



## Ministerial Statement

By

**Lt. Col. the Hon. David A. Burch, OBE (Mil), ED, JP, MP**

**Minister of Public Works**

**Kings Wharf Rehabilitation**

**16<sup>th</sup> November 2018**

Good Morning **Mr. Speaker**.

I rise this morning to report on works soon to commence at the Kings Wharf in the Royal Naval Dockyard - but before doing so a historical perspective might be useful.

**Mr. Speaker**, the Royal Naval Dockyard has two deep-water cruise berths: King's Wharf and Heritage Wharf. King's Wharf the older of the two is a 300 foot, by 80 foot suspended deck structure supporting the cruise ship terminal buildings. The main structure comprises a structural steel frame encased in reinforced concrete, with reinforced concrete slabs - constructed in 1987 at a cost of 9 Million dollars.

In 2014 a comprehensive inspection was conducted by the UK firm Mott Macdonald regarding the state of Kings Wharf. Deck problems and other deficiencies were clearly identified. At that time the cost of fixing the wharf and terminal building was estimated at more than 20M. In spite of the production of a 77 page report and recommendations - nothing was done.

**Mr. Speaker**, in 2017 the ministry commissioned an underwater inspection of 27 structures across the Island as part of a wider plan to investigate the state of our infrastructure. The Kings Wharf was included and the inspection showed obvious signs of additional structural problems that needed further investigation. A concrete expert, Stantec of Halifax, Nova Scotia was hired to evaluate the state of the actual Concrete, Rebars and recommend the best course of action.

The conclusion was that 80 % of the rebars were delaminated, concrete was cracking, and layers were separating. The visual inspection and laboratory testing showed that the actual concrete and rebar could not be salvaged. Additionally, since the building is sitting on the deck Slabs, it too will have to be demolished and rebuilt.

**Mr. Speaker**, the net result is the Building and Deck of Kings Wharf need to be completely rebuilt.

The Piles, however, are in good condition – so they will be reused.

There is no immediate concerns for ships berthing as the lateral capacity of the pier is not compromised.

The Dolphins require maintenance to prevent early corrosion but are in good condition and will be addressed in the next phase.

Obviously construction needs to occur during the off -season from November 2018 to April 2019.

So with that background – the Ministry initiated an accelerated repair/replacement program in order to meet the critical deadline of April 2019. The window of opportunity to construct the new deck is from mid-November 2018 to March of 2019 during the non-cruise ship season.

**Mr. Speaker**, in order to complete the project in such a short window, and to avoid potential delays due to the current high demand for concrete on island, a method of precast concrete slabs and beams will be utilized for 85% of the works. Using precast concrete will also increase the lifespan of the work as low reactivity aggregates and fly ash (commonly used in Europe and North America, but not Bermuda) will be added to the mix to minimise corrosion of the reinforcing steel and preserving the concrete.

In order for the slabs to be available this month, the precast company needed to be contracted by the end of August. Due to this accelerated timeframe, the Department recommended Precast Systems, Inc. of New Jersey. They had previously supplied 25 concrete slabs to create a temporary pedestrian walkway atop the compromised deck at King's Wharf earlier this year following a competitive bidding process. The Department also performed due diligence by inspecting the company's processing plant in March this year, and confirmed the necessary quality control systems were in place and the slabs arrived on time and were of a very high quality.

**Mr. Speaker**, having already gone through a competitive bidding process the Department entered into direct negotiations with Precast Systems for the supply of the deck slabs & beams for the complete refurbishment project.

The Ministry then explored ways to transport the slabs and associated supplies to the island to meet the very tight timelines. An agreement was struck with Bermuda International Shipping to transport a third of the supplies on three weekly sailings. Once the cargo ship has been unloaded on Hamilton Docks and left the port; a barge will come alongside to collect the supplies, for transport to Dockyard, thereby avoiding unnecessary wear and tear on the roads.

**Mr. Speaker**, in January 2019, the remaining two thirds of the shipment, which includes the slabs, will be transported to Bermuda on a cargo ship chartered specifically for this purpose and unloaded directly in the Royal Naval Dockyard at the wharf adjacent to the cement silos. This proposed approach meets the demands of the construction schedule and results in a savings of approximately \$400,000 in transportation costs alone.

In August, experienced contracting companies were invited to bid on the project to demolish the existing building and concrete deck, and construct the new deck. The construction of a replacement deck will be done using the precast concrete beams and slabs along with contractor supplied in-situ concrete on to the existing steel piles.

**Mr. Speaker**, 6 local companies and 1 overseas company expressed interest in bidding on the project, however, only 2 local companies and the overseas one submitted bids. The lowest bidder, at \$2.97 million dollars, a Bermudian company, was awarded the contract in September.

To expand the life expectancy of the wharf a number of other actions will be implemented during the construction process - :

Usually for long term corrosion protection one of the following elements would be included in the design - Fly Ash, Cathodic Protection, Corrosion Inhibitor and Low reactivity aggregates. In this case we are using **ALL** of those.

- Strict quality control will be employed on and off site by an Independent lab.
- Top of the line 6,000 psi concrete will be used.
- Corrosion inhibitor will be added to the concrete to make sure we will get the most durable concrete for our harsh environment.
- Cathodic protection will be added in critical locations to make sure we get a lifespan of at least 75 years for this new infrastructure.
- The new wharf, will be built with proper loading to accommodate the next generation of cruise ships.

**Mr. Speaker**, there is a possibility that the replacement terminal will not be fully completed by the start of the 2019 cruise ship season – a contingency plan to accommodate this eventuality is in place that will not delay the start of the cruise ship season.

The original budget for these works was \$20 Million but with savings on the piles and the use of Precast slabs, our actual target price is in the region of \$15 Million including contingencies.

**Mr. Speaker**, finally, I am particularly pleased to announce that the project manager and director for this project is young Bermudian Civil Engineer, Ms. Carmen Trott. She was a trainee engineer with the Ministry a decade ago and subsequently left for the private sector. Since January of this year Carmen has been seconded to the Ministry and will oversee the project to conclusion.

Works will commence tomorrow, Saturday November 17<sup>th</sup> and will rapidly gain speed as we move quickly to meet this critical time line.

Thank you, **Mr. Speaker**.