



Underwater Inspection Of Docks and Bridges

Bermuda

Annex A Scope of Work

Date: January 9, 2017

Project No. 61-01-76



Part 1 GENERAL

1.1 Scope of Work

- .1 The work involves the underwater inspection of dock, bridges and navigational markers by suitably qualified divers to determine the condition of the structure's substructure.
- .2 The inspection works shall be undertaken using the guide lines provided by the U.S. Department of Transportation, Federal Highway Administration Publication No. FHWA-NHI-10-027, "Underwater Bridge Inspection". The inspection and reporting shall conform to this standard of reporting quality as a minimum.
- .3 The divers must have previous technical training so they will be able to accurately define and describe the findings of these inspections in reports, sketches, drawings and video records.
- .4 All video inspections are to include audio recordings to describe the video and highlight the points of interest and especially their locations.
- .5 The Contractor shall review the proposed inspections sites to develop plans for the underwater inspections.
- .6 The Contractor shall review existing information and reports for all sites.
- .7 Dive plans shall be developed that will identify the proposed manpower, means and methods for the inspections.
- .8 Prior to each inspection the Contractor shall prepare base sketches to use as base plans to record all deficiencies found during the inspections. These sketches will become the basis for the documentation of recorded defects in the report.
- .9 The Contractor shall provide a three person dive team, minimum, to perform underwater inspections of structures.
- .10 Inspections will include visual inspection of the inter-tidal and underwater parts of each structure and the immediately adjacent shoreline and sea bed.
- .11 The Contractor should expect to need to clean areas of the structures using hand scrapers to allow closer inspection.
- .12 Levels of Inspection, per reference document "*Underwater Bridge Inspection*" published by the US Department of Transportation, Federal Highway Administration:
 - .1 Level 1: Visual, tactile inspections
 - .2 Level 2: Detailed inspections with partial cleaning
 - .3 Level 3: Highly detailed inspections with Non-Destructive Testing
- .13 The work involves the routine underwater inspections that require a 100% Level 1 inspection for all docks, bridges, the training wall and The Causeway; plus a 10% Level 2



inspection for all bridges. Level 3 inspections will only be conducted if indicated by the results of the Level 1 or 2 inspections.

- .14 The Contractor shall make initial verbal reports of inspection findings including recommendations for any further inspection or testing that may be required.
- .15 The Contractor shall prepare reports summarising the conditions found at each site.
- .16 Report will comprise a brief description of the site and any defects found, sketch plan(s) indicating locations of defects and photographs of defects will be included where appropriate.
- .17 Report will also include an assessment of the severity of any defects and categorise defects on the basis of urgency of repair:
 - .1 Serious structural issue requiring immediate attention
 - .2 Structural issue to be dealt with as soon as possible
 - .3 A non-urgent issue or a routine maintenance issue.
- .18 Preliminary report will be submitted by email for consideration and further discussion.
- .19 Incorporate comments and provide final report.
- .20 The Contractor shall be responsible for all temporary works, access arrangements and transport of materials to the site.

1.2 Form of Contract

- .1 Project will be constructed under the FIDIC Short Form of Contract First Edition 1999 (Green Book Contract).
- .2 The term "Architect" within the Ministry of Works and Engineering Standard Specification 1993 shall be replaced with "Engineer" as defined in the Contract.
- .3 Contract Method of Measurement
- .4 Construct the Work under a lump sum contract. This is not a re-measure contract.
- .5 All work detailed within these documents shall be covered completely within the lump sum price submitted.

1.3 Work Sequence

- .1 Contractor shall schedule the works coordinating all tasks and elements.

1.4 Contractor Use of Site

- .1 Use of Site is to be coordinated through the Ministry of Public Works.



Part 2 PRODUCTS

2.1 None

Part 3 EXECUTION

3.1 Schedule of Structures to be Inspected

	<u>Structure Type</u>	<u>Description</u>
1	Watford Bridge	6 span steel concrete composite bridge deck supported on piled foundations over water.
2	Somerset Bridge	Single Span over short channel with concrete abutments facing Bermuda stone revetments.
3	Flatt's Bridge	Single span precast pre-stressed (preflex) beams on reinforced concrete abutments. Fast flowing.
4	Longbird Channel Mabey Structures	150' Span Mabey Compact bridges spanning over fast flowing tidal channel. Abutments set back from channel.
5	Swing Bridge	8 Span steel concrete composite bridge deck supported on concrete piers over water.
6	Dockyard North Arm	Approximately 600m Stone Pier with Piled docking areas.
7	King's Wharf	
8	Heritage Wharf	Cruise ship docking area
9	Dockyard Ferry Dock	Floating Ferry Dock
10	Watford Bridge Ferry Dock	Floating Ferry Dock
11	Cavello Bay Ferry Dock	Floating Ferry Dock
12	Somerset Bridge	Solid concrete dock
13	Boaz Island	Solid concrete dock
14	Rockaway Ferry Dock	Floating Ferry Dock
15	Belmont Ferry Dock	Solid concrete dock
16	Darrel's Wharf Ferry Dock	Solid concrete dock
17	Hinson's Island Ferry Dock	Solid concrete dock
18	Salt Kettle Ferry Dock	Solid concrete dock
19	Hodson's Ferry Dock	Solid concrete dock
20	Lower Ferry, Ferry Dock	Solid concrete dock
21	Hamilton Ferry Dock	Floating Ferry Dock
22	St Georges Marginal Wharf Ferry Dock	Solid concrete dock with shore-side ramp
23	Cahow Way	Rock revetment coastal defence
24	Chub Heads Beacon	Piled structure
25	Eastern Blue Cut Beacon	Piled structure
26	Hogfish Offshore Beacon	Piled structure



27	Kitchen Shoal Beacon	Piled structure
28	North Rock Beacon	Cast-in-Place concrete foundation
29	Northeast Beacon	Piled structure
30	St Georges Training Wall	Training wall, rock filled
31	The Causeway	Continuous structure approximately 890m in length with 42 through arches of varying depth, non-greater than 10' deep.

END OF SECTION