0	631010	42:20	0	631115	42:10	0	631227	42:10	104
430212	44:00	106	630926	44:00	0	631010	42:50	0	631115	42:40	0	631227	42:40	105
430212	44:30	107	630926	44:30	0	631010	43:20	0	631115	43:10	0	631227	43:10	106
430212	45:00	108	630926	45:00	0	631010	43:50	0	631115	43:40	0	631227	43:40	107
430212	45:30	109	630926	45:30	0	631010	44:20	0	631115	44:10	0	631227	44:10	108
430212	46:00	110	630926	46:00	0	631010	44:50	0	631115	44:40	0	631227	44:40	109
430212	46:30	111	630926	46:30	0	631010	45:20	0	631115	45:10	0	631227	45:10	110
430212	47:00	112	630926	47:00	0	631010	45:50	0	631115	45:40	0	631227	45:40	111
430212	47:30	113	630926	47:30	0	631010	46:20	0	631115	46:10	0	631227	46:10	112
430212	48:00	114	630926	48:00	0	631010	46:50	0	631115	46:40	0	631227	46:40	113
430212	48:30	115	630926	48:30	0	631010	47:20	0	631115	47:10	0	631227	47:10	114
430212	49:00	116	630926	49:00	0	631010	47:50	0	631115	47:40	0	631227	47:40	115
430212	49:30	117	630926	49:30	0	631010	48:20	0	631115	48:10	0	631227	48:10	116
430212	50:00	118	630926	50:00	0	631010	48:50	0	631115	48:40	0	631227		

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT TS FT

PROFILE 19

DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME
650119	650907	651027	651222	660125	660321	660327	660327	660327	660327	660327	660327	660327
43	05	04	07	04	09	04	04	04	04	04	04	04
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
187+00	92+00	10+80	168+00	68+00	184+00	15+70	149+00	14+10				
201+00	150+00	13+70	126+00	15+80	189+00	8+80	98+00	11+80	144+00	12+80	164+00	13+30
251+00	169+00	12+70	166+00	12+60	201+00	7+60	141+00	13+10	200+00	9+00	163+00	9+00
277+00	180+00	8+20	187+00	6+60	251+00	6+60	191+00	12+30	281+00	6+50	226+00	7+20
302+00	202+00	6+80	201+00	7+90	302+00	7+80	211+00	9+20	314+00	7+80	251+00	7+00
327+00	251+00	9+50	251+00	6+90	352+00	7+50	251+00	6+00	326+00	7+50	277+00	6+20
353+00	301+00	7+90	302+00	6+30	375+00	6+20	352+00	7+50	402+00	7+50	377+00	7+00
381+00	319+00	5+80	319+00	6+10	403+00	5+20	382+00	7+50	427+00	6+00	421+00	7+00
383+00	372+00	3+30	372+00	6+10	451+00	2+10	402+00	1+80	452+00	1+80	427+00	6+00
428+00	403+00	3+30	403+00	6+10	451+00	2+10	402+00	1+80	452+00	1+80	427+00	6+00
	429+00	1+30	403+00	6+10	451+00	2+10	402+00	1+80	452+00	1+80	427+00	6+00
	429+00	1+30	403+00	6+10	451+00	2+10	402+00	1+80	452+00	1+80	427+00	6+00
	429+00	1+30	403+00	6+10	451+00	2+10	402+00	1+80	452+00	1+80	427+00	6+00

PROFILE 19

DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME	DATE SRVY TIME
670116	670920	671218	680117	680227	680327	680327	680327	680327	680327	680327	680327	680327
51	54	55	56	57	57	57	57	57	57	57	57	57
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
130+00	129+00	15+30	93+00	92+00	87+00	15+00	40+00	12+50				
150+00	150+00	14+10	130+00	130+00	130+00	13+50	129+00	13+50	120+00	14+20	150+00	16+00
171+00	176+00	12+90	140+00	12+70	130+00	15+30	152+00	13+60	161+00	12+50	160+00	14+30
191+00	225+00	9+00	225+00	9+40	150+00	15+30	176+00	12+40	200+00	9+10	190+00	11+00
210+00	228+00	7+70	250+00	7+60	169+00	12+80	198+00	9+90	200+00	9+90	200+00	9+00
226+00	277+00	7+80	277+00	7+60	301+00	4+90	192+00	10+40	251+00	7+20	250+00	7+30
251+00	301+00	7+00	352+00	5+80	351+00	4+90	215+00	9+00	288+00	6+20	288+00	6+00
251+00	377+00	7+00	379+00	3+00	402+00	3+00	215+00	7+60	350+00	2+20	350+00	7+00
301+00	429+00	6+80	401+00	2+20	451+00	2+20	350+00	5+40	390+00	6+00	390+00	6+00
326+00	429+00	6+80	401+00	2+20	451+00	2+20	350+00	5+40	390+00	6+00	390+00	6+00
352+00	429+00	6+80	401+00	2+20	451+00	2+20	350+00	5+40	390+00	6+00	390+00	6+00
381+00	429+00	6+80	401+00	2+20	451+00	2+20	350+00	5+40	390+00	6+00	390+00	6+00
402+00	452+00	5+30	428+00	3+00	481+00	3+00	428+00	3+00	481+00	3+00	481+00	3+00
428+00	452+00	5+30	428+00	3+00	481+00	3+00	428+00	3+00	481+00	3+00	481+00	3+00
428+00	452+00	5+30	428+00	3+00	481+00	3+00	428+00	3+00	481+00	3+00	481+00	3+00

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 19

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
800520	12:50	801113	12:30	801218	14:20	801315	13:20	802213	13:30	803109	14:10	803528	12:10	804028	12:20
SEVY	14.40	SEVY	14.30	SEVY	14.20	SEVY	14.60	SEVY	14.50	SEVY	14.50	SEVY	14.40	SEVY	14.40
TIME	12:00	TIME	12:00	TIME	12:00	TIME	12:00	TIME	12:00	TIME	12:00	TIME	12:00	TIME	12:00
90:00	12:50	100:00	12:30	130:00	14:20	100:00	13:20	100:00	13:30	130:00	14:10	163:00	12:10	92:00	12:20
130:00	14:20	130:00	14:30	160:00	14:20	135:00	14:60	173:00	14:10	163:00	14:50	124:00	14:40	130:00	13:50
160:00	14:70	165:00	15:00	173:00	14:70	170:00	14:90	210:00	14:50	192:00	15:20	154:00	14:90	161:00	15:00
190:00	14:70	190:00	14:70	190:00	14:80	200:00	14:80	210:00	14:40	200:00	14:30	167:00	14:20	174:00	12:00
200:00	9:70	250:00	6:70	260:00	9:40	225:00	7:40	219:00	8:40	225:00	8:40	190:00	11:10	208:00	9:50
205:00	7:50	300:00	5:00	260:00	6:70	250:00	6:70	250:00	8:10	250:00	6:60	200:00	10:00	230:00	7:40
300:00	8:70	350:00	4:20	300:00	6:70	300:00	6:70	275:00	7:40	300:00	3:90	250:00	7:20	250:00	7:60
330:00	7:90	400:00	3:50	350:00	6:30	335:00	6:50	300:00	6:20	350:00	2:50	300:00	7:00	285:00	7:50
350:00	5:40	425:00	1:50	375:00	4:60	350:00	5:60	325:00	7:70	400:00	2:70	350:00	7:50	325:00	7:70
400:00	3:30	450:00	1:10	425:00	1:50	400:00	2:20	375:00	1:20	400:00	-1:30	350:00	7:10	420:00	7:70
425:00	-2:70	475:00	-1:60	450:00	0:00	425:00	0:20	400:00	0:00	400:00	-1:30	375:00	4:40	350:00	7:10
450:00	-2:30	475:00	-1:30	450:00	-1:10	475:00	-1:40	450:00	-2:40	450:00	-1:20	400:00	-1:20	400:00	-1:30
450:00	-2:30	475:00	-1:30	450:00	-1:10	475:00	-1:40	450:00	-2:40	450:00	-1:20	400:00	-1:20	400:00	-1:30

PROFILE 19

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
700520	12:50	701113	12:30	701218	14:20	701315	13:20	702213	13:30	703109	14:10	703528	12:10	704028	12:20
SEVY	14.40	SEVY	14.30	SEVY	14.20	SEVY	14.60	SEVY	14.50	SEVY	14.50	SEVY	14.40	SEVY	14.40
TIME	12:00	TIME	12:00	TIME	12:00	TIME	12:00	TIME	12:00	TIME	12:00	TIME	12:00	TIME	12:00
90:00	12:50	90:00	12:30	50:00	14:20	90:00	13:20	100:00	13:30	60:00	14:10	60:00	12:10	60:00	12:20
130:00	14:20	90:00	11:00	92:00	11:40	110:00	11:40	175:00	14:40	92:00	11:50	90:00	11:40	100:00	13:50
142:00	14:20	100:00	13:20	100:00	13:30	100:00	13:10	175:00	15:10	96:00	12:70	130:00	13:30	150:00	14:50
150:00	15:40	100:00	13:30	120:00	14:40	120:00	13:40	200:00	11:10	125:00	12:10	130:00	14:20	160:00	15:00
160:00	15:40	160:00	15:30	140:00	14:90	140:00	13:60	225:00	9:30	173:00	13:30	185:00	15:10	185:00	12:20
170:00	13:90	190:00	11:00	160:00	10:40	162:00	10:60	250:00	7:40	173:00	10:70	204:00	11:40	200:00	11:30
190:00	11:00	240:00	8:30	170:00	10:40	170:00	10:40	300:00	6:70	200:00	11:20	204:00	11:40	200:00	11:30
225:00	8:30	265:00	6:70	220:00	11:00	195:00	11:00	330:00	4:20	250:00	6:60	265:00	7:40	260:00	7:40
230:00	7:40	290:00	6:30	250:00	6:00	250:00	6:00	375:00	1:00	250:00	7:00	265:00	7:40	300:00	7:40
275:00	4:30	350:00	4:10	320:00	4:40	320:00	4:40	400:00	-1:40	300:00	7:40	350:00	7:40	300:00	7:40
297:00	4:30	375:00	3:30	300:00	5:40	300:00	5:40	500:00	-1:40	300:00	7:40	350:00	7:40	300:00	7:40
300:00	1:10	400:00	1:70	350:00	4:80	350:00	4:80	500:00	-1:40	330:00	7:40	450:00	7:40	300:00	7:40
325:00	4:70	425:00	3:30	400:00	4:80	400:00	4:80	450:00	2:40	350:00	7:40	450:00	7:40	300:00	7:40
400:00	1:50	475:00	-2:20	500:00	-3:30	450:00	-3:30	450:00	-2:60	450:00	-2:60	450:00	-3:50	450:00	-3:50
450:00	-1:50	475:00	-2:20	500:00	-3:30	450:00	-3:30	450:00	-2:60	470:00	-3:50	450:00	-3:50	450:00	-3:50
467:00	-1:70	475:00	-2:20	500:00	-3:30	450:00	-3:30	450:00	-2:60	470:00	-3:50	450:00	-3:50	450:00	-3:50
475:00	-3:40	475:00	-2:20	500:00	-3:30	450:00	-3:30	450:00	-2:60	470:00	-3:50	450:00	-3:50	450:00	-3:50
495:00	5:90	475:00	-2:20	500:00	-3:30	450:00	-3:30	450:00	-2:60	470:00	-3:50	450:00	-3:50	450:00	-3:50

LONG BEACH ISLAND M.S.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 19

DATE SVY	01012 TIME	DATE SVY	701207 TIME	DATE SVY	701218 TIME	DATE SVY	701012 TIME	DATE SVY	701208 TIME	DATE SVY	701030 TIME	DATE SVY	710629 TIME
57.00	7.10	57.00	7.20	57.00	7.20	56.00	7.10	56.00	7.10	100.00	13.00	100.00	12.90
100.00	13.80	100.00	13.00	100.00	13.00	100.00	9.00	100.00	13.00	100.00	13.10	100.00	13.00
157.00	15.20	157.00	15.20	157.00	15.20	157.00	92.00	157.00	15.20	157.00	15.10	157.00	15.50
167.00	15.80	167.00	15.70	167.00	15.70	167.00	11.70	167.00	15.70	167.00	15.30	167.00	15.50
200.00	11.20	200.00	12.00	200.00	12.00	200.00	100.00	200.00	12.00	200.00	13.60	200.00	12.00
231.00	8.10	231.00	7.50	231.00	7.50	231.00	111.00	231.00	7.50	231.00	13.90	231.00	12.00
250.00	7.20	250.00	6.50	250.00	6.50	250.00	134.00	250.00	6.50	250.00	15.00	250.00	13.10
300.00	7.20	300.00	6.50	300.00	6.50	300.00	165.00	300.00	6.50	300.00	16.30	300.00	6.50
350.00	8.10	350.00	7.40	350.00	7.40	350.00	150.00	350.00	7.40	350.00	15.50	350.00	7.20
372.00	8.00	372.00	7.30	372.00	7.30	372.00	200.00	372.00	7.30	372.00	10.50	372.00	7.20
400.00	3.90	400.00	4.60	400.00	4.60	400.00	223.00	400.00	4.60	400.00	7.60	400.00	4.70
450.00	1.80	450.00	2.70	450.00	2.70	450.00	250.00	450.00	2.70	450.00	7.00	450.00	2.70
500.00	1.80	500.00	4.20	500.00	4.20	500.00	300.00	500.00	4.20	500.00	7.00	500.00	4.20
550.00	1.80	550.00	4.20	550.00	4.20	550.00	323.00	550.00	4.20	550.00	7.00	550.00	4.20
600.00	2.90	600.00	4.20	600.00	4.20	600.00	400.00	600.00	4.20	600.00	7.00	600.00	4.20
650.00	2.90	650.00	4.20	650.00	4.20	650.00	450.00	650.00	4.20	650.00	7.00	650.00	4.20
700.00	2.90	700.00	4.20	700.00	4.20	700.00	475.00	700.00	4.20	700.00	7.00	700.00	4.20

PROFILE 19

DATE SVY	710017 TIME	DATE SVY	711007 TIME	DATE SVY	711214 TIME	DATE SVY	720112 TIME	DATE SVY	720215 TIME	DATE SVY	720223 TIME	DATE SVY	720315 TIME
100.00	12.60	100.00	7.10	100.00	6.30	100.00	61.00	100.00	7.40	100.00	6.20	100.00	6.20
150.00	13.60	150.00	13.50	150.00	13.50	150.00	12.90	150.00	12.50	150.00	12.40	150.00	12.40
184.00	15.50	184.00	13.30	184.00	13.90	184.00	105.00	184.00	13.00	184.00	14.00	184.00	13.50
200.00	12.30	200.00	12.00	200.00	12.70	200.00	124.00	200.00	13.60	200.00	13.00	200.00	13.00
216.00	13.10	216.00	15.50	216.00	18.90	216.00	124.00	216.00	13.40	216.00	15.00	216.00	15.10
257.00	8.00	257.00	12.10	257.00	12.30	257.00	154.00	257.00	15.60	257.00	12.40	257.00	13.70
300.00	7.00	300.00	12.60	300.00	12.70	300.00	189.00	300.00	15.60	300.00	12.40	300.00	13.10
331.00	6.30	331.00	13.30	331.00	13.50	331.00	200.00	331.00	12.80	331.00	11.70	331.00	13.10
350.00	6.00	350.00	4.20	350.00	4.20	350.00	349.00	350.00	12.80	350.00	8.00	350.00	4.20
380.00	5.20	380.00	6.70	380.00	6.70	380.00	375.00	380.00	11.80	380.00	6.20	380.00	6.20
395.00	2.20	395.00	9.30	395.00	2.10	395.00	400.00	395.00	9.30	395.00	6.00	395.00	9.30
400.00	8.80	400.00	5.70	400.00	2.80	400.00	420.00	400.00	7.00	400.00	3.60	400.00	8.80
450.00	1.20	450.00	1.70	450.00	4.50	450.00	450.00	450.00	7.00	450.00	4.80	450.00	1.20
500.00	1.20	500.00	1.70	500.00	4.50	500.00	450.00	500.00	6.10	500.00	4.20	500.00	1.20
550.00	1.20	550.00	1.70	550.00	4.50	550.00	450.00	550.00	6.10	550.00	4.20	550.00	1.20
600.00	1.20	600.00	1.70	600.00	4.50	600.00	450.00	600.00	6.10	600.00	4.20	600.00	1.20
650.00	1.20	650.00	1.70	650.00	4.50	650.00	450.00	650.00	6.10	650.00	4.20	650.00	1.20
700.00	1.20	700.00	1.70	700.00	4.50	700.00	450.00	700.00	6.10	700.00	4.20	700.00	1.20
750.00	1.20	750.00	1.70	750.00	4.50	750.00	450.00	750.00	6.10	750.00	4.20	750.00	1.20
800.00	1.20	800.00	1.70	800.00	4.50	800.00	450.00	800.00	6.10	800.00	4.20	800.00	1.20
850.00	1.20	850.00	1.70	850.00	4.50	850.00	450.00	850.00	6.10	850.00	4.20	850.00	1.20
900.00	1.20	900.00	1.70	900.00	4.50	900.00	450.00	900.00	6.10	900.00	4.20	900.00	1.20
950.00	1.20	950.00	1.70	950.00	4.50	950.00	450.00	950.00	6.10	950.00	4.20	950.00	1.20
1000.00	1.20	1000.00	1.70	1000.00	4.50	1000.00	450.00	1000.00	6.10	1000.00	4.20	1000.00	1.20

LONG BEACH ISLAND N.S.J.
DATUM IS HSL MEASUREMENT IS FT

PROFILE 19

DATE 720824	DATE 721017	DATE 721205	DATE 730103	DATE 730214	DATE 730310	DATE 730525	DATE 730603
SHVY 94	SHVY 94	SHVY 95	SHVY 96	SHVY 97	SHVY 9A	SHVY 99	SHVY 100
TIME 1000	TIME 1200	TIME 1300	TIME 1300	TIME 1000	TIME 1200	TIME 1000	TIME 1100
59.00	7.00	60.00	7.20	60.00	7.10	60.00	7.00
100.00	12.70	100.00	100.00	100.00	100.00	100.00	100.00
128.00	14.00	135.00	132.00	132.00	129.00	129.00	129.00
138.00	15.30	160.00	154.10	165.00	149.00	149.00	149.00
162.00	15.20	200.00	184.00	191.00	162.00	162.00	162.00
200.00	15.10	217.00	192.00	200.00	182.00	182.00	182.00
216.00	14.50	230.00	218.00	218.00	200.00	200.00	200.00
230.00	8.70	250.00	250.00	250.00	240.00	240.00	240.00
333.00	8.00	350.00	350.00	350.00	350.00	350.00	350.00
356.00	7.00	450.00	450.00	450.00	450.00	450.00	450.00
400.00	5.10	475.00	475.00	475.00	475.00	475.00	475.00
450.00	1.30	475.00	475.00	475.00	475.00	475.00	475.00
475.00	-2.70	475.00	475.00	475.00	475.00	475.00	475.00

PROFILE 19

DATE 730014	DATE 730612
SHVY 101	SHVY 100
TIME 1100	TIME 1300
60.00	7.30
100.00	12.70
128.00	14.10
149.00	12.90
165.00	15.00
180.00	14.40
200.00	14.70
219.00	13.00
255.00	8.40
300.00	4.90
330.00	5.10
350.00	4.70
400.00	4.70
450.00	1.00
475.00	1.00
490.00	1.00
495.00	1.00

LONG REACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 20

DATE 621002	DATE 621011	DATE 621023	DATE 621029	DATE 621108	DATE 621210	DATE 630115	DATE 630121
SRVY 3	SRVY 4	SRVY 5	SRVY 6	SRVY 7	SRVY A	SRVY 9	SRVY 10
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
55.60	158.00	134.00	158.00	184.00	161.00	6.00	185.00
127.00	11.00	174.00	176.00	153.00	155.00	50.00	201.00
157.00	191.00	104.00	104.00	153.00	169.00	6.00	202.00
175.00	18.00	104.00	208.00	181.00	180.00	129.00	209.00
209.00	8.30	228.00	4.30	181.00	180.00	104.00	252.00
241.00	5.70	228.00	7.70	182.00	8.30	150.00	270.00
281.00	2.00	240.00	8.30	182.00	215.00	150.00	321.00
325.00	-1.40	320.00	3.50	184.00	241.00	186.00	351.00
			286.00	286.00	3.10	186.00	376.00
			321.00	321.00	3.10	186.00	376.00
			361.00	361.00	3.10	187.00	377.00
			4.20	369.00	-1.60	187.00	377.00
						226.00	4.00
						300.00	6.00
						327.00	0.00
						352.00	0.00
						376.00	-1.70

PROFILE 20

DATE 630128	DATE 630204	DATE 630212	DATE 630220	DATE 630226	DATE 630300	DATE 630311	DATE 630319
SRVY 11	SRVY 12	SRVY 13	SRVY 14	SRVY 15	SRVY 16	SRVY 17	SRVY 18
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
188.00	175.00	9.90	201.00	9.00	203.00	8.90	251.00
224.00	9.00	9.20	250.00	7.70	254.00	7.60	279.00
250.00	8.10	8.80	301.00	2.60	288.00	4.80	309.00
275.00	7.90	252.00	352.00	-2.80	328.00	6.60	328.00
302.00	3.50	276.00	375.00	-1.90	350.00	-2.70	351.00
325.00	1.80	300.00	425.00	374.00	401.00	376.00	401.00
351.00	-4.70	325.00	460.00	-1.60	401.00	376.00	401.00
376.00	-5.00	376.00	460.00	-1.60	401.00	376.00	401.00
						200.00	7.90
						251.00	4.90
						279.00	7.80
						309.00	4.90
						328.00	5.10
						351.00	5.00
						376.00	-1.10
						377.00	-1.10

LONG BEACH ISLAND N.M.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE P0

DATE 630326	DATE 630400	DATE 630528	DATE 630613	DATE 630625	DATE 630711	DATE 630723	DATE 630806
SVY 19	SVY 20	SVY 21	SVY 22	SVY 23	SVY 24	SVY 25	SVY 26
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
201.00	241.00	6.50	172.00	11.00	179.00	9.00	220.00
522.00	7.90	6.60	178.00	9.10	201.00	7.00	251.00
301.00	3.20	8.70	200.00	7.10	227.00	6.30	276.00
350.00	8.90	10.20	225.00	6.50	247.00	6.00	302.00
384.00	-1.20	107.00	250.00	5.60	271.00	3.00	302.00
		155.00	275.00	3.50	302.00	0.20	326.00
		172.00	300.00	-2.20	327.00	-2.80	
		178.00	310.00	-2.20	327.00	-2.80	
		201.00	7.30				
		228.00	6.30				
		251.00	5.90				
		276.00	4.30				
		300.00	1.00				
		327.00	-1.00				

PROFILE P0

DATE 630820	DATE 630904	DATE 630926	DATE 631010	DATE 631025	DATE 631115	DATE 631227	DATE 640115
SVY 27	SVY 28	SVY 29	SVY 30	SVY 31	SVY 32	SVY 33	SVY 34
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
173.00	10.20	202.00	5.30	173.00	10.60	92.00	8.00
181.00	4.70	222.00	5.10	177.00	8.60	183.00	12.00
202.00	6.00	252.00	5.80	207.00	5.90	186.00	11.00
251.00	5.00	275.00	1.00	252.00	2.60	178.00	10.00
320.00	4.10	329.00	-1.50	274.00	5.70	191.00	7.70
325.00	-1.10	353.00	-2.20	303.00	2.00	202.00	0.70
				327.00	-0.60	227.00	6.10
					-3.00	250.00	0.30
						276.00	6.00
						303.00	1.20
						328.00	1.60
						378.00	1.60
							252.00
							277.00
							302.00
							318.00
							370.00

LONG BEACH ISLAND N.J.
 DATUM IS WSL MEASUREMENT IS ET

PROFILE 20

DATE SVY TIME	640212 35 1200	DATE SVY TIME	640310 36 1200	DATE SVY TIME	640407 37 1200	DATE SVY TIME	640525 38 1200	DATE SVY TIME	640623 39 1200	DATE SVY TIME	640629 41 1200	DATE SVY TIME	640701 42 1200
183.00	6.80	160.00	9.00	106.00	9.30	125.00	10.30	157.00	15.90	130.00	11.40	127.00	14.00
202.00	5.80	122.00	10.20	122.00	10.10	131.00	12.10	184.00	9.50	150.00	10.50	151.00	16.50
217.00	5.70	131.00	15.80	135.00	10.00	149.00	14.20	203.00	8.30	162.00	15.70	170.00	17.40
252.00	2.80	104.00	15.80	135.00	10.00	149.00	14.20	203.00	7.10	182.00	7.80	176.00	17.40
277.00	4.00	151.00	12.60	162.00	10.00	162.00	8.10	250.00	5.60	203.00	7.30	201.00	26.00
302.00	4.80	172.00	10.60	180.00	8.00	182.00	8.20	276.00	3.70	245.00	3.80	226.00	6.80
326.00	4.70	182.00	7.20	201.00	6.10	202.00	6.40	292.00	4.50	261.00	0.00	244.00	6.80
342.00	2.80	200.00	6.00	226.00	5.20	252.00	6.20	303.00	4.50	281.00	0.00	277.00	4.00
374.00	4.80	252.00	4.70	277.00	2.80	276.00	4.20	320.00	3.80	302.00	3.50	302.00	4.50
		303.00	4.30	302.00	0.80	297.00	5.80					302.00	4.50
		330.00	1.40	324.00	1.40	302.00	3.50					325.00	4.00
		354.00	3.30	353.00	3.90	353.00	3.50					355.00	2.50

PROFILE 20

DATE SVY TIME	650119 43 1200	DATE SVY TIME	650427 44 1200	DATE SVY TIME	651027 46 1200	DATE SVY TIME	651222 47 1200	DATE SVY TIME	660125 48 1200	DATE SVY TIME	660321 49 1200	DATE SVY TIME	660322 50 1200
179.00	9.40	124.00	12.00	124.00	11.20	124.00	10.00	184.00	9.80	125.00	11.60	180.00	15.40
201.00	9.40	164.00	15.20	150.00	16.60	150.00	16.70	201.00	8.30	182.00	15.50	194.00	10.10
227.00	4.00	148.00	8.50	142.00	14.70	168.00	10.80	240.00	8.30	182.00	15.50	194.00	10.10
305.00	2.80	203.00	7.80	146.00	9.60	189.00	9.80	250.00	6.40	180.00	9.20	280.00	7.00
328.00	0.80	252.00	4.90	201.00	8.00	200.00	8.00	277.00	5.80	201.00	7.60	286.00	7.00
352.00	1.60	302.00	6.80	226.00	8.10	236.00	8.00	302.00	2.90	251.00	5.30	324.00	4.00
		326.00	8.20	246.00	8.00	302.00	0.60	302.00	4.90	302.00	1.60	351.00	4.00
		374.00	2.80	273.00	7.10	307.00	8.20	393.00	2.80	327.00	4.10	376.00	1.40
				327.00	5.00							401.00	2.00
				342.00	4.00							427.00	2.00
				342.00	1.00							477.00	4.10
												477.00	4.10

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT.

PROFILE 20

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
870116	870510	870920	871218	880117	880227	880427	880528	880627	880728	880828	880928	881028	881128
SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
161.00	133.00	148.00	133.00	145.50	150.00	151.00	151.00	151.00	151.00	151.00	151.00	151.00	151.00
195.00	156.00	176.00	156.00	165.20	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00
211.00	175.00	201.00	185.00	185.00	185.00	185.00	185.00	185.00	185.00	185.00	185.00	185.00	185.00
277.00	201.00	250.00	201.00	205.00	205.00	205.00	205.00	205.00	205.00	205.00	205.00	205.00	205.00
278.00	225.00	276.00	225.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00
292.00	251.00	301.00	251.00	297.00	297.00	297.00	297.00	297.00	297.00	297.00	297.00	297.00	297.00
328.00	278.00	342.00	278.00	352.00	352.00	352.00	352.00	352.00	352.00	352.00	352.00	352.00	352.00
353.00	302.00	402.00	302.00	402.00	402.00	402.00	402.00	402.00	402.00	402.00	402.00	402.00	402.00
392.00	351.00	451.00	351.00	451.00	451.00	451.00	451.00	451.00	451.00	451.00	451.00	451.00	451.00
	377.00	402.00	377.00	402.00	402.00	402.00	402.00	402.00	402.00	402.00	402.00	402.00	402.00

PROFILE 20

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
881028	881113	881218	890115	890213	890304	890528	890628	890728	890828	890928	891028	891128	891228
SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV	SVV
1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
135.00	135.00	145.70	135.00	171.10	134.00	165.50	131.00	165.00	130.00	165.00	132.00	165.00	172.00
155.00	155.00	175.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00
180.00	180.00	190.00	180.00	187.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00
230.00	245.00	250.00	225.00	265.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00
280.00	300.00	325.00	295.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00
281.00	335.00	349.00	335.00	340.00	340.00	340.00	340.00	340.00	340.00	340.00	340.00	340.00	340.00
300.00	350.00	375.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00
325.00	375.00	400.00	375.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00
350.00	400.00	425.00	400.00	425.00	425.00	425.00	425.00	425.00	425.00	425.00	425.00	425.00	425.00
375.00	425.00	450.00	425.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00	450.00

LONG BEACH ISLAND No. J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 20

DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME
110+00	9+50	110+00	10+50	110+00	9+70	100+00	9+10	50+00	6+00
130+00	17+20	130+00	17+50	132+00	17+40	132+00	10+60	100+00	9+10
135+00	19+20	135+00	18+20	162+00	16+70	162+00	17+50	135+00	16+20
140+00	15+00	150+00	17+60	160+00	17+40	175+00	17+60	139+00	17+50
152+00	18+30	200+00	18+50	185+00	16+80	200+00	13+30	184+00	17+00
150+00	18+20	232+00	17+60	200+00	11+50	250+00	7+00	186+00	13+50
207+00	9+60	275+00	5+70	230+00	9+10	275+00	5+00	208+00	4+60
225+00	9+00	325+00	5+70	310+00	6+70	320+00	5+20	267+00	6+70
206+00	8+90	350+00	1+60	300+00	0+70	350+00	1+20	277+00	7+00
275+00	6+20	375+00	0+20	350+00	0+20	350+00	0+20	300+00	5+00
300+00	2+70	400+00	0+00	400+00	0+00	400+00	0+00	300+00	0+00
325+00	0+30	450+00	0+00	450+00	0+00	450+00	0+00	420+00	0+00
350+00	0+80	500+00	0+10	500+00	0+10	500+00	0+10	450+00	0+10
400+00	0+80	500+00	0+10	500+00	0+10	500+00	0+10	450+00	0+10
425+00	0+80	500+00	0+10	500+00	0+10	500+00	0+10	450+00	0+10

PROFILE 20

DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME	DATE SVVY TIME
90+00	8+20	90+00	6+00	93+00	8+50	130+00	17+00	100+00	8+00
100+00	9+30	100+00	9+00	133+00	18+20	160+00	17+00	160+00	18+00
132+00	17+00	134+00	18+20	183+00	17+70	200+00	18+00	185+00	17+40
143+00	17+00	180+00	17+10	162+00	18+00	215+00	9+00	187+00	14+50
152+00	17+20	160+00	18+40	175+00	16+70	200+00	7+50	193+00	14+00
200+00	18+00	219+00	15+60	200+00	13+60	350+00	3+30	212+00	9+50
240+00	6+50	219+00	15+60	200+00	13+60	350+00	3+30	212+00	9+50
273+00	7+90	220+00	9+70	218+00	13+20	300+00	0+70	200+00	5+00
280+00	7+50	250+00	8+00	300+00	0+30	277+00	6+50	260+00	5+00
300+00	4+10	300+00	7+90	350+00	1+80	500+00	6+40	300+00	0+00
350+00	0+50	300+00	7+10	302+00	0+00	325+00	3+70	325+00	0+50
400+00	0+90	300+00	6+10	350+00	0+00	350+00	1+70	350+00	0+50
450+00	0+10	350+00	5+60	375+00	0+00	400+00	0+00	400+00	0+00
487+00	0+30	300+00	0+80	400+00	0+00	400+00	0+00	400+00	0+00

LONG BEACH ISLAND N.J.
 DATUM IS ASL MEASUREMENT IS FT

PROFILE 20

DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	
710817	710817	711214	720112	720115	720223	720313	720313	720313	720313	720313	720313	720313	720313	720313	720313	720313	720313	720313	
SVY 45	SVY 86	SVY A7	SVY RA	SVY A9	SVY 90	SVY 91	SVY 91	SVY 91	SVY 91	SVY 91	SVY 91	SVY 91	SVY 91	SVY 91	SVY 91	SVY 91	SVY 91	SVY 91	
100.00	8.70	24.00	6.60	25.00	6.20	100.00	8.90	100.00	8.80	25.00	6.60	25.00	6.60	25.00	6.60	25.00	6.60	25.00	6.60
132.00	17.80	100.00	9.10	100.00	4.60	135.00	18.50	100.00	8.80	100.00	4.50	100.00	4.50	100.00	4.50	100.00	4.50	100.00	4.50
158.00	17.50	105.00	10.00	135.00	18.20	152.00	17.20	155.00	18.50	100.00	4.60	100.00	4.60	100.00	4.60	100.00	4.60	100.00	4.60
150.00	16.00	160.00	17.30	170.00	16.80	175.00	19.60	167.00	17.30	155.00	10.80	155.00	10.80	155.00	10.80	155.00	10.80	155.00	10.80
197.00	14.70	160.00	18.80	162.00	17.60	165.00	15.30	162.00	15.20	185.00	16.50	185.00	16.50	185.00	16.50	185.00	16.50	185.00	16.50
271.00	8.70	190.00	18.00	207.00	15.60	225.00	17.30	206.00	16.70	200.00	9.80	200.00	9.80	200.00	9.80	200.00	9.80	200.00	9.80
291.00	0.70	227.00	8.20	225.00	8.80	220.00	5.80	220.00	9.70	250.00	7.20	250.00	7.20	250.00	7.20	250.00	7.20	250.00	7.20
325.00	-0.30	250.00	8.60	250.00	8.00	275.00	3.10	250.00	6.50	300.00	4.30	300.00	4.30	300.00	4.30	300.00	4.30	300.00	4.30
350.00	-2.40	300.00	1.60	300.00	3.70	300.00	1.10	300.00	3.70	350.00	2.30	350.00	2.30	350.00	2.30	350.00	2.30	350.00	2.30
		350.00	-0.40	350.00	-0.80	350.00	-2.00	325.00	-0.70	400.00	-1.20	400.00	-1.20	400.00	-1.20	400.00	-1.20	400.00	-1.20
		400.00	-2.40	375.00	-0.80	350.00	-2.30	350.00	-2.50										

PROFILE 20

DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	
720424	720424	720424	720424	720424	720424	720424	720424	720424	720424	720424	720424	720424	720424	720424	720424	720424	720424	720424	
SVY 01	SVY 94	SVY 94	SVY 94	SVY 94	SVY 94	SVY 94	SVY 94	SVY 94	SVY 94	SVY 94	SVY 94	SVY 94	SVY 94	SVY 94	SVY 94	SVY 94	SVY 94	SVY 94	
25.00	6.70	25.00	6.20	20.00	6.50	20.00	6.30	20.00	6.20	25.00	6.10	25.00	6.10	25.00	6.10	25.00	6.10	25.00	6.10
100.00	8.70	80.00	7.40	100.00	8.40	26.00	9.00	100.00	8.90	100.00	8.00	100.00	8.00	100.00	8.00	100.00	8.00	100.00	8.00
134.00	14.00	100.00	9.00	135.00	18.40	130.00	19.00	136.00	18.90	100.00	8.00	100.00	8.00	100.00	8.00	100.00	8.00	100.00	8.00
165.00	14.80	134.00	14.40	198.00	16.00	137.00	17.50	164.00	17.40	167.00	16.00	167.00	16.00	167.00	16.00	167.00	16.00	167.00	16.00
175.00	15.70	152.00	17.10	170.00	17.80	191.00	15.10	193.00	16.80	194.00	16.00	194.00	16.00	194.00	16.00	194.00	16.00	194.00	16.00
195.00	16.60	167.00	17.20	195.00	16.80	204.00	16.10	212.00	16.60	206.00	17.00	206.00	17.00	206.00	17.00	206.00	17.00	206.00	17.00
200.00	13.70	177.00	16.20	200.00	16.10	221.00	10.60	250.00	6.80	239.00	7.80	239.00	7.80	239.00	7.80	239.00	7.80	239.00	7.80
220.00	9.50	187.00	17.20	220.00	10.10	227.00	8.80	300.00	3.40	250.00	6.20	250.00	6.20	250.00	6.20	250.00	6.20	250.00	6.20
244.00	8.10	200.00	15.40	250.00	6.70	250.00	3.40	300.00	6.60	250.00	6.60	250.00	6.60	250.00	6.60	250.00	6.60	250.00	6.60
258.00	6.50	248.00	16.20	250.00	6.70	302.00	4.00	322.00	4.00	300.00	2.50	300.00	2.50	300.00	2.50	300.00	2.50	300.00	2.50
350.00	1.80	300.00	5.70	300.00	2.20	350.00	3.70	350.00	3.30	350.00	2.60	350.00	2.60	350.00	2.60	350.00	2.60	350.00	2.60
375.00	-2.00	300.00	5.80	350.00	-2.20	400.00	-0.70	400.00	5.30	400.00	-0.60	400.00	-0.60	400.00	-0.60	400.00	-0.60	400.00	-0.60
		375.00	-2.30	375.00	-0.40			400.00	-1.40										
		425.00	2.10	425.00	-0.70														
		465.00	-1.20	465.00	-1.20														

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 20

DATE 760114	DATE 760121	DATE 760128
SVY 101	SVY 10X	SVY 10X
TIME 1100	TIME 1000	TIME 1000
20.00	26.00	6.60
100.00	100.00	9.10
132.00	145.00	18.60
156.00	175.00	17.00
193.00	167.00	17.50
200.00	181.00	16.30
227.00	8.60	200.00 16.70
250.00	7.50	224.00 10.30
300.00	5.60	245.00 7.90
346.00	-1.40	280.00 6.30
		300.00 9.70
		325.00 -2.20
		350.00 -2.50

PROFILE 21

DATE 421002	DATE 421011	DATE 421024	DATE 421029	DATE 421104	DATE 421210	DATE 450115	DATE 431211
SVY 3	SVY 4	SVY 5	SVY A	SVY 7	SVY A	SVY 9	SVY 10
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
13.00	25.00	24.00	11.50	9.50	4.50	0.00	10.10
81.00	73.00	124.00	8.90	5.10	70.00	4.50	4.50
144.00	117.00	40.00	6.10	4.50	114.00	4.50	211.00
181.00	7.30 188.00	82.00	8.20	4.50	149.00	4.50	211.00
234.00	4.00 220.00	116.00	4.10	5.00	169.00	5.00	242.00
281.00	2.60 265.00	162.00	6.60	6.00	217.00	5.70	242.00
332.00	-9.90 292.00	202.00	6.90	7.00	305.00	11.00	302.00
347.00	-1.60 368.00	223.00	5.50	3.00	359.00	1.00	327.00
		297.00	-1.40	6.00	427.00	282.00	-2.10
		356.00	-1.20	365.00	-1.60		
		369.00	-6.60				

LONG REACH ISLAND N.W.
 DATUM IS HSL MEASUREMENT IS FT

PROFILE P1

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
610128	11	610204	12	610212	13	610220	14	610226	15	610300	16	610311	17
SVY	11	SVY	12	SVY	13	SVY	14	SVY	15	SVY	16	SVY	17
TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200
50.00	7.10	50.00	7.30	50.00	7.20	50.00	7.20	50.00	7.20	50.00	7.20	50.00	7.20
100.00	5.50	100.00	5.80	101.00	5.50	101.00	5.50	101.00	5.50	101.00	5.50	101.00	5.50
126.00	5.50	126.00	5.80	141.00	5.50	141.00	5.50	141.00	5.50	141.00	5.50	141.00	5.50
150.00	6.30	150.00	6.50	150.00	6.10	201.00	5.70	225.00	5.50	101.00	5.50	176.00	5.70
189.00	6.50	189.00	6.70	201.00	5.30	228.00	5.70	241.00	5.00	177.00	5.80	224.00	5.70
227.00	3.60	227.00	3.80	226.00	3.30	245.00	5.20	275.00	2.60	224.00	5.80	263.00	5.20
251.00	2.50	251.00	2.50	252.00	2.90	273.00	3.00	301.00	3.10	250.00	5.50	263.00	4.90
302.00	2.50	301.00	1.80	276.00	2.00	302.00	1.20	326.00	1.80	301.00	2.10	276.00	3.80
352.00	1.50	351.00	1.70	326.00	1.40	327.00	1.30	351.00	0.20	301.00	2.10	276.00	3.80
424.00	1.50	423.00	1.20	352.00	1.40	352.00	1.40	402.00	1.20	352.00	1.40	402.00	1.40
				426.00	1.50	426.00	1.50	427.00	1.20	401.00	1.10	401.00	1.10

PROFILE P1

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
610320	19	610404	20	610528	21	610613	22	610625	23	610711	24	610723	25
SVY	19	SVY	20	SVY	21	SVY	22	SVY	23	SVY	24	SVY	25
TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200
226.00	5.50	226.00	5.50	1.00	10.00	201.00	5.20	101.00	5.80	48.00	7.40	1.00	10.10
252.00	4.90	272.00	4.20	101.00	5.90	252.00	5.80	152.00	5.90	101.00	5.90	150.00	6.00
272.00	5.20	122.00	4.20	142.00	5.40	102.00	6.20	152.00	5.20	151.00	5.10	150.00	6.10
337.00	1.90	351.00	1.80	251.00	5.40	142.00	5.60	152.00	5.10	201.00	5.10	150.00	6.10
355.00	1.70	377.00	1.60	302.00	6.20	374.00	2.60	508.00	6.00	202.00	5.30	251.00	5.50
379.00	1.10	402.00	1.90	352.00	1.70	352.00	1.70	374.00	1.50	302.00	5.80	251.00	5.50
401.00	1.50	428.00	1.30	403.00	1.70	374.00	1.10	374.00	1.10	351.00	2.60	302.00	7.10
427.00	1.10									452.00	2.40	428.00	6.10
										474.00	1.40	474.00	1.40
										403.00	1.10	403.00	1.10
										427.00	1.10	427.00	1.10

LONG REACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 21

DATE 450119	DATE 650027	DATE 651027	DATE 651222	DATE 660125	DATE 660321	DATE 660922
SHVY 43	SHVY 40	SHVY 46	SHVY 47	SHVY 4A	SHVY 4B	SHVY 50
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
101.00	6.00	11.70	0.00	10.90	0.00	9.80
101.00	7.70	46.00	11.50	34.00	11.40	31.00
127.00	5.70	51.00	10.90	29.00	11.60	35.00
151.00	0.00	101.00	10.70	80.00	7.40	101.00
172.00	2.40	101.00	7.30	102.00	7.20	82.00
229.00	0.00	127.00	7.30	151.00	7.00	74.00
252.00	0.00	151.00	5.90	101.00	4.80	100.00
279.00	0.00	202.00	2.50	172.00	1.70	201.00
279.00	0.00	176.00	6.00	177.00	5.00	128.00
356.00	0.00	202.00	6.00	202.00	6.00	176.00
356.00	0.00	196.00	2.90	226.00	0.00	201.00
378.00	0.00	527.00	1.90	226.00	0.00	201.00
402.00	0.00	503.00	1.20	324.00	1.90	276.00
429.00	0.00	303.00	0.00	378.00	0.00	352.00
454.00	0.00	326.00	1.00	403.00	1.10	377.00
480.00	0.00	326.00	3.00	403.00	3.10	377.00

PROFILE 21

DATE 670116	DATE 670510	DATE 670920	DATE 671218	DATE 680117	DATE 680227	DATE 680327
SHVY 51	SHVY 53	SHVY 50	SHVY 55	SHVY 56	SHVY 57	SHVY 58
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
26.00	11.00	11.90	0.00	10.30	0.00	10.00
45.00	10.70	7.10	25.00	34.00	17.00	25.00
55.00	6.90	100.00	36.00	50.00	101.00	40.00
101.00	1.90	151.00	4.10	100.00	2.90	40.00
126.00	1.50	202.00	76.00	150.00	4.00	49.00
151.00	0.00	202.00	100.00	200.00	21.00	100.00
202.00	0.10	252.00	124.00	251.00	0.00	224.00
226.00	0.00	276.00	176.00	300.00	0.00	224.00
277.00	0.00	302.00	189.00	325.00	0.00	224.00
327.00	0.00	352.00	201.00	325.00	0.00	224.00
352.00	0.00	226.00	226.00	226.00	0.00	226.00
377.00	0.00	302.00	302.00	302.00	0.00	302.00
377.00	0.00	377.00	377.00	377.00	0.00	377.00

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 21

DATE 491023	DATE 491113	DATE 491218	DATE 491115	DATE 491213	DATE 491304	DATE 490524	DATE 491920
SVY 60	SVY 61	SVY 62	SVY 63	SVY 64	SVY 65	SVY 66	SVY 67
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
0+00	0+00	0+50	0+00	0+00	0+00	0+00	0+00
10+00	0+00	7+80	5+00	7+20	7+30	5+00	9+10
25+00	0+00	7+80	5+00	7+20	5+00	10+00	25+00
45+00	0+00	7+80	7+00	7+60	6+00	10+00	45+00
55+00	0+00	7+80	7+00	7+60	5+00	10+00	55+00
75+00	0+00	7+80	7+50	100+00	4+00	101+00	75+00
100+00	0+00	7+80	7+50	100+00	0+00	150+00	100+00
125+00	0+00	7+80	7+10	125+00	2+60	200+00	125+00
150+00	0+20	0+80	137+00	6+90	1+70	200+00	150+00
175+00	0+00	0+80	150+00	5+00	2+00+00	2+00	175+00
200+00	0+00	0+80	175+00	3+60	2+50+00	0+60	200+00
225+00	0+00	0+80	200+00	0+60	2+50+00	0+60	225+00
250+00	0+00	0+80	225+00	0+60	2+50+00	0+60	250+00
275+00	0+00	0+80	250+00	0+60	2+50+00	0+60	275+00
300+00	0+00	0+80	275+00	0+60	2+50+00	0+60	300+00
325+00	0+00	0+80	300+00	0+60	2+50+00	0+60	325+00

PROFILE 21

DATE 700120	DATE 700119	DATE 691218	DATE 700120	DATE 700216	DATE 700319	DATE 700521	DATE 700528
SVY 68	SVY 69	SVY 70	SVY 71	SVY 72	SVY 73	SVY 74	SVY 75
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
25+00	0+60	0+00	0+00	0+00	2+00	50+00	0+00
50+00	0+60	0+00	2+00	2+00	0+00	45+00	50+00
75+00	0+60	0+00	5+00	5+00	0+00	40+00	75+00
100+00	0+60	0+00	7+00	7+00	0+00	35+00	100+00
125+00	0+60	0+00	9+00	9+00	0+00	30+00	125+00
150+00	0+60	0+00	11+00	11+00	0+00	25+00	150+00
175+00	0+60	0+00	13+00	13+00	0+00	20+00	175+00
200+00	0+60	0+00	15+00	15+00	0+00	15+00	200+00
225+00	0+60	0+00	17+00	17+00	0+00	10+00	225+00
250+00	0+60	0+00	19+00	19+00	0+00	5+00	250+00
275+00	0+60	0+00	21+00	21+00	0+00	0+00	275+00
300+00	0+60	0+00	23+00	23+00	0+00	0+00	300+00
325+00	0+60	0+00	25+00	25+00	0+00	0+00	325+00

LONG HFACH ISLAND N.W.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 21

DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME
701012	701207	701218	701219	701018	701012	710208	710304	710400	710424	710424	710424	710424	710424
SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME
0.00	8.10	0.00	8.80	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.00	8.10	2.00	7.90	5.00	7.80	7.40	8.20	9.00	9.00	9.00	9.00	9.00	9.00
100.00	100.00	5.00	8.00	50.00	7.80	5.10	50.00	50.00	50.00	50.00	50.00	50.00	50.00
140.00	4.30	150.00	5.00	40.00	7.70	150.00	7.00	6.50	75.00	6.50	100.00	100.00	4.00
162.00	7.00	200.00	0.00	97.00	6.60	1.20	100.00	0.20	100.00	0.40	150.00	150.00	0.00
200.00	3.40	220.00	-1.50	125.00	6.50	225.00	0.20	150.00	5.00	2.00	200.00	200.00	-0.10
250.00	1.70	220.00	2.00	100.00	6.50	250.00	-0.80	150.00	4.60	200.00	0.00	225.00	-1.10
300.00	0.10	150.00	0.00	125.00	6.30	0.00	200.00	2.50	250.00	-1.80			
350.00	-1.20	150.00	0.00	150.00	6.20	0.00	225.00	0.00					
400.00	-2.20	150.00	0.00	200.00	-0.20	0.00	250.00	-0.30					
		225.00	-1.40	250.00	-1.40	0.00	260.00	-1.00					
		250.00	-2.00	250.00	-2.00								

PROFILE 21

DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME	DATE TIME
710417	711007	711214	720112	720215	720224	720314	720314	720314	720314	720314	720314	720314	720314
SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME	SHVY TIME
25.00	6.70	0.00	6.60	0.00	0.00	0.00	6.70	0.00	0.00	0.00	0.00	0.00	0.00
40.00	6.40	25.00	6.90	25.00	6.10	25.00	7.20	25.00	7.50	25.00	25.00	25.00	25.00
71.00	6.20	42.00	6.30	39.00	6.80	50.00	6.20	50.00	7.00	50.00	50.00	50.00	50.00
100.00	4.50	56.00	4.60	50.00	6.70	100.00	4.60	100.00	6.20	100.00	100.00	100.00	100.00
125.00	1.40	100.00	2.40	100.00	2.60	150.00	3.20	150.00	3.20	150.00	150.00	150.00	150.00
175.00	-0.90	200.00	-0.80	200.00	0.10	200.00	0.00	200.00	0.00	200.00	200.00	200.00	200.00
200.00	-1.10	250.00	-1.20	225.00	-1.90	250.00	0.30	250.00	0.00	250.00	250.00	250.00	250.00
250.00	-2.00	250.00	-2.00	250.00	-2.00	250.00	0.30	275.00	-1.20	275.00	275.00	275.00	275.00

LONG REACH ISLAND N.J.
 DATUM IS PSL MEASUREMENT IS FT

PROFILE 21

DATE SVV TIME	720824 93 1000	DATE SVV TIME	721205 95 1100	DATE SVV TIME	730103 96 1300	DATE SVV TIME	730210 97 1000	DATE SVV TIME	730310 98 1200	DATE SVV TIME	730325 99 1100	DATE SVV TIME	730401 100 1500
0.00	7.70	0.00	7.20	0.00	6.80	0.00	9.20	50.00	9.30	50.00	9.40	50.00	9.10
50.00	6.00	25.00	6.60	10.00	3.00	33.00	9.70	-37.00	10.00	-37.00	10.00	-40.00	11.30
76.00	4.00	50.00	4.90	15.00	1.20	30.00	6.60	-29.00	6.70	-29.00	7.50	-35.00	13.00
100.00	2.90	75.00	2.00	50.00	.50	0.00	4.00	0.00	4.20	0.00	5.50	-28.00	7.70
150.00	.10	100.00	.50	100.00	.80	50.00	1.00	50.00	1.00	50.00	2.00	0.00	6.50
200.00	.20	150.00	1.20	150.00	1.70	100.00	.60	100.00	-1.20	100.00	.70	150.00	9.50
250.00	-1.20	175.00	1.80	175.00	2.70	180.00	-2.10	180.00	-2.20	180.00	.20	160.00	2.70
300.00	-1.60	200.00	-1.80	200.00	-2.70	200.00	-3.70	200.00	-2.00	200.00	-1.00	200.00	1.60
													275.00
													275.00

DATE SVV TIME	730401 101 1100	DATE SVV TIME	730612 103 1400
50.00	19.20	50.00	9.00
-36.00	10.00	-45.00	10.00
-27.00	7.40	-15.00	10.10
0.00	6.40	-28.00	7.60
25.00	6.00	0.00	6.40
50.00	4.00	25.00	6.50
100.00	2.00	50.00	6.10
150.00	.40	75.00	6.70
200.00	-1.30	100.00	3.90
230.00	-2.00	150.00	1.80

PROFILE 21

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 22

DATE 720024	DATE 721014	DATE 721204	DATE 730102	DATE 730212	DATE 730314	DATE 730524	DATE 730602
SVY 03	SVY 04	SVY 05	SVY 06	SVY 07	SVY 08	SVY 09	SVY 10
TIME 1300	TIME 1000	TIME 1100	TIME 1000	TIME 1100	TIME 0900	TIME 1100	TIME 1300
0.00	0.00	13.60	13.30	0.00	13.70	0.00	13.90
30.00	50.00	14.90	17.20	36.00	20.00	12.00	14.00
54.00	14.10	19.80	40.00	54.00	17.40	44.00	49.90
81.00	15.70	47.00	19.80	80.00	17.40	44.00	50.00
100.00	15.70	54.00	16.70	100.00	14.50	41.00	49.90
130.00	13.10	69.00	14.10	100.00	14.50	40.00	49.90
150.00	10.20	86.00	14.00	125.00	14.50	39.00	49.90
200.00	8.40	100.00	10.00	140.00	10.70	38.00	49.90
224.00	4.10	100.00	7.40	162.00	10.70	36.00	49.90
240.00	4.10	150.00	10.30	175.00	9.50	35.00	49.90
250.00	4.30	183.00	10.00	200.00	8.50	34.00	49.90
260.00	4.30	200.00	7.40	210.00	7.50	33.00	49.90
280.00	4.40	219.00	6.60	230.00	7.50	32.00	49.90
300.00	4.60	237.00	5.50	235.00	6.00	30.00	49.90
320.00	4.80	250.00	2.00	250.00	4.50	28.00	49.90
340.00	5.20	292.00	-1.20	250.00	3.10	26.00	49.90
360.00	5.70	320.00	-2.70	246.00	1.60	23.00	49.90
380.00	6.20	320.00	0.00	220.00	0.00	19.00	49.90
400.00	6.80	320.00	0.00	170.00	0.00	12.00	49.90

PROFILE 22

DATE 730217	DATE 730411
SVY 101	SVY 103
TIME 1100	TIME 1000
0.00	0.00
36.00	13.50
46.00	18.70
100.00	10.00
104.00	13.00
113.00	11.90
130.00	9.20
149.00	8.20
200.00	5.20
250.00	-1.10
300.00	-2.40
306.00	-2.60

LONG BEACH ISLAND No. 4
DATUM IS MSL MEASUREMENT IS FT

PROFILE 25

DATE SPVY	720929	DATE SPVY	721014	DATE SPVY	721204	DATE SPVY	730102	DATE SPVY	730212	DATE SPVY	730314	DATE SPVY	730524	DATE SPVY	730604	
TIME	1300	TIME	1100	TIME	1100	TIME	1000	TIME	1100	TIME	0900	TIME	1700	TIME	1300	
0.00	14.90	0.00	13.90	0.00	14.00	0.00	13.90	0.00	14.10	0.00	14.10	0.00	14.00	0.00	14.00	13.94
20.00	14.00	20.00	16.40	21.00	16.40	32.00	17.30	15.00	16.20	18.00	16.20	19.00	16.10	17.00	16.00	16.00
32.00	17.40	32.00	17.40	32.00	17.30	55.00	18.50	52.00	18.60	52.00	17.40	52.00	18.20	51.00	17.30	17.30
53.00	14.00	53.00	14.00	54.00	14.40	66.00	17.20	65.00	17.10	52.00	18.90	64.00	17.90	52.00	18.50	18.50
65.00	17.10	67.00	17.20	67.00	17.30	65.00	19.50	78.00	19.50	65.00	17.00	76.00	21.00	64.00	18.90	18.90
82.00	19.30	78.00	19.20	77.00	19.40	100.00	18.00	100.00	18.20	78.00	19.70	100.00	18.40	78.00	19.40	19.40
100.00	14.10	100.00	14.20	100.00	14.10	150.00	12.50	112.00	17.60	100.00	19.20	112.00	18.30	100.00	17.10	17.10
150.00	10.50	150.00	12.40	107.00	17.80	175.00	9.10	133.00	15.60	116.00	17.10	136.00	14.00	112.00	17.50	17.50
275.00	9.00	275.00	14.50	150.00	17.20	200.00	6.50	150.00	13.10	150.00	12.50	150.00	10.80	140.00	12.50	12.50
292.00	8.70	292.00	14.90	184.00	14.90	253.00	0.70	175.00	9.40	161.00	10.80	200.00	0.40	140.00	11.20	11.20
295.00	5.90	295.00	7.60	200.00	8.00	275.00	-2.30	200.00	7.60	200.00	8.20	253.00	-1.10	200.00	8.40	8.40
250.00	3.60	250.00	5.50	250.00	3.60	275.00	-2.30	225.00	5.00	250.00	-1.00	253.00	-1.10	250.00	4.40	4.40
300.00	-6.60	300.00	2.10	300.00	-6.60	325.00	-1.70	250.00	2.00	250.00	-1.90	253.00	-1.00	250.00	-1.90	-1.90
345.00	-2.10	345.00	-2.50	300.00	-1.70	325.00	-1.70	275.00	-1.10	250.00	-2.00	253.00	-1.00	250.00	-2.00	-2.00

PROFILE 23

DATE SPVY	740917	DATE SPVY	740411
TIME	1100	TIME	1100
0.00	19.00	0.00	12.00
12.00	19.60	32.00	17.50
15.00	16.30	54.00	19.00
19.00	16.30	65.00	17.00
32.00	17.30	77.00	14.60
53.00	14.90	100.00	16.70
65.00	17.10	114.00	14.30
79.00	19.50	142.00	14.90
100.00	14.20	150.00	9.30
133.00	14.50	200.00	8.20
163.00	10.20	243.00	7.20
200.00	5.20	270.00	9.40
240.00	0.00	300.00	2.80
275.00	-3.10	305.00	-1.10
310.00	-1.50	310.00	-1.50

LONG BEACH ISLAND N-J
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 24

DATE 720029	DATE 721016	DATE 721204	DATE 730102	DATE 730212	DATE 730314	DATE 730324	DATE 730427
SRVY 93	SRVY 94	SRVY 95	SRVY 96	SRVY 97	SRVY 98	SRVY 99	SRVY 100
TIME 1300	TIME 1100	TIME 1100	TIME 1100	TIME 1100	TIME 900	TIME 1100	TIME 1300
0.00	12.50	0.00	12.50	0.00	12.50	0.00	12.50
25.00	25.00	0.00	12.50	25.00	19.10	30.00	19.20
50.00	17.20	39.00	17.40	40.00	48.00	00.00	15.90
75.00	50.00	15.70	15.50	55.00	15.10	70.00	15.90
99.00	70.00	67.00	16.80	60.00	15.90	80.00	17.20
100.00	84.00	100.00	15.40	73.00	16.70	100.00	17.20
125.00	100.00	14.00	13.40	85.00	16.90	120.00	15.50
170.00	125.00	14.00	13.40	100.00	15.50	150.00	15.50
182.00	140.30	165.00	12.40	127.00	16.10	200.00	12.50
195.00	140.00	200.00	8.40	127.00	15.00	200.00	12.50
200.00	140.00	227.00	8.40	150.00	12.40	250.00	10.50
209.00	140.00	250.00	3.20	200.00	8.40	297.00	8.70
225.00	140.00	275.00	-3.20	250.00	4.10	297.00	8.70
250.00	140.00	300.00	-3.20	300.00	4.10	300.00	8.70
300.00	140.00	300.00	-3.20	300.00	4.10	300.00	8.70
375.00	7.50	375.00	7.50	375.00	7.50	375.00	7.50
400.00	-1.50	400.00	-1.50	400.00	-1.50	400.00	-1.50

PROFILE 24

DATE 730317	DATE 730611
SRVY 101	SRVY 103
TIME 1100	TIME 1100
0.00	0.00
27.00	19.00
47.00	15.10
100.00	16.50
122.00	16.50
165.00	9.60
200.00	5.30
225.00	-2.00
250.00	-6.70
275.00	4.50
300.00	-1.10
325.00	-2.30

LONG BEACH ISLAND N.J.
DATUM TO MSL MEASUREMENT IS FT

PROFILE 25

DATE SVY TIME	720829	DATE SVY TIME	721014	DATE SVY TIME	721204	DATE SVY TIME	721012	DATE SVY TIME	710212	DATE SVY TIME	730318	DATE SVY TIME	710124	DATE SVY TIME	710102
0.00	15.50	0.00	15.20	0.00	15.10	0.00	15.00	0.00	15.00	0.00	14.90	0.00	14.90	0.00	14.90
15.00	14.70	11.00	14.70	11.00	14.60	24.00	15.60	22.00	16.00	20.00	15.20	17.00	14.70	17.00	14.10
23.00	15.20	25.00	15.20	25.00	16.20	48.00	15.90	34.00	16.50	33.00	16.20	33.00	16.20	33.00	15.20
42.00	15.60	34.00	16.50	34.00	16.50	62.00	13.80	49.00	15.90	51.00	15.90	50.00	15.50	50.00	15.20
56.00	14.60	44.00	15.80	44.00	16.50	100.00	11.20	66.00	13.10	64.00	13.50	100.00	11.10	58.00	15.10
100.00	10.20	62.00	13.80	60.00	14.10	150.00	7.70	80.00	15.00	64.00	12.90	150.00	8.30	92.00	11.50
150.00	9.40	92.00	11.60	100.00	10.90	200.00	6.90	100.00	11.50	100.00	11.00	125.00	6.20	100.00	11.10
184.00	8.50	100.00	10.90	152.00	9.50	225.00	4.20	150.00	6.50	121.00	8.80	200.00	2.80	100.00	9.20
200.00	6.90	124.00	10.80	166.00	5.20	250.00	2.80	200.00	1.80	150.00	6.70	225.00	2.10	163.00	8.20
250.00	4.20	144.00	10.80	216.00	3.10	275.00	2.10	250.00	1.10	247.00	5.30	275.00	1.10	240.00	5.20
300.00	2.50	140.00	10.60	268.00	1.80	298.00	1.80	275.00	0.10	280.00	4.30	298.00	0.10	250.00	4.20
		200.00	9.80							275.00	1.70			250.00	4.20
		225.00	1.30							275.00	1.70			272.00	1.50
		301.00	1.70												

PROFILE 25

DATE SVY TIME	730417	DATE SVY TIME	730411
0.00	10.1	0.00	10.3
0.00	14.00	0.00	14.10
21.00	15.70	24.00	15.80
30.00	16.00	30.00	16.50
56.00	15.00	50.00	15.80
97.00	11.20	90.00	12.70
145.00	10.00	100.00	11.00
150.00	9.10	150.00	10.00
165.00	6.70	160.00	9.50
185.00	5.80	181.00	7.50
200.00	3.60	200.00	7.00
225.00	2.00	224.00	6.60
250.00	0.00	240.00	4.50
275.00	2.20	300.00	2.10
		312.00	1.50

LONG BEACH ISLAND, N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 26

DATE 720829	DATE 721016	DATE 721204	DATE 730102	DATE 730212	DATE 730310	DATE 730329	DATE 730602
SRVY 93	SRVY 94	SRVY 95	SRVY 96	SRVY 97	SRVY 98	SRVY 99	SRVY 100
TIME 1300	TIME 1100	TIME 1100	TIME 1100	TIME 1200	TIME 400	TIME 1700	TIME 1300
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17.00	17.00	17.10	17.10	17.00	16.90	17.00	17.00
18.60	15.60	18.60	15.50	15.00	16.00	15.60	15.70
18.80	16.40	18.50	16.50	15.00	16.30	15.50	15.60
52.00	18.40	18.50	16.50	16.40	16.00	17.50	17.50
88.00	60.00	52.00	100.00	100.00	98.00	98.00	98.00
100.00	17.50	61.00	116.00	116.00	116.00	116.00	116.00
117.00	14.50	81.00	116.00	97.00	116.00	116.00	116.00
150.00	18.20	81.00	156.00	92.00	116.00	116.00	116.00
170.00	10.00	98.00	172.00	82.00	116.00	116.00	116.00
183.00	16.70	100.00	200.00	110.00	116.00	116.00	116.00
200.00	13.70	108.00	225.00	125.00	116.00	116.00	116.00
250.00	5.80	116.00	250.00	3.70	150.00	187.00	191.00
275.00	11.70	150.00	280.00	1.10	200.00	200.00	200.00
	10.30	181.00	280.00	4.50	275.00	275.00	275.00
	7.60	200.00	200.00	225.00	-3.50	250.00	250.00
	4.00	250.00	250.00	1.30			
	0.40	304.00	304.00				
	-1.20	285.00	285.00				

PROFILE 26

DATE 730411	DATE 730411
SRVY 101	SRVY 103
TIME 1100	TIME 1100
0.00	0.00
16.00	0.00
17.00	17.00
30.00	15.00
51.00	16.50
80.00	17.40
100.00	14.00
125.00	10.40
143.00	9.80
156.00	9.80
200.00	6.90
227.00	21.80
250.00	2.80
300.00	2.70
350.00	-1.60
	595.00
	-2.50

LONG BEACH ISLAND N.J.
DATUM IS MSL MEASUREMENT IS FT

PROFILE 28

DATE 720629	DATE 721014	DATE 721204	DATE 730102	DATE 740213	DATE 740314	DATE 730324	DATE 740402
SVY 3	SVY 04	SVY 45	SVY 06	SVY 100	SVY 90	SVY 04	SVY 11
TIME 1300	TIME 1100	TIME 1100	TIME 1100	TIME 1000	TIME 900	TIME 1700	TIME 1300
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
135.00	14.30	14.50	14.00	14.50	14.60	14.00	14.00
32.00	14.60	14.60	45.00	14.50	14.60	14.00	14.00
43.00	45.00	45.00	45.00	16.50	15.00	15.70	43.00
51.00	15.60	16.00	16.00	17.00	16.00	17.00	50.00
100.00	16.70	16.00	16.00	100.00	100.00	100.00	100.00
114.00	16.40	16.00	16.00	115.00	16.30	16.60	77.00
137.00	14.50	13.00	11.80	127.00	11.50	15.90	100.00
150.00	10.30	150.00	9.90	150.00	13.20	13.40	116.00
150.00	9.20	200.00	9.90	200.00	15.00	12.00	124.00
200.00	8.50	200.00	4.00	250.00	200.00	150.00	124.00
250.00	8.50	217.00	5.70	250.00	5.20	175.00	150.00
257.00	7.20	242.00	4.10	275.00	275.00	200.00	150.00
257.00	7.20	242.00	5.60	275.00	275.00	200.00	150.00
300.00	4.70	300.00	4.00	300.00	3.60	275.00	150.00
300.00	4.70	320.00	4.10	320.00	3.60	275.00	150.00

PROFILE 29

DATE 740417	DATE 740411
SVY 101	SVY 103
TIME 1200	TIME 1100
0.00	0.00
20.00	0.00
100.00	16.00
109.00	16.80
120.00	18.00
150.00	18.50
150.00	18.50
200.00	18.00
225.00	18.00
250.00	18.00
275.00	18.00

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 29

DATE 720229	DATE 721204	DATE 730102	DATE 730213	DATE 740314	DATE 730324	DATE 740402
SRVY 93	SRVY 95	SRVY 96	SRVY 97	SRVY 98	SRVY 99	SRVY 100
TIME 1200	TIME 1200	TIME 1200	TIME 1000	TIME 900	TIME 1400	TIME 1200
0.00	14.10	0.00	14.20	0.00	14.20	0.00
35.00	14.20	50.00	14.50	42.00	14.50	45.00
65.00	14.50	84.00	19.00	82.00	19.00	85.00
85.00	18.50	94.00	19.00	86.00	18.50	89.00
95.00	12.00	67.00	18.10	86.00	12.00	89.00
63.00	18.20	77.00	12.10	100.00	18.50	13.10
75.00	14.00	100.00	84.00	100.00	65.00	100.00
85.00	11.50	95.00	100.00	95.00	100.00	11.50
100.00	10.20	100.00	100.00	100.00	100.00	10.00
94.70	138.00	100.00	10.00	7.00	150.00	6.10
103.00	4.00	150.00	150.00	150.00	150.00	150.00
144.00	7.80	175.00	2.00	2.00	200.00	2.50
150.00	4.50	200.00	8.50	200.00	200.00	200.00
200.00	0.00	200.00	5.50	225.00	241.00	200.00
225.00	1.20	250.00	1.00	1.00	241.00	220.00
250.00	-1.40	257.00	-1.00	-1.00	-1.00	-2.70

PROFILE 29

DATE 730417	DATE 750411
SRVY 101	SRVY 103
TIME 1200	TIME 1200
0.00	0.00
0.00	14.00
33.00	15.30
64.00	14.70
65.00	13.10
100.00	11.50
150.00	5.30
200.00	-4.20
250.00	-3.70
250.00	7.00
250.00	5.90
250.00	-2.10

LONG BEACH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 30

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME
720229	93	15.90	721014	94	15.80	721204	95	14.80	730102	96	15.90	730213	97	15.70
23.00	14.70	25.00	16.00	25.00	14.70	25.00	16.90	25.00	16.90	17.00	14.60	14.60	14.60	14.60
32.00	20.70	32.00	17.00	32.00	17.00	32.00	16.70	32.00	16.70	31.00	16.60	31.00	16.60	31.00
40.00	20.70	40.00	18.00	40.00	18.00	40.00	16.70	40.00	16.70	39.00	16.60	39.00	16.60	39.00
53.00	17.00	53.00	19.00	53.00	17.00	53.00	16.80	53.00	16.80	52.00	16.70	52.00	16.70	52.00
60.00	15.40	60.00	18.00	65.00	15.80	65.00	15.80	62.00	15.70	62.00	15.60	62.00	15.60	62.00
65.00	13.00	70.00	9.50	74.00	10.90	74.00	10.90	71.00	10.80	71.00	10.70	71.00	10.70	71.00
100.00	9.50	100.00	9.50	100.00	9.40	100.00	9.40	100.00	9.30	100.00	9.20	100.00	9.20	100.00
105.00	9.50	105.00	9.50	105.00	9.20	105.00	9.20	105.00	9.10	105.00	9.00	105.00	9.00	105.00
110.00	8.00	110.00	9.50	110.00	8.00	110.00	8.00	110.00	8.20	110.00	8.20	110.00	8.20	110.00
121.00	5.10	121.00	5.50	121.00	5.50	121.00	5.90	121.00	5.90	121.00	6.20	121.00	6.20	121.00
125.00	5.50	125.00	5.50	125.00	5.50	125.00	5.90	125.00	5.90	125.00	6.20	125.00	6.20	125.00
150.00	2.50	150.00	2.50	150.00	2.50	150.00	2.50	150.00	2.80	150.00	2.80	150.00	2.80	150.00
200.00	-1.40	200.00	-1.50	200.00	-1.50	200.00	-1.50	200.00	-1.50	200.00	-1.50	200.00	-1.50	200.00
220.00	-1.40	220.00	-1.50	220.00	-1.50	220.00	-1.50	220.00	-1.50	220.00	-1.50	220.00	-1.50	220.00

PROFILE 30

DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME	DATE	SRVY	TIME
730017	101	15.90	730611	103	15.90	730801	104	15.90	730901	105	15.90	731001	106	15.90
22.00	19.00	22.00	19.00	22.00	19.00	22.00	19.00	22.00	19.00	22.00	19.00	22.00	19.00	22.00
42.00	19.80	42.00	19.80	45.00	20.00	45.00	20.00	45.00	20.00	45.00	20.00	45.00	20.00	45.00
59.00	17.00	59.00	17.00	61.00	17.00	61.00	17.00	61.00	17.00	61.00	17.00	61.00	17.00	61.00
77.00	12.20	77.00	12.20	80.00	11.90	80.00	11.90	77.00	12.00	77.00	12.00	77.00	12.00	77.00
100.00	10.50	100.00	10.50	100.00	10.50	100.00	10.50	100.00	10.50	100.00	10.50	100.00	10.50	100.00
150.00	3.80	150.00	3.80	150.00	3.80	150.00	3.80	150.00	3.80	150.00	3.80	150.00	3.80	150.00
177.00	10.20	177.00	10.20	177.00	10.20	177.00	10.20	177.00	10.20	177.00	10.20	177.00	10.20	177.00
200.00	5.20	200.00	5.20	200.00	5.20	200.00	5.20	200.00	5.20	200.00	5.20	200.00	5.20	200.00
200.00	5.20	200.00	5.20	200.00	5.20	200.00	5.20	200.00	5.20	200.00	5.20	200.00	5.20	200.00
400.00	-2.10	400.00	-2.10	400.00	-2.10	400.00	-2.10	400.00	-2.10	400.00	-2.10	400.00	-2.10	400.00

LONG BEACH ISLAND N.J.
 DATUM IS NSL MEASUREMENT TS ET

PROFILE 12

DATE 620028	DATE 620024	DATE 621011	DATE 621023	DATE 621020	DATE 621108	DATE 621210	DATE 621227
SVY 1	SVY 2	SVY 1200	SVY 1200	SVY 1200	SVY 7	SVY 4	SVY 55
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
52.00	10.60	105.00	12.30	195.00	12.50	145.00	12.00
56.00	11.30	155.00	9.80	195.00	10.80	125.00	12.00
72.00	13.83	155.00	7.70	170.00	8.10	135.00	10.00
80.00	13.80	195.00	7.70	177.00	7.00	135.00	9.00
80.00	13.80	195.00	4.80	195.00	5.90	155.00	7.50
92.00	10.90	215.00	1.90	220.00	4.40	177.00	6.70
115.00	10.00	205.00	0.90	245.00	1.20	177.00	5.30
165.00	7.80				245.00	1.00	245.00
195.00	9.70				245.00	2.40	245.00
215.00	7.80				245.00	2.20	245.00
245.00	0.20						
265.00	1.00						
285.00	0.10						
300.00	0.20						

PROFILE 12

DATE 640014	DATE 640212	DATE 640310	DATE 640307	DATE 640525	DATE 640623	DATE 640629	DATE 640629
SVY 34	SVY 35	SVY 36	SVY 37	SVY 38	SVY 39	SVY 40	SVY 41
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
52.00	12.20	123.00	12.30	52.00	12.30	25.00	11.00
105.00	16.20	16.20	16.10	75.00	16.20	50.00	12.50
135.00	18.00	17.60	19.00	100.00	19.20	75.00	14.50
150.00	17.50	18.60	15.70	134.00	14.00	100.00	16.50
160.00	18.60	13.60	135.00	9.40	117.00	14.20	132.00
175.00	7.50	9.50	150.00	8.70	134.00	9.40	150.00
180.00	6.10	8.20	175.00	8.20	150.00	8.60	175.00
200.00	4.80	7.20	200.00	5.50	175.00	8.60	200.00
225.00	4.80	6.80	225.00	1.80	200.00	8.60	225.00
250.00	3.70	5.00	250.00	0.60	225.00	3.70	250.00
275.00	2.70	2.00	275.00	0.60	225.00	3.70	275.00
300.00	0.70	1.20	300.00	0.60	225.00	3.70	300.00
325.00	0.70	1.20	325.00	0.60	225.00	3.70	325.00
350.00	0.70	1.20	350.00	0.60	225.00	3.70	350.00
375.00	0.70	1.20	375.00	0.60	225.00	3.70	375.00
400.00	0.70	1.20	400.00	0.60	225.00	3.70	400.00
425.00	0.70	1.20	425.00	0.60	225.00	3.70	425.00
450.00	0.70	1.20	450.00	0.60	225.00	3.70	450.00
475.00	0.70	1.20	475.00	0.60	225.00	3.70	475.00
500.00	0.70	1.20	500.00	0.60	225.00	3.70	500.00
525.00	0.70	1.20	525.00	0.60	225.00	3.70	525.00
550.00	0.70	1.20	550.00	0.60	225.00	3.70	550.00
575.00	0.70	1.20	575.00	0.60	225.00	3.70	575.00
600.00	0.70	1.20	600.00	0.60	225.00	3.70	600.00
625.00	0.70	1.20	625.00	0.60	225.00	3.70	625.00
650.00	0.70	1.20	650.00	0.60	225.00	3.70	650.00
675.00	0.70	1.20	675.00	0.60	225.00	3.70	675.00
700.00	0.70	1.20	700.00	0.60	225.00	3.70	700.00
725.00	0.70	1.20	725.00	0.60	225.00	3.70	725.00
750.00	0.70	1.20	750.00	0.60	225.00	3.70	750.00
775.00	0.70	1.20	775.00	0.60	225.00	3.70	775.00
800.00	0.70	1.20	800.00	0.60	225.00	3.70	800.00
825.00	0.70	1.20	825.00	0.60	225.00	3.70	825.00
850.00	0.70	1.20	850.00	0.60	225.00	3.70	850.00
875.00	0.70	1.20	875.00	0.60	225.00	3.70	875.00
900.00	0.70	1.20	900.00	0.60	225.00	3.70	900.00
925.00	0.70	1.20	925.00	0.60	225.00	3.70	925.00
950.00	0.70	1.20	950.00	0.60	225.00	3.70	950.00
975.00	0.70	1.20	975.00	0.60	225.00	3.70	975.00
1000.00	0.70	1.20	1000.00	0.60	225.00	3.70	1000.00

LUNG HATCH ISLAND N.J.
 DATUM IS MSL MEASUREMENT IS FT

PROFILE 32

DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME
85+00	18+80	14+70	105+00	18+80	130+00	10+80	72+00	18+80	100+00	18+80	10+80	130+00	11+50	130+00
97+00	18+80	15+00	131+00	10+80	130+00	9+30	105+00	18+80	178+00	18+80	17+80	150+00	15+00	150+00
115+00	18+80	20+00	150+00	8+50	200+00	7+40	200+00	18+80	178+00	18+80	17+80	170+00	17+80	170+00
135+00	18+80	19+20	175+00	8+20	250+00	8+90	225+00	7+40	150+00	9+20	100+00	16+10	100+00	
175+00	18+80	17+50	205+00	3+50	275+00	4+60	275+00	4+60	275+00	3+90	130+00	11+00	130+00	
200+00	7+90	30+00	250+00	4+60	300+00	3+40	250+00	2+50	275+00	3+90	130+00	11+00	130+00	
225+00	7+20	42+00	275+00	1+20	325+00	4+0	300+00	-2+90	325+00	-1+10	200+00	8+80	200+00	
250+00	5+60	47+00	300+00	-8+40	325+00	3+50	325+00	-3+50	350+00	-2+90	250+00	5+60	250+00	
275+00	4+10	42+00	325+00	-1+60	325+00	3+50	325+00	-3+50	350+00	-2+90	275+00	5+60	275+00	
300+00	3+10	41+00							350+00	1+00	300+00	1+00	300+00	

PROFILE 33

DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME	DATE	SVY	TIME
150+00	9+70	150+00	9+60	150+00	10+80	130+00	10+80	10+80	130+00	10+80	10+80	130+00	11+50	130+00
190+00	7+90	182+00	9+00	175+00	8+40	150+00	9+70	150+00	9+60	150+00	9+60	150+00	9+70	150+00
201+00	7+80	182+00	7+90	200+00	8+40	175+00	8+40	7+50	200+00	7+70	200+00	7+70	200+00	9+50
228+00	8+20	200+00	7+90	250+00	8+60	200+00	8+70	250+00	5+60	250+00	7+60	250+00	7+90	250+00
251+00	8+00	222+00	8+20	300+00	8+90	210+00	8+50	272+00	5+10	300+00	4+80	300+00	8+40	300+00
303+00	2+70	250+00	7+50	318+00	4+10	230+00	6+60	300+00	5+90	330+00	3+30	325+00	3+70	325+00
331+00	5+00	268+00	6+20	350+00	3+50	250+00	5+80	300+00	5+90	350+00	1+60	350+00	1+20	350+00
348+00	4+20	268+00	6+10	368+00	3+60	278+00	4+20	335+00	2+90	400+00	-1+70	400+00	-1+70	400+00
411+00	-8+70	268+00	4+50	468+00	3+60	368+00	3+60	300+00	3+80	400+00	-1+70	400+00	-1+70	400+00
436+00	-1+60	325+00	1+60	429+00	3+60	429+00	3+60	425+00	1+80	440+00	-1+80	440+00	-1+80	440+00
460+00	-3+20	400+00							450+00	0+00	400+00	-4+00	400+00	-4+00

LING HEACH ISLAND, N.J.
 DATUM IS MSL MEASUREMENT IS F1

PROFILE 33

DATE 710428	DATE 710112	DATE 710120	DATE 710127	DATE 710219	DATE 710112	DATE 710208	DATE 710304	DATE 710404
SRVY 75	SRVY 7A	SRVY 77	SRVY 77	SRVY 77A	SRVY 79	SRVY 80	SRVY 81	SRVY 82
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
37.00	13.20	32.00	12.90	150.00	9.80	150.00	10.50	150.00
40.00	15.00	55.00	15.50	200.00	8.50	160.00	9.20	200.00
100.00	18.30	42.00	18.40	250.00	8.20	200.00	8.80	250.00
100.00	18.50	100.00	18.40	300.00	8.10	250.00	8.60	300.00
150.00	9.80	100.00	15.80	350.00	1.80	200.00	8.20	350.00
150.00	7.40	150.00	13.70	400.00	1.00	200.00	7.80	400.00
200.00	7.40	200.00	7.50	450.00	3.00	370.00	8.00	450.00
250.00	7.40	250.00	7.40	500.00	3.10	400.00	8.00	500.00
350.00	1.50	300.00	8.40	550.00	3.10	400.00	8.00	550.00
367.00		300.00	4.10	600.00	4.60	400.00	8.00	600.00
400.00	-2.30	325.00	3.30					
450.00	-3.50	350.00	1.70					
500.00	-9.00	400.00	-1.40					
550.00	-3.10	450.00	-3.40					
600.00	-5.50							

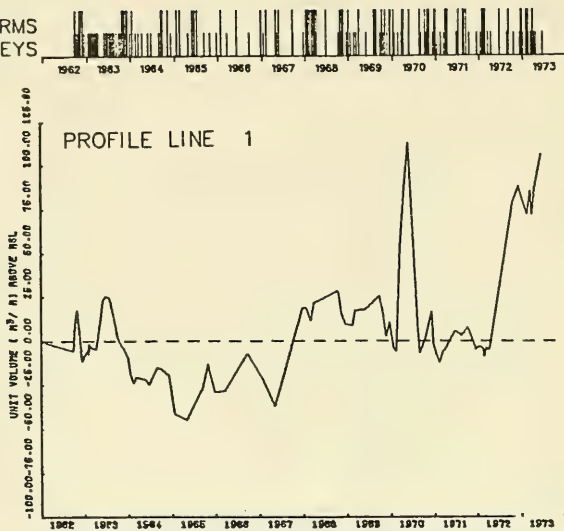
PROFILE 35

DATE 710428	DATE 710112	DATE 710120	DATE 710127	DATE 710219	DATE 710112	DATE 710208	DATE 710304	DATE 710404
SRVY 83	SRVY 84	SRVY 85	SRVY 85	SRVY 86	SRVY 87	SRVY 88	SRVY 89	SRVY 90
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
70.00	17.80	70.00	13.70	42.00	13.80	150.00	11.80	150.00
88.00	17.90	80.00	17.10	81.00	14.60	200.00	8.70	200.00
100.00	18.20	100.00	16.80	100.00	17.00	250.00	8.60	250.00
130.00	30.70	125.00	10.60	100.00	16.40	300.00	7.40	300.00
142.00	17.20	141.00	12.10	100.00	14.30	350.00	7.40	350.00
150.00	11.00	160.00	8.90	130.00	10.80	400.00	5.30	400.00
200.00	7.00	200.00	5.70	200.00	11.80	450.00	3.20	450.00
250.00	7.20	220.00	7.90	260.00	8.40	500.00	4.70	500.00
300.00	4.80	300.00	4.50	300.00	7.70	550.00	3.80	550.00
325.00	2.00	425.00	3.10	350.00	3.80	600.00	2.80	600.00
400.00	-4.90			400.00	-1.00	650.00	-3.70	650.00
450.00	-7.10			400.00	-3.60	700.00	-4.90	700.00

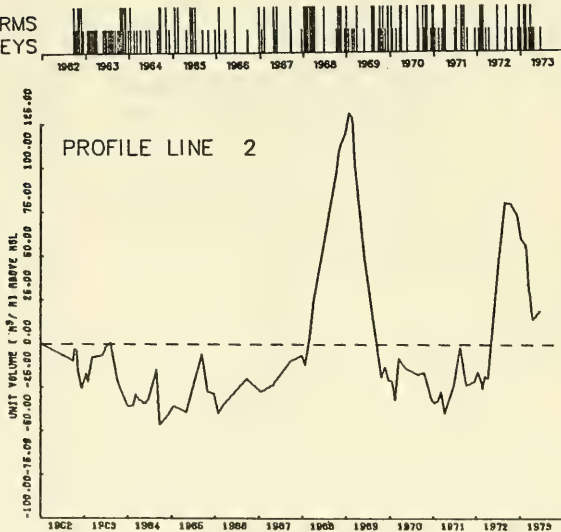
APPENDIX D

ABOVE MSL UNIT VOLUME CHANGE
(referenced to initial survey)

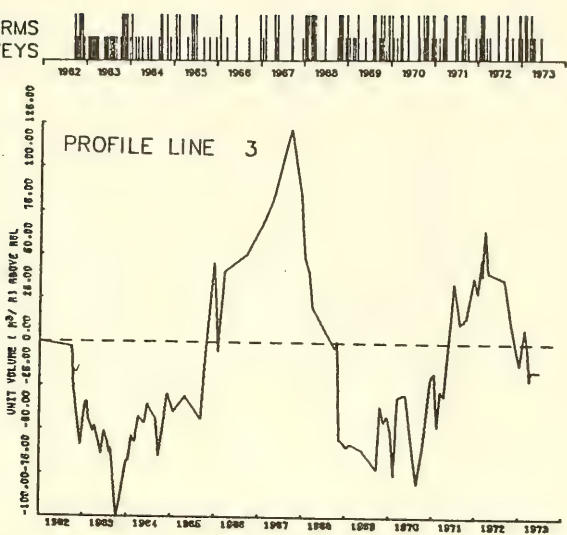
STORMS SURVEYS



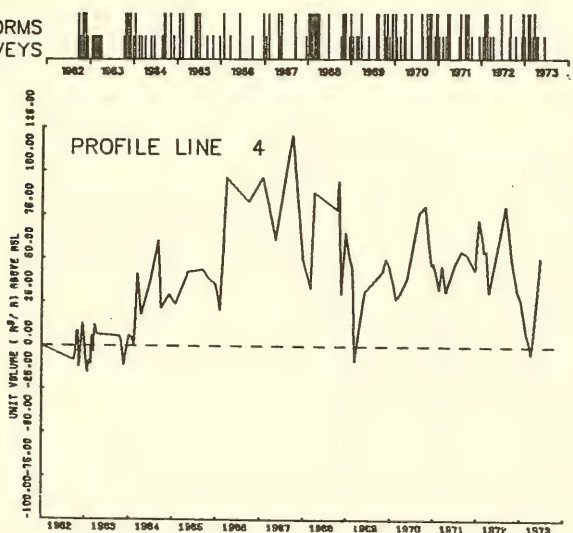
STORMS SURVEYS



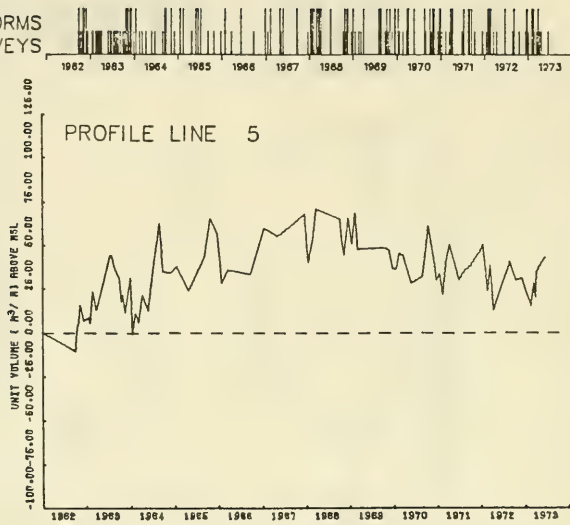
STORMS SURVEYS



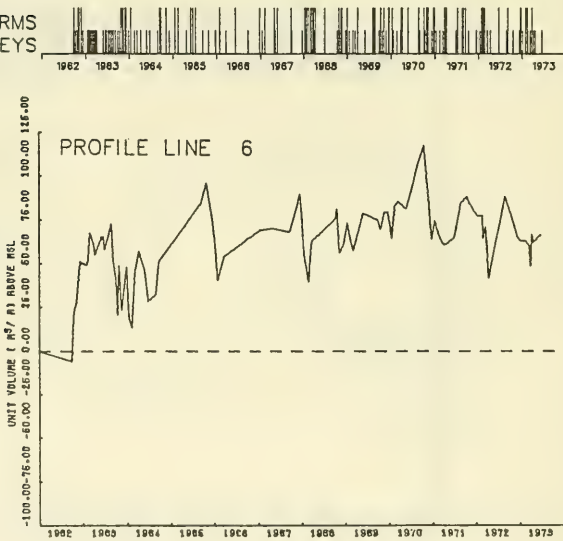
STORMS SURVEYS



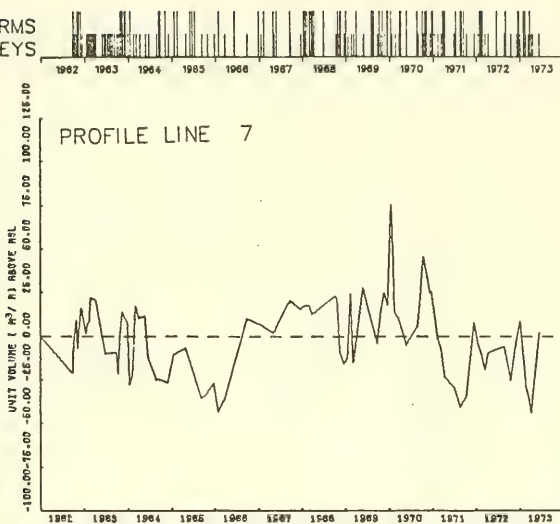
STORMS
SURVEYS



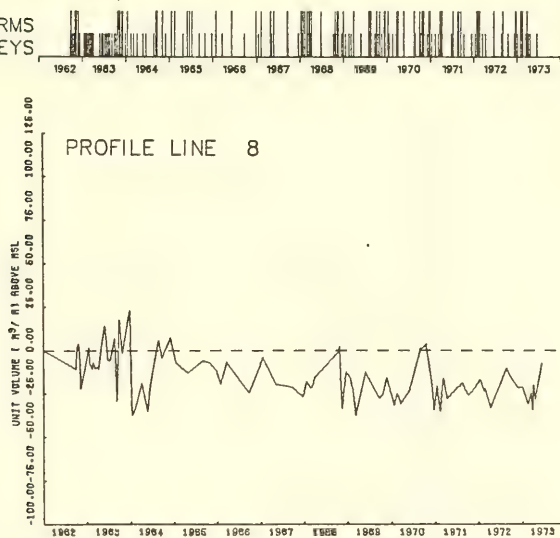
STORMS
SURVEYS



STORMS
SURVEYS



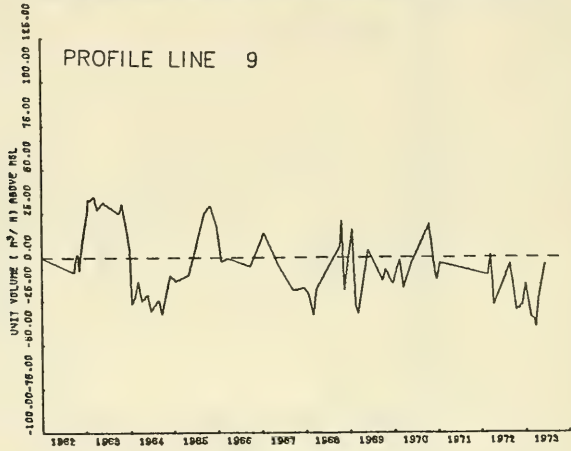
STORMS
SURVEYS



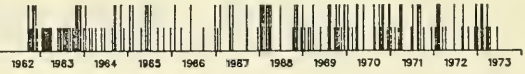
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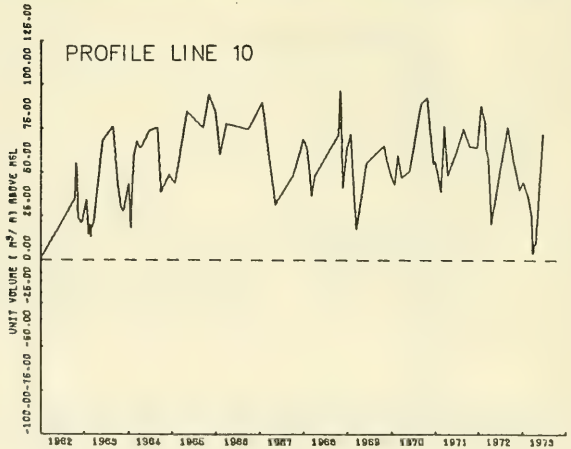
PROFILE LINE 9



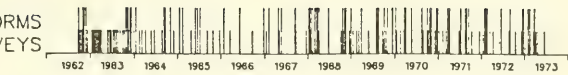
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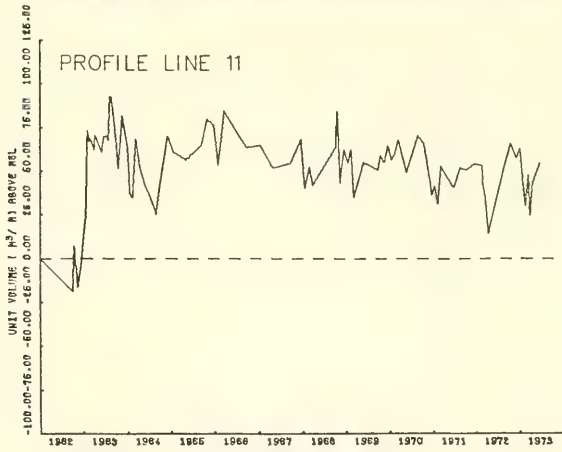
PROFILE LINE 10



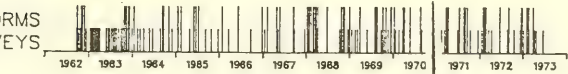
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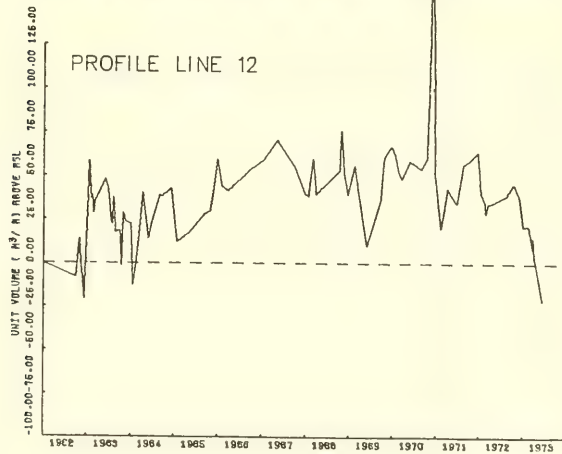
PROFILE LINE 11



STORMS SURVEYS



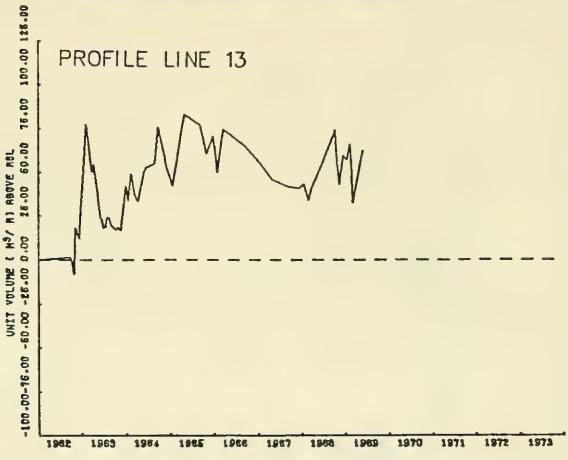
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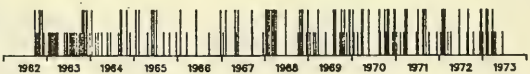
STORMS SURVEYS



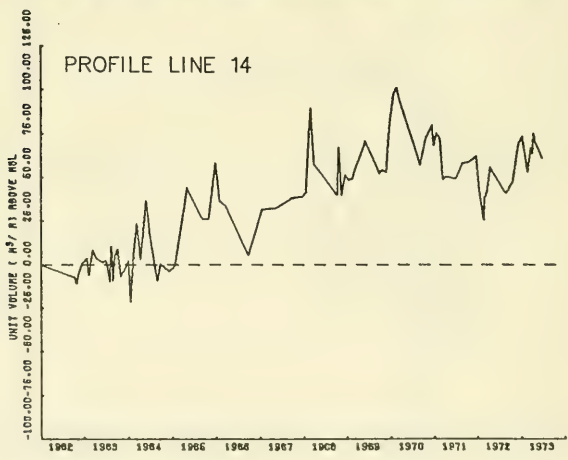
PROFILE LINE 13



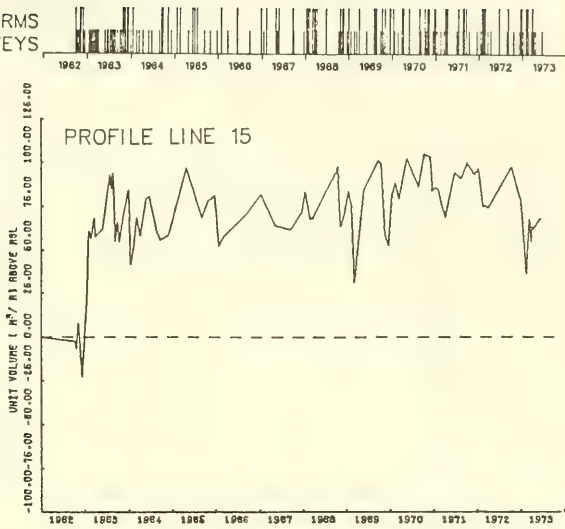
STORMS SURVEYS



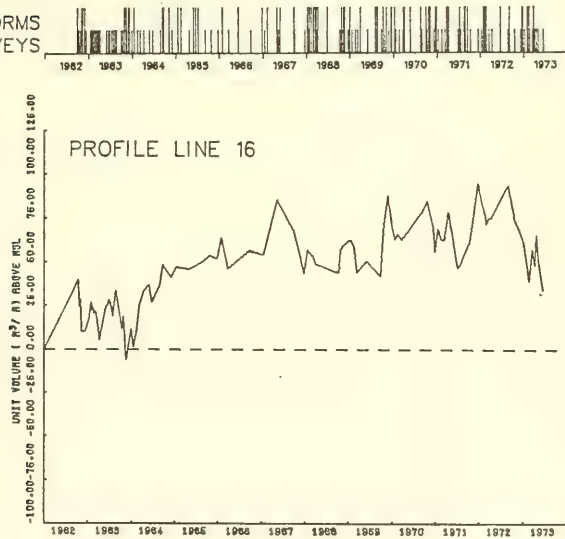
PROFILE LINE 14



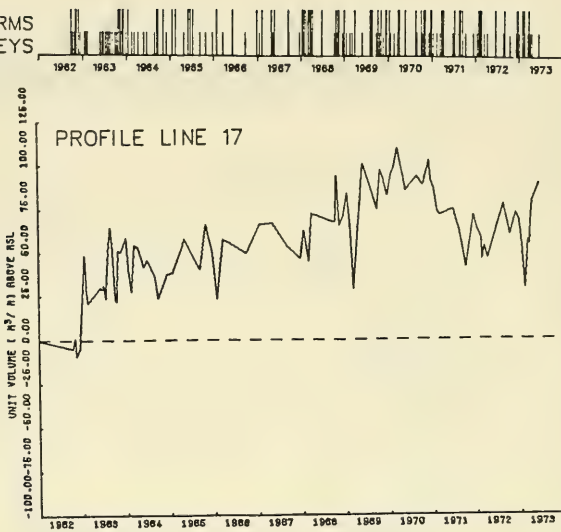
STORMS
SURVEYS



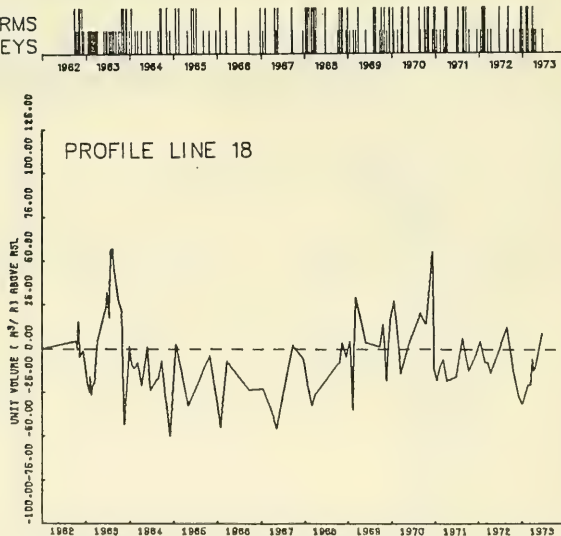
STORMS
SURVEYS



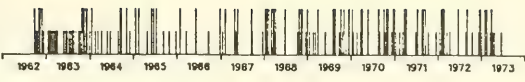
STORMS
SURVEYS



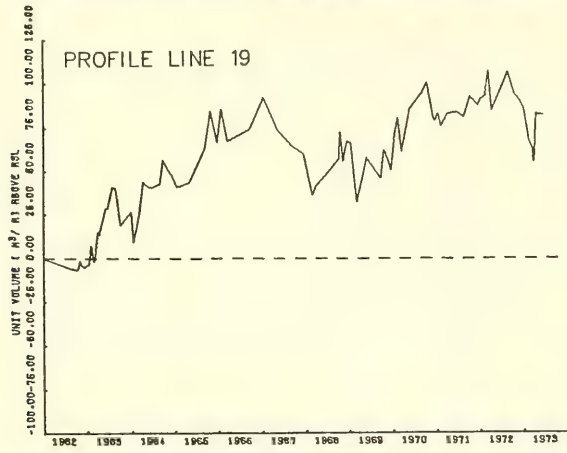
STORMS
SURVEYS



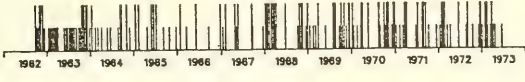
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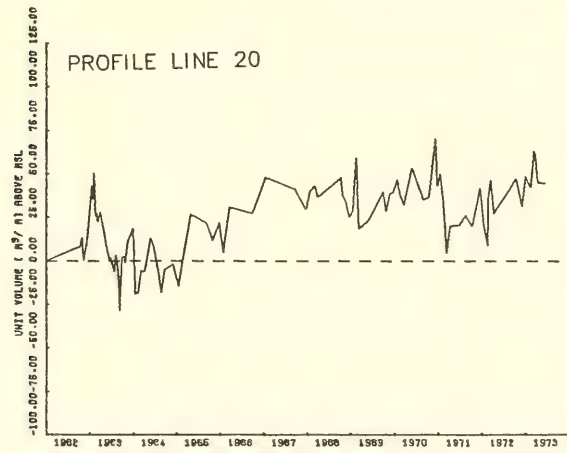
PROFILE LINE 19

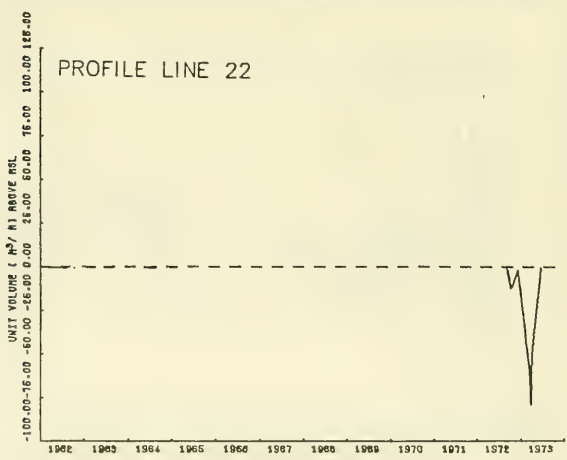
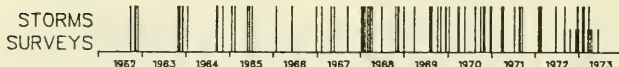
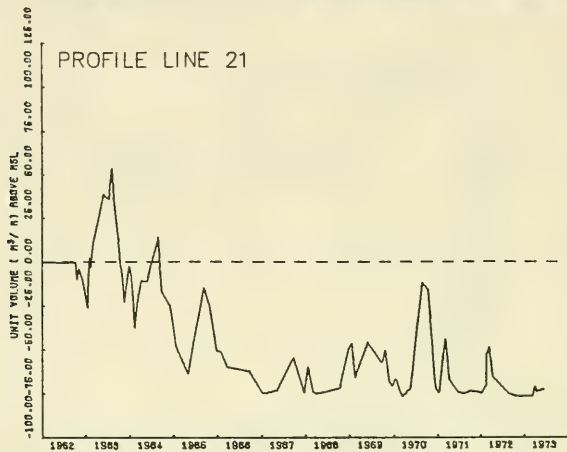
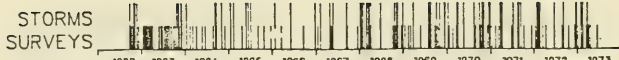


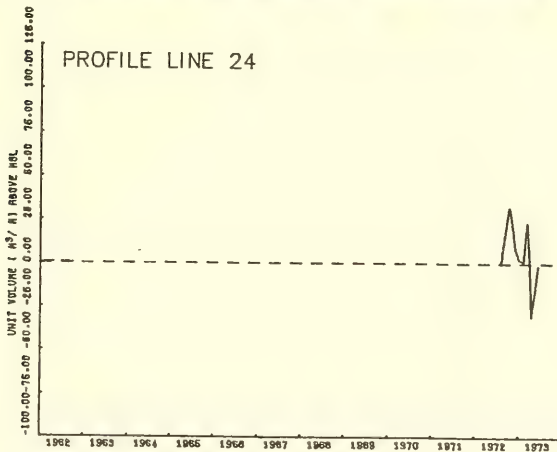
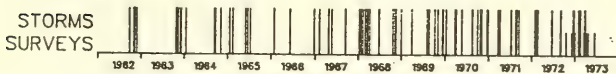
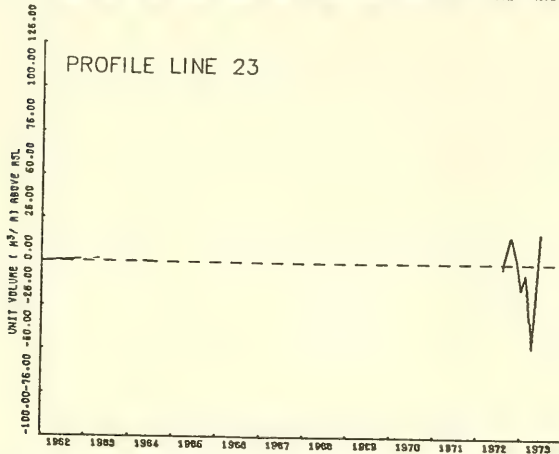
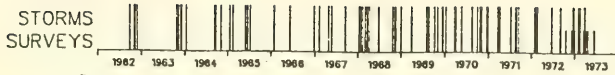
STORMS SURVEYS



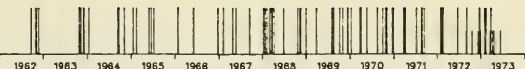
PROFILE LINE 20



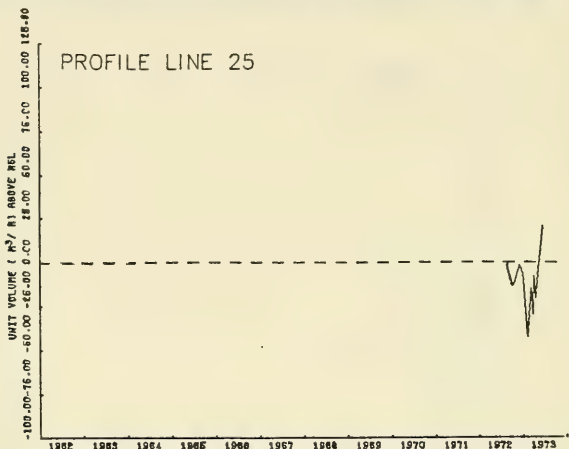




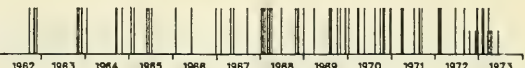
STORMS
SURVEYS



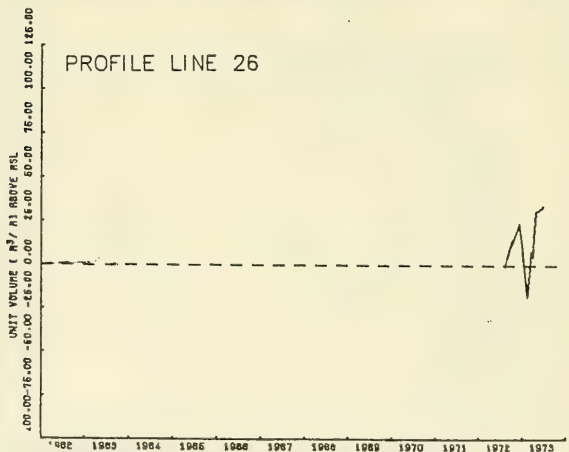
PROFILE LINE 25

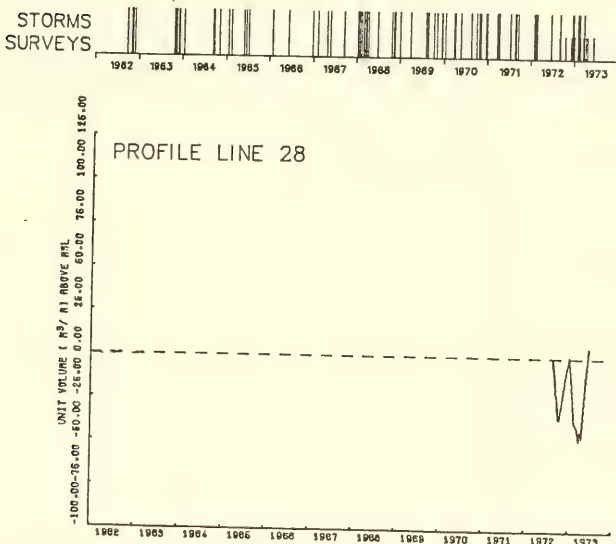
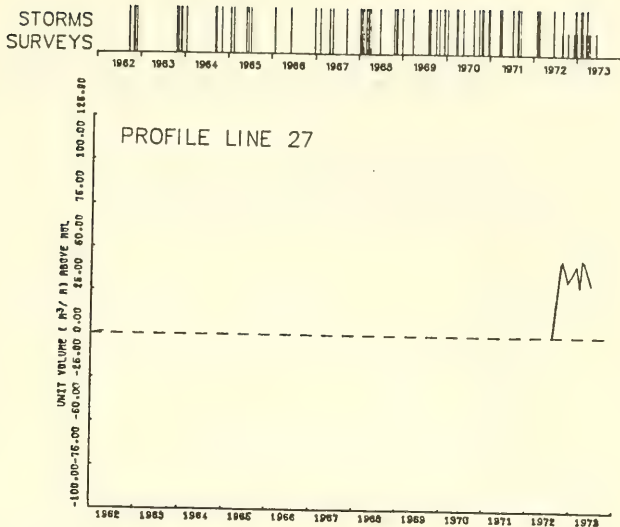


STORMS
SURVEYS

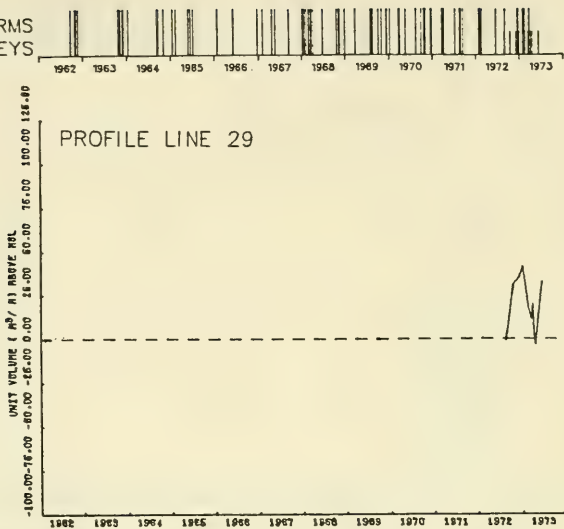


PROFILE LINE 26

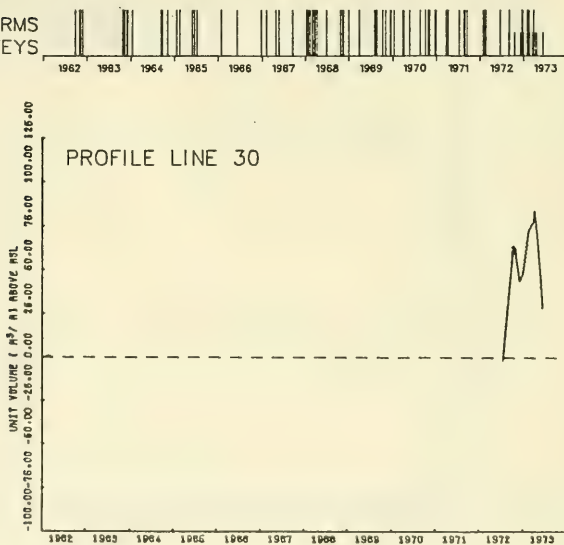




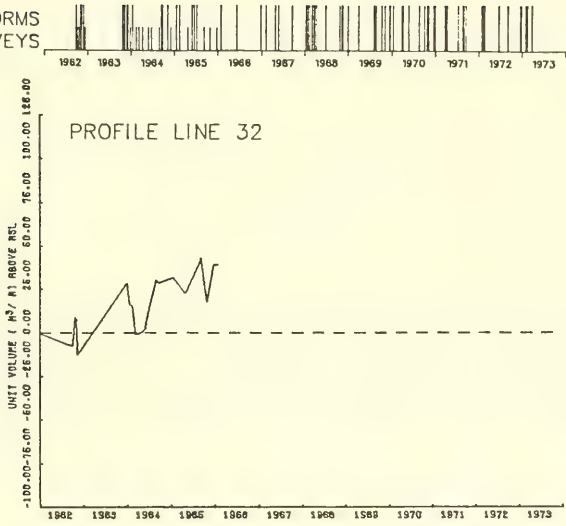
STORMS
SURVEYS



STORMS
SURVEYS



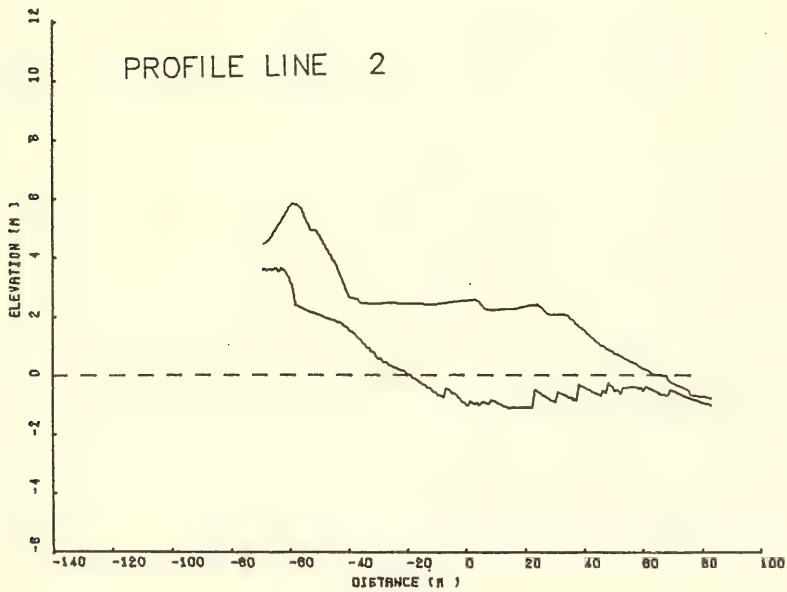
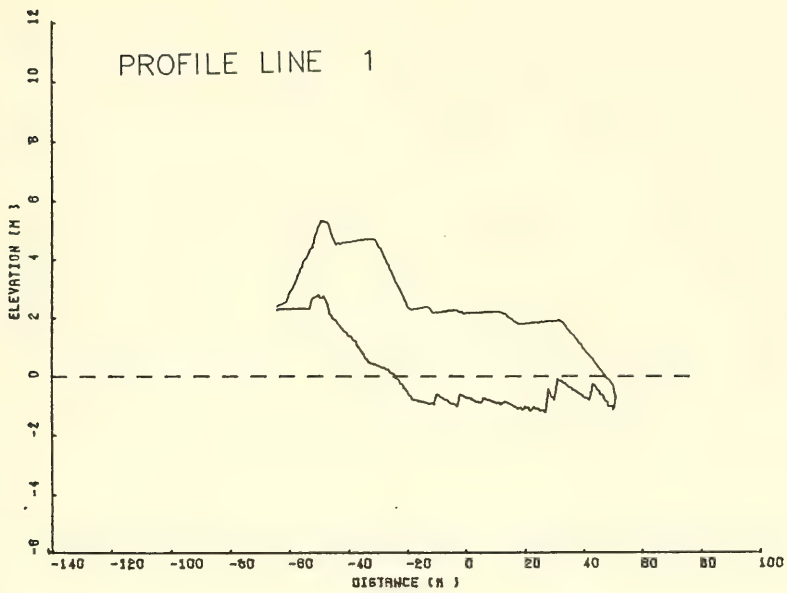
STORMS
SURVEYS

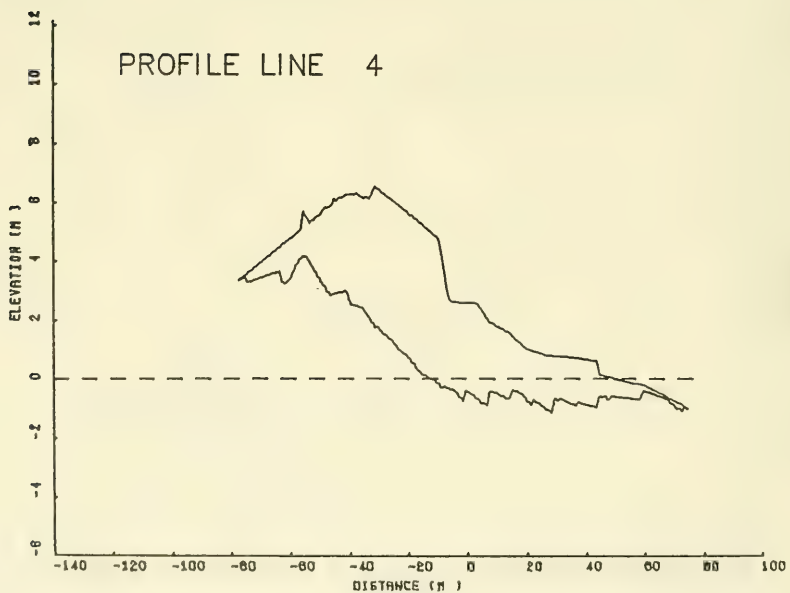
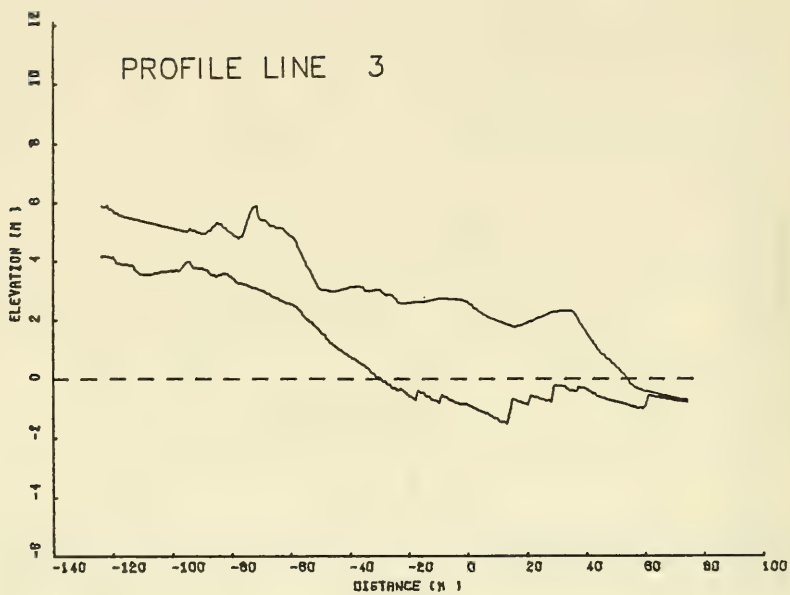


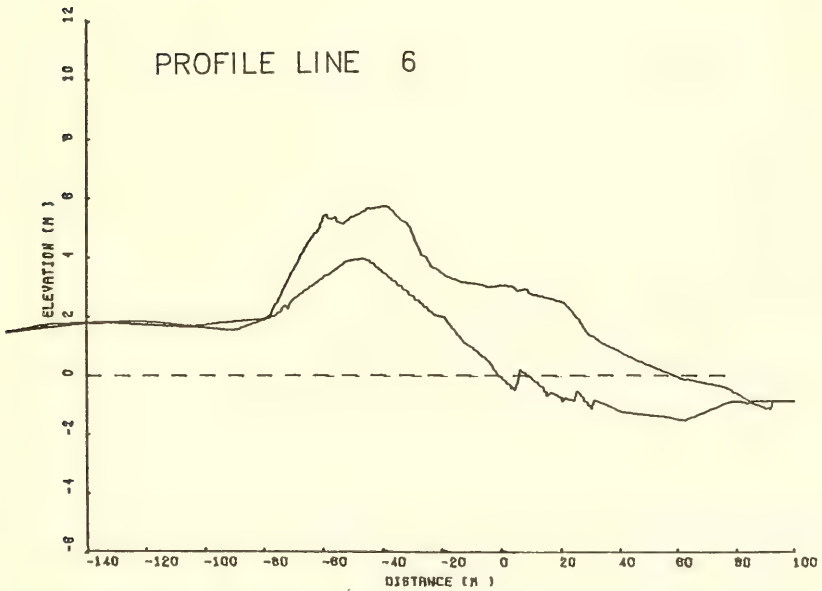
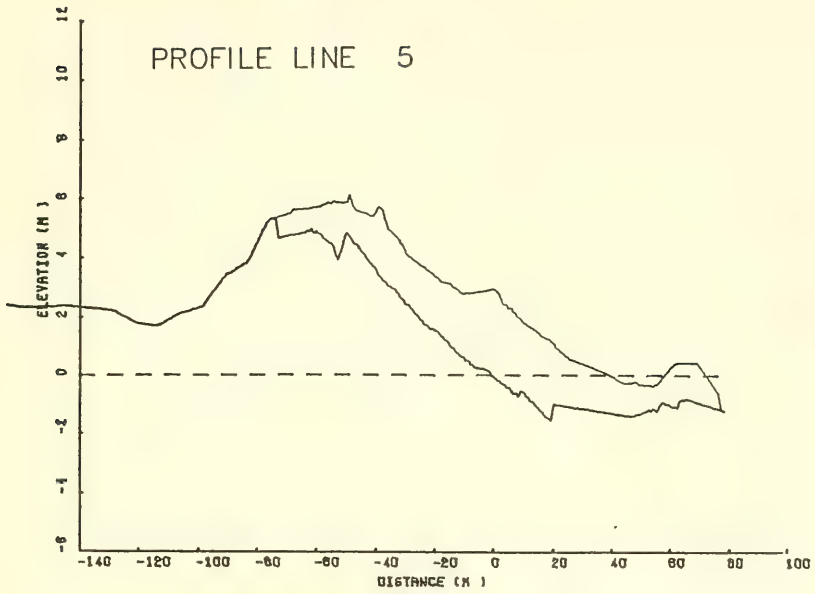
APPENDIX E

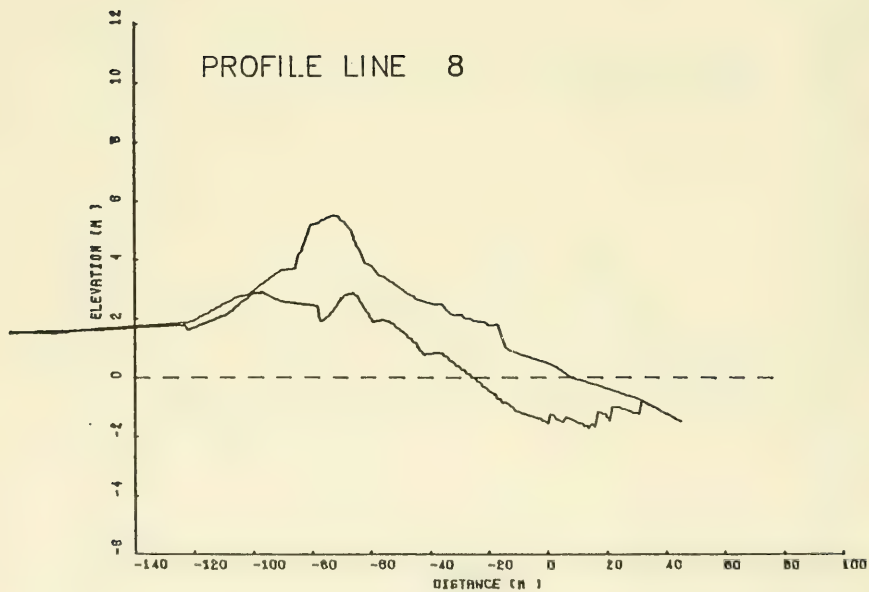
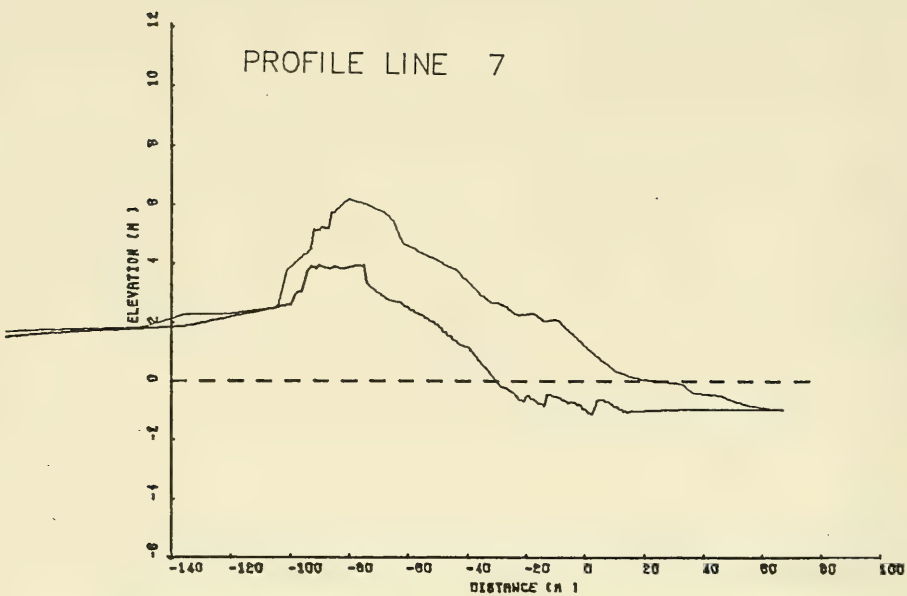
PROFILE ENVELOPES

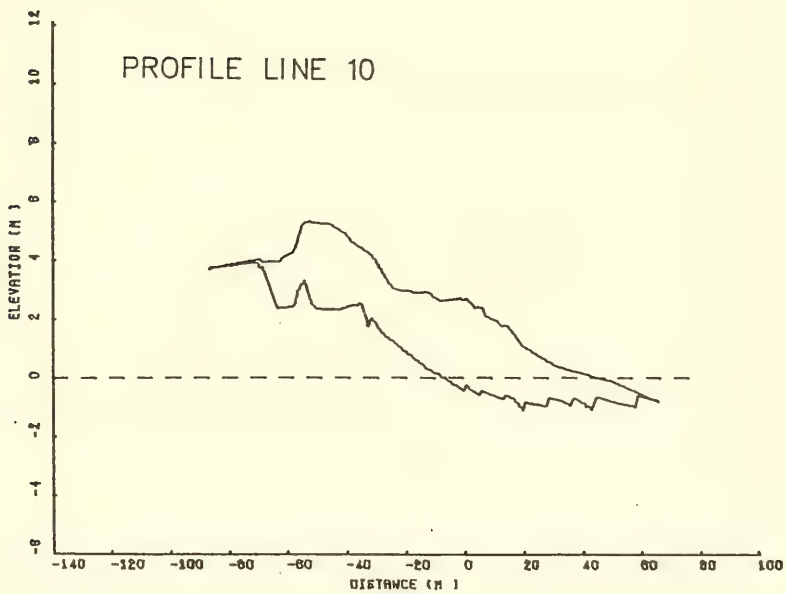
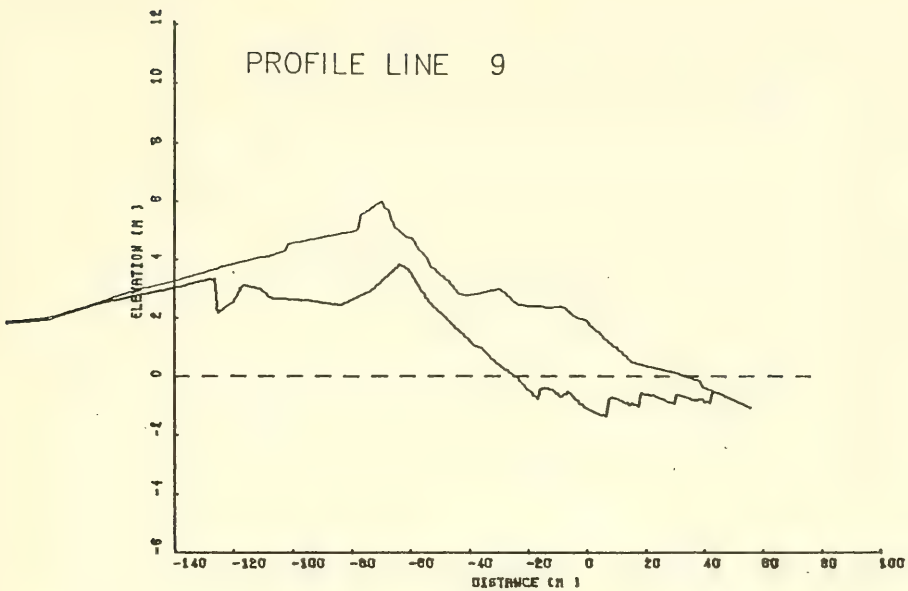
Horizontal distance in meters with zero at MSL intercept of first survey. The profile envelopes in this appendix show the maximum and minimum elevations measured along each profile line. The seaward ends of the profile surveys have been connected by the automatic plotter, but do not represent actual profile closure. Since these are envelopes, the plotted upper and lower bounds do not represent a profile that existed during any of the surveys.

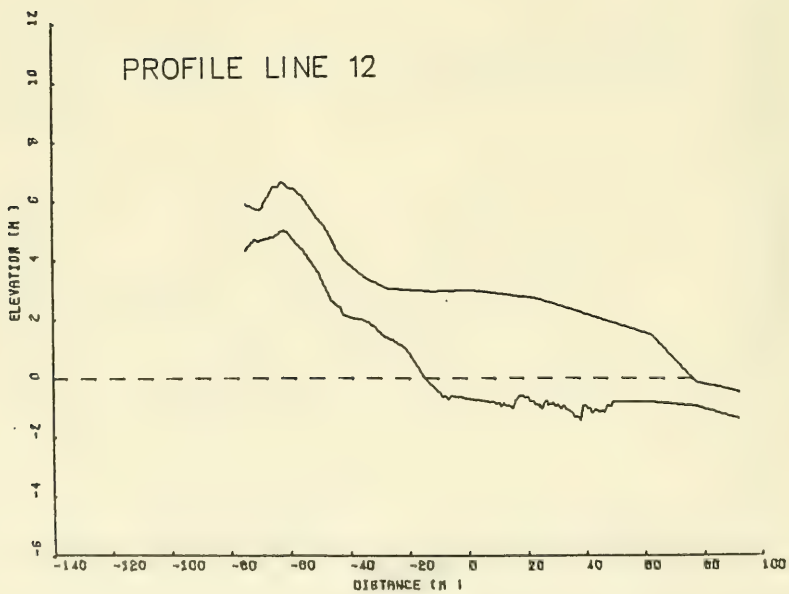
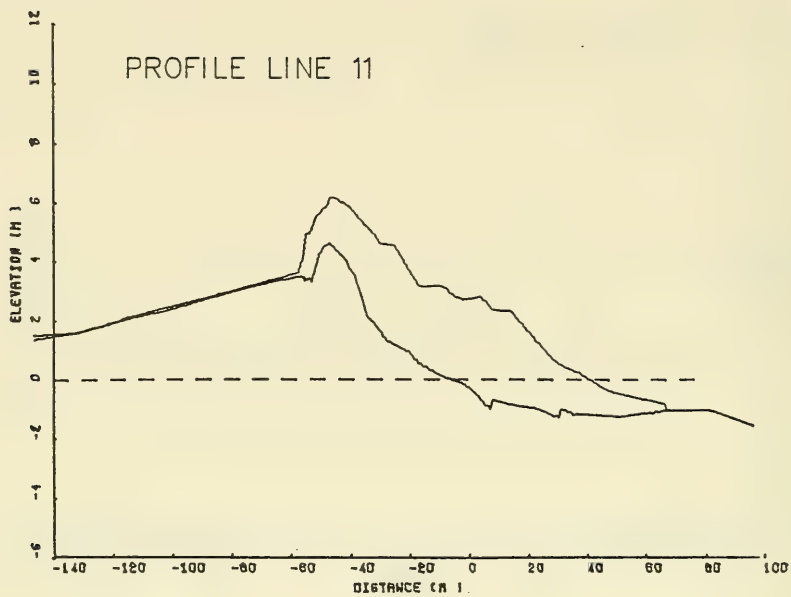


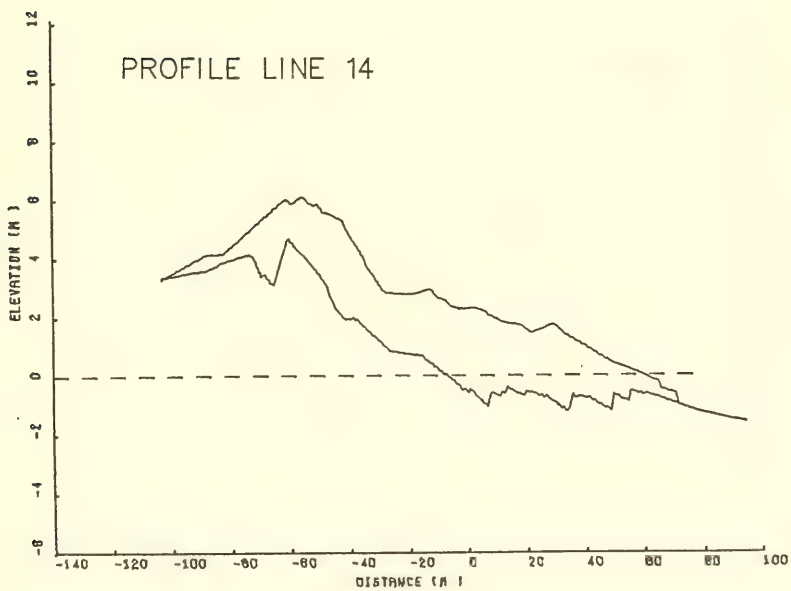
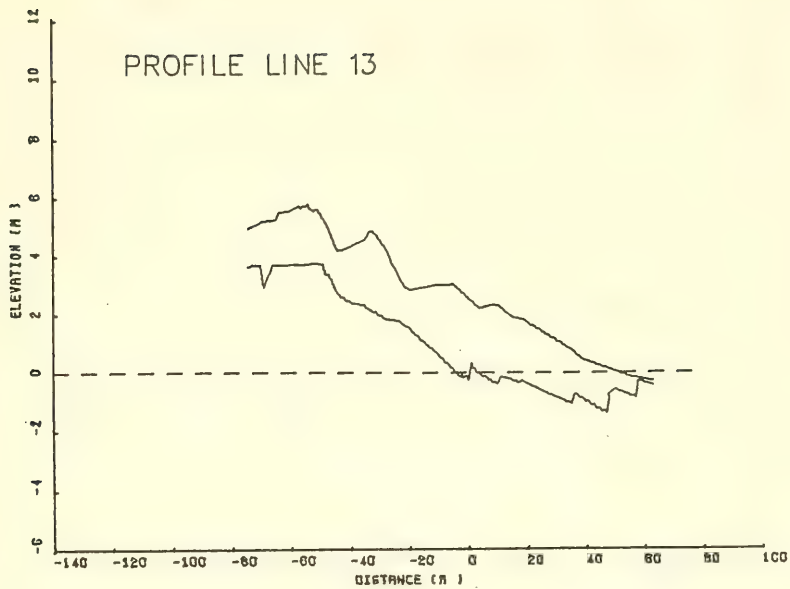


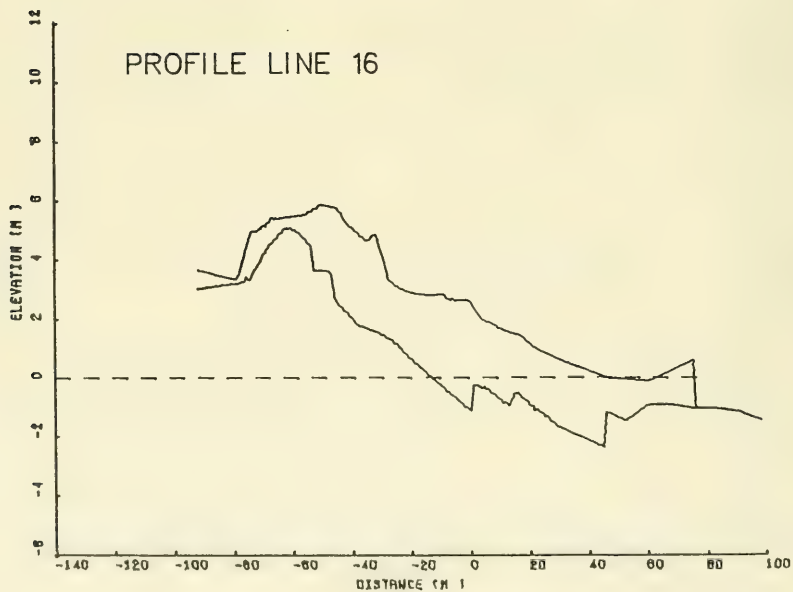
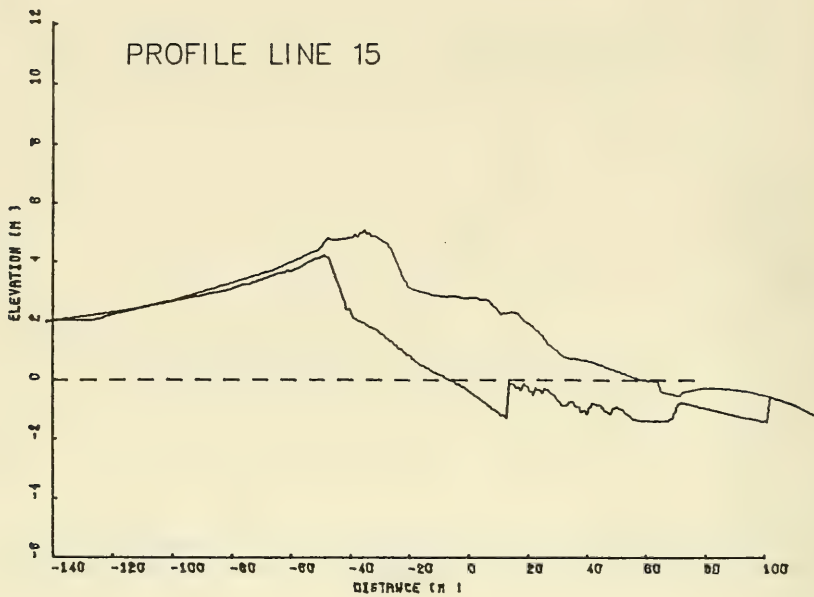


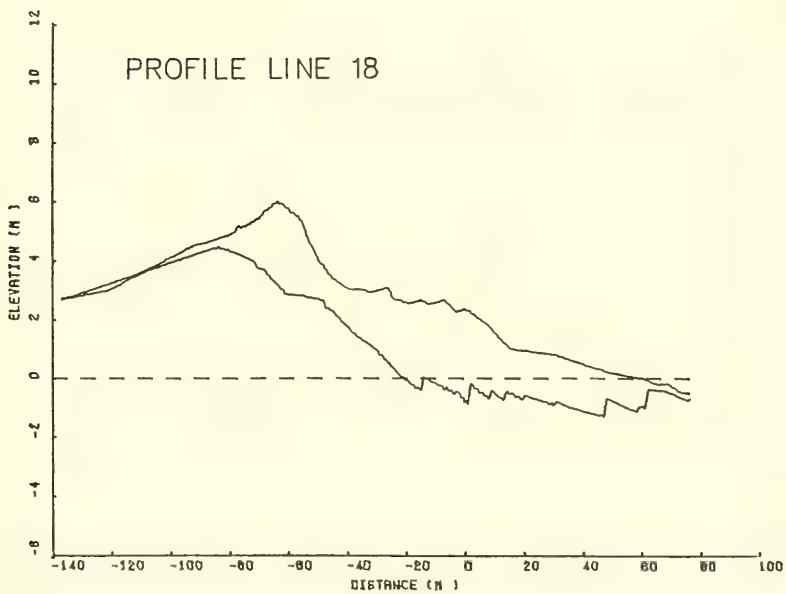
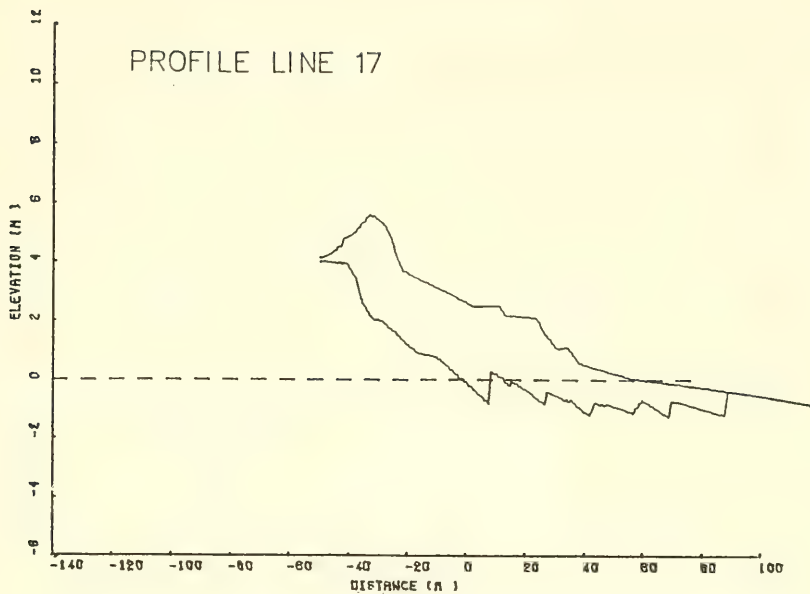


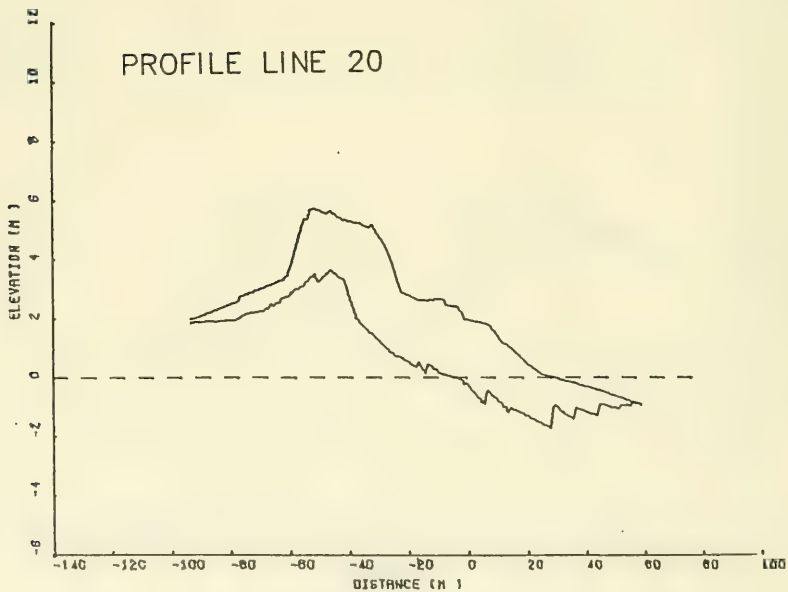
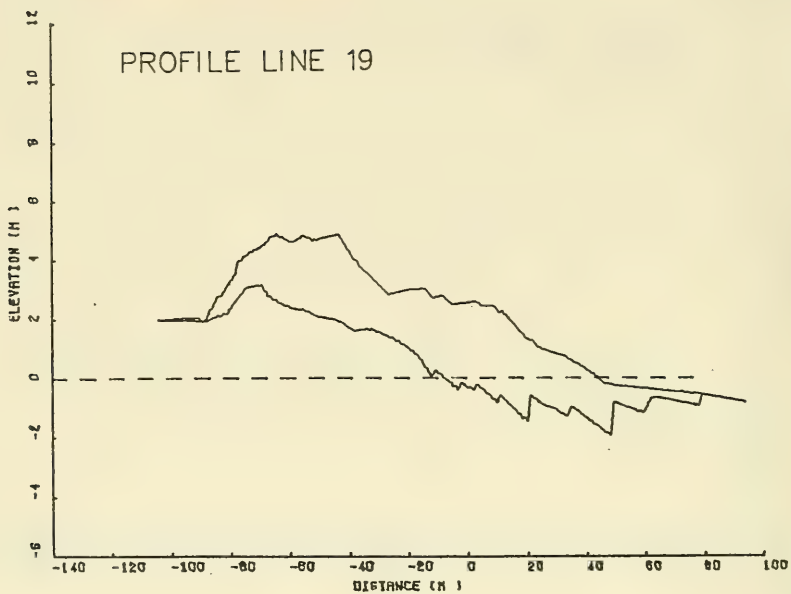


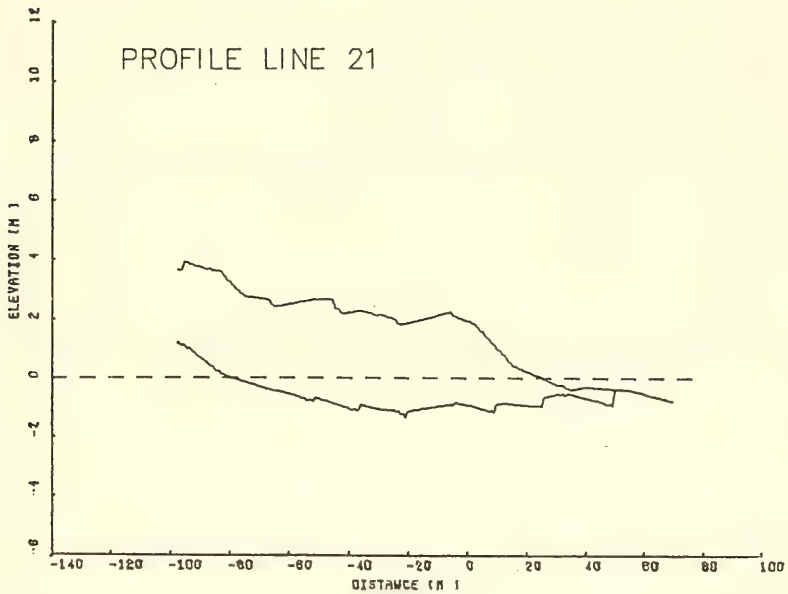


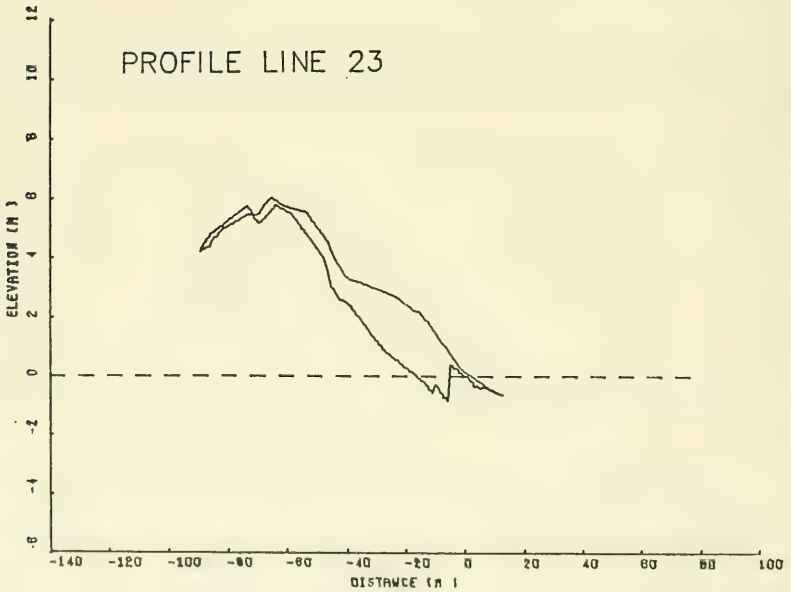
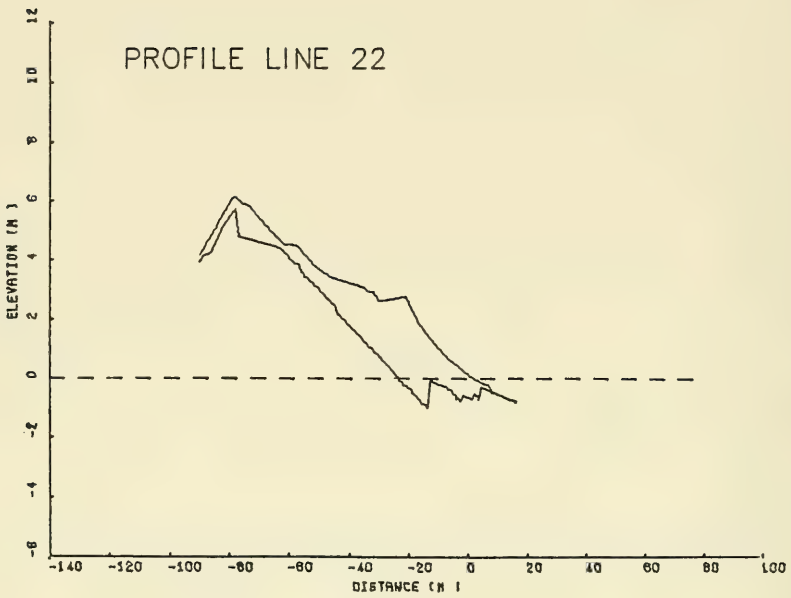


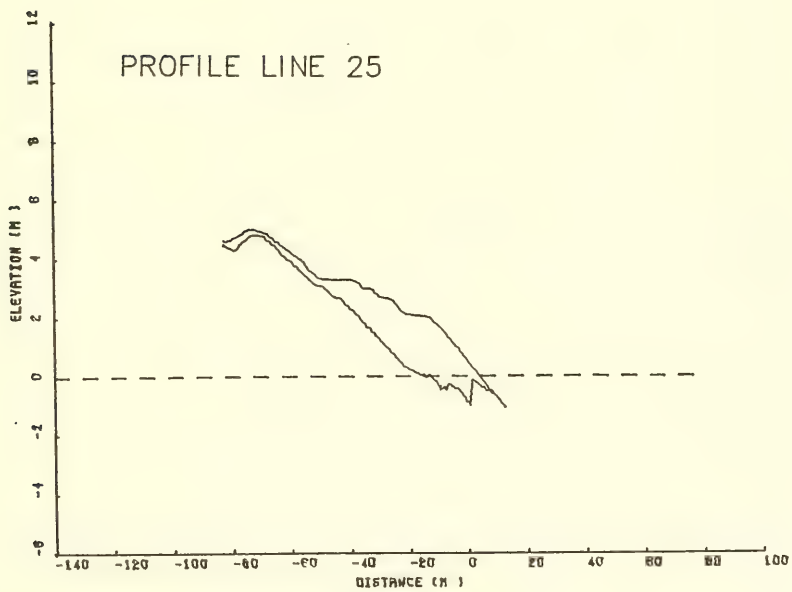
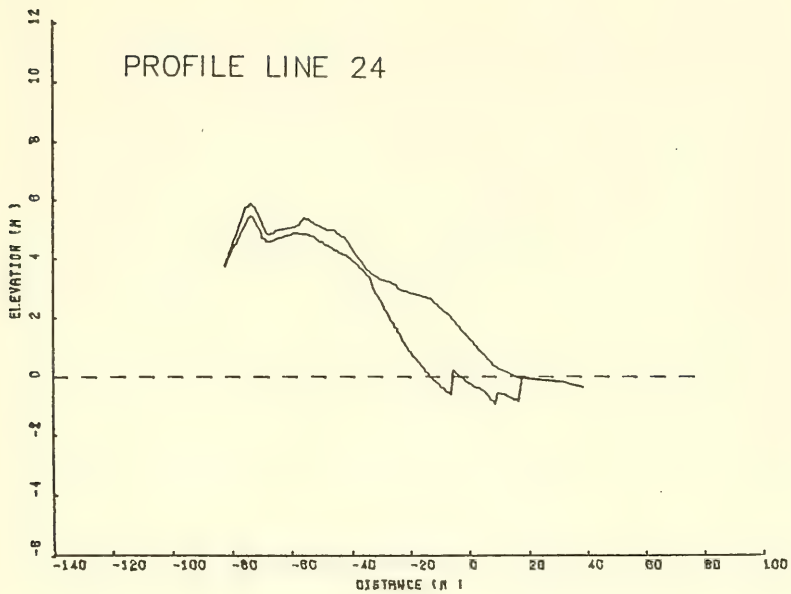


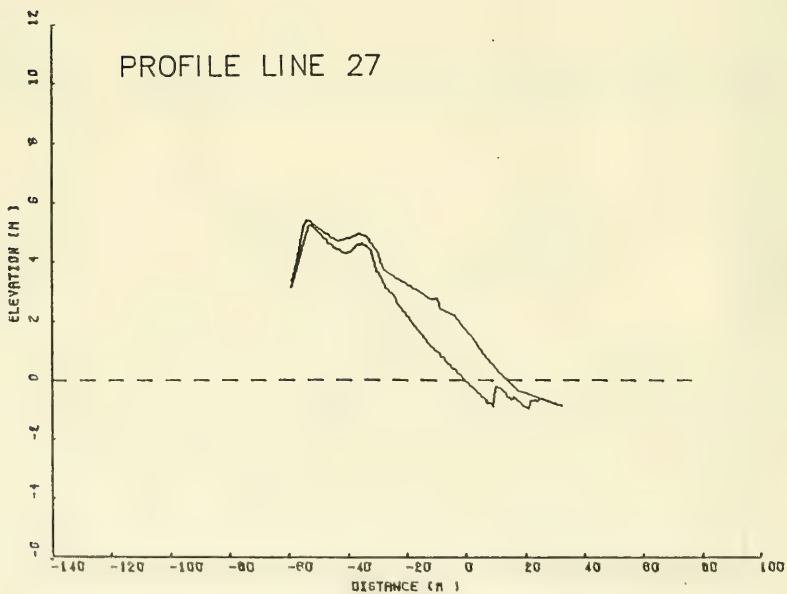
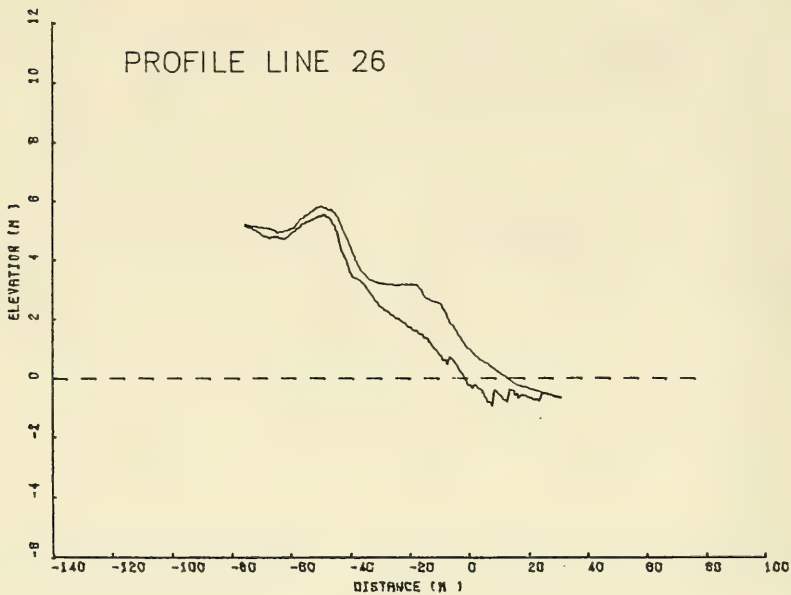


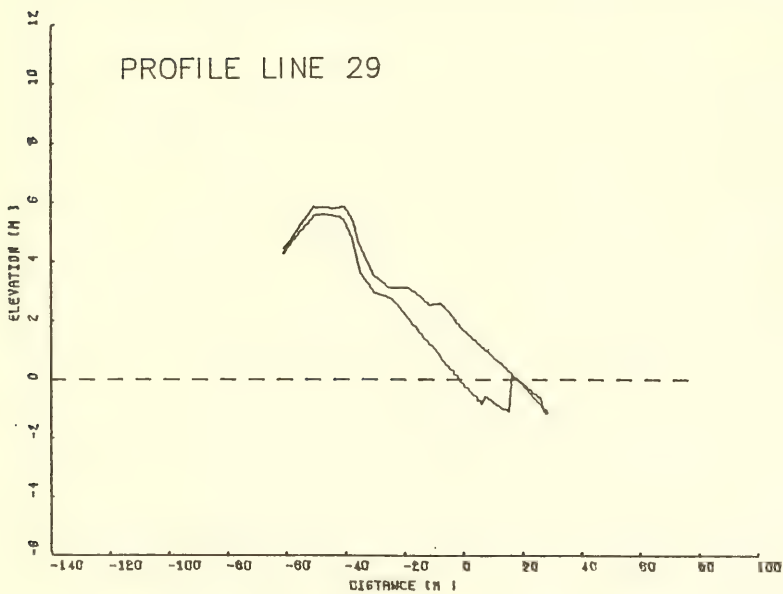
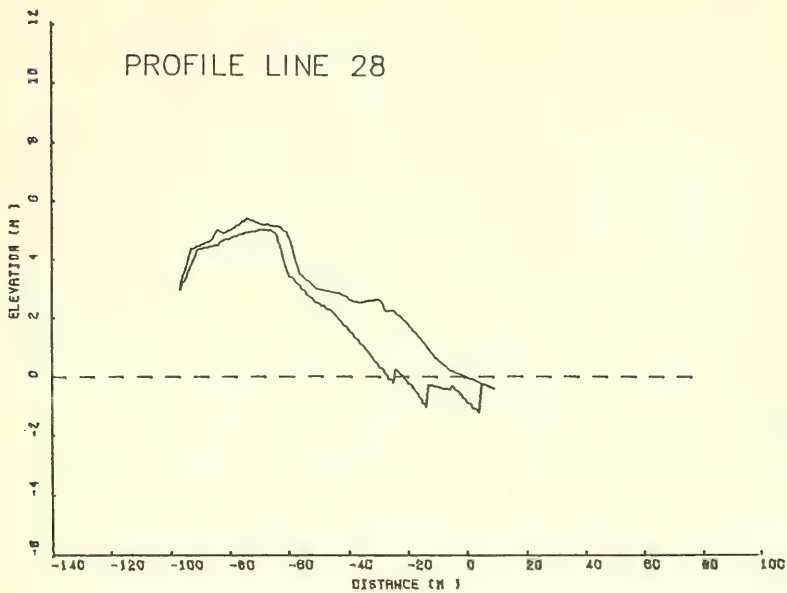


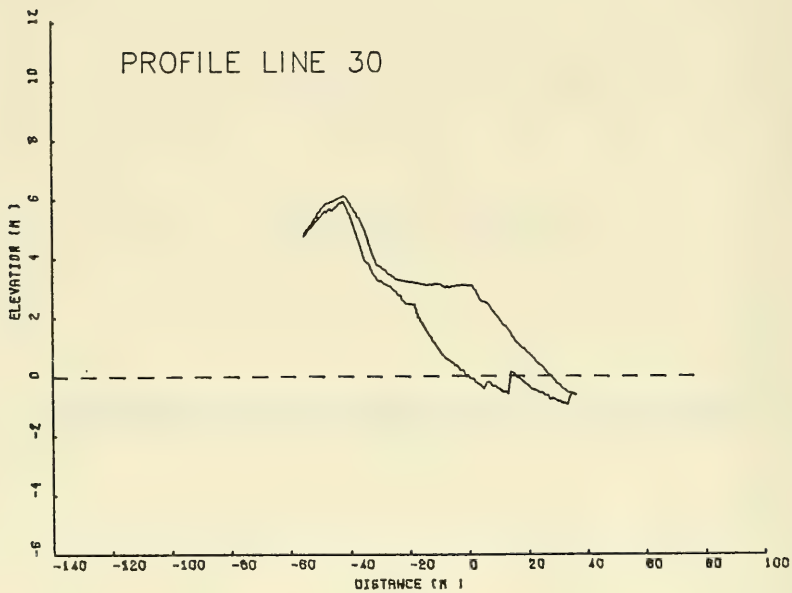


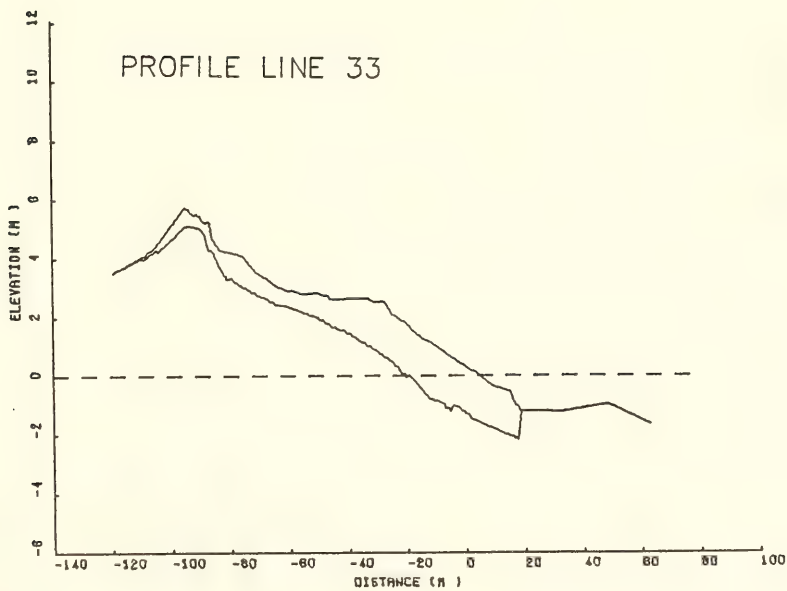
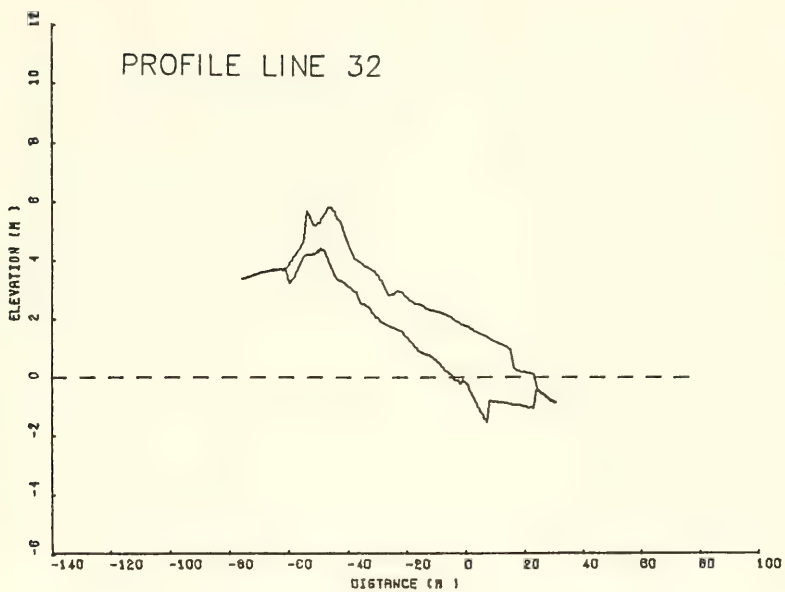












<p>Miller, Martin C. Beach changes at Long Beach Island, New Jersey, 1962-73 / by Martin C. Miller, David G. Aubrey...[et al.]. -- Fort Belvoir, Va. : U.S. Coastal Engineering Research Center ; Springfield, Va. : available from National Technical Information Service, 1980. [289] p. : ill. : 27 cm. -- (Miscellaneous report -- U.S. Coastal Engineering Research Center ; no. 80-9) Includes bibliographical references and appendixes. Beach profile line data collected as part of the Beach Evaluation Program (BEP) were examined from 32 profile sites along Long Beach Island, New Jersey. A total of 2,158 profile line surveys were examined, using empirical eigenfunction analysis and other measures of beach variability. 1. Beach changes. 2. Beach erosion control. 3. Beach profile surveys. 4. Groins. 5. Long Beach Island, N.J. 6. Storm surges. I. Title. II. Aubrey, David G. III. Series: U.S. Coastal Engineering Research Center. Miscellaneous report no. 80-9.</p> <p>TC203 .U581mr no. 80-9 627</p>	<p>Miller, Martin C. Beach changes at Long Beach Island, New Jersey, 1962-73 / by Martin C. Miller, David G. Aubrey...[et al.]. -- Fort Belvoir, Va. : U.S. Coastal Engineering Research Center ; Springfield, Va. : available from National Technical Information Service, 1980. [289] p. : ill. : 27 cm. -- (Miscellaneous report -- U.S. Coastal Engineering Research Center ; no. 80-9) Includes bibliographical references and appendixes. Beach profile line data collected as part of the Beach Evaluation Program (BEP) were examined from 32 profile sites along Long Beach Island, New Jersey. A total of 2,158 profile line surveys were examined, using empirical eigenfunction analysis and other measures of beach variability. 1. Beach changes. 2. Beach erosion control. 3. Beach profile surveys. 4. Groins. 5. Long Beach Island, N.J. 6. Storm surges. I. Title. II. Aubrey, David G. III. Series: U.S. Coastal Engineering Research Center. Miscellaneous report no. 80-9.</p> <p>TC203 .U581mr no. 80-9 627</p>
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