

HARBOR BOARD ANNUAL REPORT 1914 [1913] 821805

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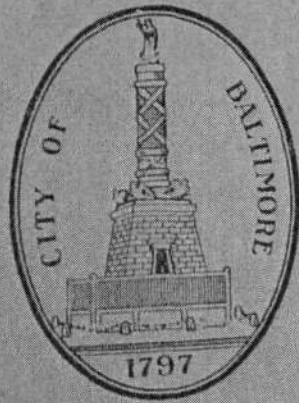
821805

Department of Public Improvements—Sub-Department Harbor Board

ANNUAL REPORT
OF THE
HARBOR BOARD

TO THE
MAYOR AND CITY COUNCIL OF BALTIMORE

FOR THE
FISCAL YEAR ENDED DECEMBER 31, 1913



BALTIMORE
MEYER & THALHEIMER
CITY PRINTER

1914

that in so doing, the conditions of the harbor might be improved and the odor from the gases eliminated. The conditions were better during the summer of 1913 than at any other time, due, perhaps, partly to the dredging, but more particularly to the fact that a great quantity of the sewerage formerly emptying into the harbor was taken care of by the new sewerage system.

The most important and greatest quantity of dredging done by private interests was the digging of the channel from the main channel of Spring Gardens to the wharf of the Westport Paving Brick Company; the amount of material removed in this case was 143,000 cubic yards.

The main channel was widened 90 feet from below Elevator "C" to a point east of the North German Lloyd Steamship Pier, 17,856 cubic yards being removed.

A 24-foot channel 90 feet wide was dredged from the main channel into the mouth of Skinner's Dry Dock, 11,896 cubic yards being removed. Also a 20-foot channel was dredged from Atlantic Wharf to Young's Wharf, this channel also being 90 feet wide.

The dredging for the Recreation Pier was completed, 77,701 cubic yards being removed.

Table No. 1 shows the locations dredged, amount dredged, area covered, and the cost of same.

OFFICE WORK—SURVEYS, ETC.

Pratt Street Bridge—This Department furnished engineering supervision and inspection for the construction of this bridge, which was completed April 5, 1913. In addition, data was compiled, pertaining to the time consumed by the Contractor (D. V. Ault & Co.) in the various stages of construction, and several drawings were made in connection with the above work.

Recreation Pier—Construction work was started on January 1, 1913. Base line and other surveys were made and thirty drawings in connection with the construction work were prepared. Engineering supervision and inspection were furnished by the Department. The inspection of this work, particularly that of the concrete piles, was very carefully made and insured high-grade construction. The construction of the sub-structure of the pier and the grading and paving of the adjacent streets, which comprises the entire work let out under contract by the Harbor Board, was completed December 31, 1913. A survey of the property at the southwest corner of Thames street and Broadway was made and a condemnation plat prepared with the idea of the city acquiring this property to widen the street at this point.

Key Highway—The Department furnished inspection for the removal of buildings and the filling up of old cellars and holes on the line of the first section of this highway. Drawings showing the present and proposed grades for the second section of Key Highway and proposed change of United Railway tracks on Light street (first section of Key Highway) were prepared and sent to the City Engineer's Department.

All plans and specifications for the paving of the Key Highway were prepared by this Department and sent to the City Solicitor for his approval and by him referred to the City Engineer's Department, as the work of construction, by authority of the Board of Estimates, was turned over to that Department.

NEW WORK.

Key Highway—Plans showing the location of the second section of the Key Highway, from Montgomery street to the west side of Lawrence street, were approved by the Harbor Board and submitted to the Board of Estimates. Under authority of the Board of Estimates, this plan was submitted to the Commissioners for Opening Streets, plat prepared and the property is now being purchased by the Commissioners for Opening Streets. All profiles, etc., in connection with the construction work have been prepared by this Department and submitted to the City Engineer, as by authority of the Board of Estimates, this construction work has been turned over to that Department.

Plans were also prepared by this Department locating the third section of the Key Highway, including an extension bordering on the Middle Branch of the Patapsco River, from Fort McHenry to Ferry Bar. It is the opinion of the Harbor Board that if this street is to be constructed, that the city acquire all riparian rights bordering on the proposed street, or where there are no existing piers, etc., and that the same be held by the city and improved when there are demands that would justify the necessary expenditure of money for the construction of piers.

This Department has prepared an elaborate study for the development of Spring Gardens, from the foot of Howard street to Ferry Bar, which is more fully described in the annual report of the Harbor Engineer to the members of the Harbor Board.

Commercial and Recreation Pier—The contract for the construction of the substructure was awarded to William L. Miller and Luke D. Mullen, of Boston, on December 12, 1912, they being the lowest bidder, at an estimated cost of \$210,000. The work was completed the latter part of December, 1913, at a cost less the paying on pier of \$192,244.37.

The substructure is entirely of reinforced concrete and steel, and the pier was designed, as its name would imply, the lower deck for commercial purposes and the upper deck for recreation.

As the harbor widens out at this point, the pier was designed to allow a depth of water in docks of 35 feet when needed. At this time the depth is 27 feet, being ample for those vessels which will use it at the present time.

The docks are 190 feet wide with bulkheads on either side. While provision has been made for a depth of water of 35 feet, or a depth in itself sufficient to take care of transatlantic liners, the pier was not designed for that specific purpose, but it was deemed advisable to have at command a pier which could be turned over, were there any demand for space by the larger type vessels.

The total length of waterfront at the disposal of the city was 530 feet and a dock of 190 feet should provide an ample width, as it is hardly possible that any large vessels will berth along the bulkheads. The purpose of the bulkheads is to turn them over to the use of lighters, transferring cargoes from the opposite side of the harbor, for local distribution. In consequence of which there will be no two vessels abreast of each other in the slips.

The pier is 150 feet wide by 500 feet, and for one-half its length is a solid type similar to Piers 4, 5 and 6.

The driveway for the depth of buildings is 35 feet, widening out to 58 feet in width and paved with sheet asphalt. The outer half is paved for its full width. Later, after the fill has settled behind sheet piling, the balance of the pier will be paved.

The bulkhead is similar to Piers 4, 5 and 6, except that the bottom of the marginal beam is at an elevation of one foot one inch above mean high tide, and the beam and sheet piling are of larger section, to take care of additional loads, due to the greater depth of water.

Two reinforced concrete piles, every 20 feet, centre to centre, 15 inches by 15 inches in section, were substituted for the cylinders.

Another noticeable difference may be seen in the sheet piling. The piling in Piers 4, 5 and 6 was 12-inch by 18-inch, 27 feet long, not interlacing or tongue and grooved and carried no jet pipe.

Here the piles are 19-inch by 24-inch, 30 to 45 feet long, with a 5 by 2½ inch tongue and groove, 2-inch jet pipe, and weighing from eight to ten tons.

Great difficulty was experienced in driving these piles. The character of bottom encountered was sand, mud and clay to 25 feet, then a stratum of sand and large coarse gravel. Fully 80 per cent. of all piles driven met with the above conditions and drove very hard; the remaining piles missed the stratum of kaolin and tended to dip and leave the work near the outer end.

Three jets were used, one attached to the 2-inch pipe in pile, and two others used on the outside; a 7,000-pound hammer was placed on top and the pile churned by raising and lowering in the leads of the machine. It was necessary to drive them to a penetration sufficient to insure a toe-hold.

This condition of kaolin, over coarse gravel, caused a blanketed condition, making the action of the jets almost useless; the jet forcing its way through this hard, pasty substance would lose its effectiveness out through the coarse gravel, and the condition looked for in all jetting work, that is the dislodging of material and boiling up at the surface, never appeared. Other methods were tried, but with little or no success; the work required a great deal of patience, it taking in some cases four hours to churn a pile. Where the condition of the bottom changed, a pile was driven in from five to ten minutes.

The weight of these piles, and the fact that there was not room at the site of pier to make and store them until seasoned,

required that they be built elsewhere and brought to the work as needed. A site was secured and a Gantry crane constructed, the forms were set and the first piles cast. The mixer was so arranged as to dump into a bottom dump bucket, which in turn rolled on an "I" beam and could be drawn back and forth the length of the pile form. The crane would then advance to the next form and so continue until all piles for which forms had been constructed cast. In about two days the forms were removed from the piles first cast and carried ahead by the crane. After piles were a week old they were allowed to be carried on quarter points by the crane to a storage pile, where they remained four weeks until seasoned. They were then picked up on quarter points by a floating derrick, put on deck and taken to the work. There were a total of 1,600 piles used.

In the open work the bents are 10 feet centre to centre, and piles 11 feet centre to centre.

The bottom of the floor beams in the open work are a minimum of one foot one inch above mean high tide. It may be noted that the concrete was kept above water as much as possible.

The fender system consists of white oak piles, 10 feet on centre along the face of pier, blocked out with oak blocks, the piles being banded to the wall with wrought-iron straps and made fast by one-inch Richmond screw anchor bolts.

Piles are capped with twelve by twelve timbers and two feet nine inches above the water line is a runner of six by ten timber. In addition to that described, will be a floating fender of large juniper or white pine spars, chained to piles of the fender system.

The contract for the superstructure was awarded to the Singer-Pentz Company, the lowest bidders, on September 27, 1913; the estimated cost of the work being \$242,000; the work to be completed March 1, 1914.

At the head of the pier is a building 145 by 86 feet, back of which the deck will be covered for a distance of 312 feet with head room of 22 feet.

The front portion of the building on Thames street will be a two-story structure, 140 feet in width by 90 feet in depth. This building will have a first floor, mezzanine and second floor.

On the first floor are located on either side of the main driveway offices in connection with the Commercial Pier, Harbor Master, freight offices, etc., together with toilet-rooms, boiler-room, fuelroom, etc.

On the mezzanine, additional office space is provided, and on the second floor will be the large assembly hall, with foyer and ante-rooms, etc., for the use of the public. This large assembly hall, 40 feet in width and 84 feet in length, opens on to the spacious stairways and runways leading to the floor above. At the end of the recreation deck will be two large additional stairways for the public, leading to the main deck of the pier.

The main front on Thames street is designed in tapestry brick with granite and limestone trimmings. The central feature is emphasized by a colonnade in the second story, opening off assembly hall and crowning the central archway of 50 feet span.

To the right and left are the public entrances to the recreation pier above, which the central archway leads to the commercial pier on the main floor.

The building is entirely of fireproof construction, of steel frame with brick walls and stone and granite trimmings. While simple in design, it has a decorative effect in its mass and proportions and will be a distinctive landmark among the public buildings of Baltimore.

The commercial end of the pier is frankly expressed in the treatment of the doorways, and this will be further enhanced by the color scheme in the painting of the wood and steel.

There is an open deck at the end of the pier of 95 feet by 150 feet. The covered deck, used for commercial purposes, will have a length of 312 feet by depth of 135 feet, and will be used as a municipal warehouse. Above this deck will be the promenade deck of the Recreation Pier, provided with awnings and shelters somewhat in the manner of the great steel piers at Atlantic City.

The bays are 20-foot centres, and between columns is a two-section Ogden type cargo door, 18 feet wide, $21\frac{1}{2}$ feet high; the lower section is 8 feet and upper leaf 13 feet 6 inches. The columns are detailed to allow the chains and counter weights to slide vertically.

The lower section opens vertically and together with the upper section is swung inward and upward to a horizontal position, giving a clearance of $21\frac{1}{2}$ by 18 feet. By means of gear wheels the doors are easily operated by a hand-chain.

The doors are of spruce and white pine, covered outside with No. 22 galvanized iron. Each door is provided with 80 square feet of one-quarter ribbed wire glass.

Mr. Theodore Wells Pietsch was the architect for the building.

The Harbor Board is better satisfied now than ever before that the City of Baltimore was wise in adopting a form of construction impervious to the teredo, and at the same time one which is cheaper and more permanent than a timber construction, with a large saving in maintenance. As has been stated, the teredo some years ago was found to exist about four miles down the river, but much to the surprise of this Board, when the digging out of the slips for the Recreation and Commercial Pier was under way, a great quantity of timber was removed from old piers, built perhaps thirty or forty years ago, which were riddled by the teredo. The conclusion drawn, was that the teredo, before the harbor became polluted, must have been quite active, and naturally, as the

sewage is diverted from the harbor, his activities will again begin. There is no possibility that timber originally in this condition could have been placed in the work. It was quite noticeable in the timber ties that only that part of the timber exposed to the water had been touched by the teredo, the protected part being almost as sound as when first used. Since the sewage has been turned from the harbor, there has been a great increase in the sea life. Fish, crabs, etc., had not been seen or heard of in the upper harbor for many years, until about two years ago, when they became quite numerous. Tugboat owners and operators are complaining of the great increased growth of barnacles on the bottom of their vessels, all of which points to the fact that the water of the harbor will become as equally attractive to the teredo.

PROPOSED IMPROVEMENTS.

The proposed improvements and recommendations have been definitely outlined in the report of the Harbor Engineer to the members of this Board, which is most heartily endorsed by them and to which you are respectfully referred.

Respectfully submitted,

OSCAR F. LACKEY,
WILLIAM D. SANNER,
JAMES S. ARMIGER,
WILLIAM G. KNAPP,
MARCELLUS H. GOODRICH,

Harbor Board.