This being the first appropriation for this improvement, no work has yet been done.

The amount asked for the year ending June 30, 1881, will be applied to the continuation of diking.

ESTIMATED COST OF DIKES.

4,400 linear feet of pile dike at $10	$44,000 00
7,800 linear feet of pile dike at $9	70,200 00
900 linear feet of pile dike at $7.50	6,750 00
3,600 linear feet of single piling at $3.70	13,320 00
Contingencies, engineering, &c	20,140 50
	154,410 50

ESTIMATED COST OF DIKES, WITH DREDGING.

4,400 linear feet of pile dike at $10	$44,000 00
7,800 linear feet of pile dike at $9	70,200 00
900 linear feet of pile dike at $7.50	6,750 00
3,600 linear feet of single piling at $3.70	13,320 00
83,000 cubic yards of dredging at 20 cents	16,600 00
Contingencies, engineering, &c	22,630 00
	173,500 00

AMOUNT APPROPRIATED.

By act of Congress approved March 3, 1879	$20,000 00

Flushing Bay is in the collection-district of New York.
Nearest port of entry, New York.
Nearest light-house, North Brother Island.
Amount of revenue collected, $98,046,244.55.
Amount of commerce benefited by this work has been applied for, but not yet furnished.

Money statement.

Amount appropriated by act approved March 3, 1879	$20,000 00
July 1, 1879, amount available	20,000 00
Amount (estimated) required for completion of existing project	153,500 00
Amount that can be profitably expended in fiscal year ending June 30, 1881	40,000 00

SURVEY OF FLUSHING BAY, NEW YORK.

UNITED STATES ENGINEER OFFICE,
New York, January 8, 1879.

GENERAL: Having prescribed the method of improvement of Flushing Bay by means of dikes (since dredging manifestly will not answer that purpose), their position and modes of construction, I left to Mr. R. H. Talcott, assistant engineer, the task of collecting data and embodying the same in the report which I now submit.

Very respectfully, your obedient servant,

JOHN NEWTON,
Lieut. Col. of Engineers, Bvt. Maj. Genl. U. S. A.

General A. A. HUMPHREYS,
Chief of Engineers, U. S. A.

REPORT OF MR. R. H. TALCOTT, ASSISTANT ENGINEER.

UNITED STATES ENGINEER OFFICE,
New York, January 7, 1879.

GENERAL: I beg leave herewith to submit the result of the survey of Flushing Bay, Long Island.

Flushing Bay is in the collection-district of New York, which is also the nearest port of entry. By water the entrance to Flushing Bay is 4¼ miles from Fort Schuyler and the fort at Willet's Point, and 10 miles from the Battery, New York City.

The nearest light-house is that on the North Brother Island, 2¼ miles distant northwesterly.

The amount of commerce and navigation to be benefited by the improvement is unknown; it is assumed that a development of trade is expected from an improvement in navigation.

The town of Flushing is situated on a creek of the same name where it empties into the head of the bay, and has a population of from 15,000 to 20,000. It has several manufactories, and is the point from which Jamaica and several other towns in the interior of Long Island draw their supplies of coal, lumber, &c. A large proportion of its citizens are engaged in business in the city of New York.

The surveying parties were under the charge of Messrs. Weir and Meehan, assistant engineers. The former executed the triangulation and hydrography, and the latter the shore line and topographical features by means of the plane table.

The survey was made during the latter part of the month of September and first of October. A base line of 3,000 feet in length was measured on the railroad and the triangulation carried as far as Riker's Island. The soundings were taken with poles of 18 and 31 feet length, and reduced to the plane of mean low-water as established by observations on a tide-staff at the mill dock at College Point during one full lunation, the day tides being observed.

During the soundings the character of the bottom was noted and is shown on the chart herewith submitted. Its general character is soft mud, with an occasional hard spot of sand or gravel. The shore is generally marshy, and at several points quite large bowlders are exposed at low-water, which are shown on the chart.

A few current-observations were made on both the flood and ebb tides, with spar floats loaded at the lower end so as to reach nearly to the bottom, and observations were made on the floats, from both ends of a base line on shore, every minute, in order to determine the direction and velocity of the current.

The present depth of water, at mean low-water, as determined by our observations, is about 4 feet in the shoalest part of the channel, but owing to spring tides and high winds it frequently happens that there is from 1 to 2 feet less water than the above figures show.

The following estimates are based upon the plan of improvement by dikes of a double row of piles, with two courses of timber and filled with rubble stone, built to the level of half-tide. One dike starts from a point near the head of the bay, and runs in a northerly direction 8,300 feet to a point in the entrance to the bay opposite College Point. Thence a dike, nearly at right angles to the above and 4,800 feet long, running in a westerly direction, would connect it with the west shore at Herrick's Point, and form a tidal basin with an opening at the head of the bay. On the east of the channel, where a bend in the shore line to the eastward forms a bay, and, by widening the channel, would decrease the velocity of the current, a single row of piles, starting from the shore at the bend and running in a northerly direction 3,600 feet towards College Point, is estimated for. These piles are to be driven as close together as possible, and are to be creosoted, as are also all the piles in the main dikes.

It would make the dikes more effective as dams to confine the water and cause it to pass through the opening at the head of the bay to fill in behind them with material dredged from the channel and lifted over the dikes.

One of the estimates herewith submitted includes the cost of that item.

ESTIMATED COST OF DIKES.

4,400 linear feet of pile dike, at $10	$44,000 00
7,800 linear feet of pile dike, at $9	70,200 00
900 linear feet of pile dike, at $7.50	6,750 00
3,600 linear feet of single piling, at $3.70	13,320 00
Contingencies, engineering, &c	20,140 50
	154,410 50

ESTIMATED COST OF DIKES, WITH DREDGING.

4,400 linear feet of pile dike, at $10	$44,000 00
7,800 linear feet of pile dike, at $9	70,200 00
900 linear feet of pile dike, at $7.50	6,750 00
3,600 linear feet of single piling, at $3.70	13,320 00
83,000 cubic yards of dredging, at 20 cents	16,600 00
Contingencies, engineering, &c	22,630 50
	173,500 50

Respectfully submitted.

R. H. TALCOTT,
Assistant Engineer.

Lieut. Col. JOHN NEWTON,
Corps of Engineers, U. S. A.

D 6.

IMPROVEMENT OF EAST CHESTER CREEK, NEW YORK.

Under the appropriation of $10,000, approved June 18, 1878, the work of improvement was continued by the employment of dredges by the day, and the following work was done and material removed: Near Lockwood's, 4,300 cubic yards of sand, mud, and bowlders; from channel near Goose Island, 14,922 cubic yards of sand and mud; from Pelham Bridge, 3,973 cubic yards of sand, and 85 stones of one yard and upwards were chained and removed.

The work needed to complete the improvement, and to obtain a draught of 9 feet at mean high-water from Pelham Bridge to Lockwood's, is as follows:

To shape the end of the cut at Lockwood's just above the bridge, to remove from the channel material fallen in from the undermining of the banks, and to construct dikes from the lower end of the cut to Goose Island, a distance of 5,800 feet.

ESTIMATE FOR FISCAL YEAR ENDING JUNE 30, 1881.

Dredging	$3,000 00
Dikes	32,000 00
	35,000 00

The works as far as completed have given the requisite depth.

This work is in the collection-district of New York.
Nearest port of entry, New York.
Nearest light-house, Stepping Stones.
Amount of revenue collected, $98,046,244.55.
Amount of commerce and navigation benefited by completion of the work would be, annually, $2,238,203.

ORIGINAL ESTIMATE.

Basin, purchase of site, 18 acres, at $150	$2,700 00
Excavation to level of mean low-water, 200,000 cubic yards, at 40 cents.	80,000 00
Excavation of cut, 60,000 cubic yards, at 40 cents	24,000 00
Diking and revetting bank of cut	12,000 00
Engineering and contingencies	17,800 00
	136,500 00

AMOUNT APPROPRIATED.

By act of Congress approved March 3, 1873	$25,000 00
By act of Congress approved March 3, 1875	12,000 00
By act of Congress approved June 18, 1878	10,000 00
By act of Congress approved March 3, 1879	3,500 00
	50,500 00
Amount expended	46,341 73

Money statement.

July 1, 1878, amount available	$10,011 75	
Amount appropriated by act approved March 3, 1879	3,500 00	
		$13,511 75
July 1, 1879, amount expended during fiscal year		9,353 48
July 1, 1879, amount available		4,158 27
Amount (estimated) required for completion of existing project		86,000 00
Amount that can be profitably expended in fiscal year ending June 30, 1881		35,000 00

D 7.

IMPROVEMENT OF ECHO HARBOR, NEW ROCHELLE, NEW YORK.

Contract was made November 21, 1878, with Thomas A. Scott for the removal of the rock known as "Start Rock" to a depth of 7 feet at mean low-water; owing to the lateness of the season and the protracted winter weather, work was not commenced until the month of May, 1879. The amount of rock to be removed is, measured *in situ*, 410 cubic yards, over an area of 542 square yards.

The work of removing the rock is performed by drilling from a platform elevated upon permanent standards over the rock, the blasting being done without moving the platform; the broken rock is chained in slings by a diver and raised by means of a crane upon a sloop, which is also used to deposit the broken rock upon the shore.

As the contractor was unable to complete the work in the time specified in the contract, viz, July 1, 1879, an extension, approved by the Chief of Engineers, to September 15, 1879, has been allowed him.

As the appropriation of $3,000 made March 3, 1879, is not sufficient for the removal of Sheepshead Rock, further operations will be deferred until another appropriation is made.

The amount asked for the year ending June 30, 1881, will be applied to the removal of Sheepshead Rock.

This work is in the collection-district of New York.
Nearest port of entry, New York.
Nearest light-house, Execution Rock.
Amount of duties collected for the year ending June 30, 1879, $98,046,244.55.
Amount of commerce to be benefited by the completion of this work, ———.

ESTIMATE OF COST OF IMPROVING ECHO HARBOR, NEW ROCHELLE, NEW YORK, BY THE REMOVAL OF "SHEEPSHEAD ROCK" TO A DEPTH OF 9 FEET BELOW MEAN LOW-WATER, AND OF "START ROCK" TO A DEPTH OF 7 FEET BELOW MEAN LOW-WATER.

"Sheepshead Rock," 872.5 cubic yards, above the 9-foot curve, of 905 square feet area, at $24.30 per cubic yard	$21,201 75
"Start Rock," 370 cubic yards, spread over an area of 264 square yards, within the 6-foot curve, at $34.25 per cubic yard	12,672 50
Contingencies, 15 per cent. of the above	5,081 13
Total	38,955 38

AMOUNT APPROPRIATED.

By act of Congress approved June 18, 1878		$10,000 00
By act of Congress approved March 3, 1879		3,000 00
		13,000 00
Amount expended		1,810 22

Money statement.

July 1, 1878, amount available	$10,000 00	
Amount appropriated by act approved March 3, 1879	3,000 00	
		$13,000 00
July 1, 1879, amount expended during fiscal year	1,810 22	
July 1, 1879, outstanding liabilities	6,125 00	
		7,935 22
July 1, 1879, amount available		5,064 78
Amount (estimated) required for completion of existing project		25,955 38
Amount that can be profitably expended in fiscal year ending June 30, 1881		25,955 38

Abstract of bids for removing Start Rock in Echo Harbor, New Rochelle, N. Y., opened November 16, 1878.

Name.	Price.
Thomas A. Scott	$6,125
George W. Townsend	6,500
Frank Pidgeon, jr	8,149
James M. Andrews	8,200
Cameron & Flanagan	8,400
John Satterlee	8,450
Justin Arnold and Thomas Cummings	9,840
Atlantic Dredging Company	11,000

Abstract of contract for removing Start Rock, Echo Harbor, New York.

Contractor.	Residence.	Date of contract.	Subject of contract.	Remarks.
Thomas A. Scott	New York, N. Y.	Nov. 21, 1878	Removing Start Rock.	To be completed by July 1, 1879. Extension granted to September 15, 1879.

D 8.

IMPROVEMENT OF HARBOR AT PORT CHESTER, NEW YORK.

There being no appropriation for this work, no operations were conducted during the year.

Collection-district, New York.
Nearest port of entry, New York.
Nearest light-house, Great Captain's Island.
Amount of revenue collected, $98,046,244.55.
Amount of commerce to be benefited by the completion of this work, ——.

ORIGINAL ESTIMATE.

Removing rocks and building breakwater	$96,632 00

AMOUNT APPROPRIATED.

By act of Congress approved June 10, 1872	$12,000 00

Money statement.

July 1, 1878, amount available	$1,950 00
July 1, 1879, amount available	1,950 00
Amount (estimated) required for completion of existing project	84,632 00

D 9.

IMPROVEMENT OF PASSAIC RIVER, NEW JERSEY.

The small drilling-scow commenced work in August, 1878, near the bridge of the Montclair Railroad, and removed a quantity of railroad iron, ties and stones which obstructed the channel and draw of the bridge; was then removed to Rutherford Park, and blasted and removed a number of bowlders which obstructed the channel—ten holes were drilled, 50 pounds of powder used in blasting, and 61 cubic yards of stone taken up. The cuts through Holoman's and the other bars between it and the Erie Railroad Bridge were widened to 60 feet on the bottom, the work being done by a dredge hired at $6.50 per hour of actual working time; the amount of material removed was 5,200 cubic yards of sand and gravel, and 270 cubic yards of clay. After this work was done the dredge was moved down the river to Belleville, and removed 1,440 cubic yards of clay and stone from channel and draw of the Montclair Railroad Bridge.

In April, 1879, the small drilling-scow commenced work on the river near Passaic and removed from the channel 470 cubic yards of bowlders, varying in weight from 1 to 8 tons.

The scow stopped work early in May. The Passaic River from the Midland Railroad bridge to Passaic is now in a good condition for navigation, and vessels drawing 6 feet can now go from Newark to Passaic without being compelled to lay over for a change of tide.

It is proposed to expend the appropriation of $2,000, made March 3, 1879, between the Midland Railroad Bridge and the mouth of the river, subject to a survey between those points.

This work is in the collection-district of Newark, N. J.
Nearest port of entry, Newark, N. J.
Nearest light-house, Passaic Light.
Amount of revenue collected, $9,456.55.
Amount of commerce to be benefited by the completion of this work, $1,000,000.

ORIGINAL ESTIMATE.

Middle Bar, dredging	$936
Middle Bar, diking	66,375
Belleville Bar, dredging	15,501
Rutherford Park Bar, dredging	14,112
Holoman's and small bars above, dredging	12,000
Contingencies	15,000
	123,924

AMOUNT APPROPRIATED.

By act of Congress approved June 10, 1872	$25,000 00
By act of Congress approved March 3, 1873	25,000 00
By act of Congress approved June 23, 1874	20,000 00
By act of Congress approved March 3, 1875	20,000 00
By act of Congress approved August 14, 1876	10,000 00
By act of Congress approved June 18, 1878	10,000 00
By act of Congress approved March 3, 1879	2,000 00
	112,000 00
Amount expended	107,437 31

Money statement.

July 1, 1878, amount available	$10,608 92	
Amount appropriated by act approved March 3, 1879	2,000 00	
		$12,608 92
July 1, 1879, amount expended during fiscal year		8,046 23
July 1, 1879, amount available		4,562 69
Amount (estimated) required for completion of existing project		11,924 00
Amount that can be profitably expended in fiscal year ending June 30, 1881		11,924 00

D 10.

IMPROVEMENT OF CHANNEL BETWEEN STATEN ISLAND AND NEW JERSEY.

No work has been done during the year. It has been judged expedient to delay the commencement of operations until the increase in draught of the vessels should demand additional depth in the channel.

This work is in the collection-district of New York.
Nearest port of entry, New York.
Light-house, Bergen Point.
Amount of revenue collected, $98,046,244.55.
Amount of commerce to be benefited by completion of this work, ——.

ESTIMATE OF BOARD OF ENGINEERS.

Dredging 230,000 cubic yards, at 16 cents	$36,800 00
Contingencies, 10 per cent	3,680 00
	40,480 00

AMOUNT APPROPRIATED.

By act of Congress approved August 14, 1876	$10,000 00
By act of Congress approved June 18, 1878	15,000 00
	25,000 00

Money statement.

July 1, 1878, amount available	$25,224 74
July 1, 1879, amount expended during fiscal year	4,154 43
July 1, 1879, amount available	21,070 31
Amount (estimated) required for completion of existing project	15,408 00

D 11.

IMPROVEMENT OF RARITAN RIVER, NEW JERSEY.

Under the appropriation of June 18, 1878, of $200,000, the first for this work, a contract was made, November 18, 1878, with Messrs. Henry Dubois & Sons, for the construction of about 12,800 feet of pile dikes at the "Middle Ground" and "Stakes." As the timber and piles in these dikes had to be treated with "dead oil," or carbolized, no work was done in the way of driving piles and building the dikes until the month

of May, when a sufficient quantity of timber having been treated, the contractor was enabled to commence driving and building.

In the month of March, after many delays, the parties having the carbolizing process in charge commenced operations, and, after a few preliminary tests, got their machinery in working order, and were enabled to turn out a tank-load of treated piles in about four hours' time; the amount of "dead oil" required for each cubic foot of timber being not less than 10 pounds.

The number of feet of dike completed at the close of the year is as follows:

DIKE NO. 2, AT "MIDDLE GROUND."

Linear feet of rows of piling driven	2,715
Linear feet of dike filled with stone	1,140

DIKE NO. 3, AT THE "STAKES."

Linear feet of rows of piling driven	1,500
Linear feet of dike filled with stone	146

In the fall of 1878, by authority from the Chief of Engineers, dredges hired by the hour were put to work upon the shoals at "Middle Ground" and the "Stakes," and removed 42,663 cubic yards of sand, gravel, shells, &c. The work was stopped in December, and resumed in April, 1879, upon the same shoals, and at the close of the fiscal year had removed 99,581 cubic yards of sand, gravel, clay, &c. In the month of June a dredge was put to work upon the river near Whitehead's sand dock, and during the month removed 5,170 cubic yards of blue and red shale, small bowlders, and a very compact blue clay.

The small drilling-scow formerly used on the Passaic River was fitted up with a large Woodward pump, and used on the river above Whitehead's sand dock for examining the character of the bottom of the river. This was done by attaching a hose to the pump, and by means of a fall conducting the nozzle or hose-pipe to the bottom of the river; the pump being set in motion, the force of water from the nozzle bored a hole through the deposits on the bed of the river in some cases to a depth of 14 feet. By this means the presence of rock was readily determined. From Whitehead's sand dock to a short distance above Martin's dock, being about two miles, 485 holes have been bored, varying in depth from 1 to 13 feet, the greater portion of them, however, being 5.2 feet in depth, taking 19½ minutes average time per hole.

The results obtained by this process indicate the presence of red shale rock on the south side of the river, extending to mid-channel near Whitehead's sand dock; and near Martin's dock, on the north side of the river, a ledge of the same formation extending about 100 feet in a southwesterly direction; the presence of rock was also discovered in several places between the two points named.

This work is in the collection-district of Amboy.
Nearest port of entry, Perth Amboy.
Nearest light-house, Prince's Bay.
Amount of revenue collected, $9,383.46.
Amount of commerce to be benefited by the completion of this work, ——.

ORIGINAL ESTIMATE.

For a 10-foot channel at mean low-water.

Dredging tidal basin, 648,000 cubic yards, at 40 cents	$259,200 00
Shoal, commencing 160 feet below New Brunswick locks, 2,399 cubic yards	78,767 85
Reef of rocks opposite Martin's dock, 4,672 cubic yards	182,208 00

Rocks 300 feet below New Brunswick locks, 2,399 cubic yards	$76,768 00
Ledge of rocks 3,300 feet above Martin's dock, 17,504 cubic yards	542,624 00
Shoal below Widmar's dock, 14,400 cubic yards, at 35 cents	5,040 00
Reef of rocks covered with sand near Whitehead's dock, 11,509 cubic yards	497,188 80
Middle Ground, 55,555 cubic yards, at 35 cents	19,444 25
Stakes, 15,528 cubic yards, at 35 cents	5,434 80
Dike, 11,400 feet long, at $13.50 per running foot	153,900 00
Contingencies, 15 per cent. of the above	273,086 35
	2,093,662 05

AMOUNT APPROPRIATED.

By act of Congress approved June 18, 1878	$200,000 00
By act of Congress approved March 3, 1879	60,000 00
	260,000 00
Amount expended	37,427 05

The appropriation of $60,000, March 3, 1879, will be applied to the construction of dike No. 4 and a portion of dike No. 1.

The amount asked for the year ending June 30, 1881, will be applied to diking, dredging, and removal of rock.

Money statement.

July 1, 1878, amount available	$200,000 00	
Amount appropriated by act approved March 3, 1879	60,000 00	
		$260,000 00
July 1, 1879, amount expended during fiscal year	37,427 05	
July 1, 1879, outstanding liabilities	107,799 06	
		145,226 11
July 1, 1879, amount available		114,773 89
Amount (estimated) required for completion of existing project		1,833,662 05
Amount that can be profitably expended in fiscal year ending June 30, 1881		100,000 00

Abstract of bids for constructing dikes in the Raritan River, New Jersey, opened November 12, 1878.

Bidders.	No. 1. 1,200 feet.	No. 2. 6,300 feet.	No. 3. 5,300 feet.	Total.
Henry Dubois & Sons	$1 30	$8 25	$8 50	$98,585 00
John F. Ward	5 20	7 25	9 30	101,205 00
John Cameron	6 00	7 50	9 00	102,150 00
William T. Potter and Abraham J. Skillman	6 90	7 90	9 75	109,725 00
Frank Pidgeon, jr	4 41	9 22	10 78	120,512 00
Joseph Walsh	6 00	9 25	11 00	123,775 00
Lewis H. Hoagland	6 00	9 65	10 70	124,705 00
Mark T. Seymour	8 44	9 45	10 80	126,903 00
Walter Doty	8 88	9 13	11 21	127,588 00
P. Sanford Ross and J. B. Sanford	9 13	10 16	12 46	141,002 00
Norris & Himber	8 40	10 40	12 75	143,175 00
James D. Leary	7 99	10 97	12 97	147,440 00
Henry V. Sloat	8 81	11 48	12 98	151,690 00
Charles Guidet and Isaac E. White	7 94	10 34	15 59	157,297 00
Ed. G. Brown	9 00	14 00	13 00	167,900 00
Franklin Griffin	13 00	13 00	14 00	171,700 00

Abstract of contract for constructing dikes in the Raritan River, New Jersey.

Contractor.	Residence.	Date of contract.	Subject of contract.	Remarks.
Henry Dubois & Sons..	New York, N.Y.	Nov. 18, 1878.	Constructing pile-dikes Nos. 1, 2, and 3.	To be completed by July 1, 1879; extension granted to October 1, 1879.

D 12.

IMPROVEMENT OF HARBOR AT PLATTSBURGH, NEW YORK.

There being no appropriation, the improvement of this harbor was suspended during the fiscal year.

Under the appropriation of March 3, 1879, of $2,000 it is proposed to remove, as far as possible with the amount available, those shoals lying nearest the breakwater, and to improve the navigation between the north and south wharves along the approach to the slip or basin.

Amount asked for the year ending June 30, 1881, will be applied to completing the dredging.

Plattsburgh is in the collection-district of Champlain, and is a port of entry.

Nearest light-house, Cumberland Head. Beacon-lights are also maintained upon either end of the breakwater in this harbor. Fort Montgomery, Rouse's Point, is the nearest fort.

Amount of revenue collected at this port during the last fiscal year, ——.

ESTIMATE OF SEPTEMBER, 1870.

Extension of breakwater 400 feet	$40,000 00
Revetment	7,000 00
Dredging	16,000 00
Contingencies	2,000 00
	65,000 00

AMOUNTS APPROPRIATED.

By act of Congress approved July 11, 1870	$10,000 00
By act of Congress approved March 3, 1871	15,000 00
By act of Congress approved June 10, 1872	10,000 00
By act of Congress approved March 3, 1873	10,000 00
By act of Congress approved June 23, 1874	5,000 00
By act of Congress approved March 3, 1879	2,000 00
	52,000 00
Amount expended	49,040 79

Money statement.

July 1, 1878, amount available	$980 49	
Amount appropriated by act approved March 3, 1879	2,000 00	
		$2,980 49
July 1, 1879, amount expended during fiscal year		21 28
July 1, 1879, amount available		2,959 21
Amount (estimated) required for completion of dredging		3,000 00
Amount that can be profitably expended in fiscal year ending June 30, 1881		3,000 00

D 13.

IMPROVEMENT OF HARBOR AT BURLINGTON, VERMONT.

The work of riprapping the base of that portion of the breakwater built since 1868 has been finished, and under the appropriation of June 18, 1878, of $20,000, the extension of the breakwater in a northwesterly direction has been continued under contract with Mr. Luther Whitney, by the construction and sinking in position of one crib 100 feet in length, whose superstructure will be put on as soon as the lake shall have sufficiently receded to permit the work to be progressed with.