CITY OF VANCOUVER

CITY CLERK'S DEPARTMENT
Access to Information & Privacy Division

File No.: 04-1000-20-2020-521

March 9, 2021

s.22(1)

Dear s.22(1)

Re: **Request for Access to Records under the Freedom of Information and Protection of Privacy Act (the "Act")**

I am responding to your request of September 25, 2020 for:

> **Record of correspondence showing reasons for the decision to take the Burrard Civic Marina jib crane out of service. Date range: January 1, 2018 to September 25, 2020.**

All responsive records are attached. Some information in the records has been severed, (blacked out), under s.13(1) of the Act. You can read or download this section here: http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/96165_00

Under section 52 of the Act, and within 30 business days of receipt of this letter, you may ask the Information & Privacy Commissioner to review any matter related to the City's response to your FOI request by writing to: Office of the Information & Privacy Commissioner, info@oipc.bc.ca or by phoning 250-387-5629.

If you request a review, please provide the Commissioner's office with: 1) the request number (#04-1000-20-2020-521); 2) a copy of this letter; 3) a copy of your original request; and 4) detailed reasons why you are seeking the review.

Yours truly,

[Signature on file]

Barbara J. Van Fraassen, BA
Director, Access to Information & Privacy
Barbara.vanfraassen@vancouver.ca
453 W. 12th Avenue Vancouver BC V5Y 1V4

*If you have any questions, please email us at foi@vancouver.ca and we will respond to you as soon as possible. Or you can call the FOI Case Manager at 604.871.6584.

Encl.

:ma

From: "Lorenzo Sarra" <lorenzo@sarracocrane.com>
To: "Collins, Tim" <Tim.Collins@vancouver.ca>
CC: "Lou Sarra" <lou@sarracocrane.com>
rano <rano@shaw.ca>
Date: 2/7/2020 11:17:10 AM
Subject: [EXTERNAL] Burrard Marina Report
Attachments: 2113-00..pdf
2113 - Burrard Marina 2500 Lb Jib Crane.pdf

Good Morning Tim,

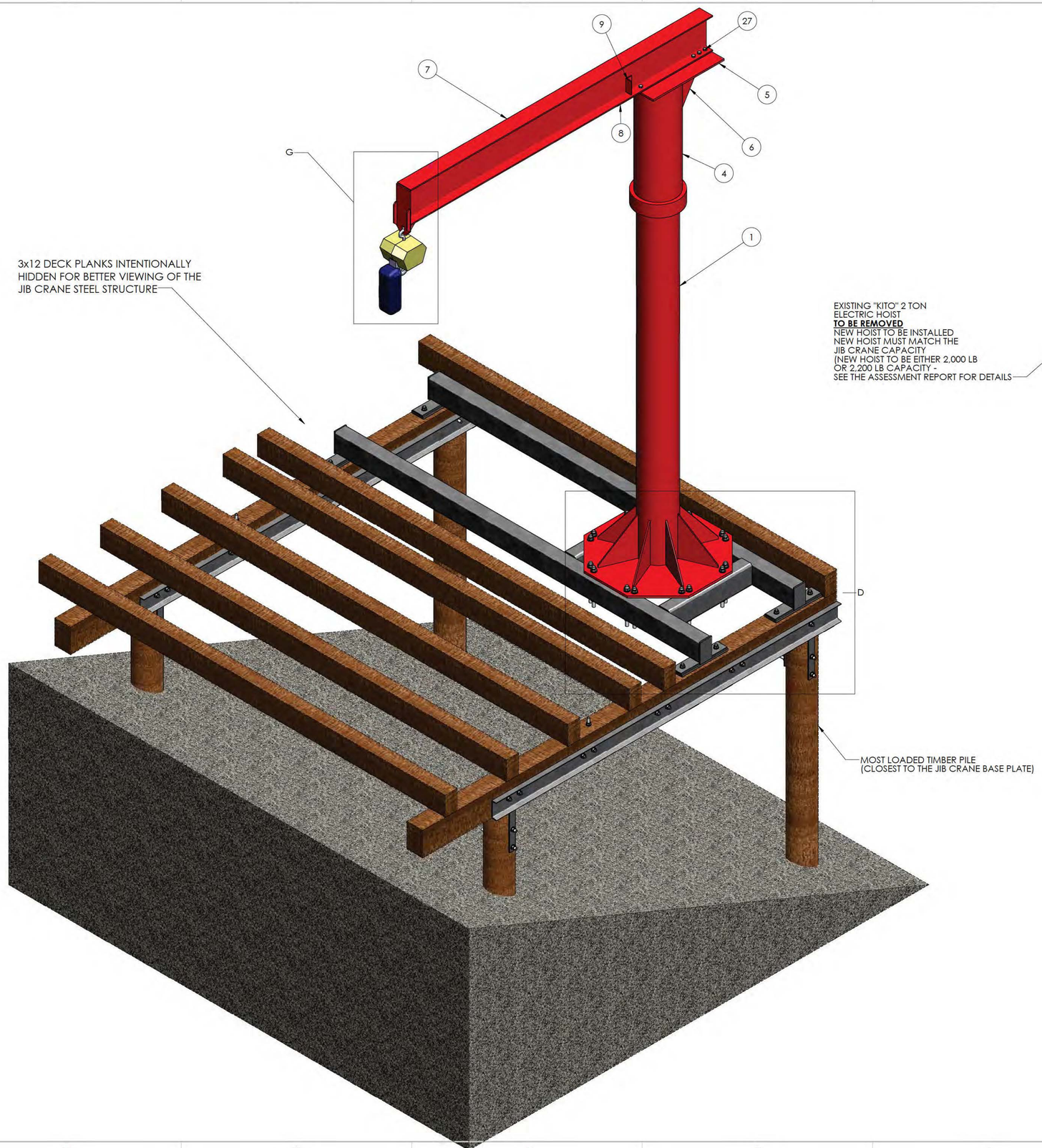
I hope this email finds you well. Please find attached the completed report regarding PO# 4500597084 for the Burrard Civic Marina jib crane assessment.
The drawing is to be used in conjunction with the report since the report references it. Also, a note on the drawing mentions it should be read only in conjunction with the report

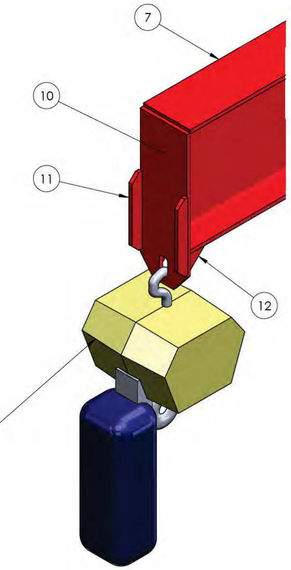
We will provide costing for an NDT inspection and replacement hoist for your records,

Best Regards,

Lorenzo Sarra
President – Algood Caster World
Controller - Sarraco Crane Service & Hoist Ltd.
Unit 1140 - 1368 Kingsway Avenue Port Coquitlam, BC
Canada V3C 6P4 604 942 8300 Toll Free 1 877 473 9309
F. 604 942 8305 C. 604 512 9722
E. lorenzo@casterworldbc.com E. lorenzo@sarracocrane.com
W. www.casterworldbc.com W. www.sarracocrane.com

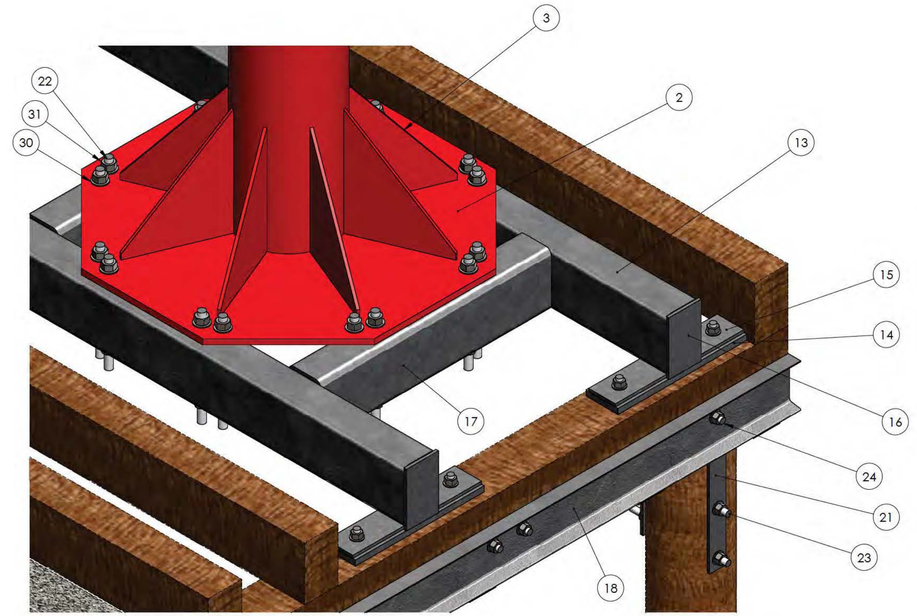
SARRACO
CRANE SERVICE & HOIST





EXISTING "KITO" 2 TON
ELECTRIC HOIST
TO BE REMOVED
NEW HOIST TO BE INSTALLED
NEW HOIST MUST MATCH THE
JIB CRANE CAPACITY
(NEW HOIST TO BE EITHER 2,000 LB
OR 2,200 LB CAPACITY -
SEE THE ASSESSMENT REPORT FOR DETAILS

DETAIL G
SCALE 1 : 8



ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	Weight
1	1	2113-01	PIPE OD=16", WALL=0.5"	1494.01
2	1	2113-02	PLATE 1" x 55" x 55"	702.56
3	8	2113-03	PLATE 0.5" x 16" x 20"	23.97
4	1	2113-04	PIPE OD=18", WALL=0.5"	557.62
5	1	2113-05	PLATE 0.75" x 19" x 37"	149.14
6	1	2113-06	PLATE 0.75" x 15" x 21.75"	39.57
7	1	2113-07-01	W 16x40	528.50
8	1	2113-07-02	PLATE 0.5" x 6.25" x 49.5"	43.25
9	2	2113-07-03	L 0.375 x 3 x 3	3.58
10	1	2113-07-04	PLATE 0.5" x 7" x 21"	19.84
11	2	2113-07-05	PLATE 0.5" x 1.5" x 10"	2.00
12	2	2113-07-06	PLATE 0.5" x 4.5" x 4.5"	1.75
13	2	2113-08-01	HSS 10x6x0.5	775.54
14	4	2113-08-02	PLATE 1" x 6" x 24"	40.44
15	4	2113-08-03	PLATE 0.5" x 5" x 24"	16.81
16	4	2113-08-04	PLATE 0.5" x 6" x 10"	8.53
17	2	2113-08-05	HSS 10x6x0.5	175.52
18	2	2113-11-01	C 8x13.75	205.98
19	2	Mirror2113-11-01	C 8x13.75	205.98
20	10	2113-11-02	PLATE 1" x 5" x 12"	16.81
21	6	2113-11-03	PLATE 0.5" x 3" x18"	7.42
22	16	2113-09-01	THREADED ROD Ø1.25"	6.28
23	16	2113-10-01	THREADED ROD Ø1"	4.02
24	18	2113-10-02	THREADED ROD Ø1"	2.68
25	66	Preferred Narrow FW 1	FLAT WASHER 1"	
26	66	HNUT 1.0000-8-D-N	HEX NUT 1"	
27	8	HBOLT 0.8750-9x3x2-N	HEX BOLT Ø7/8"	
28	8	Preferred Narrow FW 0.875	FLAT WASHER 7/8"	
29	8	HNUT 0.8750-9-B-N	HEX NUT 7/8"	
30	32	Preferred Narrow FW 1.25	FLAT WASHER 1.25"	
31	32	HNUT 1.2500-7-D-N	HEX NUT 1.25"	

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±
INTERPRET GEOMETRIC TOLERANCING PER:
MATERIAL
B.O.M.
FINISH
-
NEXT ASSY | USED ON
APPLICATION
DO NOT SCALE DRAWING

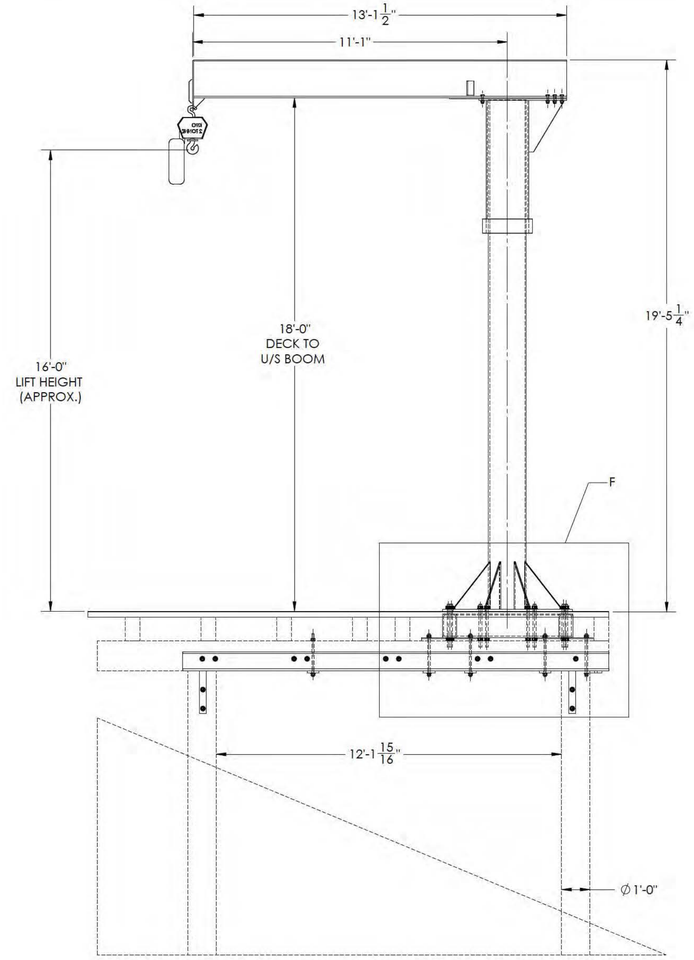
	NAME	DATE
DRAWN	G.GRUJIC	02-05-2020
CHECKED	R.TRAPARA	02-05-2020
ENG APPR.		
MFG APPR.		
Q.A.		
COMMENTS:		

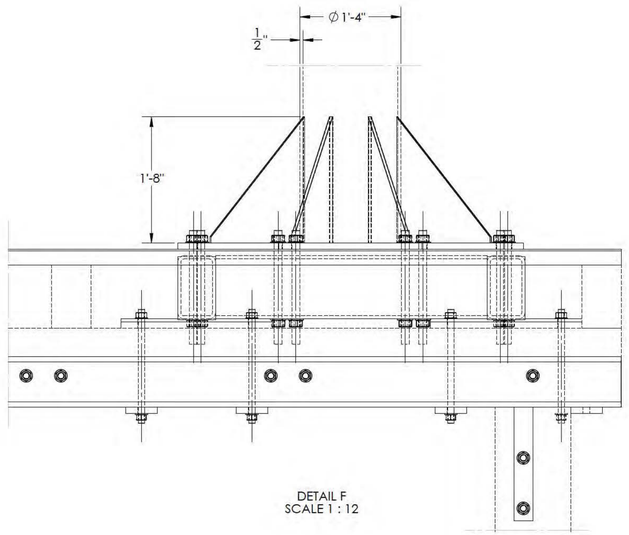
WCC Crane Solutions Inc.
204-1496 W 72nd Ave, Vancouver, BC, V6P 3C8

TITLE: **BURRARD MARINA**
1655 WHYTE AVE, VANCOUVER, BC
EXISTING JIB CRANE
CAPACITY ASSESSMENT
BILL OF MATERIAL

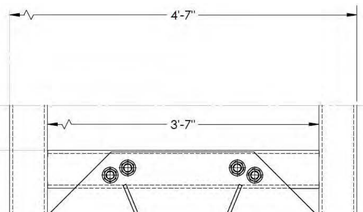
SIZE **D** | DWG. NO. 2113-00 | REV

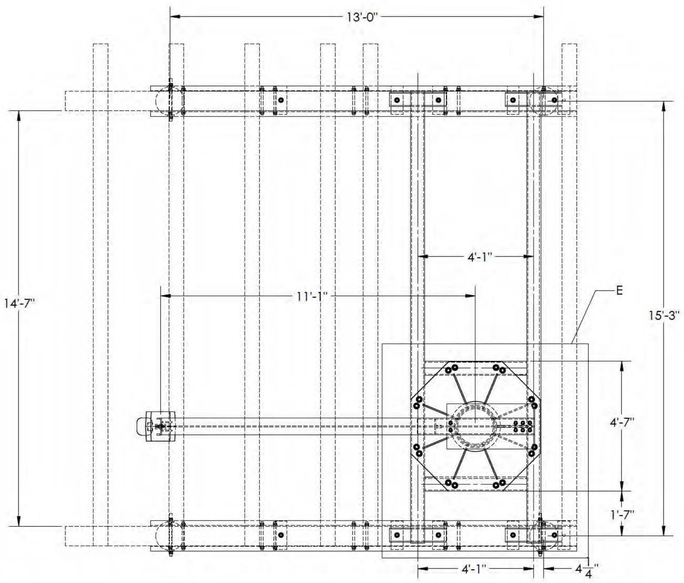
SCALE: 1:64 WEIGHT: - | SHEET 1 OF 2

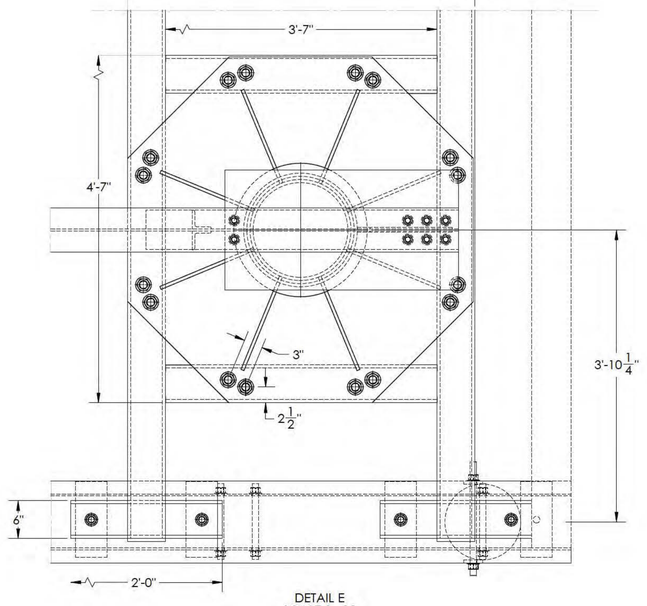




DETAIL F
SCALE 1 : 12







DETAIL E
SCALE 1 : 12

- JIB CRANE ASSESSMENT WAS DONE AS PER CSA S16-14 AND LOAD COMBINATIONS AS PER BCBC 2018.
- JIB CRANE MAX WORKING LOAD IS 2,500 LB

- THIS DRAWING IS TO BE USED IN CONJUNCTION WITH THE ENGINEERING ASSESSMENT REPORT, DATED February 6, 2020, DEALING WITH THE ASSESSMENT OF THE JIB CRANE AND ITS STEEL SUPPORT STRUCTURE

- ALL THE ITEMS RECOMMENDED IN THE REPORT TO BE COMPLETED (INCLUDING THE LOAD TEST) BEFORE THE JIB CRANE IS TO BE USED.

- THIS IS NOT THE ASSESSMENT OF THE EXISTING WHARF TIMBER STRUCTURE.

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±
INTERPRET GEOMETRIC TOLERANCING PER:
MATERIAL
B.O.M.
FINISH
–
NEXT ASSY | USED ON
APPLICATION | DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	G.GRUJIC	02-05-2020
CHECKED	R.TRAPARA	02-05-2020
ENG APPR.		
MFG APPR.		
Q.A.		
COMMENTS:		

WCC Engineering Corp.
204-1496 W 72nd Ave, Vancouver, BC, V6P 3C8

TITLE: **BURRARD MARINA**
1655 WHYTE AVE, VANCOUVER, BC
EXISTING JIB CRANE
CAPACITY ASSESSMENT
GENERAL ARRANGEMENT

SIZE **D** | DWG. NO. 2113-00 | REV

SCALE: 1:64 WEIGHT: - | SHEET 2 OF 2

BURRARD CIVIC MARINA
1655 Whyte Ave, Vancouver, BC
V6J 1A9

February 6, 2020

Attention: Tim Collins

RE: ASSESSMENT OF THE EXISTING 2,500 LB JIB CRANE

Further to your contract to provide an engineering assessment of the existing 2,500 lb Jib Crane with its support base structure, located at 1655 Whyte Ave in Vancouver, BC, shown on Figure #1, we offer our review and conclusion as follows:

DESCRIPTION:

- Jib Crane has 11'-1" boom length and approximately 18' from wharf platform to underside of the boom beam. Boom beam is W16x40.
- Approximate lift height (measurement for existing hoist) is about 16'.
- Column steel section is round HSS, 16" diameter with 1/2" wall thickness.
- Jib has a single lift point at the end of the boom. There is no trolley present which would run along the boom length.
- Existing hoist is 2,000 kg (4,400 lb) capacity "Kito" electric hoist (see Figure #2).
- Base plate is 1" thick and octagon shaped, with a total width of about 4'. Eight 1/2" stiffener plates were used at the connection between the base plate and the column.
- Below the Jib Crane, steel frame made of HSS 10x6x1/2 sections and C8x13.75 was used to reinforce the existing wharf wood structure for the loading from the Jib Crane (see drawing 2113-00 for details).

REVIEW:

- This assessment deals with the capacity assessment of the Jib Crane and its steel support frame (below the base), as well as the rough analysis of the impact of Jib Crane loads to the existing wharf, specifically its timber piles.
- Jib Crane and support frame are measured, and the drawing is produced (drawing #2113-00 will be provided separate from this report).
- Assessment of the Jib Crane capacity was conducted as per CSA S16-14, standard for steel design. Load combinations used in the assessment are as per BCBC 2018.
- Visual inspection of the Jib Crane and its support structure was conducted on January 27th and February 1st, 2020.

FINDINGS:

Visual Inspection:

- Visual inspection of the Jib Crane revealed several locations on the Jib Crane steel structure that needs attention and repair. Figure #3 and 4 show the location on the column and the boom beam, that exhibit the paint peeling off and potential weld failure and reduction of the steel member cross section.
- Capacity sign on the Jib Crane column is showing 2,500 lb but the electric hoist has capacity of 4,000 lb (2 Ton). This is not allowed.

Structural Assessment as per CSA S16-14 steel design standard:

- The Live Load (lifted load) used in the analysis of the Jib Crane is 2,500 lb.
- The Jib Crane and its support steel structure (below the base) were found to be well designed for the 2,500 lb lifted load. All steel sections (assuming they are in good condition) have adequate capacity to carry the above stated design load.

Jib Crane Loading on existing wharf Timber Piles:

- Based on the 2,500 lb capacity of the Jib Crane, its boom length, position on the wharf etc., we have found that the maximum loading on the closest timber pile is approximately 7,500 lb (see Figure #5), including the lifted load and the dead load of the steel structure of Jib Crane and its base support frame.
- Knowing that the timber piles are 12" in diameter and that they are Douglas Fir, Class B, Creosote treated (refer to Wharf design drawing 033.001-A0, dated Oct.18, 1963), we can roughly estimate that the 7,500 lb loading from the Jib Crane is about 10-20% of pile's original rated capacity. However, this load rating assumes good condition of the pile and does not account for potential deterioration of the pile.

RECOMMENDATIONS:

Based on everything stated earlier, if the Jib Crane is to remain in operation, following course of action is recommended:

1) All the locations where the paint has peeled off and steel structure exhibits significant rust (see Figures 3; 4 and 5) shall be cleaned/ground with a grinder equipped with a wire brush wheel and all the affected welds are to be checked using NDT testing by a specialized company (consult Sarraco Crane). At the same time, the potential reduction of the steel cross sections shall be checked. The results shall be provided to the undersigned engineer for review and comments.

2) Existing 2,000 kg (4,400 lb) electric hoist is to be removed since its capacity is higher than the capacity stated on the Jib Crane itself (2,500 lb). The capacity of the Jib Crane and the capacity of the hoist must match. Therefore, it is recommended that the new electric hoist with either 1 Ton (2,000 lb) or 1 Tonne (2,200 lb) capacity be installed, and that the existing capacity sign on the Jib Crane be changed to match the capacity stated on the new hoist.
(Note that, structurally, the Jib Crane is OK for 2,500 lb capacity which is currently stated, but we believe it is not easy to source the electric hoist to match this capacity, and therefore 1T hoist recommendation above)

3) Once the Items #1 and 2 (given above) have been resolved, Load Test shall be completed using test weights in amount of 125% of new rated load.

Test Weight: 1.25 * 2,200 = 2,750 lb

The undersigned engineer is to be present during the load test and shall monitor the behavior of the Jib Crane and the wharf structure.
Only when the Load Test Sign-Off Sheet has been issued, Jib Crane may be used up to its rated capacity (either 2,000 lb or 2,200 lb, depending on new hoist capacity).

IMPORTANT: *This engineering assessment does not include the detailed assessment of the existing wharf wood structure. However, having in mind that the wharf structure is about 57 years old (original drawings are dated October 18,1963), we must notice it is near the end of its design life, at least when timber piles are considered. Figures #7 and 8 (pages 9 and 10) show the condition of the most loaded timber pile and some citations from wharf design literature regarding estimation of timber piles design life in marine environment. Although the life of the treated timber piles in saltwater environment depends on various factors, the usual estimation is about 50 years. This doesn't necessarily mean that the existing wharf should not be used, but it does provide an insight for future planning of the wharf operations, including the use of the Jib Crane.*
Based on everything stated above, we cannot guarantee the future usability of the Jib Crane, because it depends not only on the Jib Crane and its support frame steel structure (which we have assessed) but also on the condition of the timber piles. We can only temporarily approve the usage of the Jib Crane (if our recommendations, including the Load Test are completed), with note that the regular inspection of the Jib Crane should also include the wharf timber structure, especially the condition of the closest corner pile. In case if the condition of the critical pile (or other wood members below the Jib Crane) worsens, the Jib Crane shall be put out of service until the detailed evaluation of the wood structure is conducted.

Please note that this assessment is for the Jib Crane and its support frame as inspected and measured only. Any modification to the structure, or any intentional or accidental overload of the Jib Crane, which is not authorized by us, will make this assessment void and new engineering evaluation will be required.

If you have any questions, please do not hesitate to contact the undersigned.

R. Trapara, P.Eng.

2020-02-07

Figure #1 – Jib Crane and the existing wharf

Figure #2 – Existing 4,400 lb (2,000 kg) hoist

Figure #3 – Connection welds to be cleaned with wire brush wheel and inspected for damage using NDT testing.
All around the connection between the column and the top plate

Figure #4 – Peeled off paint to be removed and thickness of steel to be measured using ultrasound to confirm there is no reduction in cross section

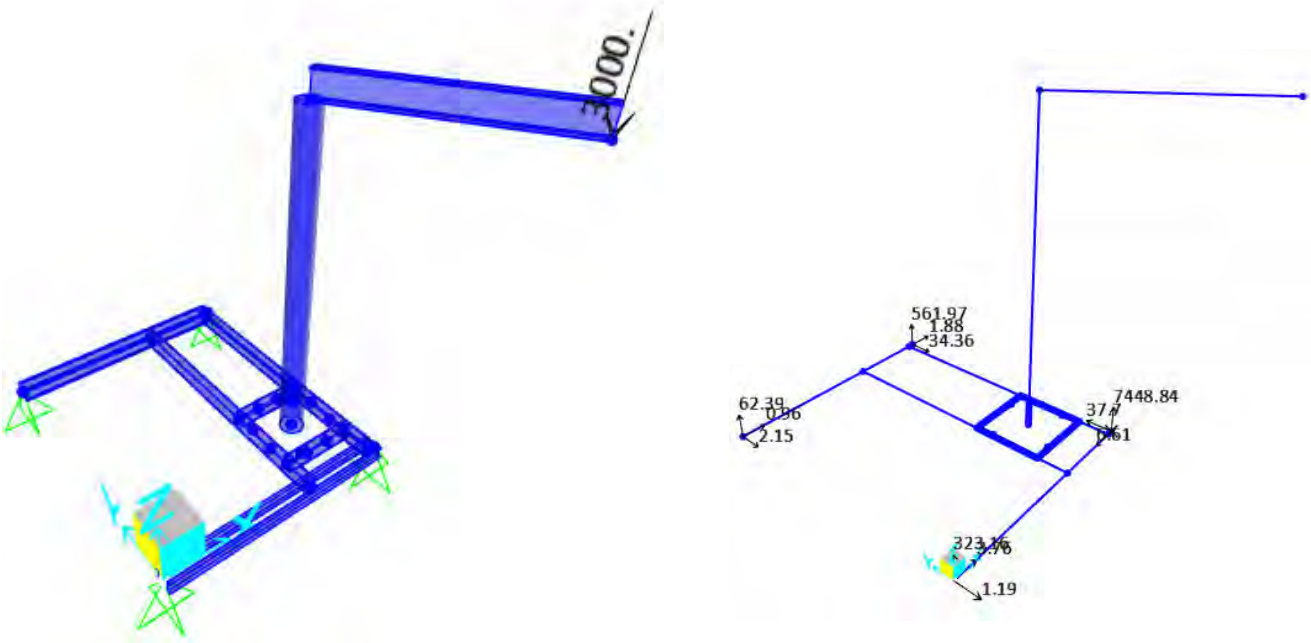


Figure #6 – Loading on the timber piles

Left Figure - Column Live Loading (2,500 lb + 15% impact load + 100 lb hoist weight)

Note: Dead Load of steel structure (weight) included in software based on the input size of the steel sections

Right Figure – Loading in timber piles (lb) due to Live + Dead loads

Shown above is only the worst-case scenario when fully loaded Jib is rotated directly above the closest pile, which has the greatest reaction force.

Max load in a corner pile due to Dead + Live loads is approximately 7,500 lb which we can roughly estimate as the 10 – 20% of the pile design capacity, based on the pile diameter of 12" and knowing the pile wood grade from the original drawings (Douglass Fir Class B with Creosote treatment).

This estimate of the pile capacity is for the piles in good condition only and does not account for potential deterioration of the pile due to its age (55+ years)

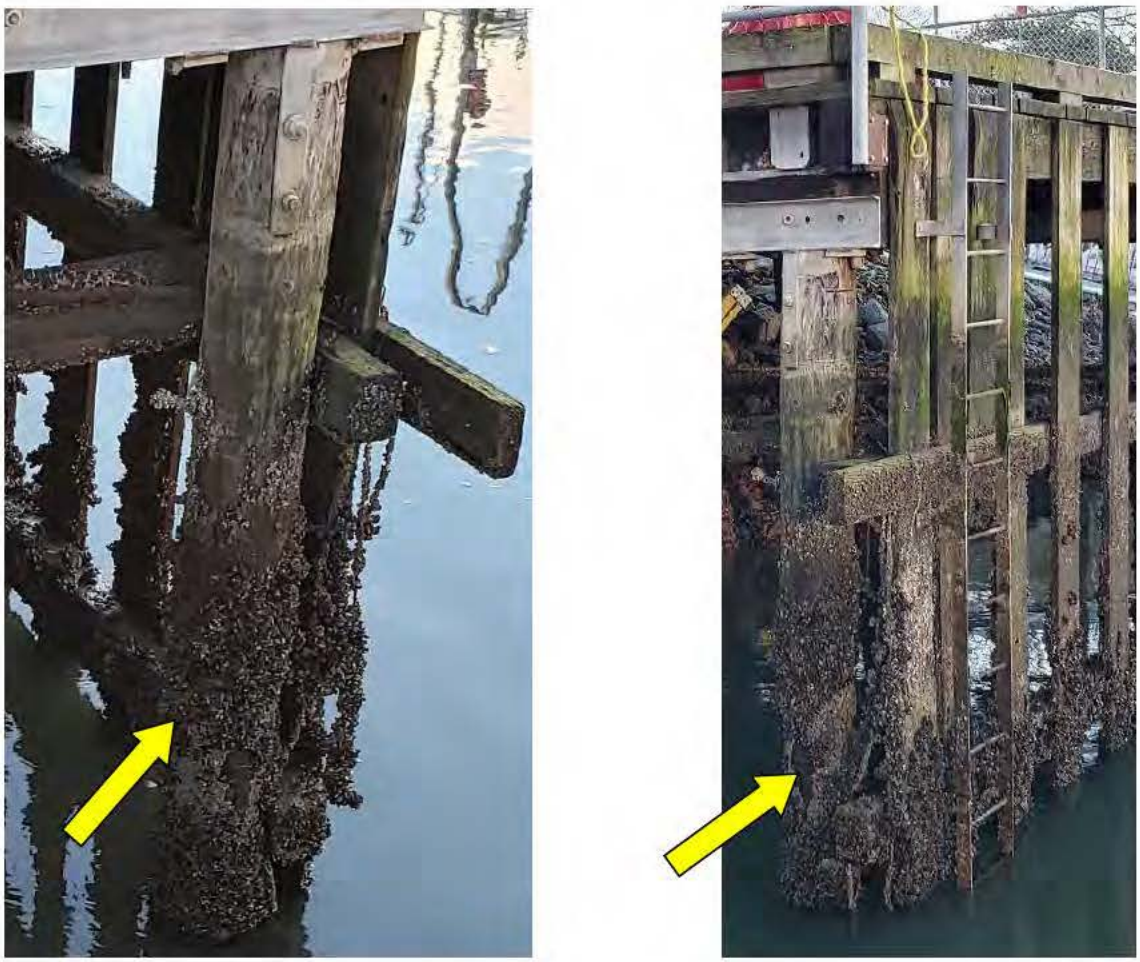


Figure #7 – The most loaded corner pile (closest to the Jib Crane base plate)

Durability of round timber piles is a function of site specific conditions. **FHWA has concluded that :**

- **Foundation piles submerged in ground water will last indefinitely**
- Fully embedded, treated foundation piles partially above the groundwater with a concrete cap will last 100 years or longer.
- Treated trestle piles over land will last about 75 years in northern areas and about 40 years in southern areas of the United States.
- Treated piles in fresh water will last about five to ten years less than land trestle piles in the same area
- For treated piles in brackish water, the longevity should be determined by the experience in the area
- Treated marine piles will last about 50 years in northern climates and 25 years in southern climates.

FHWA – Federal Highway Association (US)

Relative Wharf Cost and Average Life Expectancy

Wharf Construction Type	Relative Cost *	Life Expectancy
Untreated timber pile	0.7	10 yrs
Untreated timber cribwork	1.0	15 yrs
Treated timber pile	1.5	30 yrs
Treated timber cribwork	2.0	40 yrs
Steel H-pile	2.0	35 yrs
Precast concrete pile	3.0	60 yrs
Steel sheet pile	3.5	50 yrs
Concrete caissons	4.0	75 yrs

"Wharf Designs and some Fundamental Considerations" – Fisheries and Oceans Canada, St. John's, Newfoundland (1988)

Figure #8 – Citations from technical literature regarding the design life timber piles in marine environment

From: "Norrie, Andrew" <Andrew.Norrie@vancouver.ca>
To: "Collins, Tim" <Tim.Collins@vancouver.ca>
CC: "Ross, John" <John.Ross@vancouver.ca>
Date: 9/22/2020 8:33:54 AM
Subject: FW: Burrard Civic Marina Repair Clarifications
Attachments: Stringer Clarification.pdf

Tim see attached
Stringers were replaced by Bluewater
Andrew

From: Tyler Wilson [mailto:TWilson@Heroldengineering.com]
Sent: Tuesday, November 25, 2014 12:07 PM
To: Norrie, Andrew
Cc: Peter Longwood; Thieves, Cassio
Subject: RE: Burrard Civic Marina Repair Clarifications

Hi Andrew,
As per the attached stringer clarification, the stringers were to be counted from shore (yes, this should be the west). It is possible that somebody mis-counted though so please ensure the stringers which are deteriorated the most in this general vicinity are the ones that get replaced.

As for removal of existing stringers, it is standard practice to remove old obsolete members unless extremely difficult to do so. From a structural perspective it is not necessary but from a maintenance and future inspection/repair perspective it is much preferred. As I remember, the contract specified removal of existing (including pulling and replacing deck boards as needed) and I can't picture any significant obstacles to this. My recommendation is that the existing deteriorated stringers be removed.

Thanks,

Tyler Wilson, P.Eng.

Herold Engineering Limited
1051 Vancouver St.
Victoria, BC V8V 4T6
Canada
Tel: 250-590-4875
Fax: 250-590-4392
Cell: 778-350-9101
Email: TWilson@Heroldengineering.com
Web: http://heroldengineering.com

From: Norrie, Andrew [mailto:Andrew.Norrie@vancouver.ca]
Sent: November-25-14 11:57 AM
To: Tyler Wilson
Cc: Peter Longwood; Thieves, Cassio
Subject: FW: Burrard Civic Marina Repair Clarifications

HI Tyler
Re : Burrard Civic Marina , Wharf stringer replacement
Last work to be completed by Bluewater Systems

1. I are the stringers to be replaced counted from the western edge - side

2. Can Blue Water Systems - sister the existing beams and leave the existing in place.
3. Should the rotted stringers be removed. Difficult due to deck boards are nailed down

Requesting a review and comment based on previous work

Andrew Norrie, Architect.AIBC
REFM Project Manager, **City of Vancouver**
Facilities Planning and Development
Real Estate and Facilities Management

Office: **604 873 7937** Cell: 604 836 8026
Suite 320, 507 West Broadway, Vancouver, V5Z 0B4
Email: Andrew.norrie@vancouver.ca

From: Tyler Wilson [mailto:TWilson@Heroldengineering.com]
Sent: Monday, January 20, 2014 4:36 PM
To: Norrie, Andrew
Cc: Jeff Duncan
Subject: Burrard Civic Marina Repair Clarifications

Hi Andrew,
I've looked into some of the questions that came up during our pre-construction meeting at the Burrard Civic Marina and have provided some clarification below.

Placement of new floatation billets: We are preparing a connection detail that will use stainless steel banding and concrete screws. I will provide it to you as soon as possible

Stringer Replacements on Wharf: The attached "Stringer Clarification" provides further info as to which stringers are to be replaced and why.

10 Tie-Rods "West of F18" The report prepared by Worley Parsons stated "There are multiple failed tie-rods on south side of float F adjacent to the north side of the concrete bridge footing" If the tie-rods are all sound then this component can be removed from the project.

Tie-Rod at L15: This rod is to be removed and relocated if possible to avoid wearing on the timber mooring pile (see photo 35 attached).

Tie Rod at C25/26: This rod is to be replaced if it is still in the condition in the attached Photo 23, otherwise it can be removed from the project.

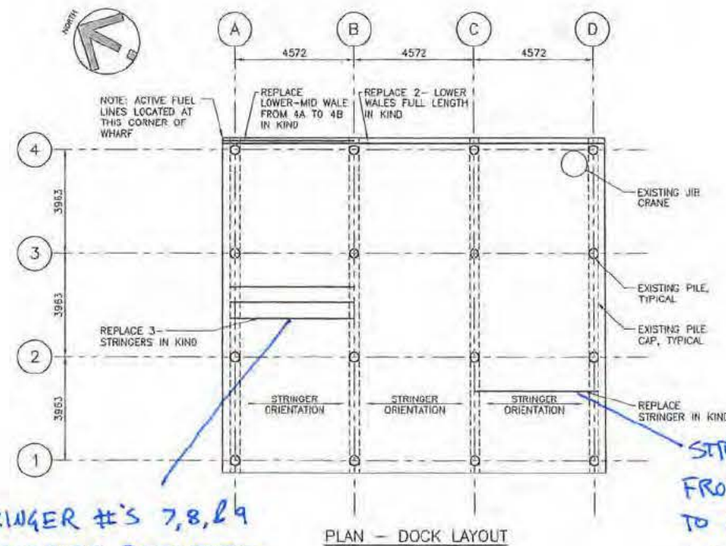
Mooring well timber at F27/29: It appears that this has already been repaired and can be removed from the project.

If there are further questions please let me know. As mentioned above I will be getting a new billet connection detail to you soon.

Thanks,

Tyler Wilson, EIT

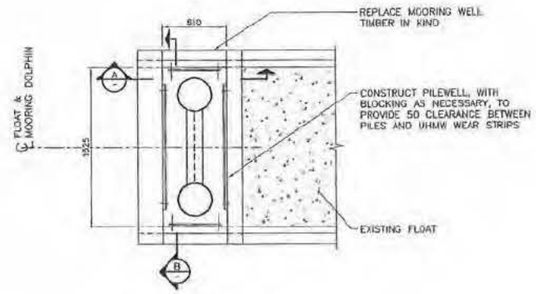
Herold Engineering Limited
1051 Vancouver St.
Victoria, BC V8V 4T6
Canada
Tel: 250-590-4875
Fax: 250-590-4392
Cell: 778-350-9101
Email: TWilson@Heroldengineering.com
Web: http://heroldengineering.com



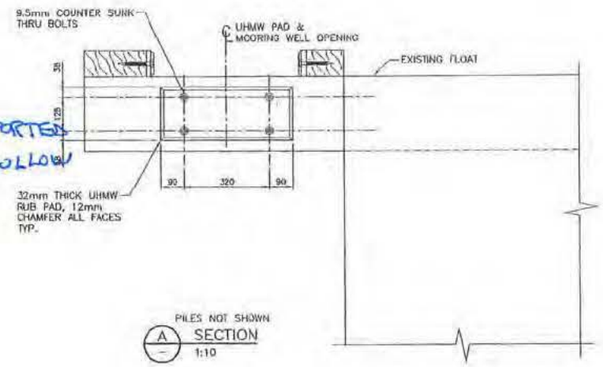
PLAN – DOCK LAYOUT
1:100

STRINGER #'S 7,8,&9 FROM SHORE REPORTED TO BE 25% TO 75% HOLLOW

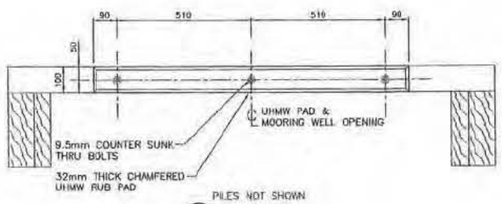
STRINGER #3 FROM SHORE REPORTED TO BE ~50% HOLLOW IN PLACES



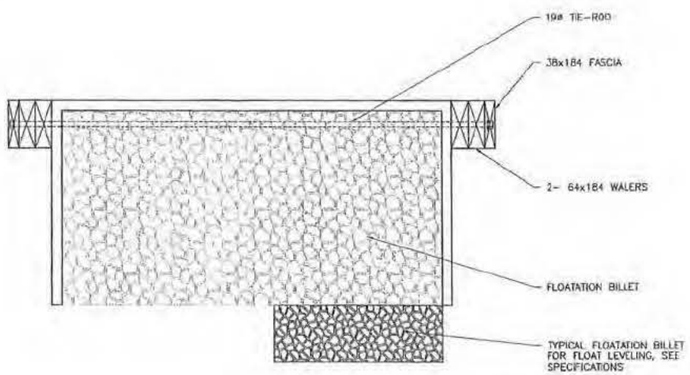
PLAN – MOORING WELL
1:25



PILES NOT SHOWN
A SECTION
1:10



PILES NOT SHOWN
B SECTION
1:10



TYPICAL FLOAT SECTION
1:10

NOTES:
1. FOR GENERAL NOTE SEE DRAWING S01

ISSUED FOR TENDER

NOT FOR CONSTRUCTION

ISSUES								
No.	DATE mm/dd/yy	ISSUED FOR	No.	DATE mm/dd/yy	ISSUED FOR	No.	DATE mm/dd/yy	ISSUED FOR
0	2013.08.09	TENDER						

SUB CONSULTANT

DRAFTED BDW
DRAFTING REVIEW
DESIGNED TMW
DESIGN REVIEW JDD

HEROLD ENGINEERING LIMITED
Consulting Engineers
3701 Shelton Rd, Nanaimo, BC V9T 2H1
Tel: 250-751-8556 Fax: 250-751-8559
Email: mail@heroldengineering.com

ENGINEERS SEAL
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA J.D. DUNCAN 35792 ENGINEER
NOV. 1/2013.

REPAIR DETAILS AND SECTIONS

BURRARD CIVIC MARINA
FLOAT LEVELING AND REPAIRS
VANCOUVER, BC
City of Vancouver

HEL PROJECT No. 2387-006	CLIENT DWG. No. N/A
SCALE AS SHOWN	PERMIT No. N/A
HEL DRAWING No. S02	REVISION 0

DESTROY ALL DRAWINGS SHOWING PREVIOUS REVISION

From: "Collins, Tim" <Tim.Collins@vancouver.ca>
To: "Araujo, Sev" <sev.araujo@vancouver.ca>
Date: 9/10/2020 1:15:28 PM
Subject: FW: Crane and Rigging equipment

From: Collins, Tim
Sent: Monday, November 4, 2019 1:27 PM
To: Horspool, Nicole
Cc: Theriault, Coen
Subject: RE: Crane and Rigging equipment

Thanks Nicole,

This item is a throwback to the past and not sure that it is really required by the marina or VPB operations and subsequently may be removed.
As this crane is quite old, I am not clear as to what its remaining functional lifespan is or what the cost would be to replace it.
I have reached out the company that services it for us to inquire about a structural assessment of the crane, but has yet to hear back from them.

All the best!
Tim

From: Horspool, Nicole
Sent: Monday, November 4, 2019 1:15 PM
To: Collins, Tim
Cc: Theriault, Coen
Subject: Crane and Rigging equipment

Hi Tim and Coen,

I've forwarded my pictures of the crane and rigging equipment to my boss Manager of Org Safety s.13(1) s.13(1)
The crane operation and rigging by Marina users is a safety issue for staff and marina users.

I'm not sure what the best plan is...

1) Either we train up our staff and get new rigging gear that we lock up (indoors) and provide the rigging as a service ourselves.
2) Or we continue how it is, but provide new rigging equipment and keep it locked up (out of the elements).

Safe Regards,

Nicole Horspool, MSc, CRSP| Occupational Safety Specialist – Organizational Safety | Human Resources
City of Vancouver | 955 Evans Ave | Vancouver BC V6A 4C8
P: 604.718-5850 M: 778-385-0190| email: Nicole.horspool@vancouver.ca
Check out our SMS @ https://sharepoint.vancouver.ca/sites/EvansYardSMS/_layouts/15/start.aspx#/

CITY OF VANCOUVER

From: "Norrie, Andrew" <Andrew.Norrie@vancouver.ca>
To: "Collins, Tim" <Tim.Collins@vancouver.ca>
CC: "Ross, John" <John.Ross@vancouver.ca>
Date: 9/22/2020 11:24:40 AM
Subject: FW: Proposal No. 12436 - Condition Assessment and Crane Replacement of the Burrard Marina Dock
Attachments: LTRmar.06_VBPR.pdf

Hi Tim

See attached

I do not know specifically the about the aluminum beam but I do know the crane base or structural support was reinforced.

Andrew Norrie, Architect.AIBC
Project Manager | FACILITIES DEVELOPMENT | REAL ESTATE AND FACILITIES MANAGEMENT
CITY OF VANCOUVER 507 West Broadway, Suite 320 Vancouver BC V5Z 0B4
t: 604.873.7937 | m: 604.836.8026 | e: Andrew.norrie@vancouver.ca

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From: Waite, Teressa (Vancouver) [mailto:Teressa.Waite@WorleyParsons.com]
Sent: Tuesday, March 6, 2007 2:22 PM
To: Harvey, Ian
Cc: Evans, Alden (Vancouver)
Subject: Proposal No. 12436 - Condition Assessment and Crane Replacement of the Burrard Marina Dock

Westmar Proposal: **12436**

Attention: **Ian Harvey, Vancouver Board of Parks and Recreation**

cc: **Alden Evans, Westmar Consultants Inc.**

Please find attached a copy of our letter of today's date, referencing the above project. This document has been saved in .PDF format. If you have any problems with this file, please contact us.

A confirmation hard copy will be sent to you by mail.

Regards,

Teressa Waite
on behalf of **Alden J. Evans, P.Eng.**
Manager
Engineering Inspection Services Department
Westmar Consultants Inc.
#400 - 233 West 1st Street
North Vancouver, BC
V7M 1B3
T : 604.985.6488 F : 604.985.2581
e-mail: aevans@westmar.com
Web: www.westmar.com

Westmar

Consulting Engineers

Westmar Consultants Inc.

400 - 233 West 1st St.
North Vancouver, BC
Canada V7M 1B3

tel 604.985.6488 | *fax 604.985.2581*

www.westmar.com

VIA E-MAIL

March 6, 2007

Vancouver Board of Parks and Recreation
955 Evans Avenue
Vancouver, BC
V6A 4C8

Proposal No.: 12436

Attention: Ian Harvey, P.Eng.
Supervisor of Maintenance Management

Reference: Condition Assessment and Crane Replacement of the Burrard Marina Dock

Dear Sirs:

In response to your request for proposals dated February 12, 2007, Westmar is pleased to present the following proposal for engineering services related to the Burrard Marina facility.

1 Background and Scope of Assignment

It is our understanding that the Vancouver Board of Parks and Recreation (Parks Board) is seeking the services of an engineering consultant to carry out a condition assessment of the 44 year old timber structure, and provide recommendations to maintain the constructed assets in a safe and operational condition. The existing jib crane has reached the end of its service life, so in addition to the dock survey, an engineering review is now required to ensure that the structure can adequately support the loads from the proposed replacement crane. An allowance shall be made for the design of a new crane-to-dock connection detail should the existing steel beam detail prove to be inadequate.

The scope of the assignment is summarized below:

- Determine the current condition of the fixed timber wharf structure and provide recommendations for short and long term repair and maintenance work, complete with associated costs. Specific emphasis will be placed on the area of the dock which will be in the immediate vicinity of the proposed replacement crane.

- Review the plan to replace the existing crane with a similar crane of the same rated load capacity, but with an increased height/reach of 25 ft.

- Carry out an engineering analysis of the structure (load rating) to ensure that the dock is capable of withstanding the loads from the new crane.

- Review the proposals for the replacement crane and include an allowance for the design of a new crane-to-dock connection detail if deemed necessary.

2 Scope of Work

In accordance with the requirements of the RFP, our proposed scope of work will include, but shall not necessarily be limited to, the following:

- A review of any existing background information and data, previous reports and reference drawings.
- An above and underwater condition inspection of the entire dock structure.
- A structural assessment to establish the load rating of the structure, and more specifically to withstand the proposed crane loads.
- The preparation of a detailed, stand-alone report documenting the inspection findings in tabular format, AutoCAD drawings, and written descriptions and recommendations for a prioritized program of repair and maintenance work. In order to assist the Parks Board with the significance of the recommendations, an estimate of the cost to implement any repair/replacement work and the residual life of each major component will also be provided to assist with your long term maintenance and planning process.
- Attend a meeting with the Parks Board on completion of the assignment to present the inspection findings and discuss the significance of implementing the recommendations.

3 Approach and Methodology

3.1 Pre-Site Work

Immediately following project award, Westmar will meet with representatives of the Parks Board to discuss the following:

- Confirm the scope of work, review and finalize the proposed work program and implementation schedule.
- Agree on procedures and report formats.
- Compile all previous documentation associated with the assessment program.
- All available design, construction and inspection/assessment documentation will be reviewed prior to commencement of the inspection program. Westmar views these assignments as an ongoing process, and every effort is made to utilize existing information and resources.

Documentation should typically include:

- Initial design criteria requirements.
- Original construction drawings and specifications.
- Construction inspection reports and as-built information.
- Geotechnical reports.
- Status of vehicle loads, storage loads, size of vessels and design berthing loads.
- Previous inspection reports.
- A description of past, present and anticipated future use and performance.

3.2 On Site Work

3.2.1 Verification of Arrangement and Type of Structural Components

This activity is performed to verify that layout, structural members and connection details are as described on the reference drawings. Measurements are made of all member types, and it is important that actual dimensions are taken rather than nominal dimensions.

If adequate reference drawings are available, verification will normally be by spot checking a representative number of members and connectors. Unless doubts are raised, the drawings will be accepted as accurate.

Soundings will be taken by leadline to verify water depth and pile lengths at key locations around the structure.

3.2.2 Condition Inspection

In accordance with the Terms of Reference, each structure will be inspected in detail above and below the waterline. Inspection procedures will be in general conformance with the following reference material:

- "Procedures for Inspection and Assessment of Fixed Dock Structures", 4th Edition (September 1994) by R.G. Sexsmith Ltd.

- "Standard Practice Manual for Underwater Investigations" by the American Society of Civil Engineers, Ports and Harbours Committee.

All inspection work, including the underwater portion of the project, will be carried out in-house by Westmar engineers and technologists. The inspection team will typically consist of a three man crew, the minimum requirement for an occupational diving team. The three man team allows us to optimize the time spent on site, with the above and underwater inspection components being planned in conjunction with each other, and using the same personnel. By taking advantage of daily tidal changes, continuity of work is maintained and a higher degree of flexibility is provided.

The typical inspection approach is summarized below:

- The visual inspection and representative drilling of the tops of piles and pile caps is carried out by two members of the team during periods of high tides. The high tide provides access by boat to the underside of the deck.

- The inspection of the topside components, which includes the decking, bollards, guardrails and other miscellaneous attachments, will be carried out by the third member of the team while the under-deck superstructure inspection and drilling program is in progress.

- The inspection of the components located within the intertidal zone, which includes a section of each timber pile, bracing and their associated bolted connections, and the lower section of safety ladders will be carried out either by boat during periods of low tides, or by using an inspection diver.

- As each member of the inspection team is also a WCB certified occupational diver, the submerged portion of the structure, i.e. below the intertidal zone, will be inspected independent of tides.

- Field notes are reduced at the end of each day, and the lead inspector/team leader will confirm that a complete inventory of the condition of each structure is available for the preparation of the inspection report.

This approach has proven to be the most efficient means of effectively inspecting a marine structure. Experience has shown that to use separate, independent teams to carry out the above and underwater portions respectively, is an inefficient use of resources and invariably results in a less cost effective, longer inspection program.

3.2.3 Inspection Report

A detailed report will be prepared documenting all of the inspection findings, and results of the engineering assessment. The reports will be prepared as a stand-alone document which can be used by the Parks Board in evaluating the significance of the results and recommendations. The reports will provide a complete inventory of the condition of the structure, and will note any significant changes from previous inspections and/or as-built information. Preliminary recommendations will be made regarding proposed repair procedures, and any issues that require consideration by the Parks Board will be addressed.

The report will include, as a minimum, the following information:

- An executive summary.

- An introduction identifying the purpose of the inspection, the scope of work, reference material used, and referencing systems adapted for the purpose of the inspection.

- A detailed description of the structure.
- Inspection results identifying the member, size, location, condition and comments in tabular form and written descriptions.
- Load ratings/capacities.
- Residual life estimates.
- Drawings indicating the general arrangement, reference system and members identified as requiring repair or replacement.
- Colour photographs of sufficient size, number and clarity to indicate the general arrangement, details, problem areas and any other pertinent information of each component of the facility/structure.
- Discussion and recommendations to provide sufficient detail to develop a repair and/or maintenance program. Cost estimates will also be included.
- Draft reports will be submitted for review and comments prior to the final submission.

4 Costs

We propose carrying out the assignment on the basis of Westmar's Standard Terms of Engagement and Fee and Disbursement Schedules, copies of which are attached. Our estimate of fees and disbursements for the proposed work is presented in the table below.

Description	Engineering Fees	Disbursements
Condition assessment and load rating.	$5,500	$1,000
Prepare plans and specifications for new crane connection detail (allowance).	2,850	150
Subtotal	**$8,350**	**$1,150**
Total Estimated Cost	**$9,500**	

In reviewing our estimated costs, please note the following:

- We have allowed one day of site time for a three man inspection team to complete the inspection. In the event that the condition of the structure warrants additional inspection, we will notify you immediately while our personnel are still on site.

- As with all of our assignments, under no circumstances will we exceed our approved budget without prior authorization from yourselves, and only those hours actually and necessarily expended on the project will be charged. The total estimated cost, including the allowance for designing the new crane connection detail, is therefore considered to be an upset limit.

5 Schedule

Due to our current commitments and availability of personnel, our proposed schedule is as follows:

- Earliest Start Date: April 2, 2007
- Submit Draft Report: April 13, 2007
- Submit Final Report: April 20, 2007 (assuming a one week review period by the Parks Board)

We trust the above meets your approval. Please do not hesitate to contact us if we can be of any further assistance.

Yours truly,

WESTMAR CONSULTANTS INC.

[Original signed by Alden Evans]

Alden J. Evans, P.Eng.
Manager
Engineering Inspection Services Department

AJE/tmw
Encl.

Standard Terms of Engagement (CDN)

Date:	**March 6, 2007**	Project:	**Condition Assessment and Crane Replacement of the Burrard Marina Dock**
Client:	**Vancouver Board of Parks and Recreation**		
Address:	**955 Evans Avenue Vancouver, BC V6A 4C8**		

GENERAL

Westmar shall render its Services to the Client under this Agreement with that degree of care, skill and diligence normally provided in the performance of Services in respect of projects of a similar nature to that contemplated by this Agreement at the time and place that such Services are rendered.

In rendering its Services on the Project, Westmar may, at its discretion and at any stage of the Services, engage subconsultants to perform services necessary to enable Westmar to carry out its duties and responsibilities as set forth in this Agreement.

COMPENSATION

Charges for the Services performed will be made in accordance with our standard terms, based on the hourly fee and disbursement schedule attached. All charges will be made in, and will be payable in, Canadian dollars.

PAYMENT OF FEES & DISBURSEMENTS

Westmar shall invoice the Client for Services performed and the Client shall pay such charges within 30 days from the date of the invoice. Westmar reserves the right to charge interest at the rate of 1.5% per month on any amounts unpaid after this 30 day period. No deduction or set-off shall be made by the Client from the fee payable to Westmar.

NOTICES

Westmar will designate, in writing, a project manager who shall be responsible for the project. The Client shall designate, in writing, an authorized representative to act with respect to this Agreement and the Project.

TERMINATION

This Agreement may be terminated with cause by either party upon 30 days notice in writing. Client shall forthwith pay to Westmar all amounts, including all expenses and other charges payable, together with all obligations incurred by Westmar for the carrying out of the terms of this Agreement which may continue after the date of termination.

If the Client is unwilling or unable to proceed with the project, the Client may terminate this Agreement by giving 45 days prior written notice to Westmar. Upon receipt of such notice Westmar shall perform no further services other than those reasonably necessary to close out its Services and satisfy the requirements of any legal liability. In such event Westmar shall be paid for all Services performed and for all disbursements incurred pursuant to this Agreement and remaining unpaid.

PROFESSIONAL RESPONSIBILITY AND LIMITATION OF LIABILITY

Westmar shall provide the standards of care, skill and diligence normally provided by a professional engineer in the performance of the Services contemplated by this Agreement.

Westmar shall not be responsible for a Contractor's failure to perform work in accordance with the relevant contract documents; for design of, or defects in, proprietary equipment; for loss of earnings or other consequential damage, however caused.

Notwithstanding anything to the contrary contained in this Agreement, the aggregate liability of Westmar, its Directors, Officers and Employees under this Agreement, including liability for professional errors, omissions or negligence and fundamental breach of contract, shall be limited to the compensation under this Agreement and any such liability shall expire one year from the completion of the Project or any relevant part of the Project.

The Client agrees that Westmar's Directors, Officers and Employees shall have no personal liability to the Client, its Directors, Officers or Employees, in respect of a claim whether in contract, tort and/or any other cause of action in law.

This Agreement shall be interpreted, construed and enforced in all respects in accordance with the laws of the Province of British Columbia, Canada.

DOCUMENTS

All of the Documents prepared by Westmar in connection with the project are instruments of service for the execution of the Work. Westmar retains the property and copyright in those Documents, whether the project is executed or not. Such Documents are prepared for the sole use by the Client for this Project and shall not be used by the Client on any other project without prior written agreement with Westmar. One record set of drawings will be provided to the Client for use in future inspections and maintenance.

FIELD SERVICES

Where applicable, the field services recommended for the project are the minimum necessary to ascertain that the Contractor's work is being carried out in general conformity with the Contract Documents. Any reduction from the level of services normally recommended may prevent Westmar from providing unqualified certifications for the work.

(CDN/2006-07-05)

Westmar

Canadian Fee and Disbursement Schedule

Hourly Rates

Engineers/Specialists:

Senior

E1	$130.00
E2	$125.00
E3	$120.00
E4	$115.00
E5	$110.00

Intermediate

E6	$105.00
E7	$100.00
E8	$95.00
E9	$90.00
E10	$85.00

Junior

E11	$80.00
E12	$75.00
E13	$70.00
E14	$65.00
E15	$60.00

Senior Consultants/Project Managers:

C1	$160.00
C2	$150.00
C3	$140.00
C4	$135.00
C5	$130.00

Technical Specialists:

T1	$100.00
T2	$95.00
T3	$90.00
T4	$85.00
T5	$80.00
T6	$75.00
T7	$70.00

Draftspersons:

D1	$75.00
D2	$70.00
D3	$65.00
D4	$60.00
D5	$55.00
D6	$50.00

Computer Graphics, Simulation and Animation:

P1	$65.00

Project Cost Accounting and Project Administration:

A1	$65.00

Word Processing:

S1	$45.00

Hours of Work

The standard office work day is 7.5 hours.

Disbursements

Mileage at $0.50 per kilometre, travel disbursements (including airfare, meals, accommodations and reasonable expenses), subconsultants, testing agency costs and other project costs (such as printing, long distance telephone, equipment rental, etc.) are charged at cost plus ten percent. Facsimile transmissions are charged at $2.00 for the first page and $1.00 for each additional page, plus any long distance telephone charges.

Charges for meals will be by receipt or negotiated per diem.

Photocopies are charged at $0.20 each.

Large format plots, checkplots and scanning to file are charged at $0.60 per square foot. Large format colour plots are charged at $2.75 per square foot.

AutoCAD computer charges are $10.00 per hour of operation.

Engineering computer software: STAAD, Beltstat, AWESim and Prokon $50.00/run, EasyPower $100.00/run, ANSYS $200.00/run and MIKE21 $100.00/run.

** Inspection Disbursement Schedule is under separate cover.

Terms of Payment

Charges for fees and disbursements are invoiced monthly and are payable 30 days after the date of invoice. Westmar reserves the right to charge interest at the rate of 1.5% per month on any amounts unpaid after this 30 day period.

(CDN/2006-12-07)

Westmar

Inspection Disbursement Schedule

Description	Daily Charge
Dive Gear – includes all surface supplied air, diver communications, and scuba equipment.	$ 450
18 ft. aluminium boat complete with 60 hp outboard motor	$ 150
14 ft. Zodiac complete with 10 hp outboard motor	$ 150
12 ft. aluminium boat complete with 10 hp outboard motor	$ 150
Underwater Photography Equipment – includes 35 mm and Hi-8 video	$ 250
Ultrasonic Thickness Meter	$ 150
Electric Potential Meter	$ 100
Hydrographic Sounding Equipment, complete with Global Positioning System, Depth Sounder and Current Meter.	$ 500
Generator and Timber Drilling/Coring Equipment	$ 50
Survey Equipment – includes level, theodolite, and conveyor liner	$ 100
Tachometer/Elcometer	$ 50
Miscellaneous Inspection Equipment and Consumables – includes measuring tapes and calipers, protective clothing and equipment, and safety harnesses and rigging.	$ 50

(CDN/2006-06-08)

From: "Collins, Tim" <Tim.Collins@vancouver.ca>
To: "Araujo, Sev" <sev.araujo@vancouver.ca>
Date: 9/10/2020 1:16:08 PM
Subject: FW: Marina Safety Inspection

From: Collins, Tim
Sent: Wednesday, November 13, 2019 11:33 AM
To: Savage, Gordon; Horspool, Nicole
Cc: Freedman, Kevin
Subject: RE: Marina Safety Inspection

Thanks Gordon,
The links that I provided show the WorkSafe approved courses, I don't believe that there are any other instances where we would allow non staff members use the crane for their purposes.

All the best

Tim Collins
604-257-8437

From: Savage, Gordon
Sent: Wednesday, November 13, 2019 10:52 AM
To: Collins, Tim; Horspool, Nicole
Cc: Freedman, Kevin
Subject: RE: Marina Safety Inspection

Hi Tim,

Thanks for the email. I will do what I can to assist.

I am not aware of any courses we offer for crane operation. I did find an individual in Engineering who, as I understand it, has certificates for the operation of cranes but no longer works on them. He is now in the machine shop; I will follow up with engineering to see what they do and if they have any interest in the crane.

I will connect with Nicole when she gets back Friday to see what her thoughts are. My expertise is not on the specifics of each compliance area. I want to work with Safety to ensure we cover everything. There should be a checklist of items to inspect on a regular basis. I expect something like this already exists for that site or at other Park's Board sites and I don't want to reinvent the wheel.

Given the training requirements and risks related to operating the crane including rigging; it seems unlikely that we should be allowing the general public to use the crane. I will get some further research done in this area. I have cc'ed Kevin Freedman in the email. Kevin is part of my compliance team and is the Compliance Analyst for the City.

Regards,
Gord

From: Collins, Tim
Sent: Tuesday, November 12, 2019 3:59 PM
To: Horspool, Nicole; Savage, Gordon
Subject: FW: Marina Safety Inspection

It also appears that we would require a rigging course as well as part of th

Tim Collins
604-257-8437

From: Collins, Tim
Sent: Tuesday, November 12, 2019 3:57 PM
To: Savage, Gordon
Cc: Horspool, Nicole
Subject: RE: Marina Safety Inspection

Hello Nicole and Gordon,

I spoke with the crane inspector today, they will be doing an inspection on Thursday which will identify any concerns at a cursory level, however, a certified crane engineer is required for the completion of a comprehensive report this would also include the wharf that it is attached to.

Also, are either of you aware of the City of Vancouver requirements for certification of crane operators?

It appears that WorkSafeBC requires a certification to operate a crane however, the actual requirements are unclear and I am not sure as to what restrictions the City of Vancouver has for non-staff operators of the equipment.

Also, would any of our works yard benefit from the crane, should it be deemed that the crane be removed from marina.

http://www.fulford.ca/pmcrane/pmcrane.html

https://www.worksafebc.com/en/forms-resources#sort=%40fcomputeditemdatefield343%20descending&f:topic-facet=[Health%20%26%20Safety]&f:language-facet=[English]&tags=Health%20and%20Safety%20general|2b5c7e454c984479b1caad93889a3e8b,Crane%20Operator|6ddf00d2953a414a9914adaaf9c38e0c

Can you assist?

Thanks

Tim Collins
604-257-8437

From: Savage, Gordon
Sent: Thursday, November 07, 2019 9:17 AM
To: Collins, Tim
Cc: Horspool, Nicole
Subject: RE: Marina Safety Inspection

Hi Tim,

My concern is more general in nature than the Marina's specific ones; the transfer of maintenance to REFM left some holes for maintenance of assets similar to the crane at the Marina and I just want to get them filled. I am available for a meeting any time. Do you have time tomorrow morning? Where are your offices?

Regards,
Gord

From: Collins, Tim
Sent: Wednesday, November 06, 2019 9:37 PM
To: Savage, Gordon
Cc: Horspool, Nicole
Subject: Marina Safety Inspection

Hello Gordon,

I would like to set up a time to discuss the items identified in the attached report as well as a couple other items at the Burrard Marina.

Also, I would like to point out that I called for this inspection to be undertaken at the marina and not a result of other circumstances; however, from your email below that point is not conveyed.

This inspection like with other recently areas of review at the marina, the spirit of the comprehensive inspections is to get clear on what needs to be addressed and how to best proceed and Nicole has been of great assistance in those regards. Thanks Nicole!

As was expected from the assessments there may be some marina operational changes required as well as changes to how the marina patrons use the marina.
These changes will need to be papered and perhaps incorporated into the marina moorage agreements, for your reference April 1 of every year a new moorage agreement is undertaken at the marinas, however, I need to have all changes to agreements in place by early January; from that this undertaking is very timely.

These assessments more particularly regarding the crane and the oil storage will be key when addressing any changes with those parties who will be effected but also justification of changes to the moorage agreements.

Sincerely,
Tim

From: Araujo, Sev
Sent: Wednesday, November 6, 2019 1:42 PM
To: Collins, Tim
Subject: FW: Marina Safety Inspection

Sev Araujo
Manager, Commercial Operations
Vancouver Park Board, City of Vancouver
o. 604 257 8436 / f. 604 257 8427
Email: Sev.Araujo@vancouver.ca

From: Wilton, Shauna
Sent: Tuesday, November 05, 2019 3:05 PM
To: Araujo, Sev
Subject: FW: Marina Safety Inspection

From: Savage, Gordon
Sent: Tuesday, November 05, 2019 11:17 AM
To: Wilton, Shauna
Subject: Marina Safety Inspection

Hi Shauna,

Drew Ross's team did an inspection at the Burrard Marina and found some issues. It made me concerned for the other sites having similar issues. Do you a few minutes to discuss the inspection and next steps?

I have attached the report just in case you have not seen it yet.

Regards,
Gord