

File No.: 04-1000-20-2018-381

November 9, 2018

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 July 9, 2018 for:

Correspondence and reports relating to the closure of the Marine Walkway in front of Harbour Green Park particularly the process for deciding to close the walkway from January 1, 2016 to July 9, 2018:

1. Documents relating to the assessment of the damage; and
2. Documents relating to the plans for repairing the said damage.

All responsive records are attached. Some information in the records has been severed, (blacked out), under s.13(1), s.15(1)(l), s.17(1), s.21(1), and s.22(1) of the Act. You can read or download these sections here:

http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/96165_00

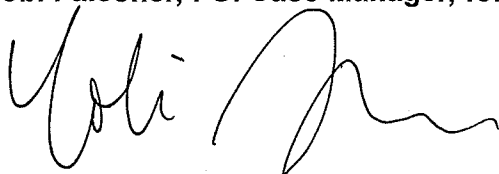
Under section 52 of the Act you may ask the Information & Privacy Commissioner to review any matter related to the City's response to your request. The Act allows you 30 business days from the date you receive this notice to request a review by writing to: Office of the Information & Privacy Commissioner, info@oipbc.bc.ca or by phoning 250-387-5629.

If you request a review, please provide the Commissioner's office with: 1) the request number assigned to your request (#04-1000-20-2018-381); 2) a copy of this letter; 3) a copy of your original request for information sent to the City of Vancouver; and 4) detailed reasons or grounds on which you are seeking the review.

Please do not hesitate to contact the Freedom of Information Office at foi@vancouver.ca if you have any questions.

Yours truly,

Cobi Falconer, FOI Case Manager, for

A handwritten signature in black ink, appearing to read 'Cobi', followed by a stylized, flowing signature that likely belongs to Barbara J. Van Fraassen.

**Barbara J. Van Fraassen, BA
Director, Access to Information & Privacy**

*Barbara.vanfraassen@vancouver.ca
453 W. 12th Avenue Vancouver BC V5Y 1V4
Phone: 604.873.7999
Fax: 604.873.7419*

Encl.

:kt

From: "Nayeri, Ali" <Ali.Nayeri@vancouver.ca>

To: "Mike Hanson" <hansonm@ae.ca>

Date: 8/24/2017 10:54:43 AM

Subject: FW: Harbour Green Dock

Hi Mike,
Here is the information regarding the vessels and services that the operator wants to provide at the dock.
Regards,
Ali

From: Araujo, Sev
Sent: Thursday, August 24, 2017 10:51 AM
To: Mack, Tiina; Nayeri, Ali
Cc: Nayeri, Ali; Augustine, Ray; Normann, Howard; Wilton, Shauna
Subject: Re: Harbour Green Dock

Hi Ali,

These are double the size of current ferries in creek FYI please provide to consultant

Hi Sev,

Our vessel is 27' long and the beam is 9'. The boat is registered as s 4.99 gross ton.

We have 6 scheduled runs a day, 3 in the morning and 3 in the afternoon. Our vessel capacity is 12 so our maximum passenger number a day is 72. We generally average around 65 passengers. Out of those 6 runs, we are at the Coal Harbour dock 4 times a day for under 10 minutes. 705am, 835am, 430pm and 6pm.

Thanks,
Mike

Sev

Please excuse the brevity of this email, it is being sent from my iPhone

On Aug 24, 2017, at 10:15 AM, Araujo, Sev <Sev.Araujo@vancouver.ca> wrote:

Thank you Tiina

The deadline we gave operator is August 31, so if it's possible for the to give their opinion on short term operational safety that would be most appreciated.

I will have vessel and max passenger loads for each of the scheduled 3 drop off and 3 pick ups/day in next couple of days

Sev

Please excuse the brevity of this email, it is being sent from my iPhone

On Aug 23, 2017, at 11:42 AM, Mack, Tiina <tiina.mack@vancouver.ca> wrote:

Hi

Please can you arrange a CO with Associated engineering to review the dock again or update their report to determine what is needed in both work and costs to make it safe for commercial operators.

This is an ASAP! Please ask them to complete by next week.

Thank you both,

Tiina

Sent from my iPhone

From: ["Dykstra, Justin" <Justin.Dykstra@vancouver.ca>](mailto:Justin.Dykstra@vancouver.ca)
To: ["Nayeri, Ali" <Ali.Nayeri@vancouver.ca>](mailto:Ali.Nayeri@vancouver.ca)
Date: 8/31/2017 2:32:03 PM
Subject: Fwd: Harbour Green Park - Pier inspection: safety hazards

FYI...I went by today and it looks like all the repairs are complete. Quite a few boats use this dock.

Sent from my iPhone

Begin forwarded message:

From: "Horne, Tom" <Tom.Horne@vancouver.ca>
To: "Dykstra, Justin" <Justin.Dykstra@vancouver.ca>
Subject: RE: Harbour Green Park - Pier inspection: safety hazards

Hi Justin,

My guys were able to do these repairs with new materials. They should be finished today.

Thank you,
Tom Horne
City of Vancouver
REFM Carpentry Superintendent
Office: 604-257-8524
Cell: 604-842-0194

From: Dykstra, Justin
Sent: Thursday, August 31, 2017 1:27 PM
To: Horne, Tom
Subject: RE: Harbour Green Park - Pier inspection: safety hazards

Hi Tom,

Just wondering how this is coming along. Did you have the materials you needed for the repairs?

JUSTIN DYKSTRA Landscape Architect
VANCOUVER BOARD OF PARKS AND RECREATION | PARK DEVELOPMENT | PLANNING
AND OPERATIONS
2099 Beach Avenue Vancouver BC V6G1Z4 | T 604.257.8403 | M 604.836.5842 | E
justin.dykstra@vancouver.ca<<mailto:justin.dykstra@vancouver.ca>> | W
vancouver.ca<<http://vancouver.ca/>>

From: Dykstra, Justin
Sent: Monday, August 28, 2017 4:43 PM
To: Horne, Tom

Subject: RE: Harbour Green Park - Pier inspection: safety hazards

Hi Tom,

I put in the work request. Just an FYI that I'm looking after this for Ali while he's away this week and don't have any idea where the funds are coming from. Let me know if that is going to be a problem. It'll have to get done one way or another.

JUSTIN DYKSTRA Landscape Architect
VANCOUVER BOARD OF PARKS AND RECREATION | PARK DEVELOPMENT | PLANNING
AND OPERATIONS

2099 Beach Avenue Vancouver BC V6G1Z4 | T 604.257.8403 | M 604.836.5842 | E

justin.dykstra@vancouver.ca<<mailto:justin.dykstra@vancouver.ca>> | W

vancouver.ca<<http://vancouver.ca/>>

From: Horne, Tom

Sent: Monday, August 28, 2017 2:50 PM

To: Dykstra, Justin

Subject: RE: Harbour Green Park - Pier inspection: safety hazards

Hi Justin,

Can you please submit a work request for the Evans Yard REFM Carpentry shop to repair the wooden rub rails and I will have my crew take care of this asap. I have to check if we have the proper size of treated materials at Evans Yard for this but if we don't I will have to order it from our lumber supplier which can be troublesome at this time. It is taking longer than normal these days to get lumber products from any supplier as the forest fires have stopped lumber production in the province so our lumber suppliers have to go hunting for what we need down South which can stall the process a bit. Once we have the work order I will have my guys go check this out right away in case we need to order some materials and play the waiting game. If we run into an issue I will let your know, otherwise consider it done from our end.

Thank you,

Tom Horne

City of Vancouver

REFM Carpentry Superintendent

Office: 604-257-8524

Cell: 604-842-0194

From: Dykstra, Justin

Sent: Monday, August 28, 2017 10:11 AM

To: Horne, Tom

Subject: FW: Harbour Green Park - Pier inspection: safety hazards

Hi Tom,

A consultant has identified some issues at the Harbour Green Dock that are safety concerns and need to be addressed asap (see below). Ian will be out tomorrow/Wednesday making

repairs to the railings, etc. Any chance you would be able to get out there this week to fix the timber curb?

JUSTIN DYKSTRA Landscape Architect

VANCOUVER BOARD OF PARKS AND RECREATION | PARK DEVELOPMENT | PLANNING AND OPERATIONS

2099 Beach Avenue Vancouver BC V6G1Z4 | T 604.257.8403 | M 604.836.5842 | E

justin.dykstra@vancouver.ca<<mailto:justin.dykstra@vancouver.ca>> | W

vancouver.ca<<http://vancouver.ca>>

From: Nayeri, Ali

Sent: Friday, August 25, 2017 3:48 PM

To: Mike Hanson

Cc: Natalya Kucherenko; Niall McPherson; Dykstra, Justin; Mack, Tiina; Araujo, Sev; Augustine, Ray; Foster, Ian

Subject: RE: Harbour Green Park - Pier inspection: safety hazards

Hi Mike,

Would you be able to forward us the photographs referenced in Natalya's email.

At first glance it seems the issues that have been identified do not involve complicated fixes and are probably within the scope of work that our in-house operation staff can handle. I would appreciate it if you could let us know if you think any of the deficiencies involves a potentially more complex repair process.

I will be away next week, so my colleague Justin Dykstra has kindly agreed to coordinate the completion and reporting of the assessment. He is copied on this message. You can also reach him at 604-257-8403.

Regards,
Ali

From: Mike Hanson [<mailto:hansonm@ae.ca>]

Sent: Friday, August 25, 2017 3:12 PM

To: Nayeri, Ali

Cc: Natalya Kucherenko; Niall McPherson

Subject: Fwd: Harbour Green Park - Pier inspection: safety hazards

Hi Ali,

Please find a brief summary of the safety concerns below

Give me a call if you would like to discuss. As a minimum I would address the falling hazard from the pier cap immediately, which could be as simple as removing the displaced cap for the time being.

In general our inspectors noted that boats are causing a lot of damage, and that the floats, curbs and mooring wells have become considerably worse since our last inspection in 2016.

Regards
Mike

Begin forwarded message:

From: "Natalya Kucherenko" <kucherenkon@ae.ca<<mailto:kucherenkon@ae.ca>>>

To: "Mike Hanson" <hansonm@ae.ca<<mailto:hansonm@ae.ca>>>

Subject: Harbour Green Park - Pier inspection: safety hazards

Hi,

AE completed a detailed inspection of Harbour Green Park Pier on August 24, 2017 and there several potential safety concerns that we would like to address immediately prior issuing the complete report.

1. The railing on the east side of the dock has a missing top handrail and also has fractured midrail section (ref. photos 1 and 2 in attachment)
2. The railing on the west side of the dock has a broken/disconnected post (ref. photos 3 and 4)
3. One mooring pile located in the middle of the dock has a displaced and disconnected pilecap steel plate that can cause potential falling hazard to pedestrians walking though the dock (ref. photo 5) .
4. Broken and displaced 2m timber curb is noted on the dock. The rest of the curb is also damaged at several locations that can be as the result of the different size boats mooring directly to the curb and not to the mooring cleats. Several boats were documented to be moored to the curb during 1.5 h long inspection (ref. photos 6 and 7).

The work items listed above require immediate attention as they are identified as the potential safety hazards to frequent dock user's.

We will further identify the repair items and summarize them in our report that will be issued to CoV next week.

Should you have any questions or require any further information, please do not hesitate to contact me.

Regards,
Natalya

Natalya Kucherenko, M.Eng., EIT
Bridge Engineer
Associated Engineering (B.C.) Ltd.
Suite 300 - 4940 Canada Way, Burnaby, BC V5G 4M5
Tel: 604.293.1411 Direct: 236.317.2327

[https://www.ae.ca/images/aebmc_logo.png]<<https://www.ae.ca/>>[<https://www.ae.ca/images/facebook.png>]<<https://www.facebook.com/associatedengineering>>[<https://www.ae.ca/images/twitter.png>]<<http://twitter.com/associatedeng>>[<https://www.ae.ca/images/linkedin.png>]<<http://www.linkedin.com/company/associated-engineering>>

You may unsubscribe from Associated's electronic communications<<mailto:unsubscribe@ae.ca?subject=Unsubscribe+from+AE+-+CASL>> at any time.

We're Moving! Please note that after August 26, 2017, we'll be moving to #500 - 2889 East 12th Avenue, Vancouver. Our main switchboard number will remain the same.

[cid:image001.jpg@01D32265.6FA06420]

[cid:image002.jpg@01D32265.6FA06420]

[cid:image003.jpg@01D32265.6FA06420]

[cid:image004.jpg@01D32265.6FA06420]

[cid:image005.jpg@01D32265.6FA06420]

[cid:image006.jpg@01D32265.6FA06420]

[cid:image007.jpg@01D32265.6FA06420]

You may unsubscribe from Associated's electronic communications<<mailto:unsubscribe@ae.ca?subject=Unsubscribe+from+AE+-+CASL>> at any time.

<image001.jpg>

<image002.jpg>

<image003.jpg>

<image004.jpg>

<image005.jpg>

<image006.jpg>

<image007.jpg>

From: ["Myles, Natalia" <Natalia.Myles@vancouver.ca>](mailto:Natalia.Myles@vancouver.ca)

To: ["Nayeri, Ali" <Ali.Nayeri@vancouver.ca>](mailto:Ali.Nayeri@vancouver.ca)

Date: 10/20/2017 11:41:59 AM

Subject: Harbour Green Dock: Existing Condition

Attachments: Notice of Deterioration Harbour Green Park Dock.pdf

Hi Ali,

The SED Structures branch has been doing some work at Waterfront for sea wall rehab this past year.

Our consultant, SNC Lavalin, regularly gets picked up on a boat by the Harbour Green Dock to review the Contractor's work at Waterfront. SNC has noted some existing damage to the dock and I wanted to bring it to your attention. Attached please find SNC's memo regarding the dock.

Regards,

Natalia Myles, P.Eng., LEED AP
Structural Engineer, Streets and Electrical Design



1000 Broadway, Vancouver, V5Z 0B4

746

fax: 604-873-7200

e-mail: natalia.myles@vancouver.ca

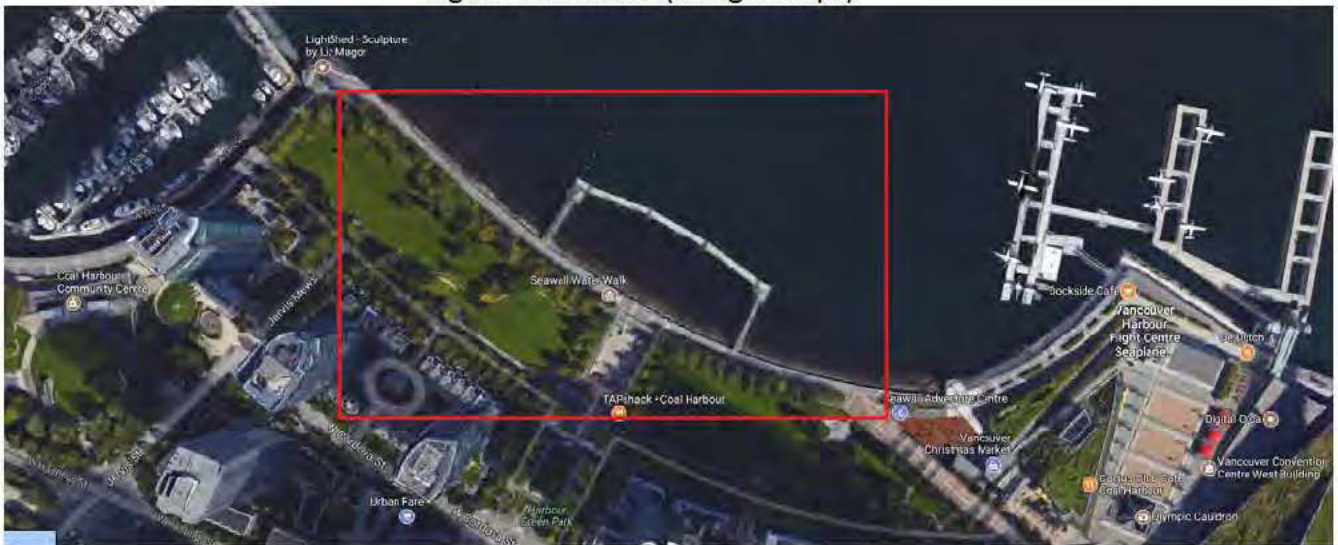
Notice of Deterioration – 2017/10/17

Prepared By: Adam Dijkerman

1. Location

Public Dock: Harbour Green Park Dock

Figure 1: Location (Google Maps)



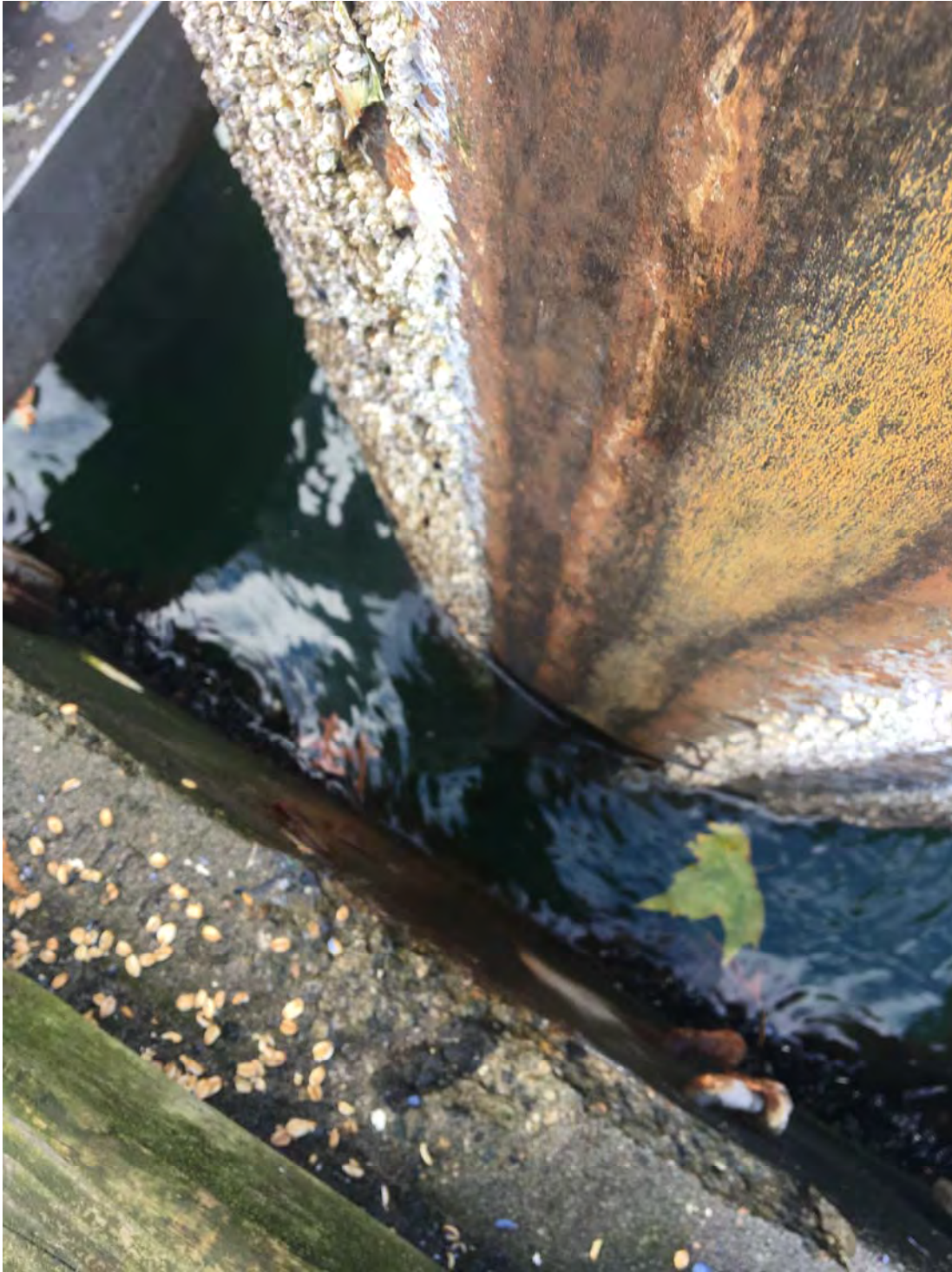
The public dock is a floating dock moored to steel piles and accessible by 2 steel gangways. The most visible deterioration is that of a pile guide. This dock is easily accessible by the public and this broken guide can be seen from shore. Currently the concrete deck of the dock is rubbing against the steel pile in certain locations. See below for pictures.

2. Photos

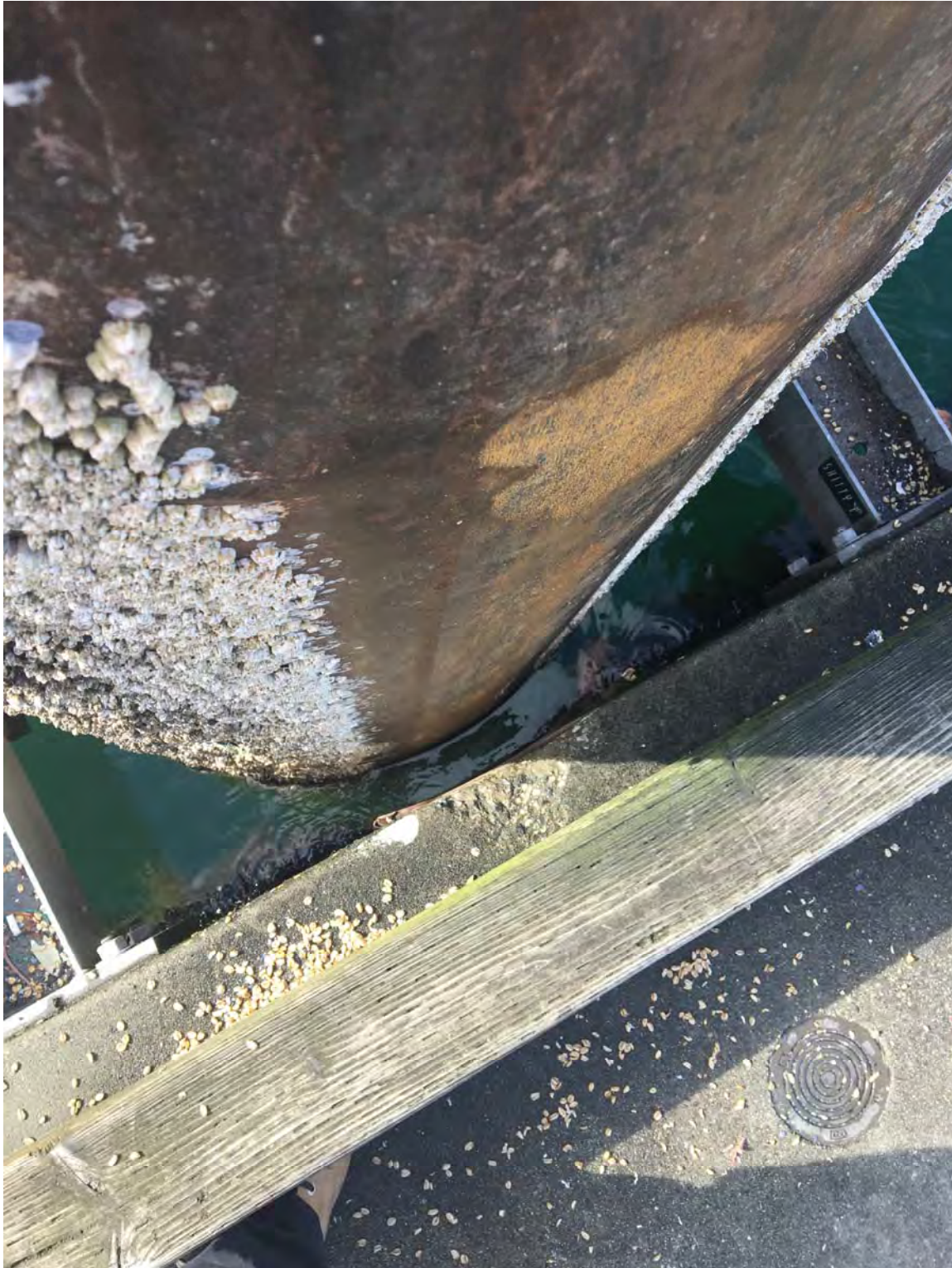






















Nayeri, Ali

From: Peter Longwood <peter@bluewatersystems.ca>
Sent: Thursday, September 28, 2017 3:46 PM
To: Nayeri, Ali
Subject: RE: Harbour Green Dock

Hello Ali;

We could do this work but first let me offer our opinion. This should be engineered as this is a very rough site and these pile rings built by IMFS are not adequate nor is the attachment to the floats adequate. Therefore you probably should consult with an engineering firm that has experience in the marine environment. If you need suggestions of such firms I can offer this.

But if we were to approach this project, since it is extremely rough and this float is very heavy there is a lot of momentum during weather situations. We feel building stronger pile rings need to be built. Also to reduce the momentum we further suggest reducing the tolerances around the piles.

However, once new rings with tighter tolerances are installed in one area the loads will transfer to other areas. Therefore we suggest replacing all (13) pile rings and replacing at this time.

Our anticipated cost are as follows:

- Initial take-off and design: \$4,500 (w/o engineering)
- Pile rings fabrication: \$6,600 each
- Mobilization of crane barge and demobilization: \$10,000
- Installation: \$5,000 per pile ring
- Labour for additional work on site: \$5,000 per day

Roughly speaking, the cost for the above will run approximately \$ 165,300 before any additional work.

If this is something you want us to pursue, please advise. However, I really think you should consult with an engineering firm and have them design the correct solution to this problem.

Thanks you for contacting us.

Sincerely,
Peter

Peter Longwood
Blue Water systems, Ltd
9925 River Road
Delta, BC V4G 1B4
Tel: 604-583-9999
Email: peter@bluewatersystems.ca
www.bluewatersystems.ca

From: Nayeri, Ali [<mailto:Ali.Nayeri@vancouver.ca>]
Sent: Wednesday, September 27, 2017 5:14 PM

To: peter@bluewatersystems.ca

Subject: Harbour Green Dock

Hi Peter,

Further to our conversation earlier, attached please find some pictures of the state of two of the pile rings (P6 and P9). In addition, many of the rubrails and UHMW pads have been damaged or are missing. I would be thankful if you could let me know if you would be able to help us with performing the necessary repairs.

Best regards,

Ali

Ali Nayeri | Park Development | Board of Parks & Recreation

2099 Beach Avenue, Vancouver, BC V6G 1Z4

Tel: 604-257-8461 | Cell: 604-353-1896

Email: ali.nayeri@vancouver.ca

From: "Nayeri, Ali" <Ali.Nayeri@vancouver.ca>
To: peter@bluewatersystems.ca
Date: 9/27/2017 5:13:48 PM
Subject: Harbour Green Dock

Hi Peter,

Further to our conversation earlier, attached please find some pictures of the state of two of the pile rings (P6 and P9). In addition, many of the rubrails and UHMW pads have been damaged or are missing. I would be thankful if you could let me know if you would be able to help us with performing the necessary repairs.

Best regards,
Ali

Ali Nayeri | Park Development | Board of Parks & Recreation
2099 Beach Avenue, Vancouver, BC V6G 1Z4
Tel: 604-257-8461 | Cell: 604-353-1896
Email: ali.nayeri@vancouver.ca









From: ["Nayeri, Ali" <Ali.Nayeri@vancouver.ca>](mailto:Ali.Nayeri@vancouver.ca)

To: ["Daniel Leonard" <dleonard@westmaradvisors.com>](mailto:dleonard@westmaradvisors.com)
["Peter Acton" <pacton@westmaradvisors.com>](mailto:pacton@westmaradvisors.com)

Date: 7/5/2018 5:29:54 PM

Subject: Harbour Green Dock - Enforcement Options Analysis

Hi Daniel and Peter,

Thank you again for chatting with us earlier today. As discussed, we are looking to report back to our board in just over two weeks and need to provide more details on how the current pleasure-craft regulation at the dock could be enforced in order to preserve any investment we make in the rehabilitation of the dock. As Sev mentioned, we envision two approaches:

s.13(1)

A large rectangular area of the document has been redacted with a solid grey fill.

I have shared the previous reports and drawings for the dock for your reference (you can access and download them from [this link](#)). If you need orthoimagery for the site, you can access them through City of Vancouver openData catalogue ([direct link to 2015 imagery](#))

Please let me know if you need any other information. We look forward to receiving your memo by July 17.

Thanks,
Ali

Ali Nayeri | Park Development | Board of Parks & Recreation
2099 Beach Avenue, Vancouver, BC V6G 1Z4
Tel: 604-257-8461 | Cell: 604-353-1896
Email: ali.nayeri@vancouver.ca

From: ["Mack, Tiina" <tiina.mack@vancouver.ca>](mailto:Tiina.mack@vancouver.ca)
To: ["Chan, Cheryl" <Cheryl.Chan@vancouver.ca>](mailto:Cheryl.Chan@vancouver.ca)
["Jackson, Steve" <Steve.Jackson@vancouver.ca>](mailto:Steve.Jackson@vancouver.ca)
["Wilton, Shauna" <Shauna.Wilton@vancouver.ca>](mailto:Shauna.Wilton@vancouver.ca)
["Kulchyski, Jessica" <Jessica.Kulchyski@vancouver.ca>](mailto:Jessica.Kulchyski@vancouver.ca)
["Araujo, Sev" <Sev.Araujo@vancouver.ca>](mailto:Sev.Araujo@vancouver.ca)

Date: 6/14/2018 12:30:01 PM
Subject: s.13(1)

Hi,

s.13(1)

s.15(1)(l)

Cheers

Tiina

From: Chan, Cheryl
Sent: Thursday, June 14, 2018 12:16 PM
To: Jackson, Steve; Mack, Tiina; Wilton, Shauna; Kulchyski, Jessica
Cc: Araujo, Sev; Nayeri, Ali
Subject: s.13(1)

Hi all,

Just need the final word on this... any further changes?

Thanks,
c.

~~~~~

**Cheryl Chan**  
Office of the General Manager  
Vancouver Park Board

2099 Beach Avenue  
Vancouver, BC V6G 1Z4  
t: 604.257.8451 m: s.15(1)(l)  
e: [Cheryl.Chan@vancouver.ca](mailto:Cheryl.Chan@vancouver.ca)

---

**From:** Jackson, Steve  
**Sent:** Thursday, June 14, 2018 10:38 AM  
**To:** Mack, Tiina; Wilton, Shauna; Kulchyski, Jessica; Chan, Cheryl  
**Cc:** Araujo, Sev; Nayeri, Ali  
**Subject:** s.13(1)

s.13(1)

---

**From:** Mack, Tiina  
**Sent:** Thursday, June 14, 2018 9:35 AM  
**To:** Jackson, Steve; Wilton, Shauna; Kulchyski, Jessica; Chan, Cheryl  
**Cc:** Araujo, Sev; Nayeri, Ali



**Subject:** s.13(1)

Hi Steve,

s.13(1)

Thanks Steve

Tiina

---

**From:** Jackson, Steve  
**Sent:** Thursday, June 14, 2018 9:22 AM  
**To:** Wilton, Shauna; Mack, Tiina; Kulchyski, Jessica; Chan, Cheryl  
**Cc:** Araujo, Sev; Nayeri, Ali  
**Subject:** s.13(1)

s.13(1)

---

**From:** Wilton, Shauna  
**Sent:** Wednesday, June 13, 2018 8:07 PM  
**To:** Mack, Tiina; Kulchyski, Jessica; Jackson, Steve; Chan, Cheryl  
**Cc:** Araujo, Sev; Nayeri, Ali  
**Subject:** s.13(1)

Hi all,

s.13(1)

Thanks,  
Shauna

---

**From:** Mack, Tiina  
**Sent:** Wednesday, June 13, 2018 4:37 PM  
**To:** Kulchyski, Jessica; Wilton, Shauna; Jackson, Steve  
**Cc:** Araujo, Sev; Nayeri, Ali  
**Subject:** s.13(1)

Hello,

s.13(1)

s.13(1)

Thanks very much

Tiina

---

**From:** Kulchyski, Jessica  
**Sent:** Wednesday, June 13, 2018 4:19 PM  
**To:** Wilton, Shauna; Jackson, Steve  
**Cc:** Mack, Tiina; Araujo, Sev  
**Subject:** s.13(1)

Hello All,

s.13(1)

Thanks!  
Jess

*Tel: 604-257-8439  
[Jessica.Kulchyski@vancouver.ca](mailto:Jessica.Kulchyski@vancouver.ca)  
General Manager's Office  
Vancouver Board of Parks and Recreation  
2099 Beach Avenue  
Vancouver, BC, V6G 1Z4*



From: "Araujo, Sev" <Sev.Araujo@vancouver.ca>  
To: "Mack, Tiina" <tiina.mack@vancouver.ca>  
Date: 6/7/2018 5:21:17 PM  
Subject: RE: Board Meeting Materials June 19 - Due Dates \*reply req'd\*

s.13(1)

Yes they do not give us a lot of time

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

---

**From:** Mack, Tiina  
**Sent:** Thursday, June 07, 2018 4:06 PM  
**To:** Araujo, Sev  
**Cc:** Nayeri, Ali  
**Subject:** FW: Board Meeting Materials June 19 - Due Dates \*reply req'd\*

Hi Sev,

s.13(1)

Thanks Sev

Tiina

---

**From:** Park Board GM's Office  
**Sent:** Thursday, June 07, 2018 3:41 PM  
**To:** Araujo, Sev; Mack, Tiina  
**Cc:** Wilton, Shauna; Bromley, Malcolm  
**Subject:** FW: Board Meeting Materials June 19 - Due Dates \*reply req'd\*

Hello,

s.13(1)

Thanks,

Tel: 604-257-8439  
[Jessica.Kulchyski@vancouver.ca](mailto:Jessica.Kulchyski@vancouver.ca)  
General Manager's Office  
Vancouver Board of Parks and Recreation  
2099 Beach Avenue  
Vancouver, BC, V6G 1Z4

From: "[Kirby-Yung, Sarah](mailto:Sarah.Kirby-Yung@vancouver.ca)" <[Sarah.Kirby-Yung@vancouver.ca](mailto:Sarah.Kirby-Yung@vancouver.ca)>  
To: "[Wilton, Shauna](mailto:Shauna.Wilton@vancouver.ca)" <[Shauna.Wilton@vancouver.ca](mailto:Shauna.Wilton@vancouver.ca)>  
Date: 8/29/2017 9:00:38 PM  
Subject: Re: Bowen Island Water Taxi drop-off/pick up at Coal Harbour: UPDATE

Shauna,

Thanks very much for the update and for the outreach staff will be doing tomorrow to all of the concerned Bowen Island residents.

Look forward to staff's recommendations moving forward as it relates to dock capital improvements. We have already identified capital priorities that relate to core recreation delivery, so I anticipate that staff will be prioritizing those and looking at options for dock improvements such as commercial operator contributions, lease payments or fees, etc.

Sarah Kirby-Yung  
Commissioner  
Vancouver Board of Parks and Recreation

On Aug 29, 2017, at 8:21 PM, Wilton, Shauna <[Shauna.Wilton@vancouver.ca](mailto:Shauna.Wilton@vancouver.ca)> wrote:

Hi Chair Wiebe,

Tomorrow we will communicate to everyone who has contacted the commissioners.

Thanks,  
Shauna

Sent from my iPhone

On Aug 29, 2017, at 6:03 PM, Wiebe, Michael <[Michael.Wiebe@vancouver.ca](mailto:Michael.Wiebe@vancouver.ca)> wrote:

Hi Shauna,

Thanks for the information and making sure that the service was continued as a solution is found. Has this information been sent to all concerned users who emailed the Commissioners on this issue?

Regards,

Michael Wiebe  
Park Board Chair  
The Vancouver Park Board  
[Michael.wiebe@vancouver.ca](mailto:Michael.wiebe@vancouver.ca)  
Personal cell 604 679 0890

On Aug 29, 2017, at 5:09 PM, Wilton, Shauna <[Shauna.Wilton@vancouver.ca](mailto:Shauna.Wilton@vancouver.ca)> wrote:



Dear Commissioners:

This note is to provide you a quick update on this situation as it continues to evolve. In consultation with our Legal and Risk Management departments, we will be extending the deadline for operations off the Harbour Green Park dock until October 31, 2017 if the following conditions are met by the operator:

- (1) provide the Park Board with a copy of a valid insurance policy stating that both the City and the Park Board are additional named insureds under their insurance policy; and
- (2) apply for a business license to operate within the City of Vancouver

The revised deadline is to provide the operator additional time to submit a business proposal to the Board for consideration and/or secure an alternate location. We are still awaiting agreement from the operator to these terms.

In addition to our recent Park Bridges and Marine Structures inspection report, our marine consultant inspected the dock last week and identified repairs that will be undertaken over this next week to accommodate commercial vessel operations on a short term basis. Should long term commercial operations be considered off the Harbour Green Park dock, capital improvements are currently being identified to accommodate the potential commercial use. We will continue to work with all interested marine operators and present recommendations to the Board as opportunities present themselves.

Staff will be responding to the emails of concern we've received from the public tomorrow.

Please let me know if you have any questions or concerns.

Regards,  
Shauna

**From:** Wilton, Shauna  
**Sent:** Friday, August 25, 2017 8:51 AM  
**To:** Kirby-Yung, Sarah; PB Commissioners  
**Cc:** Bromley, Malcolm; Park Board GM's Office; Araujo, Sev ([sev.araujo@vancouver.ca](mailto:sev.araujo@vancouver.ca))  
**Subject:** RE: Bowen Island Water Taxi drop-off/pick up at Coal Harbour (2)

Dear Commissioners:

We're still awaiting confirmation of the ability for these operators to use the dock from a safety and liability perspective. I am reluctant to extend their operations as an interim measure until I have a better idea of where that is going to land. It is a high priority and we have engaged an outside firm to do that assessment.

Staff will respond to all the emails received once we have a path forward.

Thanks,  
Shauna

---

**From:** Kirby-Yung, Sarah  
**Sent:** Friday, August 25, 2017 7:50 AM  
**To:** Wilton, Shauna  
**Cc:** PB Commissioners; Bromley, Malcolm; Park Board GM's Office  
**Subject:** Re: Bowen Island Water Taxi drop-off/pick up at Coal Harbour (2)

Thx Shauna. Any update? Commissioners are getting another flurry of emails now.

Also will staff be responding to all of the emails once there is a go forward?



Sarah Kirby-Yung  
Commissioner  
Vancouver Board of Parks and Recreation

On Aug 23, 2017, at 8:51 AM, Wilton, Shauna <[Shauna.Wilton@vancouver.ca](mailto:Shauna.Wilton@vancouver.ca)> wrote:

Hi Sarah,

I'm expecting an update by the end of the day today. I will keep everyone posted.

Thanks,  
Shauna

---

**From:** Kirby-Yung, Sarah  
**Sent:** Tuesday, August 22, 2017 7:03 PM  
**To:** Wilton, Shauna  
**Cc:** PB Commissioners; Bromley, Malcolm; Park Board GM's Office  
**Subject:** Re: Bowen Island Water Taxi drop-off/pick up at Coal Harbour (2)

Hello Shauna,

Wondering if there is an update on this situation?

Sarah Kirby-Yung  
Commissioner  
Vancouver Board of Parks and Recreation

On Aug 22, 2017, at 10:35 AM, s.22(1) wrote:

Dear Mr. Bromley, dear Park Commissioners,

In less than 10 days the Bowen Island Water Taxi will have to cease its daily commuter runs between Coal Harbour and Bowen Island, because of a decision by Parks Board staff to disallow our small water taxi to drop off and pick up commuters at the Coal Harbour dock after August 31st.

**I urge you to take action to ensure that this vital commuter connection between Vancouver and Bowen Island is preserved.**

I refer to my earlier email to you (copied below) on this matter, as well as the many other emails that you have received from concerned islanders. Alas the Parks Board has not yet responded, or reversed its course.

Surely you will recognize that established water taxi services like the Bowen Belle form a vital part of our regional transportation network. I am curious to learn what public interest is served by forbidding this small vessel serving hard-working commuters to stop a few minutes at the dock each weekday, after 8 complaint-free years. I learned that when security was tight during the 2010 Olympics the water taxi operators even received the key for the dock from Parks Board staff. The optics of the Parks Board now catering to the whims of a few private yacht owners without establishing the facts first, is not good. The short stops of the tiny Bowen Belle early mornings and late afternoons on weekdays, have a minimal impact on the availability of dock space for recreational users. On most days the dock is empty when the Belle arrives.



Please do not punish our water taxi for the behaviour of other boat operators.

Sincerely,

s.22(1)



On Aug 9, 2017, at 4:02 PM, Park Board GM's Office <[pbgmo@vancouver.ca](mailto:pbgmo@vancouver.ca)> wrote:

Dear s.22(1)

Thank you for contacting the Vancouver Board of Parks and Recreation regarding your concerns about the Bowen Island Water Taxi drop-off/pick up at Coal Harbour. We have referred the matter to our who will review the matter and respond to you accordingly.

Thank you again and kind regards,

Ellen

**Ellen Sangalang**

Executive Assistant/Office of the General Manager

Vancouver Board of Parks & Recreation

2099 Beach Avenue, Vancouver, BC V6G 1Z4

Tel: 604-257-8448

Email: [pbgmo@vancouver.ca](mailto:pbgmo@vancouver.ca)

---

**From:** s.22(1)

**Sent:** Wednesday, August 09, 2017 3:29 PM

**To:** PB Commissioners

**Subject:** Bowen Island Water Taxi drop-off/pick up at Coal Harbour

**Importance:** High

Dear commissioners,

**With this email I ask you to suspend the sudden parks board decision to prevent access to the Bowen Island Water taxi to the Coal Harbour dock after August, 31st.**

I learned that earlier today the Vancouver Parks Board has contacted Bowen Island Water Taxi operator Mike Shannon to tell him that his small 12-14 passenger ship (picture of the "Bowen Belle" attached) is not welcome at the Coal Harbour dock anymore after August 31st. I understand that this decision is based on the fact that there have been complaints from recreational boat owners about (other) commercial operators preventing private boat access to the dock.

Many Bowen Islanders like me depend on the fast water taxi every weekday to get to work in downtime Vancouver and back in time. BC Ferries is a much more time-consuming and costly alternative. This decision at short notice and without consultation is a considerable concern for a lot of commuters on our island. It has

caused quite a stir. It is also bad optics: the parks board chooses to promote the interests of the owners of private recreational vessels instead of showing consideration for commuters from Bowen travelling in a tiny ship.

The Bowen Island water taxi has been transporting commuters living on Bowen and working in downtown Vancouver since 2009. On weekdays it stops at the dock for a maximum of 10 minutes twice in the early morning, and twice in the late afternoon. There is always space on the Coal Harbour dock for the water taxi to make its quick stop. Its rates are affordable. Although this is formally a commercial service it is certainly not a money maker for the owners, who volunteer many hours per week to ensure that those living on Bowen can commute to Vancouver. Because of that it has become a vital community service. It also helps prevent an increase in car traffic and further pressure on public transport from and to downtown Vancouver.

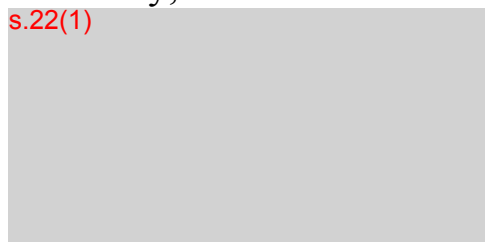
In recent months another commercial ferry operator (Pacific Ferries - not serving Bowen Island) has started using the public dock at Coal Harbour. They operate a much larger vessel, and (unlike the Bowen Island Water Taxi) let it stay at the dock for a long time on a daily basis, weekends included. Surely there are better ways to manage this situation than to punish the long-standing operators of Bowen Belle for a situation they did not create by disallowing all commercial boats including water taxis after August 31st.

I ask you to see to it that the the Bowen Island water taxi can continue to operate with short stops at the Coal Harbour dock, and that alternative measures are considered to prevent an alleged hindrance of private recreational ships access to the dock. The creation of a small drop-off zone at the dock, with a maximum allowed docking time of 10 minutes, would already resolve this in a much less harmful way.

Thank you for your consideration.

Sincerely,

s.22(1)



.<image001.jpg>



From: ["Mack, Tiina" <tiina.mack@vancouver.ca>](mailto:tiina.mack@vancouver.ca)  
To: ["Jackson, Steve" <Steve.Jackson@vancouver.ca>](mailto:Steve.Jackson@vancouver.ca)  
Date: 8/24/2017 3:36:41 PM  
Subject: Re: Change orders? - Associated Engineering for Harbour Green Dock

Thanks Steve,

I don't think we need to meet tomorrow, no co's are on my desk!

Tiina

Sent from my iPhone

> On Aug 24, 2017, at 3:21 PM, Jackson, Steve <Steve.Jackson@vancouver.ca> wrote:

>

> This is fine.

>

> -----Original Message-----

> From: Mack, Tiina

> Sent: Thursday, August 24, 2017 12:35 PM

> To: Jackson, Steve; Araujo, Sev

> Cc: Nayeri, Ali

> Subject: FW: Change orders? - Associated Engineering for Harbour Green Dock

>

> Hi Steve and Sev,

>

> Ali has arranged for a s.17(1) on our existing Associated Engineering contract (marine and bridge structures condition assessment) for the Harbour Green dock to address the commercial operator issue. We don't have the paperwork yet. I will likely need to charge this to the pavement account. A report will be finalized by next week.

>

> Please let us know if you have concerns. We understand this is a priority so have gone ahead.

>

> Thanks Steve,

>

> Tiina

>

>

> -----Original Message-----

> From: Nayeri, Ali

> Sent: Thursday, August 24, 2017 10:37 AM

> To: Mack, Tiina

> Subject: RE: Change orders?

>

> Hi Tiina,

> We received a price for the preliminary analysis of Harbour Green (\$3,000) but it is not a formal change order. I can instruct AE to proceed if acceptable and take care of the CO in September.

>

> One thing to note, their review will be site inspection, noting problems and commenting on safety of pedestrians. Mike is still trying to figure out what kind of effort is needed to evaluate what types of vessels it was designed for and can service. He says he can get back to us next week with the price and that work may take more time to complete.

>

> Regards,

> Ali

>

>

> -----Original Message-----

> From: Mack, Tiina

> Sent: Thursday, August 24, 2017 6:57 AM

> To: McLeod, Joe; Barnes, Debra; Dykstra, Justin; Yurkovich, David; Man-Bourdon, Alexandre; Nayeri, Ali

> Subject: Change orders?

>

> Hi,

>

> Steve and I are both away next week. If you have any change orders we have a meeting tomorrow morning at 9 am.

>

> If you have CO's please let me know today otherwise we will cancel the meeting.

>

> Thanks all

>

> Tiina

>

> Sent from my iPhone

From: ["Araujo, Sev" <Sev.Araujo@vancouver.ca>](mailto:Sev.Araujo@vancouver.ca)  
To: ["Mack, Tiina" <tiina.mack@vancouver.ca>](mailto:tiina.mack@vancouver.ca)  
Date: 8/24/2017 1:08:50 PM  
Subject: RE: Change orders? Harbour Green dock

Good to know; thank you!

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

-----Original Message-----

From: Mack, Tiina  
Sent: Thursday, August 24, 2017 1:04 PM  
To: Araujo, Sev  
Cc: Nayeri, Ali; Wilton, Shauna  
Subject: RE: Change orders? Harbour Green dock

Hi Sev,

I was wrong about timing, Ali corrected me. The consultant will look at this tomorrow likely so we will have validation of the safety piece sooner!

This is an extra because our scope of work didn't include this nature of review, for commercial vessels, it was a condition assessment of a recreational dock and was already completed so going back is a valid extra I think.

Cheers

Tiina

-----Original Message-----

From: Araujo, Sev  
Sent: Thursday, August 24, 2017 12:58 PM  
To: Mack, Tiina  
Cc: Nayeri, Ali; Wilton, Shauna  
Subject: RE: Change orders? Harbour Green dock

Hi Tiina,

We will have to come up with an interim solution. If week after next is earliest we will come up with something

Out of curiosity, if the consultant has already been out as part of the report to do an inspection last year, what are they doing now for an additional \$3,000 over and above their initial findings



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

-----Original Message-----

From: Mack, Tiina  
Sent: Thursday, August 24, 2017 12:36 PM  
To: Araujo, Sev  
Cc: Nayeri, Ali  
Subject: FW: Change orders? Harbour Green dock

Hi Sev,

Sorry we can't get the evaluation done until after next week....

Can this work for your timing?

Thanks Sev,

Tiina

-----Original Message-----

From: Nayeri, Ali  
Sent: Thursday, August 24, 2017 10:37 AM  
To: Mack, Tiina  
Subject: RE: Change orders?

Hi Tiina,

We received a price for the preliminary analysis of Harbour Green (\$3,000) but it is not a formal change order. I can instruct AE to proceed if acceptable and take care of the CO in September.

One thing to note, their review will be site inspection, noting problems and commenting on safety of pedestrians. Mike is still trying to figure out what kind of effort is needed to evaluate what types of vessels it was designed for and can service. He says he can get back to us next week with the price and that work may take more time to complete.

Regards,  
Ali

-----Original Message-----

From: Mack, Tiina  
Sent: Thursday, August 24, 2017 6:57 AM  
To: McLeod, Joe; Barnes, Debra; Dykstra, Justin; Yurkovich, David; Man-Bourdon, Alexandre; Nayeri, Ali  
Subject: Change orders?

Hi,

Steve and I are both away next week. If you have any change orders we have a meeting tomorrow morning at 9 am.

If you have CO's please let me know today otherwise we will cancel the meeting.

Thanks all

Tiina

Sent from my iPhone



From: ["Mack, Tiina" <tiina.mack@vancouver.ca>](mailto:Tiina.mack@vancouver.ca)  
To: ["Chan, Cheryl" <Cheryl.Chan@vancouver.ca>](mailto:Cheryl.Chan@vancouver.ca)  
["Jackson, Steve" <Steve.Jackson@vancouver.ca>](mailto:Steve.Jackson@vancouver.ca)  
["Wilton, Shauna" <Shauna.Wilton@vancouver.ca>](mailto:Shauna.Wilton@vancouver.ca)  
["Kulchyski, Jessica" <Jessica.Kulchyski@vancouver.ca>](mailto:Jessica.Kulchyski@vancouver.ca)  
Date: 6/14/2018 12:27:19 PM  
Subject: s.13(1)

s.13(1)

Thank you

Tiina

---

**From:** Chan, Cheryl  
**Sent:** Thursday, June 14, 2018 12:16 PM  
**To:** Jackson, Steve; Mack, Tiina; Wilton, Shauna; Kulchyski, Jessica  
**Cc:** Araujo, Sev; Nayeri, Ali  
**Subject:** s.13(1)

Hi all,

Just need the final word on this... any further changes?

Thanks,

c.

~~~~~

Cheryl Chan
Office of the General Manager
Vancouver Park Board

2099 Beach Avenue
Vancouver, BC V6G 1Z4
t: 604.257.8451 m: 604.313.0629
e: Cheryl.Chan@vancouver.ca

From: Jackson, Steve
Sent: Thursday, June 14, 2018 10:38 AM
To: Mack, Tiina; Wilton, Shauna; Kulchyski, Jessica; Chan, Cheryl
Cc: Araujo, Sev; Nayeri, Ali
Subject: s.13(1)

s.13(1)

From: Mack, Tiina
Sent: Thursday, June 14, 2018 9:35 AM
To: Jackson, Steve; Wilton, Shauna; Kulchyski, Jessica; Chan, Cheryl
Cc: Araujo, Sev; Nayeri, Ali
Subject: s.13(1)

Hi Steve,

s.13(1)

s.13(1)

Thanks Steve

Tiina

From: Jackson, Steve
Sent: Thursday, June 14, 2018 9:22 AM
To: Wilton, Shauna; Mack, Tiina; Kulchyski, Jessica; Chan, Cheryl
Cc: Araujo, Sev; Nayeri, Ali
Subject: s.13(1)

s.13(1)

From: Wilton, Shauna
Sent: Wednesday, June 13, 2018 8:07 PM
To: Mack, Tiina; Kulchyski, Jessica; Jackson, Steve; Chan, Cheryl
Cc: Araujo, Sev; Nayeri, Ali
Subject: s.13(1)

Hi all,

s.13(1)

Thanks,
Shauna

From: Mack, Tiina
Sent: Wednesday, June 13, 2018 4:37 PM
To: Kulchyski, Jessica; Wilton, Shauna; Jackson, Steve
Cc: Araujo, Sev; Nayeri, Ali
Subject: s.13(1)

Hello,

s.13(1)

s.13(1)

Thanks very much

Tiina

From: Kulchyski, Jessica
Sent: Wednesday, June 13, 2018 4:19 PM
To: Wilton, Shauna; Jackson, Steve
Cc: Mack, Tiina; Araujo, Sev
Subject: s.13(1)

Hello All,

s.13(1)

Thanks!
Jess

*Tel: 604-257-8439
Jessica.Kulchyski@vancouver.ca
General Manager's Office
Vancouver Board of Parks and Recreation
2099 Beach Avenue
Vancouver, BC, V6G 1Z4*

From: "Araujo, Sev" <Sev.Araujo@vancouver.ca>
To: "Chan, Cheryl" <Cheryl.Chan@vancouver.ca>
"Wilton, Shauna" <Shauna.Wilton@vancouver.ca>
Date: 6/13/2018 9:07:43 PM
Subject: s.13(1)

Thank you everyone for your help and input

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: Chan, Cheryl
Sent: Wednesday, June 13, 2018 8:47 PM
To: Wilton, Shauna
Cc: Mack, Tiina; Kulchyski, Jessica; Jackson, Steve; Araujo, Sev; Nayeri, Ali
Subject: s.13(1)

s.13(1)

Thanks,
C.
~~~~~  
Cheryl Chan  
Office of the General Manager  
Vancouver Park Board

2099 Beach Avenue  
Vancouver, BC V6G 1Z4  
t: 604.257.8451 m: 604.313.0629  
e: [Cheryl.Chan@vancouver.ca](mailto:Cheryl.Chan@vancouver.ca)

On Jun 13, 2018, at 8:07 PM, Wilton, Shauna <[Shauna.Wilton@vancouver.ca](mailto:Shauna.Wilton@vancouver.ca)> wrote:

Hi all,

s.13(1)

Thanks,  
Shauna

**From:** Mack, Tiina  
**Sent:** Wednesday, June 13, 2018 4:37 PM  
**To:** Kulchyski, Jessica; Wilton, Shauna; Jackson, Steve  
**Cc:** Araujo, Sev; Nayeri, Ali  
**Subject:** s.13(1)

Hello,

s.13(1)

s.13(1)

Thanks very much

Tiina

**From:** Kulchyski, Jessica  
**Sent:** Wednesday, June 13, 2018 4:19 PM  
**To:** Wilton, Shauna; Jackson, Steve  
**Cc:** Mack, Tiina; Araujo, Sev  
**Subject:** s.13(1)

Hello All,

s.13(1)

Thanks!  
Jess

Tel: 604-257-8439  
[Jessica.Kulchyski@vancouver.ca](mailto:Jessica.Kulchyski@vancouver.ca)  
General Manager's Office  
Vancouver Board of Parks and Recreation  
2099 Beach Avenue  
Vancouver, BC, V6G 1Z4



From: ["Chan, Cheryl" <Cheryl.Chan@vancouver.ca>](mailto:Cheryl.Chan@vancouver.ca)  
To: ["Mack, Tiina" <tiina.mack@vancouver.ca>](mailto:tiina.mack@vancouver.ca)  
["Jackson, Steve" <Steve.Jackson@vancouver.ca>](mailto:Steve.Jackson@vancouver.ca)  
["Wilton, Shauna" <Shauna.Wilton@vancouver.ca>](mailto:Shauna.Wilton@vancouver.ca)  
["Kulchyski, Jessica" <Jessica.Kulchyski@vancouver.ca>](mailto:Jessica.Kulchyski@vancouver.ca)  
Date: 6/14/2018 12:47:29 PM  
Subject: s.13(1)

Ok all... I'm going in & will be renaming so although your link will still work, it will not be the current document so if any further edits are required, let me know.

Thanks,

C.

~~~~~

Cheryl Chan

Office of the General Manager
Vancouver Park Board

2099 Beach Avenue
Vancouver, BC V6G 1Z4
t: 604.257.8451 m: 604.313.0629
e: Cheryl.Chan@vancouver.ca

From: Mack, Tiina
Sent: Thursday, June 14, 2018 12:41 PM
To: Chan, Cheryl; Jackson, Steve; Wilton, Shauna; Kulchyski, Jessica
Cc: Araujo, Sev; Nayeri, Ali
Subject: s.13(1)

Steve and I made some final changes and he has concurred

Cheers

Tiina

From: Chan, Cheryl
Sent: Thursday, June 14, 2018 12:16 PM
To: Jackson, Steve; Mack, Tiina; Wilton, Shauna; Kulchyski, Jessica
Cc: Araujo, Sev; Nayeri, Ali
Subject: s.13(1)

Hi all,

Just need the final word on this... any further changes?

Thanks,

C.

~~~~~

**Cheryl Chan**

Office of the General Manager  
Vancouver Park Board

2099 Beach Avenue  
Vancouver, BC V6G 1Z4  
t: 604.257.8451 m: 604.313.0629

e: [Cheryl.Chan@vancouver.ca](mailto:Cheryl.Chan@vancouver.ca)

---

**From:** Jackson, Steve  
**Sent:** Thursday, June 14, 2018 10:38 AM  
**To:** Mack, Tiina; Wilton, Shauna; Kulchyski, Jessica; Chan, Cheryl  
**Cc:** Araujo, Sev; Nayeri, Ali  
**Subject:** s.13(1)

s.13(1)

---

**From:** Mack, Tiina  
**Sent:** Thursday, June 14, 2018 9:35 AM  
**To:** Jackson, Steve; Wilton, Shauna; Kulchyski, Jessica; Chan, Cheryl  
**Cc:** Araujo, Sev; Nayeri, Ali  
**Subject:** s.13(1)

Hi Steve,

s.13(1)

Thanks Steve

Tiina

---

**From:** Jackson, Steve  
**Sent:** Thursday, June 14, 2018 9:22 AM  
**To:** Wilton, Shauna; Mack, Tiina; Kulchyski, Jessica; Chan, Cheryl  
**Cc:** Araujo, Sev; Nayeri, Ali  
**Subject:** s.13(1)

s.13(1)

---

**From:** Wilton, Shauna  
**Sent:** Wednesday, June 13, 2018 8:07 PM  
**To:** Mack, Tiina; Kulchyski, Jessica; Jackson, Steve; Chan, Cheryl  
**Cc:** Araujo, Sev; Nayeri, Ali  
**Subject:** s.13(1)

Hi all,

s.13(1)

Thanks,  
Shauna

---

**From:** Mack, Tiina  
**Sent:** Wednesday, June 13, 2018 4:37 PM  
**To:** Kulchyski, Jessica; Wilton, Shauna; Jackson, Steve  
**Cc:** Araujo, Sev; Nayeri, Ali  
**Subject:** s.13(1)

Hello,

s.13(1)

s.13(1)

Thanks very much

Tiina

---

**From:** Kulchyski, Jessica  
**Sent:** Wednesday, June 13, 2018 4:19 PM  
**To:** Wilton, Shauna; Jackson, Steve  
**Cc:** Mack, Tiina; Araujo, Sev  
**Subject:** s.13(1)

Hello All,

s.13(1)

Thanks!  
Jess

*Tel: 604-257-8439  
[Jessica.Kulchyski@vancouver.ca](mailto:Jessica.Kulchyski@vancouver.ca)  
General Manager's Office  
Vancouver Board of Parks and Recreation  
2099 Beach Avenue  
Vancouver, BC, V6G 1Z4*



From: "[Herod, Megan](#)" <[Megan.Herod@vancouver.ca](mailto:Megan.Herod@vancouver.ca)>  
To: "[Embley, Erin](#)" <[Erin.Embley@vancouver.ca](mailto:Erin.Embley@vancouver.ca)>  
Date: 7/6/2018 1:45:21 PM  
Subject: RE: Harbour Green Doc  
Attachments: Dock Precedent Matrix.pdf  
Harbour Green Dock Research July 6.docx

Hello,  
I've pulled together a summary of Coal Harbour jurisdiction, a scan of precedent research from around the region and some possibilities for Harbour Green. The matrix, attached, primarily focuses on municipal docks, their management model, payment structure and enforcement.

Let me know if this is helpful, I'd be happy to do more research focusing on moorage in Vancouver including private facilities to get a sense of cost and type of model or I could broaden our review further afield.

Thanks,  
Meg

---

**From:** Embley, Erin  
**Sent:** Wednesday, June 27, 2018 4:03 PM  
**To:** Herod, Megan  
**Cc:** Howard, Katherine; Mack, Tiina; Nayeri, Ali; Muntasir, Sardar  
**Subject:** Harbour Green Doc

Hi Meg,

s.13(1)

s.13(1)



with me.

please clarify if I have missed anything or captured this request incorrectly. Also please confirm your required timing

Thank you,  
Erin

**Erin Embley | Planner**  
Vancouver Board of Parks and Recreation | 2099 Beach Avenue  
t. 604.654.0984 | c.604.353.4018  
[erin.embley@vancouver.ca](mailto:erin.embley@vancouver.ca)



|                                                                                 |  |
|---------------------------------------------------------------------------------|--|
|  |  |
|---------------------------------------------------------------------------------|--|







## Harbour Green Dock Research

Background and Precedent Research, July 2018

### *Summary of Jurisdiction*

The Port of Vancouver has jurisdiction over Coal Harbour. Non-motorized watercraft are not permitted within the first narrows to second narrows which includes Coal Harbour. The area speed is restricted to 5 knots.

The only permitted exception is the Vancouver Rowing Club who practices in and around their rowing club in Coal Harbour. The rowing club was built in 1911 and holds a licence agreement with the Vancouver Fraser River Port Authority. Their ability to use Coal Harbour for non-motorized watercraft has been grandfathered in.

### *Review of Docks for Moorage in Other Municipalities*

I did a preliminary scan of docks at a range of scales and with differing management models depending on municipality, region or private ownership. I primarily focused on docks managed by municipalities in the region but included a few docks with private ownership models for comparison. A common theme across all docks used for moorage is a fee structure that changes based on season with an increase during summer months and the ability to charge based on size of vessel and type of use. In all cases, users require a permit for long-term or regular use that is often applied for and managed through the municipality or region.

### *Potential Application to Harbour Green*

- ☐ A fee structure for transient use, commercial use and commercial loading/unloading
- ☐ Set 15-30 minute drop-off fees for commercial operators or float planes
- ☐ Resident of Vancouver versus visitor fees
- ☐ Moorage only permitted during park hours (District of N. Vancouver model)
- ☐ High and low season rates
- ☐ Holiday rates
- ☐ Ticket dispensing boxes at dock
- ☐ Enforcement by staff

From: ["Myles, Natalia" <Natalia.Myles@vancouver.ca>](mailto:Natalia.Myles@vancouver.ca)  
To: ["Nayeri, Ali" <Ali.Nayeri@vancouver.ca>](mailto:Ali.Nayeri@vancouver.ca)  
Date: 10/23/2017 1:34:25 PM  
Subject: RE: Harbour Green Dock: Existing Condition

Thanks for the quick response, Ali. I'll let our consultant know.

Regards,

Natalia Myles, P.Eng., LEED AP



---

**From:** Nayeri, Ali  
**Sent:** Friday, October 20, 2017 3:43 PM  
**To:** Myles, Natalia  
**Cc:** Mack, Tiina  
**Subject:** Re: Harbour Green Dock: Existing Condition

Hi Natalia,

Thanks for forwarding me this report. We are aware of these issues and had already had Associated Engineering complete an assessment of the structure. We are just waiting for direction on how to proceed with the repairs.

Regards,  
Ali

On Oct 20, 2017, at 2:42 PM, Myles, Natalia <[Natalia.Myles@vancouver.ca](mailto:Natalia.Myles@vancouver.ca)> wrote:

Hi Ali,

The SED Structures branch has been doing some work at Waterfront for sea wall rehab this past year.

Our consultant, SNC Lavalin, regularly gets picked up on a boat by the Harbour Green Dock to review the Contractor's work at Waterfront. SNC has noted some existing damage to the dock and I wanted to bring it to your attention. Attached please find SNC's memo regarding the dock.

Regards,



**City of Vancouver**  
320 - 507 W Broadway, Vancouver, V5Z 0B4  
office: 604.606.2746  
fax: 604-873-7200  
e-mail: [natalia.myles@vancouver.ca](mailto:natalia.myles@vancouver.ca)





From: "Nayeri, Ali" <Ali.Nayeri@vancouver.ca>  
To: "Storer, Paul" <paul.storer@vancouver.ca>  
Date: 6/6/2018 3:02:36 PM  
Subject: RE: Harbour Green Dock  
Attachments: 2018\_05\_16\_harbour\_green dock\_discussion.pdf

Hi Paul,

Thanks for getting in touch with us. Please find attached a presentation we had prepared that provides a bit of background on the dock and the current issues.

We have a couple of report that I would be happy to share if you would like to review the details.

Best regards,  
Ali

---

**From:** Storer, Paul  
**Sent:** Tuesday, June 05, 2018 7:59 AM  
**To:** Araujo, Sev; Mack, Tiina; Nayeri, Ali  
**Subject:** RE: Harbour Green Dock

Great – thanks. Any info would be helpful.

Cheers,

Paul

---

**From:** Araujo, Sev  
**Sent:** Monday, June 04, 2018 9:34 PM  
**To:** Storer, Paul; Mack, Tiina; Nayeri, Ali  
**Subject:** Re: Harbour Green Dock

s.13(1)

s.13(1)

s.13(1)

s.13(1)

Sev

Please excuse the brevity of this email, it is being sent from my iPhone

On Jun 4, 2018, at 8:37 PM, Storer, Paul <paul.storer@vancouver.ca> wrote:

Hi Sev,

Jerry wants to have a discussion about what to do (and who does it) with Harbour Green Dock. Do you have any technical info about the issues?

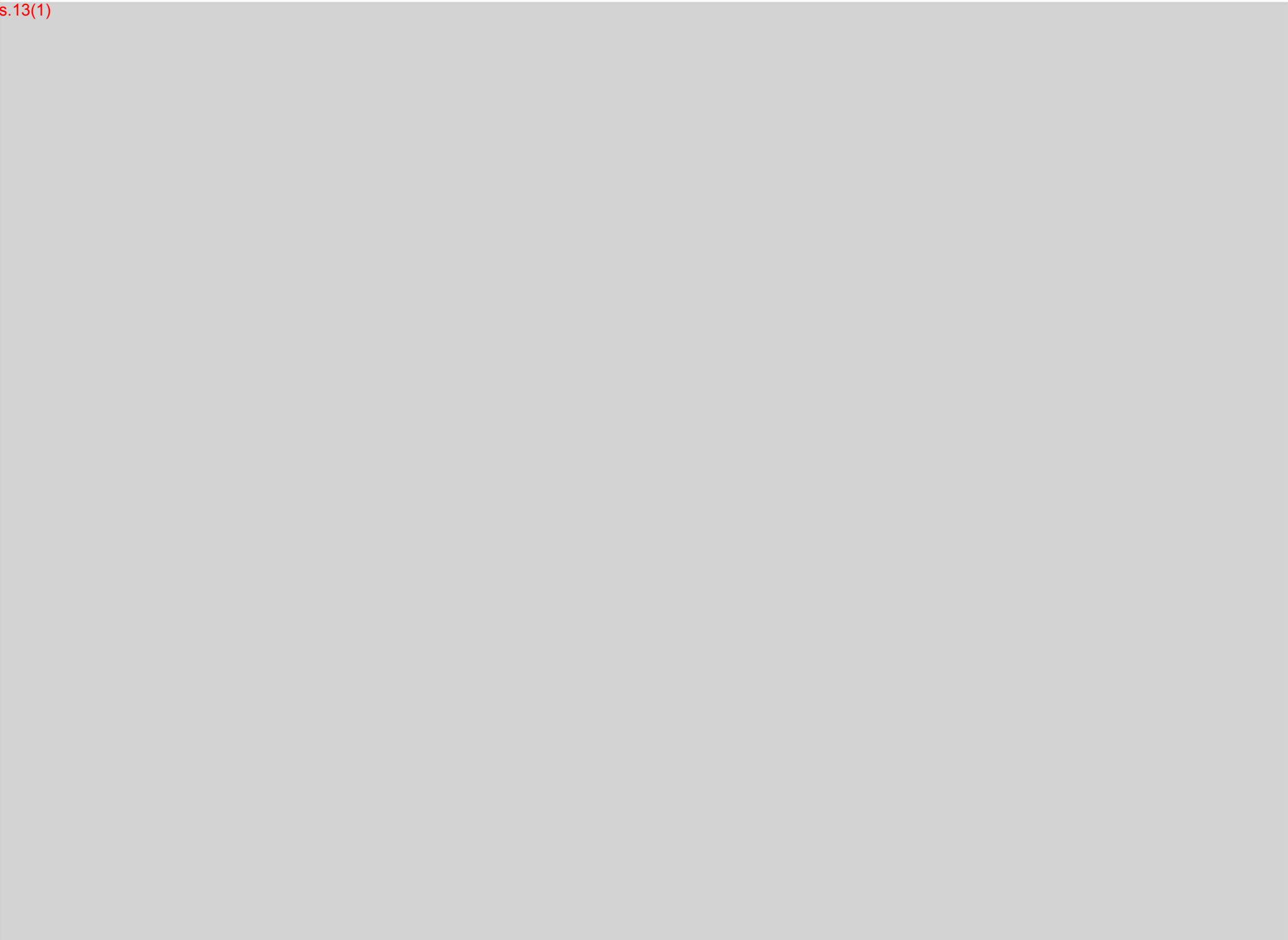
Thanks,

Paul

Paul Storer P.Eng.  
Manager of Transportation Design | City of Vancouver  
p: 604 873 7693  
m: 604 763 5619  
[paul.storer@vancouver.ca](mailto:paul.storer@vancouver.ca)



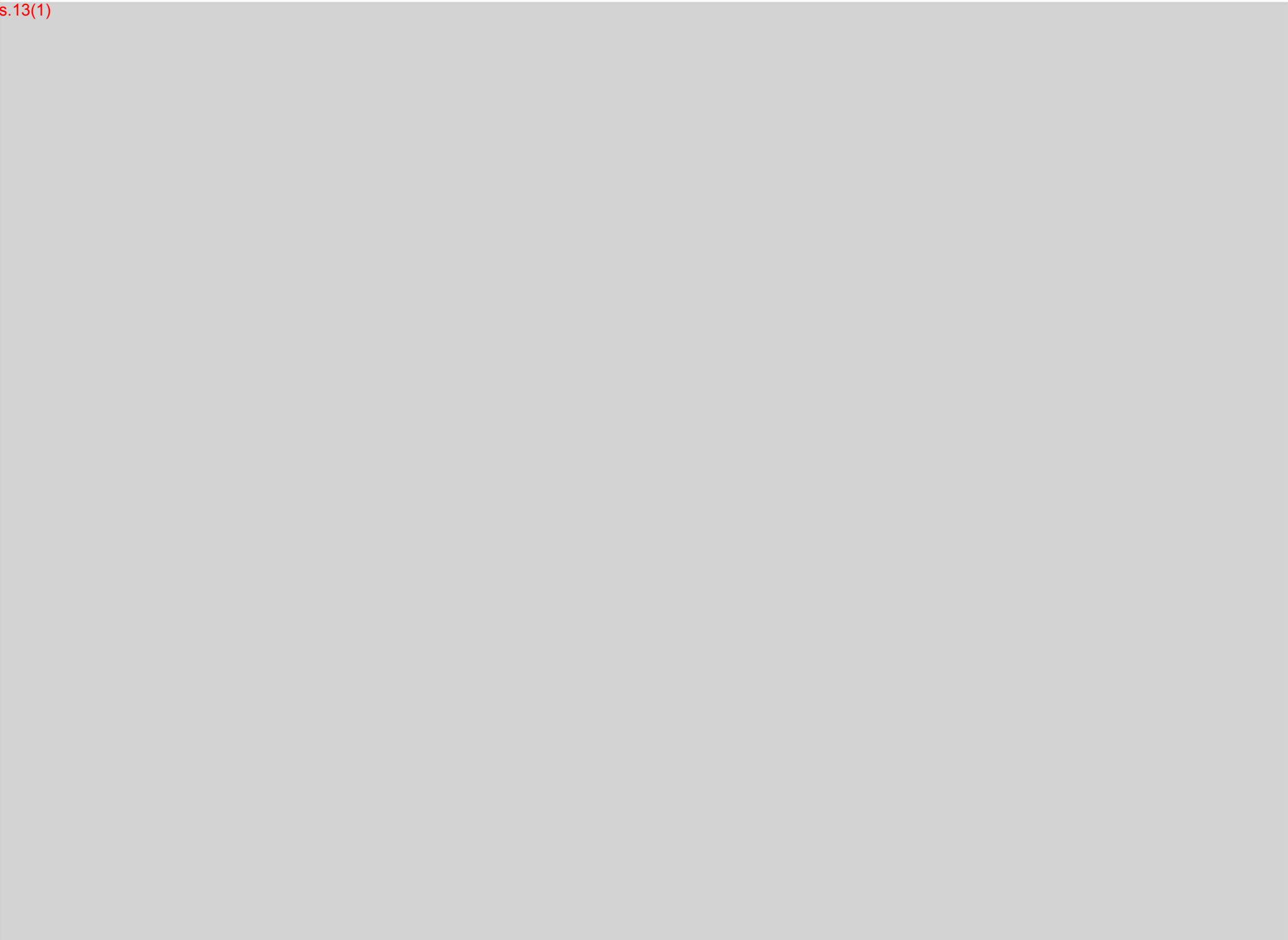








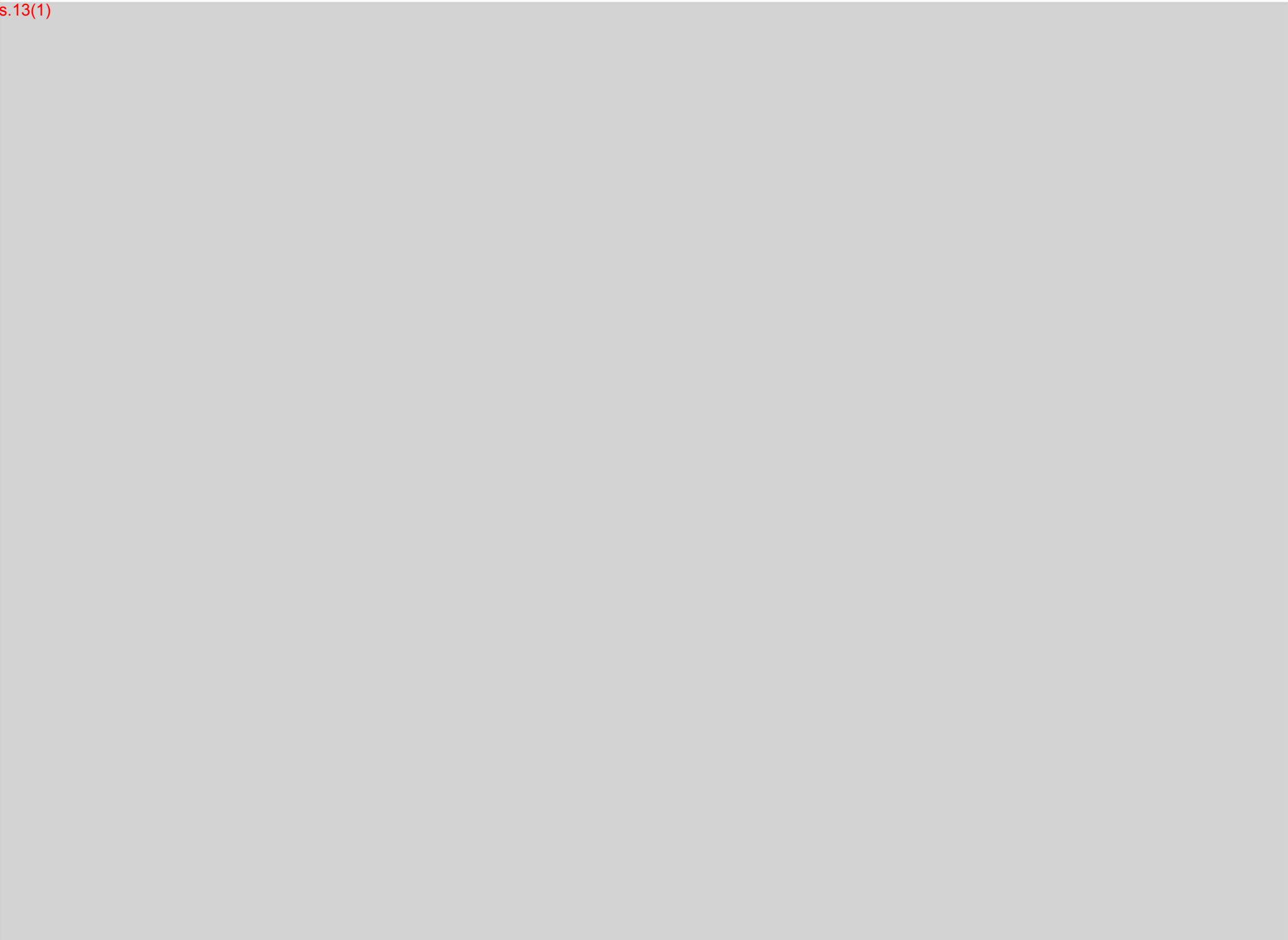








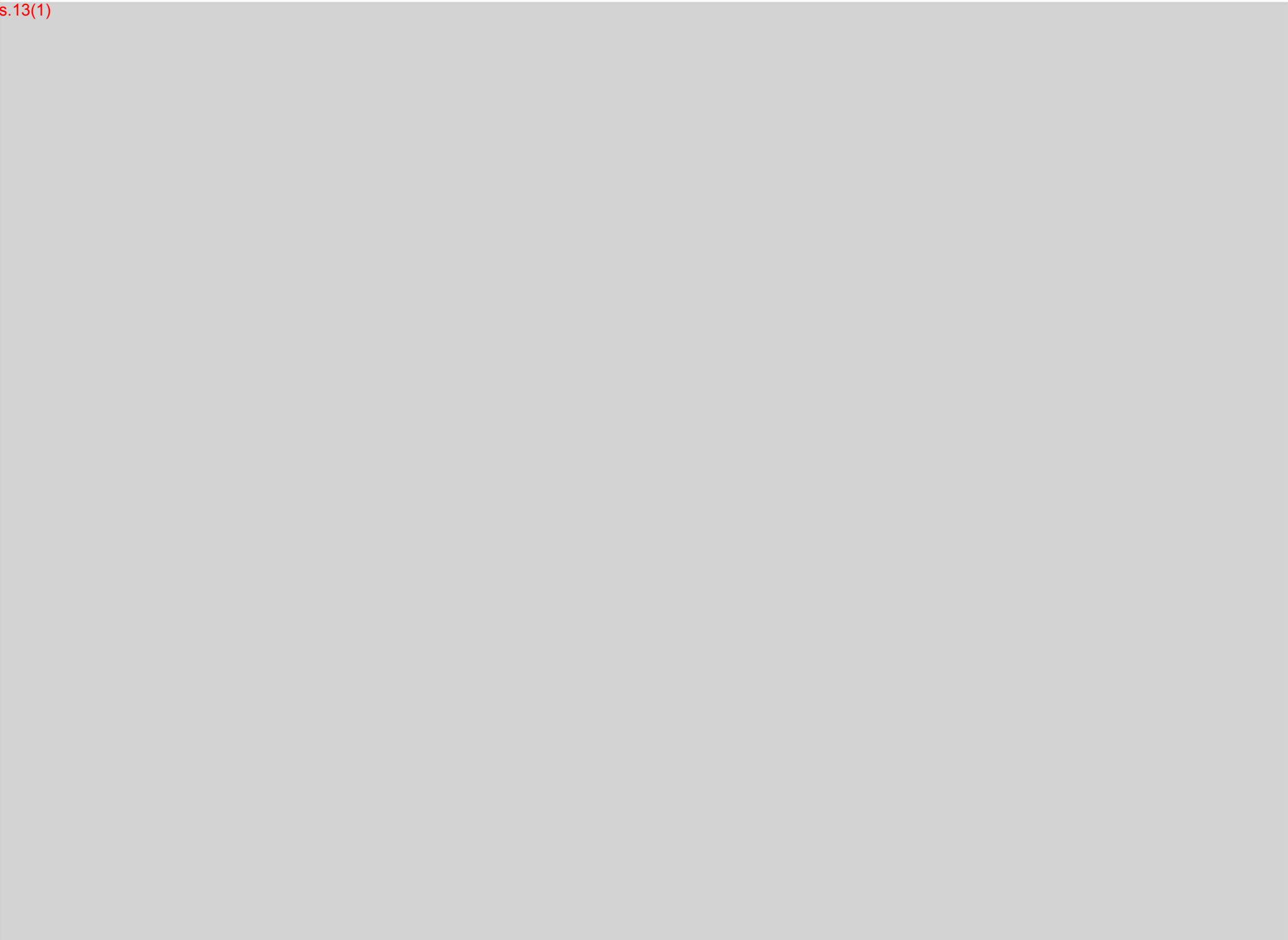








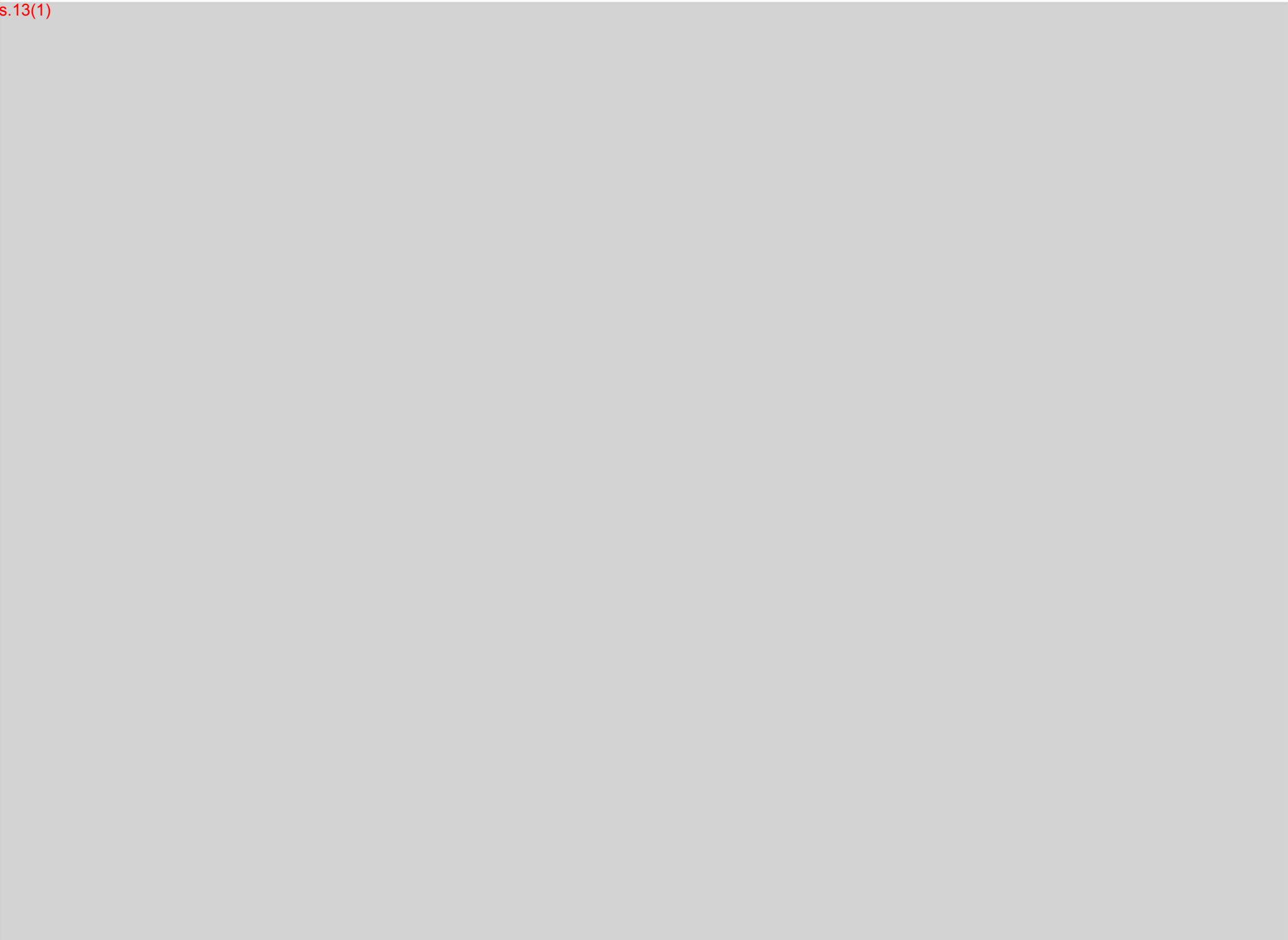












From: ["Araujo, Sev" <Sev.Araujo@vancouver.ca>](mailto:Sev.Araujo@vancouver.ca)  
To: ["Nayeri, Ali" <Ali.Nayeri@vancouver.ca>](mailto:Ali.Nayeri@vancouver.ca)  
Date: 8/24/2017 6:29:19 PM  
Subject: RE: Harbour Green Dock

Thanks Ali

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

-----Original Message-----

From: Nayeri, Ali  
Sent: Thursday, August 24, 2017 10:53 AM  
To: Araujo, Sev; Mack, Tiina  
Cc: Augustine, Ray; Normann, Howard; Wilton, Shauna  
Subject: RE: Harbour Green Dock

Hi Sev,

Thank you for following up on the vessel data. That information is necessary for their analysis. Our consultants has indicated that they can inspect and update their previous report. They can also comment on any safety issues for the public (none were reported for the last inspection). However, in regards to suitability for commercial operations, they think more analysis is required given that we don't have complete information about what types of vessels and service the dock was designed for. I've asked if they can provide an opinion on short-term operational safety by the deadline. I will let you know when I get their response.

Regards,  
Ali

-----Original Message-----

From: Araujo, Sev  
Sent: Thursday, August 24, 2017 10:15 AM  
To: Mack, Tiina  
Cc: Nayeri, Ali; Augustine, Ray; Normann, Howard; Wilton, Shauna  
Subject: Re: Harbour Green Dock

Thank you Tiina

The deadline we gave operator is August 31, so if it's possible for the to give their opinion on short term operational safety that would be most appreciated.

I will have vessel and max passenger loads for each of the scheduled 3 drop off and 3 pick ups/day in next couple of days

Sev

Please excuse the brevity of this email, it is being sent from my iPhone

> On Aug 23, 2017, at 11:42 AM, Mack, Tiina <[tiina.mack@vancouver.ca](mailto:tiina.mack@vancouver.ca)> wrote:

>

> Hi

>

> Please can you arrange a CO with Associated engineering to review the dock again or update their report to determine what is needed in both work and costs to make it safe for commercial operators.

>

> This is an ASAP! Please ask them to complete by next week.

>

> Thank you both,

>

> Tiina

>

> Sent from my iPhone

|          |                                                                                    |
|----------|------------------------------------------------------------------------------------|
| From:    | "Araujo, Sev" <Sev.Araujo@vancouver.ca>                                            |
| To:      | "Foster, Ian" <Ian.Foster@vancouver.ca><br>"Nayeri, Ali" <Ali.Nayeri@vancouver.ca> |
| Date:    | 8/21/2017 2:46:09 PM                                                               |
| Subject: | RE: Harbour Green Dock                                                             |

Hi Ian and Ali,

Based on your comments below, you can confirm that the docks in their current state are safe to access by the public, and the current non approved commercial ferry services.

I need to advise Legal and Risk Management in order for them to provide a recommendation for current, short and long term operations off the docks.

Thank you

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

---

**From:** Foster, Ian  
**Sent:** Friday, August 18, 2017 1:09 PM  
**To:** Nayeri, Ali; Araujo, Sev  
**Cc:** Horne, Tom; Mack, Tiina; Normann, Howard; Silva, Octavio; Augustine, Ray  
**Subject:** RE: Harbour Green Dock

Hi All ,  
Structures and Fabrications has in the past replaced some of the pile rollers with wear pads as well as replacing the hinge pins and hinge plates on the West access ramp, these repairs really push us to our maximum capabilities as far as equipment and to some extent expertise , We did replace all the expansion joint mats with new one piece belting and wear plates under them before the Triathlon as well as fabricated a new panel to fill in the large gap between floats on the west end. We also re fastened the expanded metal on the ramps and replaced some of the wood along the edge of the dock and two cleats that were missing.

Ian Foster

---

**From:** Nayeri, Ali  
**Sent:** Friday, August 18, 2017 11:59 AM  
**To:** Araujo, Sev  
**Cc:** Horne, Tom; Mack, Tiina; Foster, Ian; Normann, Howard; Silva, Octavio; Augustine, Ray  
**Subject:** RE: Harbour Green Dock

Hi Sev,

Further to my email from July 18, Associated Engineering has finalized their report. I have attached a VanDocs link to the report. The files are also on the network share [here](#). The report and the appendices are provided as separate files to reduce file sizes. Harbour Green dock is discussed on page 55-56 of the report PDF file. I've also attached the more detailed inspection report for the dock for your reference.

Structures and Fabrication completed a number of repairs in 2016 (total value \$25k) which I believe addressed all of the issues identified in the Blue Water Marine report. That is why those issues are not mentioned in the most recent report by AE. The issue identified in AE's inspection was abrasion and impact damage on the side of the concrete floats caused by the damage/loss of wear pads on the mooring wells. This is the same issue that Matt is pointing to in his email below. AE believes that replacing the wear pads addresses the symptoms rather than the root cause. So a part of the \$100k estimate is for further investigation and possible engineering design to retrofit the floats and improve their wave response and reduce their movement. The cost for making further design changes to the floats as a result of the engineering analysis is unknown at the moment.

With respect to commercial operations at the dock, we unfortunately don't have a design report for the structure on file so we can't determine what types of vessels and traffic the docks were meant to accommodate. Perhaps IMFS would be able to provide more information on this. Any upgrades that are necessary to allow the dock to accommodate commercial operations falls outside of the repairs estimate provided above.

Regards,  
Ali

---

**From:** Augustine, Ray  
**Sent:** Friday, August 18, 2017 11:45 AM  
**To:** Araujo, Sev  
**Cc:** Horne, Tom; Mack, Tiina; Foster, Ian; Normann, Howard; Silva, Octavio  
**Subject:** RE: Harbour Green Dock

Sev, I'm sorry but in view of the current extent of the damage from commercial use – which is likely to continue, authorized or not, by other “undeclared” groups – I can't make such a call. I must defer to Tiina's team as they have the engineering expertise.

---

**From:** Araujo, Sev  
**Sent:** Friday, August 18, 2017 11:37 AM  
**To:** Augustine, Ray  
**Cc:** Horne, Tom; Mack, Tiina; Foster, Ian; Normann, Howard; Silva, Octavio  
**Subject:** RE: Harbour Green Dock

Hi Ray,

While the Bridge and Marinas Structures Inspections report from October is not finalized yet, attached is what I pulled out of the report specific to the Harbour Green Dock.

The docks are in generally good shape, but there are maintenance/safety issues that need to be addressed before we consider any type of commercial activity ... and I would go so far as leisure activity

Having said this, if we are comfortable allowing the public and potential commercial operators on the dock in its current condition, I just need the ok so I can convey that to Legal and Risk Management as this is has reached the GM and Commissionaire level.

Please let me know who will make that decision so Octavio and I can provide a recommendation on overall use and operation, short and long term.

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

---

**From:** Augustine, Ray  
**Sent:** Friday, August 18, 2017 11:09 AM  
**To:** Araujo, Sev  
**Cc:** Horne, Tom; Mack, Tiina; Foster, Ian; Normann, Howard  
**Subject:** RE: Harbour Green Dock

Yes, we were aware of those (though when last we viewed them they weren't that bad) but they were beyond our (and REFM's) staff ,equipment, and budget resources. We did on the other hand repair the west ramp hinges ,rollers and "mat" as well as the float joints and mats. The piling repairs will have to be made through Capital and one of Tiina's project managers. I still don't see a catastrophic failure just yet.

Ian will report on what ramp maintenance we have yet to do.

There was also the issue with the buoy anchors Structures fixed. We have not ignored this site (quite the contrary) but I'm beginning to understand from these emails why the wear is excessive and accelerating beyond what we expected.  
R

---

**From:** Araujo, Sev  
**Sent:** Friday, August 18, 2017 10:57 AM  
**To:** Augustine, Ray  
**Cc:** Horne, Tom  
**Subject:** FW: Harbour Green Dock

Hi Ray,

Please see attached

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

---

**From:** Araujo, Sev  
**Sent:** Thursday, August 17, 2017 6:16 PM  
**To:** Mack, Tiina (work)  
**Cc:** Shauna Wilton; Silva, Octavio; Howard Normann  
**Subject:** FW: Harbour Green Dock

Hi Tiina,

Do you have a sense of when the Associate Engineering Bridge Marine Structures report will be finalized?

We recently found commercial operators running their business off the docks as a result of a public complaint. Rangers have been swamped and so I ended up asking the operators to cease operations on July 20 as we do not allow commercial activity off dock; if ultimately we were to consider their business from the dock they would ultimately would require Board approval. This has now created a letter campaign from residents of Bowen Island to Commissioners and at the direction of Malcolm are working with legal and risk management on such issues as:

- 1) jurisdiction City vs PB and Port Authority
- 2) contravention of PB bylaws
- 3) use
- 4) maintenance and capital issues

Risk has said the operators need to stop until such time an agreement, insurance and maintenance is done. Attached is picture of the wear on the pilings that IMFS (*who originally designed and built the docks*) sent REFM in July, as well as photos Octavio recently took of a broken piling collar. Also attached is the identified immediate ramp repairs identified 3 years ago by Blue Water Marine 3 years ago; they built the ramps.



Can you please let us know about the report and then ultimately who will be responsible for delivering \$150k in immediate repairs. I have real concerns over the integrity of the docks, especially if we are considering short and longer term commercial activity.

Thank you

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

---

**From:** Araujo, Sev  
**Sent:** Tuesday, July 18, 2017 4:42 PM  
**To:** Norrie, Andrew  
**Cc:** Horne, Tom; Mack, Tiina (work); Nayeri, Ali; Hsu, Paul  
**Subject:** RE: Harbour Green Dock

Thank Andrew.

The Associate Engineering Bridge Marine Structures report that Tina's group commissioned identifies approximately \$100k worth of urgent work that needs to be done.

Attached is a 2014 report that Blue Water Marine identifies as work that needs to be done to the ramp, which Associate does not highlight in their current report; another \$35k (2014\$\$) in work.

Hoping that once report finalized we can make Harbour Green a priority.

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

---

**From:** Norrie, Andrew  
**Sent:** Monday, July 17, 2017 2:57 PM  
**To:** Araujo, Sev; Whittier, David; Hsu, Paul  
**Cc:** Horne, Tom  
**Subject:** FW: Harbour Green Dock

fyi OR action

Andrew Norrie, Architect.AIBC  
Project Manager | FACILITIES DEVELOPMENT | REAL ESTATE AND FACILITIES MANAGEMENT  
CITY OF VANCOUVER 507 West Broadway, Suite 302 Vancouver BC V5Z 0B4  
t: 604.873.7937 | m: 604.836.8026 | e: [Andrew.norrie@vancouver.ca](mailto:Andrew.norrie@vancouver.ca)

---

**From:** Matt Tobias [<mailto:Matt@floatingstructures.com>]  
**Sent:** Wednesday, July 12, 2017 3:08 PM  
**To:** Norrie, Andrew  
**Subject:** Harbour Green Dock

Hi Andrew,

Just thought you might want to know? Taken yesterday at harbour green. Several piles are bearing on the concrete floats, this facility is in need of some attention.



Regards,

Mathias Tobias  
Senior Project Manager

 **IMFS International Marine Floatation Systems Inc.**  
9365 River Road, Delta, BC, Canada V4G 1B4  
Tel (604)930-9903, (Ext. 2) Fax (604)930-9955  
[www.FloatingStructures.com](http://www.FloatingStructures.com)

#### CONFIDENTIALITY NOTICE

This communication is intended for the exclusive use of the addressee identified above.  
Its content is confidential and may contain privileged information.  
If you have received this communication by error, please notify the sender and delete the message without copying or disclosing.

From: ["Mack, Tiina" <tiina.mack@vancouver.ca>](mailto:tiina.mack@vancouver.ca)  
To: ["Augustine, Ray" <ray.augustine@vancouver.ca>](mailto:ray.augustine@vancouver.ca)  
Date: 8/18/2017 12:22:18 PM  
Subject: Re: Harbour Green Dock

Agreed Ray,

Ali will have to lead the capital repairs when timeline and funding are confirmed. It is sounding like this may become an immediate priority and if so Ali and I will look at his capacity and projects and reprioritize to suit.

Let's keep everyone in the loop.

Tiina

Sent from my iPhone

> On Aug 18, 2017, at 11:09 AM, Augustine, Ray <ray.augustine@vancouver.ca> wrote:

>

> Yes, we were aware of those (though when last we viewed them they weren't that bad) but they were beyond our (and REFM's) staff ,equipment, and budget resources. We did on the other hand repair the west ramp hinges ,rollers and "mat" as well as the float joints and mats. The piling repairs will have to be made through Capital and one of Tiina's project managers. I still don't see a catastrophic failure just yet.

>

> Ian will report on what ramp maintenance we have yet to do.

>

> There was also the issue with the buoy anchors Structures fixed. We have not ignored this site (quite the contrary) but I'm beginning to understand from these emails why the wear is excessive and accelerating beyond what we expected.

> R

>

> From: Araujo, Sev

> Sent: Friday, August 18, 2017 10:57 AM

> To: Augustine, Ray

> Cc: Horne, Tom

> Subject: FW: Harbour Green Dock

>

> Hi Ray,

>

> Please see attached

>

> Sev Araujo

> Manager, Commercial Operations

> Vancouver Park Board, City of Vancouver

> o. 604 257 8436 / f. 604 257 8427

> Email: [Sev.Araujo@vancouver.ca](mailto:Sev.Araujo@vancouver.ca)<<mailto:Sev.Araujo@vancouver.ca>>

>

> From: Araujo, Sev

> Sent: Thursday, August 17, 2017 6:16 PM

> To: Mack, Tiina (work)

> Cc: Shauna Wilton; Silva, Octavio; Howard Normann

> Subject: FW: Harbour Green Dock

>

> Hi Tiina,

>



> Do you have a sense of when the Associate Engineering Bridge Marine Structures report will be finalized?

>

> We recently found commercial operators running their business off the docks as a result of a public complaint. Rangers have been swamped and so I ended up asking the operators to cease operations on July 20 as we do not allow commercial activity off dock; if ultimately we were to consider their business from the dock they would ultimately would require Board approval. This has now created a letter campaign from residents of Bowen Island to Commissioners and at the direction of Malcolm are working with legal and risk management on such issues as:

>

> 1) jurisdiction City vs PB and Port Authority

> 2) contravention of PB bylaws

> 3) use

> 4) maintenance and capital issues

>

> Risk has said the operators need to stop until such time an agreement, insurance and maintenance is done. Attached is picture of the wear on the pilings that IMFS (who originally designed and built the docks) sent REFM in July, as well as photos Octavio recently took of a broken piling collar. Also attached is the identified immediate ramp repairs identified 3 years ago by Blue Water Marine 3 years ago; they built the ramps.

>

> Can you please let us know about the report and then ultimately who will be responsible for delivering \$150k in immediate repairs. I have real concerns over the integrity of the docks, especially if we are considering short and longer term commercial activity.

>

> Thank you

>

>

> Sev Araujo

> Manager, Commercial Operations

> Vancouver Park Board, City of Vancouver

> o. 604 257 8436 / f. 604 257 8427

> Email: Sev.Araujo@vancouver.ca<mailto:Sev.Araujo@vancouver.ca>

>

> From: Araujo, Sev

> Sent: Tuesday, July 18, 2017 4:42 PM

> To: Norrie, Andrew

> Cc: Horne, Tom; Mack, Tiina (work); Nayeri, Ali; Hsu, Paul

> Subject: RE: Harbour Green Dock

>

> Thank Andrew.

>

> The Associate Engineering Bridge Marine Structures report that Tina's group commissioned identifies approximately \$100k worth of urgent work that needs to be done.

>

> Attached is a 2014 report that Blue Water Marine identifies as work that needs to be done to the ramp, which Associate does not highlight in their current report; another \$35k (2014\$\$) in work.

>

> Hoping that once report finalized we can make Harbour Green a priority.

>

> Sev Araujo

> Manager, Commercial Operations

> Vancouver Park Board, City of Vancouver

> o. 604 257 8436 / f. 604 257 8427

> Email: Sev.Araujo@vancouver.ca<mailto:Sev.Araujo@vancouver.ca>

>



> From: Norrie, Andrew  
> Sent: Monday, July 17, 2017 2:57 PM  
> To: Araujo, Sev; Whittier, David; Hsu, Paul  
> Cc: Horne, Tom  
> Subject: FW: Harbour Green Dock  
>  
> fyi OR action  
>  
> Andrew Norrie, Architect.AIBC  
> Project Manager | FACILITIES DEVELOPMENT | REAL ESTATE AND FACILITIES MANAGEMENT  
> CITY OF VANCOUVER 507 West Broadway, Suite 302 Vancouver BC V5Z 0B4  
> t: 604.873.7937 | m: 604.836.8026 | e: Andrew.norrie@vancouver.ca<mailto:Andrew.norrie@vancouver.ca>  
>  
>  
>  
> From: Matt Tobias [mailto:Matt@floatingstructures.com]  
> Sent: Wednesday, July 12, 2017 3:08 PM  
> To: Norrie, Andrew  
> Subject: Harbour Green Dock  
>  
>  
> Hi Andrew,  
>  
>  
>  
> Just thought you might want to know? Taken yesterday at harbour green. Several piles are bearing on the  
concrete floats, this facility is in need of some attention.  
>  
>  
>  
>  
>  
> [cid:image001.png@01D31811.6C3B1B80]  
>  
>  
>  
>  
>  
> Regards,  
>  
> Mathias Tobias  
> Senior Project Manager  
>  
> [imflogo]IMFS International Marine Floatation Systems Inc.  
> 9365 River Road, Delta, BC, Canada V4G 1B4  
> Tel (604)930-9903, (Ext. 2) Fax (604)930-9955  
> www.FloatingStructures.com<http://www.floatingstructures.com/>  
>  
>  
>  
>  
>  
> CONFIDENTIALITY NOTICE  
> This communication is intended for the exclusive use of the addressee identified above.  
> Its content is confidential and may contain privileged information.

> If you have received this communication by error, please notify the sender and delete the message without copying or disclosing.

>

>

> <image001.png>

> <image002.jpg>





From: "[Nayeri, Ali](#)" <[Ali.Nayeri@vancouver.ca](mailto:Ali.Nayeri@vancouver.ca)>  
To: "[Araujo, Sev](#)" <[sev.araujo@vancouver.ca](mailto:sev.araujo@vancouver.ca)>  
Date: 8/18/2017 11:59:08 AM  
Subject: RE: Harbour Green Dock  
Attachments: parks\_bridge\_marine\_report\_final.tr5  
M-08 (Harbour Green Park - Pier) - DE1600073.pdf

Hi Sev,

Further to my email from July 18, Associated Engineering has finalized their report. I have attached a VanDocs link to the report. The files are also on the network share [here](#). The report and the appendices are provided as separate files to reduce file sizes. Harbour Green dock is discussed on page 55-56 of the report PDF file. I've also attached the more detailed inspection report for the dock for your reference.

Structures and Fabrication completed a number of repairs in 2016 (total value \$25k) which I believe addressed all of the issues identified in the Blue Water Marine report. That is why those issues are not mentioned in the most recent report by AE. The issue identified in AE's inspection was abrasion and impact damage on the side of the concrete floats caused by the damage/loss of wear pads on the mooring wells. This is the same issue that Matt is pointing to in his email below. AE believes that replacing the wear pads addresses the symptoms rather than the root cause. So a part of the \$100k estimate is for further investigation and possible engineering design to retrofit the floats and improve their wave response and reduce their movement. The cost for making further design changes to the floats as a result of the engineering analysis is unknown at the moment.

With respect to commercial operations at the dock, we unfortunately don't have a design report for the structure on file so we can't determine what types of vessels and traffic the docks were meant to accommodate. Perhaps IMFS would be able to provide more information on this. Any upgrades that are necessary to allow the dock to accommodate commercial operations falls outside of the repairs estimate provided above.

Regards,  
Ali

---

**From:** Augustine, Ray  
**Sent:** Friday, August 18, 2017 11:45 AM  
**To:** Araujo, Sev  
**Cc:** Horne, Tom; Mack, Tiina; Foster, Ian; Normann, Howard; Silva, Octavio  
**Subject:** RE: Harbour Green Dock

Sev, I'm sorry but in view of the current extent of the damage from commercial use – which is likely to continue, authorized or not, by other “undeclared” groups – I can't make such a call. I must defer to Tiina's team as they have the engineering expertise.

---

**From:** Araujo, Sev  
**Sent:** Friday, August 18, 2017 11:37 AM  
**To:** Augustine, Ray  
**Cc:** Horne, Tom; Mack, Tiina; Foster, Ian; Normann, Howard; Silva, Octavio  
**Subject:** RE: Harbour Green Dock

Hi Ray,

While the Bridge and Marinas Structures Inspections report from October is not finalized yet, attached is what I pulled out of the report specific to the Harbour Green Dock.

The docks are in generally good shape, but there are maintenance/safety issues that need to be addressed before we consider any type of commercial activity ... and I would go so far as leisure activity

Having said this, if we are comfortable allowing the public and potential commercial operators on the dock in its current condition, I just need the ok so I can convey that to Legal and Risk Management as this is has reached the GM and Commissionaire level.

Please let me know who will make that decision so Octavio and I can provide a recommendation on overall use and operation, short and long term.

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

---

**From:** Augustine, Ray  
**Sent:** Friday, August 18, 2017 11:09 AM  
**To:** Araujo, Sev  
**Cc:** Horne, Tom; Mack, Tiina; Foster, Ian; Normann, Howard  
**Subject:** RE: Harbour Green Dock

Yes, we were aware of those (though when last we viewed them they weren't that bad) but they were beyond our (and REFM's) staff ,equipment, and budget resources. We did on the other hand repair the west ramp hinges ,rollers and “mat” as well as the float joints and mats. The piling repairs will have to be made through Capital and one of Tiina's project managers. I still don't see a catastrophic failure just yet.

Ian will report on what ramp maintenance we have yet to do.

There was also the issue with the buoy anchors Structures fixed. We have not ignored this site (quite the contrary) but I'm beginning to understand from these

emails why the wear is excessive and accelerating beyond what we expected.

R

---

**From:** Araujo, Sev  
**Sent:** Friday, August 18, 2017 10:57 AM  
**To:** Augustine, Ray  
**Cc:** Horne, Tom  
**Subject:** FW: Harbour Green Dock

Hi Ray,

Please see attached

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

---

**From:** Araujo, Sev  
**Sent:** Thursday, August 17, 2017 6:16 PM  
**To:** Mack, Tiina (work)  
**Cc:** Shauna Wilton; Silva, Octavio; Howard Normann  
**Subject:** FW: Harbour Green Dock

Hi Tiina,

Do you have a sense of when the Associate Engineering Bridge Marine Structures report will be finalized?

We recently found commercial operators running their business off the docks as a result of a public complaint. Rangers have been swamped and so I ended up asking the operators to cease operations on July 20 as we do not allow commercial activity off dock; if ultimately we were to consider their business from the dock they would ultimately would require Board approval. This has now created a letter campaign from residents of Bowen Island to Commissioners and at the direction of Malcolm are working with legal and risk management on such issues as:

- 1) jurisdiction City vs PB and Port Authority
- 2) contravention of PB bylaws
- 3) use
- 4) maintenance and capital issues

Risk has said the operators need to stop until such time an agreement, insurance and maintenance is done. Attached is picture of the wear on the pilings that IMFS (*who originally designed and built the docks*) sent REFM in July, as well as photos Octavio recently took of a broken piling collar. Also attached is the identified immediate ramp repairs identified 3 years ago by Blue Water Marine 3 years ago; they built the ramps.

Can you please let us know about the report and then ultimately who will be responsible for delivering \$150k in immediate repairs. I have real concerns over the integrity of the docks, especially if we are considering short and longer term commercial activity.

Thank you

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

---

**From:** Araujo, Sev  
**Sent:** Tuesday, July 18, 2017 4:42 PM  
**To:** Norrie, Andrew  
**Cc:** Horne, Tom; Mack, Tiina (work); Nayeri, Ali; Hsu, Paul  
**Subject:** RE: Harbour Green Dock

Thank Andrew.

The Associate Engineering Bridge Marine Structures report that Tina's group commissioned identifies approximately \$100k worth of urgent work that needs to be done.

Attached is a 2014 report that Blue Water Marine identifies as work that needs to be done to the ramp, which Associate does not highlight in their current report; another \$35k (2014\$\$) in work.

Hoping that once report finalized we can make Harbour Green a priority.

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



**From:** Norrie, Andrew  
**Sent:** Monday, July 17, 2017 2:57 PM  
**To:** Araujo, Sev; Whittier, David; Hsu, Paul  
**Cc:** Horne, Tom  
**Subject:** FW: Harbour Green Dock

fyi OR action


Andrew Norrie, Architect.AIBC  
Project Manager | FACILITIES DEVELOPMENT | REAL ESTATE AND FACILITIES MANAGEMENT  
CITY OF VANCOUVER 507 West Broadway, Suite 302 Vancouver BC V5Z 0B4  
t: 604.873.7937 | m: 604.836.8026 | e: [Andrew.norrie@vancouver.ca](mailto:Andrew.norrie@vancouver.ca)

**From:** Matt Tobias [<mailto:Matt@floatingstructures.com>]  
**Sent:** Wednesday, July 12, 2017 3:08 PM  
**To:** Norrie, Andrew  
**Subject:** Harbour Green Dock



need of some attention.

Regards,  
  
Mathias Tobias  
Senior Project Manager

 **IMFS International Marine Floatation Systems Inc.**  
9365 River Road, Delta, BC, Canada V4G 1B4  
Tel (604)930-9903, (Ext. 2) Fax (604)930-9955  
[www.FloatingStructures.com](http://www.FloatingStructures.com)

**CONFIDENTIALITY NOTICE**  
This communication is intended for the exclusive use of the addressee identified above.  
Its content is confidential and may contain privileged information.  
If you have received this communication by error, please notify the sender and delete the message without copying or disclosing.

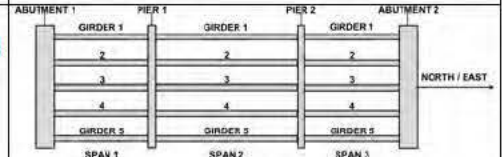


# BRIDGE MANAGEMENT SYSTEM FIELD INSPECTION SHEET

Pier  
M-08 - Harbour Green Park - Pier

|                 |                              |                              |                |           |  |                   |        |
|-----------------|------------------------------|------------------------------|----------------|-----------|--|-------------------|--------|
|                 |                              | Inspectors                   |                | Firm      |  | Date (dd/mm/yyyy) |        |
| Inspection Type | PI                           | Mike Hanson, Matt Friderichs |                | AE        |  | 5/24/2016         |        |
| Last Inspection | PI                           | Unknown                      |                |           |  |                   |        |
|                 | M                            |                              |                |           |  |                   |        |
| Consultant      |                              |                              | Angle of Skew  | °         |  | Yr Built:         | 2002   |
| Contractor      |                              |                              | No. Spans      | 2         |  |                   |        |
| Deck Type       |                              |                              | Dimensions (m) | L: 185.00 |  | W: 3.70           | A: 685 |
| Substructure    | Other                        |                              | Temp           | 15°C      |  |                   |        |
| Feat. Carried   | Boat Access - Pedestrian     |                              |                |           |  |                   |        |
| Feat. Crossed   | Burrard Inlet - Water Course |                              |                |           |  |                   |        |

**Inspectors assessment and comments:** The dock is generally in good condition. During the inspection we noted excessive movement between the mooring piles and mooring wells along with localized spalling of the concrete floats. Further engineering analysis is recommended in order to investigate appropriate repairs to the concrete floats.



| Hydrotechnical       |   | 1 Debris Risk                 |   |   |   |    | 2 Channel               |   |   |   |   | 3 Erosion Protection              |   |   |   |   | 4 Substructure Scour    |   |   |   |   |                        |   |    |   |    |                            |   |   |   |    |                        |   |   |   |   |                                  |   |   |   |   |   |
|----------------------|---|-------------------------------|---|---|---|----|-------------------------|---|---|---|---|-----------------------------------|---|---|---|---|-------------------------|---|---|---|---|------------------------|---|----|---|----|----------------------------|---|---|---|----|------------------------|---|---|---|---|----------------------------------|---|---|---|---|---|
| Location             | D | 4                             | 3 | 2 | 1 | R  | 4                       | 3 | 2 | 1 | R | 4                                 | 3 | 2 | 1 | R | 4                       | 3 | 2 | 1 | R |                        |   |    |   |    |                            |   |   |   |    |                        |   |   |   |   |                                  |   |   |   |   |   |
| Hydrotechnical       |   |                               |   |   |   | E  |                         |   |   |   | E |                                   |   |   |   | E |                         |   |   |   |   |                        |   |    |   |    |                            |   |   |   |    |                        |   |   |   |   |                                  |   |   |   |   |   |
| Substructure         |   | 5 Foundation                  |   |   |   |    | 6 Abutments             |   |   |   |   | 7 Retaining Walls                 |   |   |   |   | 8 Embankment            |   |   |   |   | 9 Footings/Piling      |   |    |   |    | 10 Bearings/ Roller/Hinges |   |   |   |    | 11 Caps                |   |   |   |   | 12 Pontoons                      |   |   |   |   |   |
| Location             | D | 4                             | 3 | 2 | 1 | R  | 4                       | 3 | 2 | 1 | R | 4                                 | 3 | 2 | 1 | R | 4                       | 3 | 2 | 1 | R | 4                      | 3 | 2  | 1 | R  | 4                          | 3 | 2 | 1 | R  | 4                      | 3 | 2 | 1 | R | 4                                | 3 | 2 | 1 | R |   |
| East Abutment        |   |                               |   |   |   | X  |                         |   |   |   | E |                                   |   |   |   | E |                         |   |   |   | X |                        |   |    |   | X  |                            |   |   |   | E  |                        |   |   | X |   |                                  |   |   | X |   |   |
| Float 1 Substructure |   |                               |   |   |   | X  |                         |   |   |   | X |                                   |   |   |   | X |                         |   |   |   | X | 10                     |   | 60 |   | 2  |                            |   |   |   | E  |                        |   |   | X |   |                                  |   |   | E |   |   |
| Float 2 Substructure |   |                               |   |   |   | X  |                         |   |   |   | X |                                   |   |   |   | X |                         |   |   |   | X | 10                     |   | 60 |   | 2  |                            |   |   |   | X  |                        |   |   | X |   |                                  | 1 |   |   | 3 |   |
| Float 3 Substructure |   |                               |   |   |   | X  |                         |   |   |   | X |                                   |   |   |   | X |                         |   |   |   | X | 10                     |   | 60 |   | 2  |                            |   |   |   | X  |                        |   |   | X |   |                                  | 1 |   |   | 3 |   |
| Float 4 Substructure |   |                               |   |   |   | X  |                         |   |   |   | X |                                   |   |   |   | X |                         |   |   |   | X | 10                     |   | 60 |   | 2  |                            |   |   |   | X  |                        |   |   | X |   |                                  | 1 |   |   | 3 |   |
| Float 5 Substructure |   |                               |   |   |   | X  |                         |   |   |   | X |                                   |   |   |   | X |                         |   |   |   | X | 10                     |   | 60 |   | 2  |                            |   |   |   | E  |                        |   |   | X |   |                                  |   |   | E |   |   |
| West Abutment        |   |                               |   |   |   | X  |                         |   |   |   | E |                                   |   |   |   | E |                         |   |   |   | X |                        |   |    |   | X  |                            |   |   |   | E  |                        |   |   | X |   |                                  |   |   | X |   |   |
| Superstructure       |   | 13 Floor Beams/ Transoms      |   |   |   |    | 14 Stringers            |   |   |   |   | 15 Girders/ Edge Beam             |   |   |   |   | 16 Bracing/ Diaphragms  |   |   |   |   | 17 Pins/Bolts/ Rivets  |   |    |   |    | 18 Camber/Sag              |   |   |   |    | 19 Live Load Vibration |   |   |   |   | 20 Tower/Frame                   |   |   |   |   |   |
| Location             | D | 4                             | 3 | 2 | 1 | R  | 4                       | 3 | 2 | 1 | R | 4                                 | 3 | 2 | 1 | R | 4                       | 3 | 2 | 1 | R | 4                      | 3 | 2  | 1 | R  | 4                          | 3 | 2 | 1 | R  | 4                      | 3 | 2 | 1 | R | 4                                | 3 | 2 | 1 | R |   |
| East Gangway Span    |   |                               |   |   |   | E  |                         |   |   |   | X |                                   |   |   |   | E |                         |   |   |   | E |                        |   |    |   | E  |                            |   |   |   | E  |                        |   |   |   |   |                                  | E |   |   |   | X |
| West Gangway Span    |   |                               |   |   |   | E  |                         |   |   |   | X |                                   |   |   |   | E |                         |   |   |   | E |                        |   |    |   | E  |                            |   |   |   | E  |                        |   |   |   |   |                                  | E |   |   |   | X |
| Superstructure       |   | 21 Lifting Beams/ Connections |   |   |   |    | 22 Head Frame           |   |   |   |   | 23 Counterweight System           |   |   |   |   | 24 Counterweight Cables |   |   |   |   | 25 Coating (Structure) |   |    |   |    |                            |   |   |   |    |                        |   |   |   |   |                                  |   |   |   |   |   |
| Location             | D | 4                             | 3 | 2 | 1 | R  | 4                       | 3 | 2 | 1 | R | 4                                 | 3 | 2 | 1 | R | 4                       | 3 | 2 | 1 | R | 4                      | 3 | 2  | 1 | R  |                            |   |   |   |    |                        |   |   |   |   |                                  |   |   |   |   |   |
| East Gangway Span    |   |                               |   |   |   | X  |                         |   |   |   | X |                                   |   |   |   | X |                         |   |   |   | X |                        |   |    |   | E  |                            |   |   |   |    |                        |   |   |   |   |                                  |   |   |   |   |   |
| West Gangway Span    |   |                               |   |   |   | X  |                         |   |   |   | X |                                   |   |   |   | X |                         |   |   |   | X |                        |   |    |   | E  |                            |   |   |   |    |                        |   |   |   |   |                                  |   |   |   |   |   |
| Deck                 |   | 26 Wearing Surface            |   |   |   |    | 27 Concrete Ramp Panels |   |   |   |   | 28 Sub Deck/ Cross Ties           |   |   |   |   | 29 Deck Joints          |   |   |   |   | 30 Curbs/ Wheelguards  |   |    |   |    | 31 Railings/ Parapets      |   |   |   |    | 32 Sidewalk(s)         |   |   |   |   | 33 Maintenance Access Structures |   |   |   |   |   |
| Location             | D | 4                             | 3 | 2 | 1 | R  | 4                       | 3 | 2 | 1 | R | 4                                 | 3 | 2 | 1 | R | 4                       | 3 | 2 | 1 | R | 4                      | 3 | 2  | 1 | R  | 4                          | 3 | 2 | 1 | R  | 4                      | 3 | 2 | 1 | R | 4                                | 3 | 2 | 1 | R |   |
| East Gangway Deck    |   |                               |   |   |   | E  |                         |   |   |   | X |                                   |   |   |   | X |                         |   |   |   | X |                        |   |    |   | X  |                            |   |   |   | E  |                        |   |   |   | X |                                  |   |   |   | X |   |
| Float 1 Deck         |   |                               |   |   |   | 15 |                         |   |   |   | 1 |                                   |   |   |   | X |                         |   |   |   | X | 50                     |   |    |   | 2  |                            |   |   |   | E  |                        |   |   | X |   |                                  |   |   | X |   |   |
| Float 2 Deck         |   |                               |   |   |   | 5  |                         |   |   |   | 1 |                                   |   |   |   | X |                         |   |   |   | X |                        |   |    |   | E  |                            |   |   |   | X  |                        |   |   | X |   |                                  |   |   | X |   |   |
| Float 3 Deck         |   |                               |   |   |   | 5  |                         |   |   |   | 1 |                                   |   |   |   | X |                         |   |   |   | X |                        |   |    |   | E  |                            |   |   |   | 50 |                        |   | 1 |   | X |                                  |   |   | X |   |   |
| Float 4 Deck         |   |                               |   |   |   | 5  |                         |   |   |   | 1 |                                   |   |   |   | X |                         |   |   |   | X |                        |   |    |   | 10 |                            | 1 |   |   |    | E                      |   |   |   | X |                                  |   |   |   | X |   |
| Float 5 Deck         |   |                               |   |   |   | 15 |                         |   |   |   | 1 |                                   |   |   |   | X |                         |   |   |   | X |                        |   |    |   | 10 |                            | 1 |   |   |    | E                      |   |   |   | X |                                  |   |   |   | X |   |
| West Gangway Deck    |   |                               |   |   |   | E  |                         |   |   |   | X |                                   |   |   |   | X |                         |   |   |   | X |                        |   |    |   | X  |                            |   |   |   | E  |                        |   |   | X |   |                                  |   |   | X |   |   |
| Deck                 |   | 34 Coating (Railings)         |   |   |   |    | 35 Bollards             |   |   |   |   |                                   |   |   |   |   |                         |   |   |   |   |                        |   |    |   |    |                            |   |   |   |    |                        |   |   |   |   |                                  |   |   |   |   |   |
| Location             | D | 4                             | 3 | 2 | 1 | R  | 4                       | 3 | 2 | 1 | R |                                   |   |   |   |   |                         |   |   |   |   |                        |   |    |   |    |                            |   |   |   |    |                        |   |   |   |   |                                  |   |   |   |   |   |
| East Gangway Deck    |   |                               |   |   |   | E  |                         |   |   |   | X |                                   |   |   |   |   |                         |   |   |   |   |                        |   |    |   |    |                            |   |   |   |    |                        |   |   |   |   |                                  |   |   |   |   |   |
| Float 1 Deck         |   |                               |   |   |   | X  |                         |   |   |   | X |                                   |   |   |   |   |                         |   |   |   |   |                        |   |    |   |    |                            |   |   |   |    |                        |   |   |   |   |                                  |   |   |   |   |   |
| Float 2 Deck         |   |                               |   |   |   | X  |                         |   |   |   | X |                                   |   |   |   |   |                         |   |   |   |   |                        |   |    |   |    |                            |   |   |   |    |                        |   |   |   |   |                                  |   |   |   |   |   |
| Float 3 Deck         |   |                               |   |   |   | X  |                         |   |   |   | X |                                   |   |   |   |   |                         |   |   |   |   |                        |   |    |   |    |                            |   |   |   |    |                        |   |   |   |   |                                  |   |   |   |   |   |
| Float 4 Deck         |   |                               |   |   |   | X  |                         |   |   |   | X |                                   |   |   |   |   |                         |   |   |   |   |                        |   |    |   |    |                            |   |   |   |    |                        |   |   |   |   |                                  |   |   |   |   |   |
| Float 5 Deck         |   |                               |   |   |   | X  |                         |   |   |   | X |                                   |   |   |   |   |                         |   |   |   |   |                        |   |    |   |    |                            |   |   |   |    |                        |   |   |   |   |                                  |   |   |   |   |   |
| West Gangway Deck    |   |                               |   |   |   | E  |                         |   |   |   | X |                                   |   |   |   |   |                         |   |   |   |   |                        |   |    |   |    |                            |   |   |   |    |                        |   |   |   |   |                                  |   |   |   |   |   |
| Dolphins/Wingwalls   |   | 36 Dolphins/ Wingwall Piles   |   |   |   |    | 37 Walers               |   |   |   |   | 38 Fender Panels/ Rubber F. Units |   |   |   |   | 39 Floating Leads       |   |   |   |   | 40 Mooring Chains      |   |    |   |    | 41 Floats                  |   |   |   |    |                        |   |   |   |   |                                  |   |   |   |   |   |
| Location             | D | 4                             | 3 | 2 | 1 | R  | 4                       | 3 | 2 | 1 | R | 4                                 | 3 | 2 | 1 | R | 4                       | 3 | 2 | 1 | R | 4                      | 3 | 2  | 1 | R  |                            |   |   |   |    |                        |   |   |   |   |                                  |   |   |   |   |   |

2 of 8



# MARINE STRUCTURE CONDITION INSPECTION

Inspection Type: Detailed  
Inspector(s): Mike Hanson, Matt Friderichs

Structure  
Number

M-08

Structure  
Name

Harbour Green Park – Pier

Inspection Date  
(mm/dd/yyyy)

5/16/2016

## COMPONENT

## PERCENT CONDITION RATING

Enter % each condition.  
See BMIS User Manual 15.2.2

## INSPECTION NOTES BY COMPONENT

All poor or very poor conditions must be explained.  
Label explanation(s) with component numbers.

### HYDROTECHNICAL

- 1 Debris Risk
- 2 Channel
- 3 Erosion Protection
- 4 Substructure Scour

| E   | G | F | P | V | X |
|-----|---|---|---|---|---|
| 100 |   |   |   |   |   |
| 100 |   |   |   |   |   |
| 100 |   |   |   |   |   |
| 100 |   |   |   |   |   |

N

|  |
|--|
|  |
|  |
|  |
|  |

#### General Inspection Notes:

The dock is generally in good condition. During the inspection we noted excessive movement between the mooring piles and mooring wells along with localized spalling of the concrete floats. Further engineering analysis is recommended in order to investigate appropriate repairs to the concrete floats.

### SUBSTRUCTURE

- 5 Foundation
- 6 Abutments
- 7 Retaining Walls
- 8 Embankment
- 9 Footings/Piling
- 10 Bearings/Roller/Hinges
- 11 Caps
- 12 pontoons

| E   | G | F  | P | V  | X |
|-----|---|----|---|----|---|
|     |   |    |   |    |   |
| 100 |   |    |   |    |   |
| 100 |   |    |   |    |   |
|     |   |    |   |    |   |
| 30  |   | 60 |   | 10 |   |
| 100 |   |    |   |    |   |
|     |   |    |   |    |   |
| 99  |   |    | 1 |    |   |

|   |
|---|
| Y |
|   |
|   |
| Y |
|   |
|   |
| Y |

#### Urgency Rating Notes:

Engineering analysis and repairs are recommended to be carried out within the next 1-2 years.

### SUPERSTRUCTURE

- 13 Floor Beams/Transoms
- 14 Stringers
- 15 Girders/ Edge Beam
- 16 Bracing/Diaphragms
- 17 Pins/Bolts/Rivets
- 18 Camber/Sag
- 19 Live Load Vibration
- 20 Tower/Frame
- 21 Lifting Beams/ Connections
- 22 Head Frame
- 23 Counterweight System
- 24 Counterweight Cables
- 25 Coating (Structure)

| E   | G | F | P | V | X |
|-----|---|---|---|---|---|
| 100 |   |   |   |   |   |
|     |   |   |   |   |   |
| 100 |   |   |   |   |   |
| 100 |   |   |   |   |   |
| 100 |   |   |   |   |   |
| 100 |   |   |   |   |   |
|     |   |   |   |   |   |
|     |   |   |   |   |   |
|     |   |   |   |   |   |
|     |   |   |   |   |   |
|     |   |   |   |   |   |
|     |   |   |   |   |   |
|     |   |   |   |   |   |
| 100 |   |   |   |   |   |

|   |
|---|
|   |
| Y |
|   |
|   |
|   |
|   |
|   |
| Y |
| Y |
| Y |
| Y |
| Y |

### DECK

- 26 Wearing Surface
- 27 Concrete Ramp Panels
- 28 Sub Deck/Cross Ties
- 29 Deck Joints
- 30 Curbs/Wheelguards
- 31 Railings/Parapets
- 32 Sidewalk(s)
- 33 Maintenance Access Structures
- 34 Coating (Railings)
- 35 Bollards

| E   | G | F  | P  | V | X |
|-----|---|----|----|---|---|
| 94  |   | 6  |    |   |   |
|     |   |    |    |   |   |
|     |   |    |    |   |   |
| 86  | 4 | 10 |    |   |   |
| 90  |   |    | 10 |   |   |
| 100 |   |    |    |   |   |
|     |   |    |    |   |   |
|     |   |    |    |   |   |
|     |   |    |    |   |   |
| 100 |   |    |    |   |   |
|     |   |    |    |   |   |

|   |
|---|
|   |
| Y |
| Y |
|   |
|   |
|   |
| Y |
| Y |
|   |
| Y |

### DOLPHINS/WINGWALLS

- 36 Dolphins/Wingwall Piles
- 37 Walers
- 38 Fender Panels/Rubber F. Units
- 39 Floating Leads
- 40 Mooring Chains
- 41 Floats

| E | G | F | P | V | X |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
|   |   |   |   |   |   |
|   |   |   |   |   |   |
|   |   |   |   |   |   |
|   |   |   |   |   |   |

|   |
|---|
| Y |
| Y |
| Y |
| Y |
| Y |
| Y |

### LANDING/APPROACHES

- 42 Signing/Lighting
- 43 Roadway Approaches
- 44 Roadway Flares
- 45 Parking Area/Staging Lanes
- 46 Fencing/Gates

| E | G | F | P | V | X |
|---|---|---|---|---|---|
|   |   |   |   |   |   |
|   |   |   |   |   |   |
|   |   |   |   |   |   |
|   |   |   |   |   |   |
|   |   |   |   |   |   |

|   |
|---|
| Y |
| Y |
| Y |
| Y |
| Y |

#### Condition Codes

|   |           |   |      |   |           |   |                |
|---|-----------|---|------|---|-----------|---|----------------|
| E | Excellent | F | Fair | V | Very Poor | X | Not Inspected  |
| G | Good      | P | Poor |   |           | N | Not Applicable |

For Condition Guidelines see BMIS User Manual 15.2.2

#### Urgency Rating

3

For definition see BMIS User Manual 15.2.8 "4" and "5" rating must be explained.

Structure Condition Index = 1.17

Adjusted Structure Condition Index = 1.30



# MARINE STRUCTURE CONDITION INSPECTION

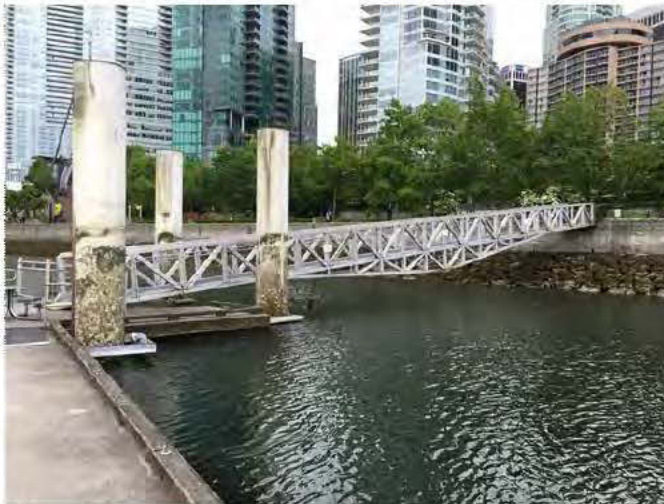
Inspection Type: Detailed  
Inspector(s): Mike Hanson, Matt Friderichs

| REMEDIAL WORK ACTIVITY LIST                                                                                                      |                                                          |      |       |   |       |   |      |     |                                                                                                                                                                                                            |                  |           |
|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|------|-------|---|-------|---|------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------|
| Location                                                                                                                         | Recommended Action                                       | Qty  | Units | D | E (%) | R | U    | S/M | Comments                                                                                                                                                                                                   | Mon Freq (mnths) | Ref Photo |
| 30 Curbs/Wheelguards (Float 3 Deck)                                                                                              | Mooring Bollard - repair / replace                       | 1    | No.   | P | 50    | 1 | 2    | No  | Mooring cleat has sheared. Replace cleat.                                                                                                                                                                  | 36               | 4         |
| 29 Deck Joints (Float 4 Deck, Float 5 Deck)                                                                                      | Monitor item (298)                                       | 1    | No.   | G | 10    | 1 | M    | No  | Excessive gap between Float 4 and 5. Monitor.                                                                                                                                                              | 12               | 19        |
| 9 Footings/Piling (Float 1 Substructure, Float 2 Substructure, Float 3 Substructure, Float 4 Substructure, Float 5 Substructure) | Monitor - piers (195)                                    | 13   | No.   | F | 60    | 1 | M    | No  | Corrosion and wearing along pile at mooring well wear pads. Discolouration due to rust at pile covers. Monitor.                                                                                            | 36               | 5         |
| 26 Wearing Surface (Float 1 Deck, Float 5 Deck)                                                                                  | Clean - Debris/Vegetation/Sand - Remove (118)            | 0.25 | m²    | F | 10    | 1 | R(0) | No  | Garbage and debris found below nosing of gangways. Clean.                                                                                                                                                  | 36               | 9         |
| 26 Wearing Surface (Float 1 Deck, Float 2 Deck, Float 3 Deck, Float 4 Deck, Float 5 Deck)                                        | Clean - Power wash item (122)                            | 550  | m²    | F | 5     | 1 | R(0) | No  | Concrete wearing surface exhibits surface fungal and moss growth. Power wash.                                                                                                                              | 12               | 21        |
| 12 Pontoons (Float 2 Substructure, Float 3 Substructure, Float 4 Substructure)                                                   | Concrete - Spalled - Repair (130)                        | 5    | m²    | P | 1     | 3 | 3    | No  | Spalled concrete at corners of Floats 2, 3 and 4. Repair.                                                                                                                                                  | 24               | 6         |
| 29 Deck Joints (Float 1 Deck)                                                                                                    | Expansion Joint - Cover plates - install / replace (300) | 1    | No.   | F | 50    | 2 | 2    | No  | Steel connection links between rubber expansion joint cover have sheared. Replace links.                                                                                                                   | 36               | 17        |
| 9 Footings/Piling (Float 1 Substructure, Float 2 Substructure, Float 3 Substructure, Float 4 Substructure, Float 5 Substructure) | Bearing - Teflon Pad - Repair/ Replace (111)             | 4    | No.   | V | 10    | 2 | 4    | No  | UHMW wear pads show significant wear. Some UHMW wear pads are broken or missing. Excessive movement inside of mooring wells. Replace/install UHMW wear pads with blocking to reduce mooring well movement. | 12               | 11        |

| DRU INSPECTION RATING SYSTEM                                                                                                                                                                                                                                                                                                                                                             |                     |                                                           |                                         |                                                    |                                                           |              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------------------------------------------------|-----------------------------------------|----------------------------------------------------|-----------------------------------------------------------|--------------|
| Rating                                                                                                                                                                                                                                                                                                                                                                                   | Rating "D" - Degree |                                                           | Rating "R" - Relevancy                  |                                                    | Rating "U" - Urgency                                      |              |
| D & R                                                                                                                                                                                                                                                                                                                                                                                    | Degree of Defect    |                                                           | Structural integrity and safety of user |                                                    | Maintenance priority and urgency of repair                | Monitor M    |
| E                                                                                                                                                                                                                                                                                                                                                                                        | None                |                                                           | No defects                              |                                                    | Routine maintenance work                                  | Routine R(0) |
| 1                                                                                                                                                                                                                                                                                                                                                                                        | Good                | Maintenance required                                      | Min relevancy                           | No structural integrity or safety issue            | Not required before next principal inspection             | 5yrs or > 1  |
| 2                                                                                                                                                                                                                                                                                                                                                                                        | Fair                | Functioning as intended Minor rehab required              |                                         | Some possible structural integrity or safety issue | Preventative maintenance required within specified period | <3 yrs 2     |
| 3                                                                                                                                                                                                                                                                                                                                                                                        | Poor                | Not functioning as intended More extensive rehab required |                                         | Structural integrity or safety compromised         | Work required within specified time period                | <2 yrs 3     |
| 4                                                                                                                                                                                                                                                                                                                                                                                        | Very Poor           | Not functioning as intended Major rehab required          | Max relevancy                           | Collapse imminent Danger to users                  | Immediate repair required                                 | ASAP 4       |
| N - Not accessible; X - Not applicable; % - percentage of element representing rating "D&R"<br>Location Column: NA - North Abutment; BA - Both Abutments; AL - All Supports; AS - All Spans; S1 - Span 1; P1 - Pier 1; AP - All Piers; P1-3 - Piers 1 to 3<br>S/M Column: S - Safety related defect; M - Make Safe a Structural Integrity Defect; SM - Make Safe a Safety Related Defect |                     |                                                           |                                         |                                                    |                                                           |              |



PHOTOGRAPHIC RECORD SHEET



1 - East Gangway, looking east.



2 - Spalled Concrete



3 - Mooring Well



4 - 30 Curbs/Wheelguards - Mooring Cleat



5 - Pile wear and corrosion



6 - Spalled Concrete





7 - Missing UHMW wear pad



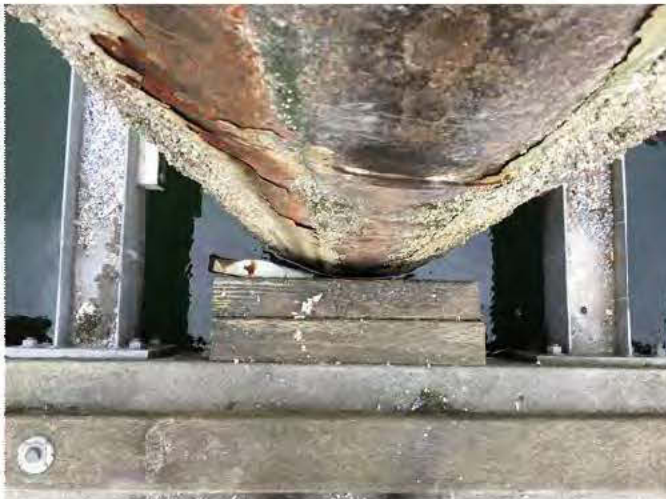
8 - Float 1



9 - Garbage and Debris



10 - Missing UHMW wear pad



11 - Broken UHMW wear pad



12 - West Gangway, looking west

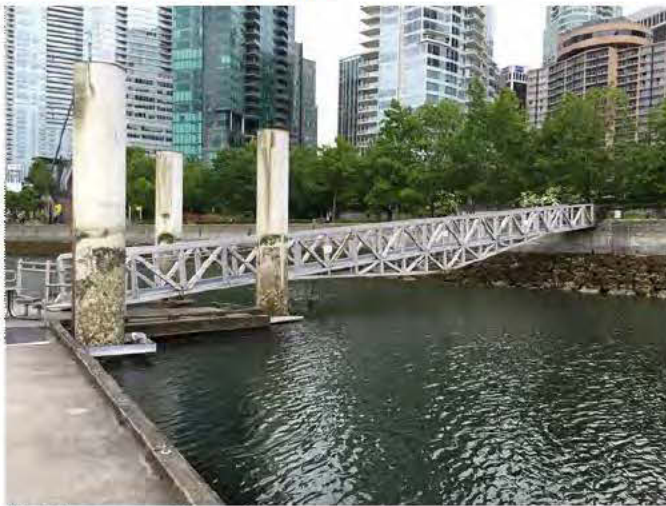




13 - West Gangway, looking north



14 - Looking northeast



15 - Pile wear and corrosion



16 - Floats and East Gangway



17 - 29 Deck Joints - Sheared Connection Links

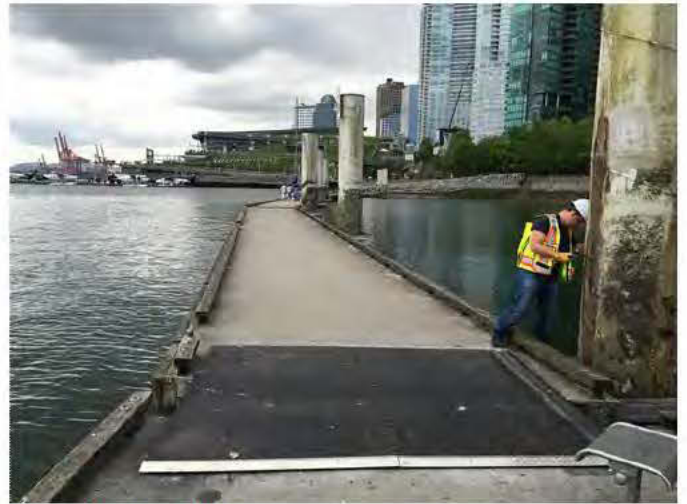


18 - Float 1 Wearing Surface, typical condition

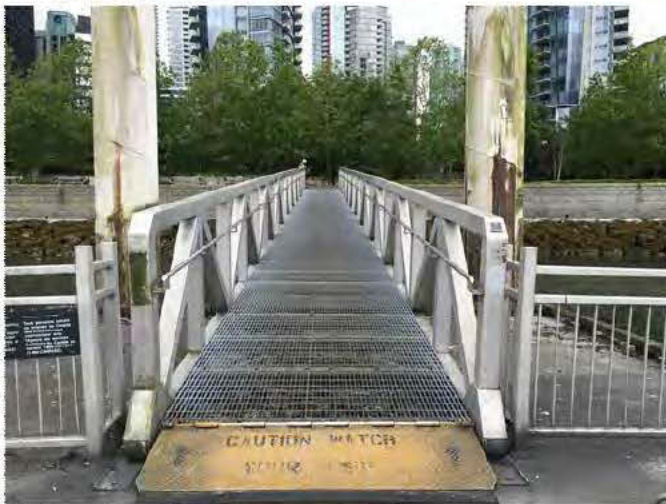




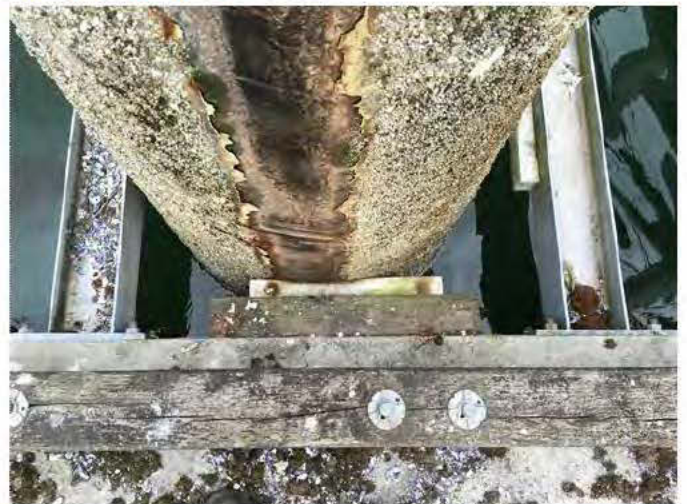
19 - Gap between Floats 4 and 5



20 - Gap between Floats 4 and 5



21 - Fungal growth on gangway guardrail



22 - Moss growth on concrete wearing surface



From: "[Augustine, Ray](mailto:ray.augustine@vancouver.ca)" <[ray.augustine@vancouver.ca](mailto:ray.augustine@vancouver.ca)>  
To: "[Mack, Tiina](mailto:tiina.mack@vancouver.ca)" <[tiina.mack@vancouver.ca](mailto:tiina.mack@vancouver.ca)>  
"[Araujo, Sev](mailto:Sev.Araujo@vancouver.ca)" <[Sev.Araujo@vancouver.ca](mailto:Sev.Araujo@vancouver.ca)>  
"[Foster, Ian](mailto:Ian.Foster@vancouver.ca)" <[Ian.Foster@vancouver.ca](mailto:Ian.Foster@vancouver.ca)>  
Date: 8/18/2017 10:42:58 AM  
Subject: RE: Harbour Green Dock

I'm fairly confident we recently repaired all the ramp issues. Ian, will you provide our in-house maintenance update please. A lot of work was also done for the huge triathlon based there last year .  
R

---

**From:** Mack, Tiina  
**Sent:** Friday, August 18, 2017 9:00 AM  
**To:** Araujo, Sev  
**Cc:** Wilton, Shauna; Silva, Octavio; Normann, Howard; Nayeri, Ali; Horne, Tom; Augustine, Ray  
**Subject:** RE: Harbour Green Dock

Hi Sev,

To my knowledge this dock was never intended for commercial activity.

Ali is our lead and can advise what will be required from Associated Engineering. The report is complete enough I think to move to the next steps.

We have a serious funding issue for the work, we could use some pavement funding if it is a higher priority, or seek funds via a quarterly adjustment from Council, we'll have to talk about this with Steve. I think asking for funds is suitable.

Is there any potential for the commercial operators to pay for these repairs? I assume additional upgrades would also be required and they should pay for these also.

Thanks Sev

Tiina

---

**From:** Araujo, Sev  
**Sent:** Thursday, August 17, 2017 6:16 PM  
**To:** Mack, Tiina  
**Cc:** Wilton, Shauna; Silva, Octavio; Normann, Howard  
**Subject:** FW: Harbour Green Dock

Hi Tiina,

Do you have a sense of when the Associate Engineering Bridge Marine Structures report will be finalized?

We recently found commercial operators running their business off the docks as a result of a public complaint. Rangers have been swamped and so I ended up asking the operators to cease operations on July 20 as we do not allow commercial activity off dock; if ultimately we were to consider their business from the dock they would ultimately would require Board approval. This has now created a letter campaign from residents of Bowen Island to Commissioners and at the direction of Malcolm are working with legal and risk management on such issues as:

- 1) jurisdiction City vs PB and Port Authority
- 2) contravention of PB bylaws
- 3) use
- 4) maintenance and capital issues

Risk has said the operators need to stop until such time an agreement, insurance and maintenance is done. Attached is picture of the wear on the pilings that IMFS (*who originally designed and built the docks*) sent REFM in July, as well as photos Octavio recently took of a broken piling collar. Also attached is the identified immediate ramp repairs identified 3 years ago by Blue Water Marine 3 years ago; they built the ramps.

Can you please let us know about the report and then ultimately who will be responsible for delivering \$150k in immediate repairs. I have real concerns over the integrity of the docks, especially if we are considering short and longer term commercial activity.

Thank you

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

---

**From:** Araujo, Sev  
**Sent:** Tuesday, July 18, 2017 4:42 PM  
**To:** Norrie, Andrew  
**Cc:** Horne, Tom; Mack, Tiina (work); Nayeri, Ali; Hsu, Paul  
**Subject:** RE: Harbour Green Dock



Thank Andrew.

The Associate Engineering Bridge Marine Structures report that Tina's group commissioned identifies approximately \$100k worth of urgent work that needs to be done.

Attached is a 2014 report that Blue Water Marine identifies as work that needs to be done to the ramp, which Associate does not highlight in their current report; another \$35k (2014\$\$) in work.

Hoping that once report finalized we can make Harbour Green a priority.

**Sev Araujo**

**Manager, Commercial Operations**

Vancouver Park Board, City of Vancouver

o. 604 257 8436 / f. 604 257 8427

Email: [Sev.Araujo@vancouver.ca](mailto:Sev.Araujo@vancouver.ca)

---

**From:** Norrie, Andrew

**Sent:** Monday, July 17, 2017 2:57 PM

**To:** Araujo, Sev; Whittier, David; Hsu, Paul

**Cc:** Horne, Tom

**Subject:** FW: Harbour Green Dock

fyi OR action

Andrew Norrie, Architect.AIBC

Project Manager | FACILITIES DEVELOPMENT | REAL ESTATE AND FACILITIES MANAGEMENT

CITY OF VANCOUVER 507 West Broadway, Suite 302 Vancouver BC V5Z 0B4

t: 604.873.7937 | m: 604.836.8026 | e: [Andrew.norrie@vancouver.ca](mailto:Andrew.norrie@vancouver.ca)

---

**From:** Matt Tobias [<mailto:Matt@floatingstructures.com>]

**Sent:** Wednesday, July 12, 2017 3:08 PM

**To:** Norrie, Andrew



need of some attention.

Regards,

Mathias Tobias

Senior Project Manager



**IMFS International Marine Floatation Systems Inc.**

9365 River Road, Delta, BC, Canada V4G 1B4



**CONFIDENTIALITY NOTICE**

This communication is intended for the exclusive use of the addressee identified above.  
Its content is confidential and may contain privileged information.  
If you have received this communication by error, please notify the sender and delete the message without copying or disclosing.

From: "[Nayeri, Ali](mailto:Ali.Nayeri@vancouver.ca)" <[Ali.Nayeri@vancouver.ca](mailto:Ali.Nayeri@vancouver.ca)>  
To: "[Araujo, Sev](mailto:sev.araujo@vancouver.ca)" <[sev.araujo@vancouver.ca](mailto:sev.araujo@vancouver.ca)>  
"[Norrie, Andrew](mailto:Andrew.Norrie@vancouver.ca)" <[Andrew.Norrie@vancouver.ca](mailto:Andrew.Norrie@vancouver.ca)>  
Date: 7/18/2017 5:27:07 PM  
Subject: RE: Harbour Green Dock  
Attachments: parks\_bridge\_marine\_report\_final.tr5

Hi Sev,

Associated Engineering has finalized their report. I have attached a VanDocs link to the report. The report and the appendices are provided as separate files to reduce file sizes. Harbour Green dock is discussed on page 55-56 of the report PDF file.

Structures and Fabrication completed a number of repairs in 2016 (total value \$25k) which I believe addressed all of the issues identified in the Blue Water Marine report. That is why those issues are not mentioned in the most recent report by AE. The issue identified in AE's inspection was abrasion and impact damage on the side of the concrete floats caused by the damage/loss of wear pads on the mooring wells. This is the same issue that Matt is pointing to in his email below. AE believes that replacing the wear pads addresses the symptoms rather than the root cause. So a part of the \$100k estimate is for further investigation and possible engineering design to retrofit the floats and improve their wave response and reduce their movement.

If you have any questions, please let me know.

Regards,  
Ali

---

**From:** Araujo, Sev  
**Sent:** Tuesday, July 18, 2017 4:42 PM  
**To:** Norrie, Andrew  
**Cc:** Horne, Tom; Mack, Tiina; Nayeri, Ali; Hsu, Paul  
**Subject:** RE: Harbour Green Dock

Thank Andrew.

The Associate Engineering Bridge Marine Structures report that Tina's group commissioned identifies approximately \$100k worth of urgent work that needs to be done.

Attached is a 2014 report that Blue Water Marine identifies as work that needs to be done to the ramp, which Associate does not highlight in their current report; another \$35k (2014\$\$) in work.

Hoping that once report finalized we can make Harbour Green a priority.

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

---

**From:** Norrie, Andrew  
**Sent:** Monday, July 17, 2017 2:57 PM  
**To:** Araujo, Sev; Whittier, David; Hsu, Paul  
**Cc:** Horne, Tom  
**Subject:** FW: Harbour Green Dock

fyi OR action

**Andrew Norrie**, Architect.AIBC  
Project Manager | FACILITIES DEVELOPMENT | REAL ESTATE AND FACILITIES MANAGEMENT  
CITY OF VANCOUVER 507 West Broadway, Suite 302 Vancouver BC V5Z 0B4  
t: 604.873.7937 | m: 604.836.8026 | e: [Andrew.norrie@vancouver.ca](mailto:Andrew.norrie@vancouver.ca)

---

**From:** Matt Tobias [<mailto:Matt@floatingstructures.com>]  
**Sent:** Wednesday, July 12, 2017 3:08 PM  
**To:** Norrie, Andrew  
**Subject:** Harbour Green Dock

Hi Andrew,

Just thought you might want to know? Taken yesterday at harbour green. Several piles are bearing on the concrete floats, this facility is in need of some attention.



Regards,

Mathias Tobias  
Senior Project Manager

 **IMFS International Marine Floatation Systems Inc.**  
9365 River Road, Delta, BC, Canada V4G 1B4  
Tel (604)930-9903, (Ext. 2) Fax (604)930-9955  
[www.FloatingStructures.com](http://www.FloatingStructures.com)

#### CONFIDENTIALITY NOTICE

This communication is intended for the exclusive use of the addressee identified above.  
Its content is confidential and may contain privileged information.  
If you have received this communication by error, please notify the sender and delete the message without copying or disclosing.



From: "[Araujo, Sev](mailto:Sev.Araujo@vancouver.ca)" <[Sev.Araujo@vancouver.ca](mailto:Sev.Araujo@vancouver.ca)>  
To: "[Norrie, Andrew](mailto:Andrew.Norrie@vancouver.ca)" <[Andrew.Norrie@vancouver.ca](mailto:Andrew.Norrie@vancouver.ca)>  
Date: 7/18/2017 4:42:10 PM  
Subject: RE: Harbour Green Dock  
Attachments: Estimation for Ramp Repairs.pdf

Thank Andrew.

The Associate Engineering Bridge Marine Structures report that Tina's group commissioned identifies approximately \$100k worth of urgent work that needs to be done.

Attached is a 2014 report that Blue Water Marine identifies as work that needs to be done to the ramp, which Associate does not highlight in their current report; another \$35k (2014\$\$) in work.

Hoping that once report finalized we can make Harbour Green a priority.

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

---

**From:** Norrie, Andrew  
**Sent:** Monday, July 17, 2017 2:57 PM  
**To:** Araujo, Sev; Whittier, David; Hsu, Paul  
**Cc:** Horne, Tom  
**Subject:** FW: Harbour Green Dock

fyi OR action

Andrew Norrie, Architect.AIBC  
Project Manager | FACILITIES DEVELOPMENT | REAL ESTATE AND FACILITIES MANAGEMENT  
CITY OF VANCOUVER 507 West Broadway, Suite 302 Vancouver BC V5Z 0B4  
t: 604.873.7937 | m: 604.836.8026 | e: [Andrew.norrie@vancouver.ca](mailto:Andrew.norrie@vancouver.ca)

---


**From:** Matt Tobias [<mailto:Matt@floatingstructures.com>]



need of some attention.

Regards,

Mathias Tobias  
Senior Project Manager

 **IMFS International Marine Floatation Systems Inc.**  
9365 River Road, Delta, BC, Canada V4G 1B4  
Tel (604)930-9903, (Ext. 2) Fax (604)930-9955  
[www.FloatingStructures.com](http://www.FloatingStructures.com)

**CONFIDENTIALITY NOTICE**

This communication is intended for the exclusive use of the addressee identified above.  
Its content is confidential and may contain privileged information.  
If you have received this communication by error, please notify the sender and delete the message without copying or disclosing.

Estimation

September 25, 2014

Ross Doherty  
City of Vancouver  
604-257-8559  
Email: ross.doherty@vancouver.ca

RE: Coal Harbour Gangways Repairs

Hello Ross;

As we discussed today, the link plates are wearing due to other issues. The westerly ramp is in need of more immediate repairs than the easterly ramp. However, there are some efficiencies in having us do both on the same mobilization.

Our work entails mobilization our crane barge to the site in order to lift the seaward end of the gangway and perform the repairs to that end. Upon the completion of that we would mobilize a lift truck to the lands' end to lift that tend and perform those repairs.

The repairs are as follows:

- Seaward Rollers
  - Lift ramp and remove existing rollers and roller assemblies
  - Replace rollers with a new assembly to include bushing
  - Re-build end cross beam on the westerly gangway
- Landward Link Plates
  - Lift ramp and remove link plates
  - Remove and replace transition plate
  - Core drill pier bracket and weld on sleeve for bushing
  - Replace link plates with plates and bushings

Costs are as follows:

| Description                              | Price     |
|------------------------------------------|-----------|
| Mobilize and demobilize to site by water | \$ 4,000  |
| Mobilization for land operation          | \$ 1,200  |
| Materials for Westerly Ramp              | \$ 2,150  |
| Labour for Westerly Ramp                 | \$ 12,500 |
| Materials for Easterly Gangways          | \$ 1,750  |
| Labour for Easterly Ramp                 | \$ 11,500 |
| * Estimate Total                         | \$33,100  |

Note: If you prefer to perform the repairs for only one ramp, then the next ramp would incur the same mobilization costs above.



*(\*) Customer agrees to pay applicable B.C. provincial Sales Tax (PST) and authorizes Blue Water Systems Ltd. (Contractor) to charge the PST on the material and supplies purchased and used to fulfill the contract.*

Prices are good for 60 days from this estimation date above.

If you have any questions, please feel free to contact me at your convenience.  
Sincerely

Peter Longwood



*Westerly Roller bottoming out causing wear on frame and dragging ramp with float motion for excessive motion at top of ramp.*



*Westerly Link Plate and Transition Plate wearing excessively because roller is not rolling at seaward end of ramp.*



*Westerly Link Plate Bolt Grinding Pier Bracket due to Roller not rolling and float motion transmitting through ramp to pier.*

From: "Daniel Leonard" <dleonard@westmaradvisors.com>  
To: "Nayeri, Ali" <Ali.Nayeri@vancouver.ca>  
Date: 6/29/2018 1:24:08 PM  
Subject: RE: Harbour Green Dock - Enforcement Options  
Attachments: Westmar - Harbour Green Proposal June 29 2018.pdf

Hello Ali,

Thank you for your email and your call yesterday.

Please find attached our proposal to complete the requested options assessment. Please do not hesitate to contact me should you have any questions or require additional information or clarification.

Regards,  
Daniel

**Daniel Leonard, P.Eng.**  
Vice President  
M +1 604 562 4797      T +1 604 770 4787  
E [dleonard@westmaradvisors.com](mailto:dleonard@westmaradvisors.com)

Westmar Advisors Inc.  
351 Bewicke Ave., North Vancouver  
British Columbia, Canada V7M 3E9  
[www.westmaradvisors.com](http://www.westmaradvisors.com)



*The content of this email contains confidential information and is intended solely for the use of the Individuals and entity to whom it is addressed. If you have received this email in error, please notify the sender by replying immediately and delete the email. If you have received this communication in error, saving, forwarding, copying, or in any way disclosing its content to any other person is strictly prohibited.*

---

**From:** Nayeri, Ali <Ali.Nayeri@vancouver.ca>  
**Sent:** June 27, 2018 5:02 PM  
**To:** Mike Warren <mwarren@iccmarine.com>; Daniel Leonard <dleonard@westmaradvisors.com>  
**Cc:** Muntasir, Sardar <Sardar.Muntasir@vancouver.ca>  
**Subject:** Harbour Green Dock - Enforcement Options

Hi Mike and Daniel,

s.13(1)

We know that there were design issues with the dock that were exacerbated by the unauthorized uses of the dock by large commercial vessels. One of the concerns raised was that we could go through the exercise of repairing and doing the upgrades that you had proposed, only to end up in a similar situation if we continue to have unauthorized vessels operating/berthing at this location. That is why we have been asked to look into options and costs associated for enforcement. We think that we have two options:

s.13(1)

I was wondering if you have any experience with designing/implementing either option and if you can think of any solutions that would be feasible for this site. We are especially interested in a design solutions that do not require additional manpower and only minor changes to the dock. The idea is to give the board an idea of if recreational enforcement is possible/feasible and what it could potentially look like.

We hope that with this information we can get a clear direction for the design and retrofit of the dock this summer.

Many thanks,  
Ali

**Ali Nayeri | Park Development | Board of Parks & Recreation**  
2099 Beach Avenue, Vancouver, BC V6G 1Z4  
Tel: 604-257-8461 | Cell: 604-353-1896  
Email: [ali.nayeri@vancouver.ca](mailto:ali.nayeri@vancouver.ca)

June 29, 2018

Board of Parks & Recreation  
2099 Beach Avenue  
Vancouver, BC V6G 1Z4

Proposal No.: 2180033

**Attention:** Ali Nayeri  
Park Development

**Reference:** Harbour Green Dock - Enforcement Options

## 1 Introduction

---

Westmar Advisors Inc. (Westmar) appreciates this opportunity to submit our proposal to the Board of Parks & Recreation (Park Board) for consulting services related to providing an assessment of potential enforcement options to coincide with the rehabilitation of the Harbour Green Dock for recreational purposes.

## 2 Team Members & Experience

---

The assessment will be led by Peter Acton, P.Eng., with the support of Mr. D. Leonard, P.Eng. A brief summary of their experience is provided below with full curriculum vitae provided in Appendix A. A summary of Westmar's experience and capabilities is provided in Appendix B.

Mr. Acton is a senior engineer with over 45 years of continuous experience in North and South America, the United Kingdom, Africa and South East Asia. He specializes in the planning, design and construction of port and maritime structures, including marinas, bulk terminals, cruise terminals and container terminals. He served on the International Navigation Association (PIANC) Working Group for the Design of Fender Systems and the fact-finding group for the harmonization of maritime design codes. Mr. Acton's range and depth of experience has been accrued over hundreds of large, complex marine infrastructure projects. He is highly respected by both peers and clients for his knowledge and the valued guidance he provides to project teams and owners. Mr. Acton has played a leading role in the development and maintenance of numerous marinas and waterfront recreational facilities in BC.

Mr. Leonard is an experienced project manager and waterfront development engineer. He has a proven track record of assisting clients to develop feasible and economic projects both in BC and globally. Mr. Leonard has assisted the Park Board to plan and implement waterfront developments, including Stanley Park and English Bay Seawall rehabilitation, Jericho Pier emergency repairs, and planning for a new Disabled Sailing Association facility.



## 3 Scope of Services

---

Westmar will provide the following Scope of Services:

### 3.1 Services Included

Westmar's Scope of Services specifically includes:

- Working with the Park Board to understand the goals for the rehabilitation and reopening of the Harbour Green Dock, Westmar will assess the feasible options to enforce the uses of the facility to prevent unauthorized users from accessing the facility and potentially causing damage to the facility. Enforcement options to be considered include both design and monitoring.
- Development of a memorandum summarizing the assessment that also provides options and recommendations.

## 4 Schedule

---

The memorandum will be submitted to the Park Board with sufficient time to review and comment on it prior to presenting findings to the Regular Park Board Committee meeting in mid-July. The submission date is to be confirmed.

## 5 Fees and Disbursements

---

Westmar proposes to perform its services on a target-estimate and reimbursable basis in accordance with the schedule of rates and disbursements detailed below.

### 5.1 Schedule of Rates

Labour charges shall be in accordance with the rates indicated in the table below. Rates for additional personnel will be presented to TAKRAF for approval prior to being added to the team.

| Name           | Rate (CDN/hour) |
|----------------|-----------------|
| Peter Acton    | s.21(1)         |
| Daniel Leonard |                 |

## 5.2 Estimated Project Fees & Expenses

Our estimate based on the scope of work outlined in Section 3 is provided below.

| No.   | Description                                                                                                                            | Hours   | Total Estimated Cost (CDN) |
|-------|----------------------------------------------------------------------------------------------------------------------------------------|---------|----------------------------|
| 1     | Assessment of enforcement options and preparation of a memorandum summarizing the assessment and providing options and recommendations | s.21(1) |                            |
| Total |                                                                                                                                        |         |                            |

## 5.3 Terms and Conditions

We have attached our standard terms of engagement for your consideration in Appendix C. We would be pleased to also discuss the use of the Park Board's standard terms.

## 5.4 Taxes

Taxes are not included.

## 5.5 Validity

This proposal is valid for 60 days from its date of submission; thereafter, it may be subject to change.

## 6 Conclusion

Thank you for the opportunity to offer our services for this most interesting assignment. If you have any questions, please contact me at 604-562-4797 or via email at [dleonard@westmaradvisors.com](mailto:dleonard@westmaradvisors.com).

Sincerely,



Daniel Leonard, P.Eng.  
Vice President  
Westmar Advisors Inc.

cc: Michael Cowdell, President, Westmar Advisors Inc.

## Appendix A: Curricula Vitae

---



Mr. Acton is a senior engineer with over 45 years of continuous experience in North and South America, the United Kingdom, Africa and South East Asia. He specializes in the planning, design and construction of port and maritime structures, including liquids and dry bulk, break bulk, cruise and container terminals. He served on the International Navigation Association (PIANC) Working Group for the Design of Fender Systems and the fact-finding group for the harmonization of maritime design codes.

Mr. Acton's range and depth of experience has been accrued over hundreds of large, complex marine infrastructure projects. He is highly respected by both peers and clients for his knowledge and the valued guidance he provides to project teams and owners.

## Experience

---

### 2011 – Present

#### Principal Consultant, Westmar Advisors Inc.

**LNG Canada, Kitimat BC – Lead Engineer for LNG Canada's TERMPOL submission to Transport Canada.** Mr. Acton was a member of a team of marine experts including a subcontractor tasked with completing a marine navigational risk analysis. Work includes preparing studies assessing the safe operation of LNG carriers in Canadian waters to and from Kitimat.

#### Confidential Client – Gas Transmission

**Project.** Preparation of a navigation study and risk assessment for the proposed subsea gas pipeline from Nosaga Gulf to a proposed LNG terminal on Lelu Island in Prince Rupert, BC.

#### Woodfibre LNG, Howe Sound, BC – LNG

**Terminal.** Marine Advisor for the preparation of navigation and berthing studies and an outline TERMPOL submission related to the port facilities.

#### Petronas LNG, Prince Rupert, BC – LNG

**Terminal.** Marine Advisor for the FEED phase of the marine facilities for a proposed LNG terminal located on Lelu Island in Prince Rupert, BC.

#### ConocoPhillips, Cook Inlet, Alaska – LNG

**Terminal Evaluation.** Marine Advisor for the

proposed development of an LNG terminal in Cook Inlet. The work included the conceptual level evaluation of vessel navigation, tug assistance, berthing operations and design of the marine terminal.

#### Centrica Resources Ltd., London, UK – Mid-Scale LNG Pre-Feed.

Marine Advisor for a proposed LNG terminal on the south coast of Tobago. The work included conceptual and preliminary level design of the marine terminal, including evaluation of single point mooring, remote Island berth and conventional trestle berth and vessel navigation.

---

### 1993 – 2011

#### Burnaby, BC Canada

#### Technical Director, Port Engineering, WorleyParsons Canada Services Ltd.,

(Amalgamated with Westmar Consultants Inc. in 2011)

#### Northern Gateway Pipelines, Kitimat, BC –

**Marine Terminal.** Project Manager for the design review of the marine components of the proposed Kitimat terminal and preparation of the TERMPOL submission. The work included co-ordination of the marine components of the NEB filing and serving as an expert witness on the NEB Joint Review Panel's Engineering and Marine Transportation panels.

**Société des Mines de fer de Guinée, Guinea and Liberia, West Africa – Nimba Iron Ore Project.** Lead Marine Engineer for a concept design study for an iron ore export terminal, to be located either at the Port of Buchanan in Liberia or at Matakang Island in Guinea. The Liberian option included facilities for the off-loading from railcars, storage and transfer to two offshore berths for the export of 30 mtpy of iron ore in vessels of up to 280,000 DWT. The Guinean option provided shared facilities for the export of up to 100 Mtpy of iron ore.

**SeaNG Corporation, Calgary, AB – CNG Terminal Developments.** Project Manager for the development of the layout and preliminary design of a number of marine terminals for CNG vessels. The terminals were located in Panama, Colombia and Jamaica and included the site development of the “Coselle” fabrication plant in Korea.

**Lycopodium Pty Ltd, Mauritania - Nouadhibou Port Facilities.** Project Manager for a scoping study for port facilities required as part of the development of the Lebentha iron ore deposit in Mauritania. The project included recommendations for ship sizes for iron pellet export and bentonite import including assessment of loading rates and turnaround time, the development of design criteria, the preparation of concept layouts for both berths and the development of order of magnitude capital cost estimates for the port facilities.

**Kitimaat Port Development Society, Kitimat, BC – Master Plan for the Port of Kitimat.** Project Manager for a phased study of possible expansion opportunities for the terminals at the Port of Kitimat. The initial phase identified a range of potential commodities that could be moved through the port, with subsequent phases examining alternatives for the terminal facilities that could be constructed to accommodate increased traffic.

**Sans Souci Ports, S.A., Santo Domingo, Dominican Republic – Redevelopment of the Port of Santo Domingo.** Project Manager for design review of the Sans Souci Cruise Ship Terminal, breakwater reconstruction, construction of a new 500-slip marina, and dredging of the approach channel and turning basin to allow the berthing of “Eagle” class cruise ships.

**Prince Rupert Port Authority, Prince Rupert, BC – Fairview Container Terminal.** Project Director for the detailed design for the Phase 1 and 2 conversion of the Fairview Terminal to a 500,000 TEU per annum container terminal. Phase 1 includes a new 400 m berth to accommodate 12,500 TEU vessels, reconstruction of the terminal infrastructure, a new rail intermodal yard, and maintenance and administration buildings. Phase 2 expands the terminal area and adds a new berth to allow an annual throughput of 1.5 million TEU.

**Vancouver Convention Centre Expansion Project, Vancouver, BC – Marine Foundation Structure.** Project Director for planning and detailed design of the pile and deck foundation structure that supports Vancouver’s expanded Convention Centre in Vancouver Harbour.

**Methanex Corporation, Kitimat, BC – Upgrade of Kitimat Terminal.** Project Manager for the evaluation of the existing berth structures, fendering upgrades and dredging to allow for the berthing of 50,000 DWT product tankers. The project included a detailed wind, wave and vessel motion analysis to determine fender reactions and mooring line loads.

**Monterrico Metals plc., Lima, Peru – Port Location and Terminal Development Study.** Lead Marine Engineer for site selection for a concentrate export terminal on the north coast of Peru. Following the selection of the Port of Bayovar, a pre-feasibility study for concentrate receiving, storing and ship loading and the construction of a berth for 65,000 DWT vessels.

**Minera Yanacocha S.R.L., Lima, Peru – Port Location and Terminal Development Study.**

Project Manager and Lead Engineer for site selection for a concentrate export terminal on the north coast of Peru. Following selection of the Port of Salaverry, a feasibility study for the concentrate receiving, storing and ship loading systems and the development of options for the conversion of an existing pier berth and the construction of a new berth for 40,000 DWT vessels.

**SeaNG Corporation, Calgary, AB – Coselle CNG Marine Terminal.** Project Manager for development of a conceptual design and capital cost estimate of a two-berth terminal for the loading and off-loading of Coselle CNG carriers. The terminal was located at a remote site and required an access trestle of approximately 300 m to reach a water depth of 12 m.

**Enbridge Pipelines Inc., Edmonton, AB – Gateway Terminal.** Project Manager for the site evaluation and pre-feasibility study for a crude oil export terminal for Suezmax tankers and VLCCs on the north coast of British Columbia.

**INCO Technical Services, Edwards Cove, NL – Voisey's Bay Port Facilities.** Lead Engineer for feasibility study for the site development, concentrate receiving, storing and ship loading, fuel storage and berth structures at Edwards Cove in Labrador. Detailed design of the materials handling systems for the concentrate reclaim and ship loading systems and berth structures.

**Southern Peru Copper Corporation, Ilo, Peru – Acid Loading Berth.** Project Manager for the design of a new acid loading and oil offloading maritime terminal, as part of the Ilo Smelter Modernization Project. The berth is designed to accommodate 20,000 DWT to 40,000 DWT tankers and comprises a spread mooring system and a piled access trestle and wharfhead.

**Stevedoring Services of America, Pagan Island, CNMI – Paganite Export Terminal.**

Project Manager for a barge lightering operation for the export of volcanic material from Pagan Island in the North Mariana Islands. The work included the site evaluation, preliminary and detailed design for a cellular sheet pile dock, causeway, deep-water moorings, conveyors and barge loaders.

**PricewaterhouseCoopers, North Coast, BC – Terminal Location Study.** Project Manager for a location study, conceptual design and capital cost estimate for a crude oil trans-shipment terminal on the north coast of BC. The study identified preferred berth locations and assessed options for fixed berth structures and spread and single point mooring facilities.

**Vancouver Port Authority, Vancouver, BC – Seaboard Container Feasibility Study.** Project Manager for concept development, preliminary engineering and capital cost development for a series of terminal layouts that would allow the Seaboard International Terminal to operate as a container handling facility.

**Vancouver Port Authority, Vancouver, BC – Vanterm Extension.** Project Manager for planning, design, and construction supervision of the extension of the Vanterm container terminal. The 58 m extension provides a total berth length, for two post-Panamax size container ships, and over 5,000 m<sup>2</sup> of container storage. The extension is located in water depths ranging from 15 m to 30 m, requiring the use of large diameter, concrete-filled steel piles with ground anchors.



**Pope & Talbot Ltd., Harmac Pulp Operations, Nanaimo, BC – Deep-Sea Dock**

**Reconstruction.** Project Manager for inspection and damage assessment of the dock structure following a severe vessel impact. Project management and engineering services for the demolition and reconstruction of the damaged portion of the structure. The replacement comprises rock socketed steel pipe piles supporting a precast concrete box girder deck.

**Concert Properties Ltd., Vancouver, BC – Portside Cruise Ship Terminal and Convention Centre.**

Project Manager for detailed design of the extension of Canada Place Pier to provide three cruise ship berths, the maritime foundation structures for a new Convention Centre, and the relocation of the existing SeaBus passenger ferry terminal and floating heliport facility.

**Vancouver Wharves Ltd., N. Vancouver, BC – Berth Nos. 2 and 3 Reconstruction.**

Project Manager for detailed design of the Berth Nos. 2 and 3 structures. The new wharf is 400 m in length and provides a continuous structure between the existing Berths.

**Western Pulp Inc., Port Alice, BC – Deep-Sea Wharf Reconstruction.**

Project Manager for planning and preliminary design for replacement of a deep-sea wharf. The structure comprises a concrete deck on steel pipe piles with significant soil densification to maintain its stability under seismic loading.

**City of Vancouver, Vancouver, BC – Saltwater Pumping Stations and Dedicated Distribution Systems.**

Project Manager for evaluation of proposed sites for the location of the saltwater intake structure and pipeline route. Work includes the conceptual design and preliminary level cost estimates for the maritime structures.

**Vancouver Port Authority, Vancouver, BC – Centerm Improvements Project.**

Project Manager for a design-build project for the construction of a new 210 m long deep-sea cargo berth between Centerm and Ballantyne

Pier, and the creation of approximately 2.5 ha of land by infilling the Ballantyne bight. The berth comprises reinforced concrete caissons across the mouth of the bight and a pile and deck structure at the end of the Ballantyne Pier.

**Kitasoo Indian Band, Klemtu, BC – Ro-Ro Ferry Terminal.**

Project Manager for feasibility study and detailed design of a ro-ro ferry terminal as part of BC Ferries' new "Discovery Coast" service. The facilities included a rock-fill causeway and abutment, a vehicle ramp, and an anchored transfer barge.

**Vancouver Wharves Ltd., N. Vancouver, BC – Maritime Structures Repair and Maintenance Program.**

Project Manager for annual inspection and repair of the Berth Nos. 1, 2, 3, 4 and 5 piled dock structures, dolphins and bulkheads. Work includes concrete restoration; replacement of timber piles, caps, stringers and deck planks; and installation of spill prevention facilities.

**Marina Estates Development, Richmond, BC – Floating Home and Marina Development.**

Project Manager for detailed design of a marina for floating homes on the Fraser River. The project included seismic stabilization of the riverbank, pile supported parking and walkway structures, access ramps, float layout and design and site servicing.

**Southern Okanagan Natural Gas Pipeline, Penticton, BC – Skaha Lake Underwater Crossing.**

Lead Engineer for Fraser River Pile & Dredge Ltd. for the preparation of detailed fabrication and installation procedures for the 11 km long lake crossing.

**Western Pulp Inc., Port Alice, BC – Rail Barge Ramp Reconstruction.**

Project Manager for on-site direction of the dismantling of the failed tower structures. Design of the new ramp towers and lifting system.

**Trinav Shipping, Vera Cruz, Mexico – Vessel Salvage.** Project Manager for design of two 1,220 t capacity underwater anchor blocks for salvaging a stranded vessel. The work required the design of a rock anchor system to secure the two precast concrete blocks to the coral seabed.

**Skeena Cellulose Inc., Prince Rupert, BC – Design of New Fendering System.** Project Manager for design of a new fendering system for the existing precast concrete dock structure, to allow continued berthing of vessels of an increased size. The project also required a complete seismic analysis and evaluation of the dock structure.

**Prince Rupert Port Authority, Prince Rupert, BC – Berthing and Mooring Study.** Project Manager for feasibility, preliminary design and preparation of design criteria for the berthing structures and moorings required for a 50,000 DWT LPG tanker.

**Agricore United, Vancouver, BC – New Berthing Dolphins for Jetty No. 3, East Berth.** Project Manager for detailed design for the new berthing dolphins required to accommodate 70,000 DWT vessels. Structural evaluation of the jetty and upgrading.

**Seaboard International Terminal, N. Vancouver, BC – Plywood Storage Shed Expansion.** Project Manager for planning, design and construction inspection for a 6,000 m<sup>2</sup> extension to a plywood storage shed. Preparation of specifications and drawings for the pre engineered building structure, design of the concrete spread footings, site services and paving.

**Fraser River Harbour Commission, Surrey, BC – Fraser Surrey Docks – Pulp Shed No. 6.** Project Manager for planning, design and construction inspection for a new 12,000 m<sup>2</sup> pulp storage shed. Preparation of specifications and drawings for the pre engineered building structure and design of the concrete spread footings, site services and paving. Fast-track schedule.

---

1990 -1993

Vancouver, BC Canada

**Vice President, Taylor Peach & Associates Ltd., Vancouver, BC, Canada**  
(Amalgamated with Westmar Consultants Inc. in 1993)

**Saskatchewan Wheat Pool, Vancouver, BC – Inspection and Structural Analysis of Mooring Dolphin.** Project Manager for condition inspection and structural analysis of the primary mooring dolphin. Investigation revealed a 75% reduction in load capacity caused by damaged and corroded piles. As an emergency measure, a floating mooring was installed to allow continued use of the berths.

**City of Prince Rupert, Prince Rupert, BC – Upgrade to Timber Cruise Ship Dock.** Project Manager for preliminary structural inspection and preparation of budget cost estimates for upgrading an existing timber dock for berthing a cruise ship.

**Fullerton Floating Pier, Vancouver, BC – Preliminary Design of Floating Concrete Dock.** Project Manager for preliminary design and cost estimates for a two-berth floating concrete dock structure and steel transfer ramps.

**Pope & Talbot Ltd. – Harmac Pulp Operations, Nanaimo, BC – Evaluation of Chip Scow Dock.** Project Manager for investigation and structural evaluation of a timber chip scow dock.

**Deep Sea Vessel Moorage, Bella Coola, BC – Anchoring System.** Lead Engineer for site investigation and design for a new anchorage system, mooring buoys and stiff leg.

**Fish Cannery and Dock, Prince Rupert, BC – Investigation and Recommendations for Reconstruction of Timber Dock.** Project Manager for investigation, structural evaluation and recommendations for the reconstruction of a timber dock structure.

**Floating Heliport, Vancouver, BC – Structural Analysis of Pontoon.** Project Manager for structural analysis of pontoon to determine capacity to land larger helicopters and condition inspection of deck structure.

**Westview Ocean Terminal, Prince Rupert, BC – Preliminary Design of Cellular Cofferdam Dock.** Project Manager for preliminary design of a cellular cofferdam dock structure and assessment of overall site development.

**Saskatchewan Wheat Pool, Vancouver, BC – Fender System Review and Construction Inspection.** Project Manager for design review and construction inspection of a new fendering system for an existing prestressed concrete pier.

---

1987 – 1990

Brampton, Ontario Canada

**Project Manager, F.J. Reinders & Associates Ltd**

**Port Weller Dry Docks, St. Catherine's, ON – Construction Management for Dock Expansion.** Project Manager for construction management of an expansion of vessel fabrication facilities and dockside craneage.

---

1986 – 1987

Papua New Guinea

**Project Manager, Cardno & Davies PNG Pty. Ltd.**

**Coastal Wharves, Papua New Guinea – Design of Wharf and Storage Facilities.** Project Manager for design of three fixed and two floating coastal wharves and storage facilities.

---

1981 – 1986

Vancouver, BC Canada

**Project Manager, Acres International Ltd.**

**Oroville, WA – Flood Control Structure.** Lead Engineer for the design of the Osoyoos Lake flood control structure.

**BC Ferry Services Inc., Snug Cove, BC – Design and Construction Supervision of Berthing Structures.** Project Manager for design and construction supervision of the berthing structures, loading ramp and access structures.

**Mackenzie River, NWT – Dredging Feasibility Study.** Lead Engineer for an engineering study and cost benefit analysis for dredging the Mackenzie River to lengthen the navigation season.

**City of Vancouver, Vancouver, BC – Design and Construction Supervision of Maritime Facilities at EXPO '86 Site.** Project Manager for design and construction supervision of the majority of the maritime facilities for EXPO '86, including the piled deck areas, floating exhibition harbour, ferry docks and the "Ship of Dreams".



**Department of Fisheries and Oceans, Small Craft Harbours, West Coast of Canada – Condition Assessment for Small Craft Harbours.** Project Manager for condition appraisal and capacity assessment for all federal small craft harbours on the West Coast of Canada.

**Port of Vancouver, Gastown Harbour Development, Vancouver, BC – Feasibility Study for Cruise Ship Terminal.** Project Manager for preparation of a feasibility study for the development of a cruise ship terminal, floating breakwater, fish boat harbour and marina.

**TransLink, Vancouver, BC – Structural Review for SkyTrain Rapid Transit – Phase 1.** Lead Engineer for coordination of all structural design reviews for the first phase of the ALRT project from Downtown Vancouver to New Westminster. Coordination of the design and construction of the Waterfront, Dunsmuir Tunnel and Stadium sections.

---

1980 -1981  
Vancouver, BC Canada

**Senior Engineer, Wright Engineers Ltd.**

**Line Creek Coal Mine, Sparwood, BC –** Lead Engineer for the design of steel-framed mine plant buildings and a truck dump.

**University of British Columbia, Centre for Mineral Processing, Vancouver, BC – Design Review and Construction Inspection.** Lead Engineer for the design review and construction inspection of a university lecture and laboratory centre for the Department of Mining.

---

1976 – 1980  
Leigh, UK

**Associate Partner, Walpole Campion and Partners**

**Bruces Pier, River Thames, UK – Design for Jetty Strengthening.** Project Manager for design for the strengthening of an existing jetty and the construction of a ro-ro facility.

**Bruces Wharf, River Thames, UK – Design and Construction Supervision of Wharf for Container Terminal.** Project Manager for design and construction supervision of a new Lash Barge wharf and flood defences for an existing container terminal.

**Barking Tidal Barrier, River Thames, UK – Tidal Barrier.** Lead Engineer for design of the foundation, superstructure and downstream sheet-piled training walls of flood control structure.

---

1974 – 1976  
London, England

**Senior Engineer, Mears Construction Ltd.**

**Dover Harbour, UK – Temporary Works for Hovercraft Terminal.** Lead Engineer for design and installation inspection of all temporary works for the western docks hovercraft terminal.

**Christchurch Bay, UK – Construction Inspection OSFLAG 9.** Lead Engineer for the construction inspection, load-out and deployment of the OSFLAG 9 instrumentation tower.

---

1972 – 1974  
Colchester, UK

**Site Agent, May Gurney Ltd.**

**Wivenhoe Shipyards, UK** – Fitting Out Dock.  
Construction Manager for a fitting out pier.

**Baltic Wharf, River Crouch, UK –  
Reconstruction of Bulk Cargo Wharf.**  
Construction Manager for the reconstruction of  
a bulk cargo wharf on the River Crouch.

**Mistley Quay, River Blackwater, UK –  
Construction Management, Bulk Timber  
Handling Wharf.** Construction Manager of a  
sheet piled marginal wharf for handling bulk  
timber.

**Rowhedge Lagoon, Rowhedge, UK –  
Dredgate Storage Lagoon.** Construction  
Manager for a Dredgate Storage Lagoon.

---

1968 – 1972  
London, UK

**Design Engineer, Ove Arup & Partners**

**Merrison Report, UK** – Design Engineer  
responsible for design checking of steel box  
girder bridges at various locations.

**Gateshead Viaduct, Newcastle, UK** – Design  
Engineer responsible for design review and  
construction supervision for multi-span, post-  
tensioned concrete box girder viaduct.

**Geotechnical Investigation, Blythe, UK** –  
Design Engineer responsible for the rock coring  
investigation for the foundation design of  
concrete box girder bridge.

**Tristar Footbridges, Newcastle, UK** – Design  
Engineer responsible for the design and  
construction supervision of two post-tensioned  
concrete footbridges.

---

## Education

B.Sc., Civil Engineering, University of Surrey,  
Surrey, UK, 1968

---

## Registrations/Affiliations

Association of Professional Engineers and  
Geoscientists of British Columbia

Professional Engineer, Washington State

Chartered Engineer, UK

## Publications & Presentations

---

Acton, P.J., Kullmann, H.G, MacPherson, R. and Campbell, N.F. **"Voisey's Bay Wharf"** Canadian Consulting Engineer, January 2007.

Acton, P.J., Harrison, G.J. and Norlander, P.L. **"Modification of Existing Concrete Caisson Wharves to Accommodate Large Container Vessels in British Columbia, Canada."** PIANC Congress, Estoril, Portugal, May 31, 2006.

Acton, P.J., Cowdell, S.R. and Kendrick, W.S. **"Cruise Ship Terminal Expansion – Port of Vancouver."** ASCE/ PIANC Ports '01 Conference, Norfolk, VI, USA, 2001.

Acton, P.J., Cowdell, S.R. and Kullmann, H.G. **"Rehabilitation and Strengthening, United Grain Growers Jetty No. 3, Vancouver, British Columbia."** ASCE/PIANC Ports '98 Conference, Long Beach, CA, USA, 1998.

Acton, P.J., Wood, J.S. and Cowdell, S.R. **"Design and Construction of Three Ferry Terminals on the Mid Coast of British Columbia for the New 'Discovery Coast Passage' Ferry Route."** ASCE/PIANC Ports '98 Conference, Long Beach, CA, USA, 1998.



Mr. Leonard is an innovative thinker and highly regarded engineering professional. He is Vice President at Westmar Advisors and is a seasoned senior manager, with a strong reputation among clients for effective problem solving and engaged guidance. He is also a senior marine structural engineer with over thirteen years of experience specializing in the planning, design and construction of transportation, waterfront, and materials handling facilities. His corporate experience includes managing a major division with a staff of over 80 consultants and engineers across ten cities in North and South America with an annual revenue of over \$27 million for a global publicly-traded corporation.

His project experience ranges from focused, local work to large, multidisciplinary assignments. He was the Project Manager and Lead Engineer for several LNG and LPG site selection, definitive feasibility studies, pre-FEED, and FEED projects proposed in the Pacific Northwest of North America and he also managed the conceptual, preliminary and detailed design of a \$65 million, three-berth marine terminal in Mexico. He has accrued significant experience in public waterfront spaces and is the Engineer of Record for the \$25M Westminster Pier Park in New Westminster.

Mr. Leonard's ability to combine technical excellence with creative problem solving has led to conceptual designs that have expanded the field of marine engineering, including a first-of-its-kind marine habitat mitigation structure that was part of the Vancouver Convention Centre West Project. He is regularly asked to speak about technical issues related to port development at conferences and workshops and has led the development of various sections of CSA guidelines.

## Experience

---

2018 – present  
North Vancouver, BC Canada

### Vice President, Westmar Advisors Inc.

Westmar Advisors Inc. is a provider of premium advisory services in support of industrial, municipal, and commercial infrastructure projects. Mr. Leonard is responsible for strategic and technical governance as well as building client relationships with a focus on pursuing new projects and developing opportunities within the following range of Westmar's services:

- Development Strategy
- Studies & Reviews
- Owner's Engineer Services
- Project Management
- Process & Facilitation
- Conceptual Design
- Expert Opinion
- Facilities Management

2016 – 2018  
Burnaby, BC Canada

### Vice President of Transportation Service Line – Americas, Advisian

2013 – 2018  
Burnaby, BC Canada

### Principal Consultant, Advisian/WorleyParsons Canada

**Confidential Client, Various Ports in the USA and Mexico – Auto Terminals Business Acquisition Technical Due Diligence.** Project Manager for the technical and environmental scope of the due diligence for the acquisition of an auto terminals business with twelve terminals located in the USA and Mexico. The scope of work involved the review of documents, site visits to several of the terminals, and the

preparation of summary reports highlighting issues and opportunities for growth.

**Ridley Terminals Inc., Prince Rupert, BC – Berth Expansion Project Concept**

**Development.** Project Manager for the evaluation of several alternatives to add a new berth to the existing export terminal to support LPG and dry bulk materials export. Once the alternatives were determined, the preferred concept was selected and further developed to support the preparation of a Project Description to initiate the permitting process. The preferred concept was innovative by taking advantage of the fact that the new berth requires less water depth than the existing berth so that the new berth can be placed on the shore side of the mooring dolphins for the existing berth. In this way, the new berth has minimal cost and environmental impacts, which will significantly reduce the time required to achieve permitting approvals.

**Confidential Client, Dominican Republic – LNG Import Terminal Feasibility Study.**

Infrastructure Lead for a study evaluating the feasibility of a new LNG import terminal on the north coast of the Dominican Republic. Several options were evaluated including nearshore and offshore floating storage and regasification unit (FSRU), floating storage only, and upgrading an existing 50 year old jetty. Infrastructure team tasks included coastal studies, marine structures, upland development, and geotechnical studies.

**Prince Rupert Port Authority, Prince Rupert, BC – Pacific Northwest LNG Marine Terminal Design Review.**

Project Manager for a multidiscipline team review of the marine terminal design completed by the EPC contractor on the Pacific Northwest LNG Project proposed to be located on Lelu Island near the town of Prince Rupert, BC. The review is being conducted on behalf of the authority having jurisdiction for compliance with appropriate codes, standards, and design methods. The LNG terminal has a proposed maximum throughput

of 18 MTPA. The marine terminal includes a material offloading facility, two LNG export berths, and a 2.7 km long trestle partially comprised of a 1.2 km clear span suspension bridge.

**ExxonMobil / Imperial Oil, Prince Rupert, BC – Westcoast Canada LNG Marine Terminal Preliminary Design.**

Project Manager for the preliminary design of the marine terminal structures and LNG loading lines for a proposed 30 MTPA LNG export project located at a challenging site in northern BC. The project includes three loading berths and a pioneer dock. The challenging nature of the site relates to steep rock faces above and below sea level along the shoreline with sensitive habitats and traditional fishing usage around the site.

**AltaGas Ltd., Prince Rupert, BC – LPG Export Terminal Pre-FEED.**

Project Manager for the preliminary front end engineering and design (pre-FEED) for a proposed 80,000 barrel per day LPG export terminal located on Ridley Island in Prince Rupert. The project is proposed to include the conversion of an existing Brownfield facility and usage of an existing marine terminal that will continue to export other products.

**Confidential Client, Metro Vancouver, BC – LPG Export Terminal Pre-FEED.**

Senior Advisor for the preliminary front end engineering and design (pre-FEED) for a proposed 40,000 barrel per day LPG export terminal located at a site located in Metro Vancouver. The project is proposed to include the conversion of an existing Brownfield facility with a confined footprint adjacent to other active export terminals.

**Nexen Inc., Prince Rupert, BC – Aurora LNG Feasibility Studies.** Senior Reviewer for the evaluation and assessment of an up to 30 MTPA LNG export terminal located in the Prince Rupert area. The role included providing advice and review during the development of definitive feasibility studies for two potential sites.

**Steelhead LNG – Sarita Bay LNG Final Due Diligence Review and Feasibility Studies.**

Project Manager for the final due diligence review and feasibility studies of an onshore 24 MTPA export facility proposed to be located at Sarita Bay near Port Alberni, BC. The review includes plant and marine terminal layouts, cooling options, power supply options, geotechnical investigation, environmental investigation and sensitivities, stakeholder engagement planning, regulatory engagement and permitting planning. The project, which is being overseen by a joint Steelhead LNG/ Huu-ay-aht First Nations Project Development Panel, represents a unique approach and an increased level of First Nations input and direction in an LNG project.

**Confidential Client – Southern BC FLNG Site Selection and Feasibility Studies.** Project Manager for evaluation and assessment of an up to 5 MTPA FLNG export terminal located in southern BC, to be supplied by a new pipeline. Feasibility studies were completed for three of the short listed sites. The FLNG was evaluated for both near shore with a jetty and offshore with a riser and turret mooring configurations.

**LNG Canada, Kitimat, BC – LNG Plant FEED and TERMPOL Studies.** Senior Advisor for the development of project execution plans for FEED and navigation risk assessment, also known as TERMPOL, studies for a proposed 24 MTPA LNG export facility located in Kitimat, BC.

**CN Rail, Prince Rupert, BC – Railcar Barge Terminal Upgrades.** Senior Reviewer and Engineer of Record for the upgrades to a Brownfield marine barge facility that is primarily used to transport liquid hydrocarbons and chemicals in railcars on a barge from the rail network in British Columbia to the rail network in northern Alaska via Whittier, Alaska. The upgrades include the partial demolition of the existing 1954 timber mooring and berthing structures and the installation of steel pipe

monopole mooring and berthing dolphins that are founded in grouted drilled rock sockets.

---

2012 – 2013

Burnaby, BC Canada

**Manager – Marine Structures & Terminals Department, WorleyParsons**

**Riversdale Resources Ltd., Pacific Northwest – Grassy Mountain Coal Project Port and Rail Infrastructure Study.** Port Lead for a desktop study to provide an independent overview of current and proposed port and rail infrastructure options in North America that could potentially export coal produced by the Grassy Mountain Project, with particular focus on the British Columbia, Canada coastline and the United States of America Pacific Northwest coastline.

**Nexen Inc., Prince Rupert, BC – Site Selection and Feasibility Studies.** Project Manager for the selection of possible sites for up to a 20 MTPA LNG export terminal anywhere in British Columbia to be supplied by a new pipeline from Northern BC. A feasibility study was completed for Lelu Island near Prince Rupert, BC that included the development of a high level layout for the full facilities.

**Port Metro Vancouver, Tsawwassen, BC – Container Capacity Improvement Program.** Marine Engineering Manager for the preliminary engineering of the marine infrastructure required for the proposed \$5B Roberts Bank Terminal 2 Project, a multi-berth container terminal with potential capacity of nearly 2.5 million TEUs (twenty-foot equivalent unit) per year to meet forecast demand until 2028.

**Chevron Canada Ltd., Duncan, BC - Hatch Point Marine Terminal Dolphin Upgrades.** Engineer of Record for the design of four mooring and berthing dolphins at an oil and gas terminal facility. Dolphins are designed with steel pipe piles, concrete pile caps, steel bollards and

rubber fenders with UHMW panels. Senior review of the design criteria, drawings, specifications, and permit applications.

**Ridley Terminals Inc., Prince Rupert, BC – Emergency Repairs to Berthing Dolphins.**

Project Manager for emergency repairs to two berthing dolphins located at Ridley Terminals Inc.'s primary export berth in Prince Rupert, BC. The damage occurred following a vessel impact during a storm event and the repairs consisted of recovering a heavy concrete element from the sea floor and re-installing it while maintaining terminal operations.

**Pacific Oil & Gas, Squamish, BC – Woodfibre LNG Export Terminal Pre-FEED/TERMPOL.**

Marine structures and navigational risk lead for the pre-FEED of a 2.2 MTPA LNG export terminal in southern British Columbia. Several options were considered as part of the pre-FEED study, including fully onshore, fully floating nearshore, and with the plant located onshore and the LNG storage in a floating facility. A high level navigational risk study was completed with initial consultation with the TERMPOL review committee.

Pacific Oil & Gas, Squamish, BC – Woodfibre LNG Final Due Diligence Review and Land Acquisition Support. Project Manager for the final due diligence review of onshore and nearshore FLNG options and support with the acquisition of a Brownfield former pulp mill site in Squamish, BC. The due diligence review included strategic advice related to environmental contamination at the site, pipeline routing feasibility, stakeholder engagement, First Nations engagement, power options, and cooling options using existing water licenses.

**SK E&S – British Columbia Wide LNG Site Selection and Feasibility Study.** Project Manager for the selection of possible sites for between a 5 MTPA to 10 MTPA LNG export terminal anywhere in British Columbia or Washington State, to be supplied by a new pipeline from Northern BC. Feasibility studies

were completed for seven of the short listed sites. WorleyParsons supported SK E&S with its prequalification with the Government of British Columbia to develop an LNG facility at Grassy Point near Port Simpson, BC.

**WWL Vehicle Services Canada Ltd., Annacis Island, BC – Condition Assessments, Asset Management Repairs, and Remedial Upgrade Options.**

Project Manager for asset management and terminal planning for two timber and concrete wharves located along the Fraser River including: condition assessments and repairs; berth maintenance dredging; and rehabilitation, expansion, and upgrade planning.

**BP, Iraq – Reconfiguration of Brownfield Oil Export Terminal.** Marine Engineering Manager for the preliminary engineering for the rehabilitation and upgrading of a Brownfield, derelict oil export terminal in southern Iraq.

**Port Metro Vancouver, Vancouver, BC – Ballantyne Pier Condition Assessment and Rehabilitation Options.**

Project Manager for the above water and underwater condition assessment of Ballantyne Pier, a 100 year old wharf structure currently used for cruise ship passenger boarding in Burrard Inlet. Rehabilitation options were developed with the intent of maintaining the facility in a serviceable condition.

**Baja Mining Corp, Santa Rosalia, Mexico – El Boleo Marine Terminal.** Project Manager and Lead Engineer for the conceptual, preliminary and detailed design for a new, three berth, \$65M marine terminal to load and unload bulk material and liquids in support of a new copper mine. The project also included a large rock fill settlement basin for a sea water intake structure.



---

2006 – 2012

Burnaby/North Vancouver, BC Canada

**Senior Marine Structural Engineer,  
WorleyParsons/Westmar Consultants  
Inc.**

**Pacific Oil & Gas – North America Wide LNG Site Selection Study.** Project Manager for the long and short list evaluation and assessment of a 1 MTPA to 5 MTPA LNG export terminal anywhere in North America, to be supplied by either a new or existing, pipeline or dedicated railcars.

**ExxonMobil, Newfoundland, Canada – Hebron Offshore Oil Platform Module Offload Pier.** Lead marine structural engineer for the assessment of an existing module offload pier that was constructed to support the development of the Hibernia offshore oil platform and is proposed to be re-used for the Hebron offshore oil platform construction. A load assessment was completed and upgrade options were developed to allow the pier to accommodate the larger module size and weight proposed for the new facility.

**Confidential Client – Caribbean LNG Export Terminal Design.** Project Manager for marine terminal components of a pre-FEED for a midscale LNG export facility in the Caribbean.

Confidential Client – Vladivostok CNG Export Terminal Design. Project Manager for the preliminary design of a midscale CNG marine export terminal facility in Vladivostok, Russia.

**ExxonMobil, Nanaimo, BC – Marine Fuel Facility Condition Assessment.** Lead Engineer for the structural inspection and condition assessment of a timber wharf near Nanaimo, BC used to import liquid hydrocarbon products for fuel usage on Vancouver Island.

**Avanti Mining, Kitsault and Prince Rupert, BC – Mine Port Facilities Design.** Project Manager for the conceptual design of port facilities for a

proposed mine in Kitsault, BC. The facilities consisted of RO-RO barge berths and upland storage areas for both the mine site in Kitsault, BC and for a upgrading operation in Prince Rupert, BC.

**Confidential Client – Southern BC Coal Terminal Design.** Project Manager for the conceptual design of port and material handling facilities for a proposed coal export terminal in southern BC. The facilities consisted of a rapid discharge rail unloading system, covered storage and a jetty with a travelling shiploader. The project included simulations and logistics modelling to verify the export volume objectives.

**Abu Dhabi Gas Industries Ltd. (GASCO), Abu Dhabi, UAE – Sulphur Handling Facilities for Shah Gas Development.** Marine Structures Lead for a feasibility study (pre-FEED) for Fluor and GASCO to examine the alternatives and prepare cost estimates for transporting up to 33,000 tpd of sulphur over 140 km of difficult terrain from the Shah and Habshan Sour Gas Developments to a new sulphur export terminal to be constructed on the coast of Abu Dhabi. The new export terminal includes either rail receiving facilities, conveyors, stacker / reclaimers, covered storage, two 3,000 tph shiploaders, marine structures, and a new dredged port and approach channel.

**Canadian Department of National Defense, Ottawa, ON – Rocky Point Ammunition Jetty.** Project Manager for the inspection, assessment and development of remedial options to maintain and upgrade an existing marine terminal facility located near Victoria, BC, which is used to load ammunition onto Canada's west coast naval fleet.

**City of Vancouver Board of Parks and Recreation, Vancouver, BC – Stanley Park and English Bay Seawall Reconstruction Project.** Project Manager and Lead Engineer for the replacement of approximately 1,100 m of seawall in Stanley Park and on English Bay. The project

included the installation of marine habitat enhancement.

**City of New Westminster, New Westminster, BC – Westminster Pier Park.** Lead Project, Marine, and Structural Engineer for the preliminary and detailed design of a new public green and amenity space constructed partially over a river. The project included a concrete building, a large exposed timber frame structure, a pile supported marine deck, expanded polystyrene structural fill and several types of retaining structures.

**Westshore Terminals Limited Partnership, Roberts Bank, BC – Berth No. 1 Shiploader.** Lead Structural Engineer for the structural inspection and load testing of the shiploader located on Berth No. 1 of Westshore's coal facility at Roberts Bank, following an impact with a vessel.

**NVI Mining Ltd., Campbell River, BC – Discovery Terminal Shiploader Load Test.** Lead Structural Engineer for the structural inspection and load testing of the shiploader located at NVI's concentrate facility in Campbell River.

**Neptune Bulk Terminals (Canada) Ltd., N. Vancouver, BC – Machine Inspections.** Lead Engineer for the structural inspection and assessment of two potash shiploaders, two coal shiploaders and a coal stacker/reclaimer. The inspections cover all systems and structures for the machines and include non-destructive testing and motion checks.

**Fraser River Port Authority, Surrey, BC – Fraser Surrey Docks.** Lead Engineer for the structural inspection of a concrete pile and deck structure, steel sheet pile retaining wall and riprap slope protection.

**Ministry of Transportation, Squamish, BC – Darrell Bay Ferry Terminal.** Structural Engineer for the structural inspection and emergency condition assessment of a ferry terminal in Squamish, BC, that was investigated as an

alternative route for a highway closed by a significant rockslide.

**Eurocan Pulp and Paper, Kitimat, BC – Marine Facility Floating Barge Loading Ramp.** Lead Engineer for the structural inspection and emergency condition assessment of a barge loading ramp supported by a floating steel tank and hydraulic lift system. The ramp became unstable and severely twisted prior to the inspection.

**Xstrata Nickel, Deception Bay, Rouyn Noranda, QC – Deception Bay Wharf Commissioning.** Structural Engineer for the commissioning inspection and preparation of an operations and maintenance manual for the rehabilitated shipping facility of a nickel mine in remote Arctic location. The rehabilitation consisted of a new concrete caisson wharf with topside concentrate and fuel pipelines.

**Port of Vancouver, WA, USA – Kinder Morgan Bulk Terminal.** Structural Engineer for the structural inspection and condition assessment of a copper and clay shiploader. The inspection covered all systems and structures for the machine and included non-destructive testing and motion checks.

**Fibreco, North Vancouver, BC – Marine Facility Condition Assessment.** Lead Engineer for the structural inspection and emergency condition assessment of timber piles within a wharf structure that had failed during the handling of a large bulk carrier.

**Kinder Morgan Terminals Canada, North Vancouver, BC – Machine Inspections.** Lead Engineer for the structural inspection and condition assessment of two sulphur shiploaders and a railcar hatch transfer crane. The inspections cover all systems and structures for the machines and include non-destructive testing and motion checks.

**Pacific Coast Terminals Co. Ltd., Port Moody, BC – Emergency Machine Inspection.** Lead Engineer for the structural inspection, emergency condition assessment and field review of remedial work to re-rail a sulphur shiploader.

**Lehigh Northwest Cement Limited, Delta, BC – Dock Hoist Inspection.** Lead Engineer for the structural inspection and condition assessment of a dock hoist that transports a front-end loader onto barge decks. The inspection covered all systems and structures for the machine and included non-destructive testing and motion checks.

**Campbell River Indian Band, Campbell River, BC – Cruise Ship Terminal Field Engineer.** Field Engineer during the construction of a \$20M cruise ship terminal located in Campbell River, BC. Responsible for technical field reviews, quality assurance, and contract administration of a single general contract that included offshore soil improvement and construction of fixed and floating marine structures.

**VCCEP Ltd., Vancouver, BC – Vancouver Convention Centre Expansion Project.** Structural Engineer for the structural design and field review of steel pipe piles and cast-in-place and precast concrete elements of the foundation for the \$800 million, 45,000 m<sup>2</sup> expansion to Canada Place. Lead Engineer for a first-of-its-kind marine habitat mitigation structure known as the habitat skirt intended to compensate for marine environmental impacts of the facility by reinstating the natural foreshore around the perimeter of the new facility.

## Education

---

M.A.Sc., Structural Engineering, University of British Columbia, Vancouver, BC, 2004

B.A.Sc., Civil Engineering, University of British Columbia, Vancouver, BC, 2002

## Registrations/Affiliations

---

Association of Professional Engineers and Geoscientists of British Columbia

Fundamentals of Project Capital Cost Control Seminar – APEGBC, 2008

PSMJ – Project Management Training, 2007

Principles of Construction Documentation – Construction Specifications Canada, 2005

CSA Standard A23.1 and A23.2 Concrete Materials and Methods of Concrete Construction Seminar – APEGBC, 2005

## Publications & Presentations

---

Leonard, D. **“Organizational Considerations for Port Expansion Projects.”** Presentation to the 10th International Harbour Masters’ Association Congress, Vancouver, BC, 2016.

Leonard, D., and Slocomb, R. **“Development of a New Guidance Document for the Design of LNG Marine Terminals in B.C.”** Presentation to the Environmental Managers Association of BC 2016 Workshop, Vancouver, BC, 2016.

Leonard, D. et. al. **“CSA EXP276.1-2015 Design requirements for marine structures associated with LNG facilities (DRMS)”**, Canadian Standards Association Development Committee, Canada, 2015.

Leonard, D. **“Holistic Approaches to LNG Export Facilities Site Selection”**, Presentation to the SPE/ASME LNG: From Wellhead to Global Markets Workshop, Vancouver, BC, 2014.

Leonard, D., and Thomson R. **“Load Test Procedures for In-Service Shiploaders”**, Proceedings of Ports 2013, Seattle, Washington, 2013.

Leonard, D., and Kullmann, H. **“Design of Marine Habitat Mitigation Structure”**, Proceedings of Ports 2010, Jacksonville, Florida, 2010.

Leonard, D., Popovski, D., and Prion, H. **“Structural Performance of Tall Walls Under Axial and Transversal Loads”**, Proceedings of the 13th World Conference on Timber Engineering, Lahti, Finland, 2005.

Leonard, D. **“Structural Performance of Tall Walls Under Axial and Transversal Loads”**, Master Thesis, Department of Civil Engineering, University of British Columbia, Vancouver, BC, October 2004.

## Awards

---

**Environmental Award** (Design, Construction, and Monitoring) for the City of New Westminster’s Westminster Pier Park Project, Association of Professional Engineers and Geoscientists of BC, 2012

**Sustainability Award** for the Habitat Skirt at the Vancouver Convention Centre Expansion Project, Precast Concrete Institute, 2008

**Environmental Award** (Concept and Assessment) for Vancouver Convention Centre Expansion Project, Association of Professional Engineers and Geoscientists of BC, 2006

**Achievement Award**, as Selected by the Faculty of Engineering at the University of British Columbia for Demonstrating Great Promise in Civil Engineering, Association of Professional Engineers and Geoscientists of BC, 2002.



## **Appendix B: Westmar Experience and Capabilities**

---