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HALIFAX OCEAN TERMINALS

DETAILS OF CONSTRUCTION METHODS USED IN BUILDING OF CONCRETE QUAY WALLS—MANUFACTURE OF CONCRETE BLOCKS—MATERIALS OF CONSTRUCTION

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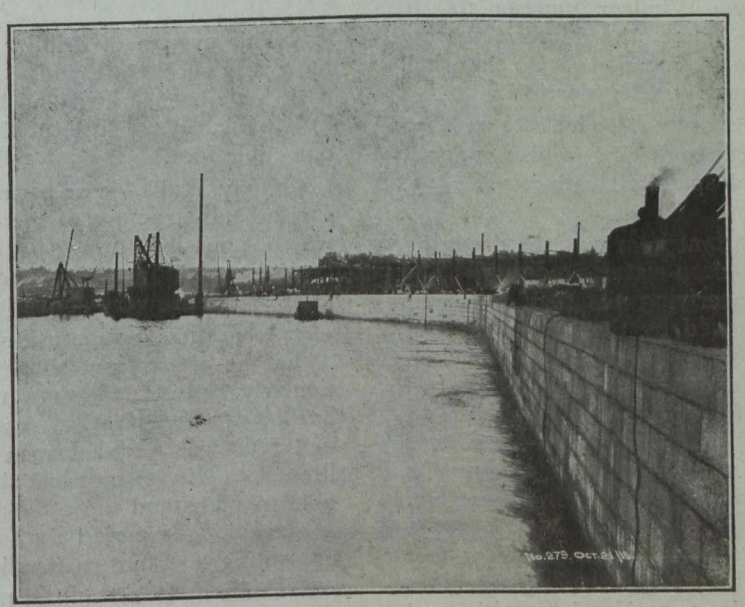
THE terminals consist of a passenger landing quay 2,006 feet long, five piers 1,250 feet long by an average width of 350 feet, and a breakwater about 1,600 feet long, on the north side of which will be constructed later two steamship berths. On the north side of the first basin are two berths, 500 and 700 feet long. With the exception of these two berths, which will have 30 and 35 feet at l.w.o.s.t., 45 feet at l.w.o.s.t. will be provided at all the berths. The whole system will be equipped with modern sheds, freight handling appliances, grain elevators, ample tracks and all requirements pertaining to modern terminals.



Showing Portion of Finished Wall.

In order to provide railway connections with the new terminals an extension of the existing Intercolonial Railway was necessary. Many locations for this extension were studied, and finally, after careful consideration, it was decided to construct a line diverging from the Intercolonial Railway at Fairview. Great care has been taken in the location and design of the bridges, for grade separation of railway and highway traffic to preserve as far as possible, not only the beauties and amenities of the Northwest Arm, which from a tourist point of view is the city's greatest asset, but also of the suburban district through which the railway passes. From the crossing over Chebucto Road the railway follows the east side of the Northwest Arm to Maplewood, and from thence passes in an easterly direction in a deep cutting to the site of the terminals. Grade crossings are eliminated, the railway crossing over the highways at Fairview Road by steel girder spans with concrete abutments and over Chebucto Road by steel girder spans encased in concrete, the remaining highways and streets being carried over the railway on ornamental reinforced concrete arches.

The railway is about 5 miles long and is to be double tracked throughout, with 4 tracks at Bower Road and branching out into the yard with 16 tracks at Tower Road. The maximum grade for east-bound traffic is to be 6/10 per cent. compensated .04 per cent. per degree of curvature and the sharpest curve will be 4 degrees with standard spirals.

Railway.—The work of constructing the new railway was commenced towards the end of July, 1913, at Fairview, and a month later at the harbor end.

The shooting of the rock in the Fairview end of the cutting presented many difficulties, the rock being very faulty, containing pockets of rotten-disintegrated rock, mud, clay, gravel and sand, as well as water. The cut was drilled and shot no less than three times before it could be completely excavated.

The first time holes were drilled with well drills at 9-foot centres in rows 16 feet apart. It was intended to spring these, but most of them caved in and were lost; as many as possible, however, were shot and a shallow cut taken.

The second time the holes were drilled 10 feet apart in rows 8 feet apart to 6 feet below subgrade and shot without springing, but this was not entirely successful.

The third time the holes were drilled 10 feet apart in rows 5½ feet apart, staggered and to 6 feet below subgrade without springing. Even this did not break the bottom of the cut properly, and the further use of piston drills was necessary for that purpose. A low freezing explosive was used on account of the presence of very cold water in many of the drill holes.

Most of the shooting was done in blasts of from 3 to 8 tons of 60% forsite (low freezing) calculated on a basis of from 1⅛ to 2 lbs. of explosive to the cubic yard of material blasted, according to the nature of the rock. It was very clearly demonstrated in the extremely shattered rock encountered that the electrically driven drills were much superior to the steam-driven. Owing to the impossibility of keeping the steam at an even pressure the time of the stroke of the drill constantly altered, and if it was working slowly when it passed from a hard into a seam of disintegrated rock it jammed. With the electric drills, however, as the strokes were steady, very little of this trouble was encountered. It is worthy of record that although most of the blasting was done in close proximity

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