



City of Richmond

Report to Committee

To: General Purposes Committee

Date: May 21, 2020

From: Jim V. Young, P. Eng.
Director, Facilities and Project Development

File: 06-2052-25-PNET1/Vol 01

Re: Phoenix Net Loft Deconstruction and Salvage

Staff Recommendation

That staff be authorized to proceed with the deconstruction and salvage of heritage elements of the Phoenix Net Loft as described under Option 1 on Page 3, in the staff report titled "Phoenix Net Loft Deconstruction and Salvage", dated May 21, 2020, from the Director, Facilities and Project Development.

Jim V. Young, P. Eng.
Director, Facilities and Project Development
(604-247-4610)

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Arts, Culture & Heritage	<input checked="" type="checkbox"/>	
Policy Planning	<input checked="" type="checkbox"/>	
Parks Services	<input checked="" type="checkbox"/>	
Finance & Corporate Services	<input checked="" type="checkbox"/>	
SENIOR STAFF REPORT REVIEW	INITIALS:	APPROVED BY CAO

Staff Report

Origin

At the regular Council meeting on February 24, 2020, Council endorsed the following resolution:

- (1) That the Capital Program budget be amended from the previously approved \$11.5M to \$19.44M for the Phoenix Net Loft Preservation project for Option C – Museum-Style Interpretive Centre use for the Phoenix Net Loft preservation project; and*
- (2) That the difference of the \$11.5M and the proposed \$19.44M (\$7.94M) to be used for the Phoenix Net Loft preservation project be withdrawn from the Capital Building and Infrastructure Reserve Fund; and*
- (3) That the Consolidated 5 Year Financial Plan (2020-2024) be amended accordingly.*

The purpose of this report is to seek Council authorization to proceed with the deconstruction and selective salvage of heritage elements of the Phoenix Net Loft building.

The information and recommendation contained within this report coincides with the companion report pertaining to Phase One of the Phoenix Net Loft Public Consultation Plan as described in the staff report titled “Phoenix Net Loft Public Consultation Process”, dated May 22, 2020, from the Director, Arts, Culture and Heritage Services.

This report supports Council’s Strategic Plan 2018-2022 Strategy #1 A Safe and Resilient City:

Enhance and protect the safety and well-being of Richmond.

1.2 Future-proof and maintain city infrastructure to keep the community safe.

This report supports Council’s Strategic Plan 2018-2022 Strategy #6 Strategic and Well-Planned Growth:

Leadership in effective and sustainable growth that supports Richmond's physical and social needs.

6.4 Recognize Richmond's history and heritage through preservation, protection and interpretation.

Analysis

Current Condition of Structure and Liabilities

The Phoenix Net Loft is currently in a state of structural deterioration. A full structural assessment of the building was completed in 2016 by CWMM Consulting Engineers Ltd., where it was highlighted that approximately 90 per cent of the piling foundation showed signs of significant deterioration.

Staff recently engaged a separate structural engineering firm, Advisian, to review the previous information and provide updated comments on the current status of the structure. Advisian has cautioned that the building is not safe for public access, and further noted that the building is continuing to deteriorate and is becoming more unstable.

The increasing instability of the structure will create a risk to public safety beyond the building footprint. Partial or full failure of the structure may impact outdoor public areas and neighbouring infrastructure. In addition to the risks to public safety, possible collapse of the structure into the Fraser River also presents environmental risks due to heavy concentrations of lead contamination present in the building's siding materials.

It is anticipated that the timelines for the completion of the public consultation process on programming, as outlined in the companion report dated May 22, 2020 from the Director, Arts, Culture and Heritage, and the subsequent Council approvals for program selection and Capital funding amendments would mean a possible start date for construction is 2022. Considering these timelines and the current condition of the Phoenix Net loft, options must be considered to address the risk of collapse.

Staff have received the required Forests, Lands and Natural Resource Operations (FLNRO) environmental permitting necessary to proceed with the deconstruction/reconstruction processes.

Option 1 – Deconstruction and Salvage (Recommended)

Under this option staff would move immediately to complete the deconstruction and selective salvage of heritage elements that are in good condition. The salvaged elements would be stored for usage in the future reconstruction. Deconstruction and salvage is the first phase required to facilitate the full reconstruction project. The deconstruction can take place in advance of any decision on final program.

The cost of this work is estimated to be \$1.4 million (2019 dollars), plus escalation, as confirmed through independent estimates completed by Scott Construction and a quantity surveyor. This cost is included in the \$19.44 million Council approved budget.

The contractor cost estimates for the complete reconstruction of the Phoenix Net Loft include considerable contingency associated with the high risk of the deconstruction and salvage process. When packaged as a single project, the deconstruction risks raise costs for the whole project, as any issue encountered at the deconstruction stage would impact the contractor's ability to deliver the complete project. By proceeding now with deconstruction and salvage as a separate package of work, the associated risk will be eliminated, and contractors bidding on the future reconstruction work will be able to provide more competitive pricing.

Proceeding with deconstruction now provides the best opportunity to retain the salvageable elements in good condition. Any further deterioration of the structure will add cost to the deconstruction and could very likely damage or destroy currently salvageable elements.

Implementation of Option 1 requires structure and site isolation similar to what is described under Option 2 in order to facilitate the works.

Option 2 – Structure Isolation

If deconstruction is not completed expediently, then the site would need to be isolated to address the risk of any partial or full collapse impacting exterior public areas and infrastructure. Under this option, a perimeter fence around the building would be established to keep public safe should the building collapse. It is anticipated that the fence would extend across the boardwalk, possibly into a parking lot, and would require removal of wharves and the relocation of main public pathways.

The cost to complete this work is estimated to be \$65,000 and is included in the \$19.44 million budget approved by Council. Isolation of the structure would be one of the first steps taken by a contractor if they were to proceed with the reconstruction process.

While this option addresses emerging public and infrastructure risks in the vicinity of the building, risks of salvageable element loss, environmental damage and increased deconstruction costs would not be addressed under this option.

Next Steps

Should Council authorize staff to proceed with the recommended Option 1, staff will develop and implement a public communication plan and proceed with deconstruction procurement. Work will commence immediately after a contractor is selected. Staff will include the items identified as having heritage value as part of the bid package and off-site storage will be arranged. Staff, together with heritage preservation experts have identified elements of the existing Phoenix Net Loft that are of high heritage value and suitable to salvage for reuse in a future facility.

Financial Impact

The estimated cost of \$1.4 million to implement deconstruction and salvage of the Phoenix Net Loft (Option 1) is included in the budget approved by Council on February 24, 2020.

Conclusion

The Phoenix Net Loft is in a state of structural deterioration and the recommendation is to proceed with deconstruction and selective salvage activities due to the increased risk to public safety and the environment as time progresses. Work will proceed immediately following Council authorization.



Jim V. Young, P. Eng.
Director, Facilities and Project Development
(604-247-4610)

JVY:jvy

Att. 1: Phoenix Net Loft - Advisian Condition Assessment letter dated April 27, 2020



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Burnaby, BC V5C 6S7
CANADA

Tel: 604-298-1616

advisian.com

Worley Canada Services Ltd.

27 April 2020

Our Ref: 307071-01328

O4 Architecture
2386 Oak Street
Vancouver, BC V6H 4J1

Attention: Mike Mammone

Dear Mr. Mammone:

PHOENIX NET LOFT - CONDITION ASSESSMENT – UPDATE (REVISION 2)

As part of the Phoenix Net Loft rehabilitation project in Richmond, BC, Advisian has been contracted to perform a condition assessment of the Net Loft building (superstructure only) in addition to providing structural engineering design services. The site has been previously inspected/assessed by previous consultants, Entech Environmental Consultants Ltd. (EECL) and CWMM Consulting Engineers Ltd. (CWMM), as well as Advisian (as Westmar and WorleyParsons on two separate occasions). Advisian has reviewed these previous reports and, coupled with our current condition assessment (superstructure only) performed in March/April 2019 present the following recommendations as to occupancy of the structure:

- **Substructure:** As noted by CWMM and EECL in their recent reports, as well as by Advisian (Westmar and WorleyParsons) in the past, the substructure is heavily deteriorated and requires significant repair to bring the structure back to its original design load rating. Considering no repairs have been made since the prior issuance of this letter (23 April 2019), and since the original study conducted in 2016, it is fair to assume that the structure has continued to deteriorate and without repairs/remediations will deteriorate further. Furthermore, the original design is not compliant with modern seismic and structural design practices, therefore, repair of the structure to its original state would be insufficient to meet modern code requirements should the use of the space deviate from the original design intent – i.e., change in use/occupancy parameters. As noted above, Advisian has not inspected as part of its current scope the substructure.
- **Superstructure:** As noted by CWMM in its recent report, as well as by Advisian (Westmar and WorleyParsons) in past reports and as part of its current work scope, the Phoenix Net Loft building itself is found to have signs of deterioration. As stated previously, no repairs have been made since the prior issuance of this letter (April 23, 2019), and since the original study conducted in 2016, it is fair to assume that the structure has continued to deteriorate and without repairs/remediations will deteriorate further. Repair of the superstructure to return it to its original design is feasible, and not anticipated to be overly significant in complexity. However, similar to the substructure, repairs would be insufficient to meet modern code requirements should the use of the space deviate from the original design intent. Another item of note is that the superstructure has been built using

dimensional lumber, not heavy timber. This provides further design complications with respect to material reuse and fire rating. Lastly, though the superstructure is in relatively better condition than the substructure; since the superstructure is being supported by the substructure, it (the superstructure) should be considered only as safe as the substructure (its foundation).

Moreover, should repair be the chosen course of action, the existing structure will not be compliant with modern established building codes, including the 2018 BC Building Code, and as such, deviation from its original use/occupancy program is not recommended nor would it be permitted. *Should repair be the chosen course of action, Advisian would be able to assist in providing repair designs to meet the original design capacity, however Advisian would not be responsible for the original design capacity.*

Finally, based on Advisian's recent work and the review of previous reports, Advisian considers the structure as not safe for general public access, and correspondingly recommends the existing structure not be accessed by the general public in any fashion until repairs have been made to the substructure (repair, improvement or replacement) and superstructure (repair, improvement or replacement). Access should only be by those briefed on the limitations of the existing structure, associated risks, and that have work plans established for accessing the site safely, including where personnel can walk, climb and move about, as well as in accordance with any other requirements set by the City of Richmond.

I trust this letter meets your needs at this time. If you have any further questions and/or comments, please contact me at 778-945-5223 or via email at anthony.peterson@advisian.com.

Yours sincerely,



Anthony Peterson, P.Eng.
Assistant Practice Lead, Ports & Marine Structures



Power & Transport
Advisian Americas

cc: Vahid Sofali, Advisian
Jason Braun, Advisian

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