

# COLUMBIA CONTAINERS

## Visual Impact Assessment

Prepared for:  
**Columbia Containers**  
2775 Commissioner Street  
Vancouver, BC V5K  
**Attn: Stefan Ferrario**

Prepared by:  
**Hemmera**  
18<sup>th</sup> Floor, 4730 Kingsway  
Burnaby, BC V5H 0C6

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## 1.0 INTRODUCTION

Columbia Containers has been successfully operating a grain transloading facility at 2775 Commissioner Street in Port Metro Vancouver's (PMV) South Shore Trade Area for more than 40 years. To remain competitive in the global market Columbia Containers is modernizing and rebuilding their facility.

The project, which comprises four separate permit applications will:

- Decommission and remove of the secondary system, stores facility and workshop and excavate new loading pits ("System II Demolition and Pit Excavation" Permit Application).
- Build a modern, efficient and compact transloading facility to replace the aging grain elevator at a new location slightly north (toward the water) and west of the current grain elevator, and reinstate previously removed grain storage silos ("New Grain Transloading Facility" Permit Application).
- Move the retaining wall on the foreshore at the 'bight' approximately 20 feet to the north, accommodating PMV's realignment of Commissioner Street, part of the South Shore Corridor Project ("Retaining Wall Realignment" Permit Application).
- Construct a new two-storey office building at the west end of the property, to replace current office trailers ("Modular Office Building" Permit Application).

The Columbia Containers site is in areas classified as green and yellow in the East Vancouver Port Lands (EVPL) Area Plan (EVPL 2007); requiring at a minimum conditional approval with consideration of mitigation to minimise effects. The Columbia Containers site is zoned Port Terminal in the proposed Port Metro Vancouver (PMV) land use plan. Consistent with PMV's environmental approvals process for sites under its jurisdiction, and the EVPL Area Plan, Columbia Containers has conducted a visual impact assessment of the proposed replacement elevator and re-instated grain silos. The purpose of this assessment is to:

- Demonstrate that Columbia Containers respects, and has considered, the provisions and requirements of the EVPL Area Plan;
- To guide the application of visual mitigation measures, if required; and,
- To support community information sharing and consultation processes.

## 2.0 METHODS

Visual impact assessments are conducted using views from areas of significance to the community. They involve the analysis of selected viewpoints in close proximity to the proposed project, and consider views from adjacent public areas such as parks. The Wall Street area above the Columbia Containers site was chosen as the most-proximal, and potentially most-affected public viewpoint. Changes to the views of Columbia Containers with respect to the guidance produced for the EVPL (EVPL 2007) are presented in this report.

This report is based on the creation and interpretation of computer-generated images that simulate or predict what the modernised and rebuilt facility will look like (renderings). Renderings are photographic images of current viewpoints that have been computer-manipulated to remove project features that will no longer be present, and to add project features that will be present in the future.

### 2.1 RENDERING PREPARATION

Viewpoints for this study were chosen at three locations of similar elevation (**Table 1**) within Dusty Greenwell Park and along Wall Street at the foot of Slocan and Kaslo Streets (**Figures 1 and 2**):

- Viewpoint 1 2728 Wall Street
- Viewpoint 2 2798 Wall Street
- Viewpoint 3 In Dusty Greenwell Park at intersection of Kaslo Street and Wall Street

These viewpoints were chosen to represent a variety of views of the Columbia Containers facility from the Burrard View Community along Wall Street.

**Table 1 Camera viewpoint locations**

Viewpoint	Elevation (m)
1	23
2	23
3	21



Figure 1 Location of camera viewpoints used to create 2014 renderings

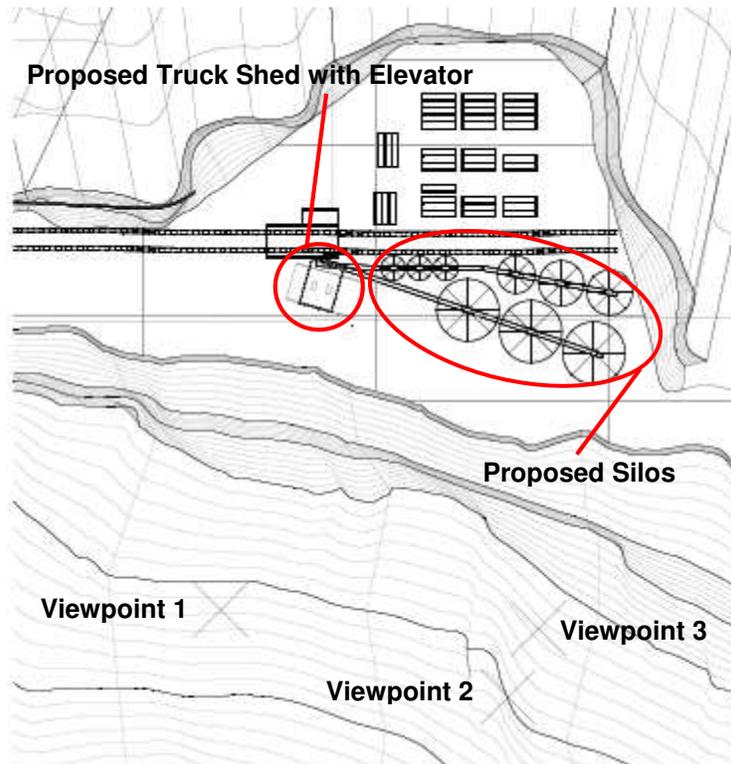


Figure 2 Aerial view of the camera viewpoints near Dusty Greenwell Park, landscape contours and plan view of the proposed Columbia Container site (truck shed with elevator tower, and silos) (Nu Westech Engineering Ltd, 2014)

Viewpoint pictures were taken using a camera at eye-level for an average height person (1.75m) and set to 55mm focal length; the average field of view for humans.

Renderings of the future view with the rebuilt elevator and reinstated silos were prepared for each of the three viewpoints by Nu Westech Engineering Limited (**Figures 3b – 5b**). These were constructed using AutoCAD, a high-end engineering software that uses a number of layered inputs:

1. Original viewpoint photos for foreground details/existing landscape features (**Figures 3a-5a**);
2. Photos of the water/mountain background to screen-out the existing elevator from the rendering (without such a step, both the existing and future elevator would be visible, due to the northwest shift in location for the proposed elevator);
3. Survey data (height contours) of the surrounding landscape (**Figure 2**);
4. Technical drawings of the proposed site plans/building dimensions (**Figure 2** and **Table 2**).

The software also takes into consideration the light and weather type (cloud coverage, visibility and sun). Date and time of exposure are crucial for the simulation to determine a realistic visual impression of the replacement elevator and reinstated silos, resulting in darker or lighter colors. These were set in the program for the same time the original viewpoints were taken (September 9<sup>th</sup> at 9am). The original viewpoint photographs were taken at 9am to minimise back-lighting and shadow, both of which make the facility less-visible. As such, the simulations show a worst-case scenario of the facility at a time of highest visibility.

**Table 2 Building heights and dimensions for the proposed Columbia Containers elevator and silos (Nu Westech Engineering Ltd, September 2014)**

<b>Truck Shed</b>	Height: 7.3 m (24')
	Width <sup>**</sup> : 27.8 m (91.2')
	Depth <sup>**</sup> : 14.1 m (46.25')
<b>Elevator Tower*</b>	Height: 32.7 m (107.5')
	Width <sup>**</sup> : 12.0 m (39.5')
	Depth <sup>**</sup> : 14.1 m (46.25')
<b>Railcar Shed</b>	Height: 7.9 m (26')
	Width: 30.6 m (100.64')
	Depth: 11.5 m (38.06')
<b>Storage Bins</b>	3 x 330 MT (malt) bin: 14.8 m (48') high, 9 m diameter
	1 x 1200 MT (malt) bin: 13.7 m (45") high, 13.8m diameter
	2 x 1400 MT (malt) bin: 13.2 m (45') high, 16.5 m diameter
	3 x 2900 MT (peas) bin: 15 m (49') high, 22.8 m diameter

**Notes:** \* Elevator Tower extends from the Truck Shed building  
 \*\* Width is measured as the east-west building dimension (parallel to Commissioner Street) and depth as the north-south building dimension.

The result is a 3D model of the proposed facility that is a realistic visualization of the replacement elevator and silos. It presents what would be seen at the time of the day when the viewpoint pictures were taken. The choice of viewpoint location and time of day and year for the photographs is also representative of the view of the facility from a time of day and year when the community might most-often be viewing the facility from these locations.

Since Columbia Containers will seek community input on design features including the colour and cladding for the grain elevator and silos, these structures were represented in the renderings with a neutral colour palette and without a particular finishing material or other landscaping elements recommended in the EVPL Landscape Design Guidelines Document (PMV undated) such as additional vegetation, murals, or banners.

The renderings presented here (**Figures 3b – 5b**) are based on final (2014) site plans and engineering design for the Columbia Containers site. In this context they differ from draft renderings that were prepared in 2013 and shared with EVPL Liaison Committee. The 2014 renderings presented here have slightly lower silo and elevator heights and these facilities are farther north than the dimensions and locations used in 2013, and reflect detailed designs and changes due to moving Commissioner Street for the South Shore Corridor Project.

## **2.2 SILO HEIGHT SIMULATION**

To field-test the accuracy of the renderings containers were temporarily stacked to the height of the tallest of the proposed reinstated silos, and photographs taken. Shipping containers were stacked 6 high (17.4 m, 57'), with a line demarcated at 17 m (55'), just above the tallest proposed silo height of 15.2 m (**Table 2**). Containers were placed 4.9 m (16') north of their actual proposed location, due to the position of the existing office trailers. Photographs were taken at, or very close to, the three viewpoints used for rendering preparations (**Figure 1 and 2**). The photograph in Figure 8 was taken from a location near viewpoint 3 as the proposed 2900 MT pea silos are not visible from viewpoint 3. An additional view of the silos is also provided (Figure 9).

### 3.0 RESULTS

#### 3.1 RENDERINGS



Figure 3 Original photograph (a) and rendering (b) from viewpoint 1 (2728 Wall Street) – photo and rendering credit: Nu Westech Engineering Ltd, 2014



**Figure 4** Original photograph (a) and rendering (b) from viewpoint 2 (2798 Wall Street) – photo and rendering credit: Nu Westech Engineering Ltd, 2014



**Figure 5** Original photograph (a) and rendering (b) from viewpoint 3 (in Dusty Greenwell Park at Wall and Kaslo Streets) – photo and rendering credit: Nu Westech Engineering Ltd, 2014

**Table 3 Existing and proposed building heights and dimensions for Columbia Containers sheds, elevator, and silos (Nu Westech Engineering Ltd, September 2014)**

Structure	Existing			Future			Change		
	Height	Width**	Depth**	Height	Width**	Depth**	Height	Width**	Depth**
Rail Car Shed, Truck Shed, and	9.1 m	42.6 m	13.6 m	7.9 m	30.6 m	11.5 m	+7.9 m	+30.6 m	+11.5 m
				7.3 m	27.8 m	14.1 m	-1.8 m	-14.8 m	+0.5 m
Elevator*	33.5 m	10.6 m	13.6 m	32.7 m	12.0 m	14.1 m	-0.8 m	+1.4 m	+0.5 m
System II structures	9 / 13 m	12 / 19m	5 / 6 m	-	-	-	-9 / 13 m	-12 / 19 m	-5 / 6 m
Silos 330, 1200 and 1400 MT malt	~200 containers			max 13.7 m (45')	max 16.5 m (54')	-			
Silos 2900 MT pea				15 m (49')	22.8 m (75')	-			

**Notes:** \* Elevator Tower extends from Truck Shed Building in both existing and future infrastructure

\*\* Width is measured as the east-west building dimension (parallel to Commissioner Street) and depth as the north-south building dimension.

### 3.2 SILO HEIGHT SIMULATION



**Note:** Circles indicate silo-height horizontal mark.

**Figure 6** Silo height simulation from viewpoint 1



**Note:** Circles indicate silo-height horizontal mark.

**Figure 7** Silo height simulation from viewpoint 2



**Note:** Circles indicate silo-height horizontal mark.

**Figure 8 Silo height simulation from near viewpoint 3**



**Figure 9 Silo height simulation from a point in Dusty Greenwell Park.**

The silo height simulation shows that the rendering images are accurate with respect to their representation of views of the project, i.e., the height of the silos in the renderings are accurate.

A panorama of the facility, current and future proposed gives an enhanced view of the facility (Figure 10).



**Figure 10** Panorama from Dusty Greenwell Park, current (above) and proposed future (below).

## **4.0 DISCUSSION**

### **4.1 CONSISTENCY WITH THE EVPL AREA PLAN**

In response to community concerns, and to give more certainty around land use decisions the Burrardview Community Association, the Vancouver Port Authority (VPA), and the City of Vancouver produced guidance for land use planning in the area of East Vancouver Port Lands. The EVPL Area Plan aims to “balance the business interests and of the Port and the livability needs of the adjacent community” through “mutually established planning criteria, and mitigation techniques... to minimize the individual and cumulative impacts of Port activities on the adjacent residential community” (EVPL 2007).

Under the EVPL Area Plan, height guidelines have been established to preserve the majority of existing mountain views and the most water view possible, while still allowing the VPA some flexibility in future Port growth. To determine height guidelines, the Port lands were divided into six areas or height zones based on the elevation of the escarpment and the existing views of Burrard Inlet and the North Shore mountains (EVPL 2007). Columbia Containers is situated in areas 3 and 4 (approximately between Nanaimo and Kaslo streets). The specific portion of the site proposed for development is between Slocan and Kaslo streets, in Area 4 where a height guideline of 45 feet (13.7m) is recommended. In this area the elevation of the escarpment is lower than in other locations, so the EVPL Area Plan suggests careful placement of structures to preserve the existing views.

The EVPL Area Plan includes height guidelines for structures and shipping containers, but its guiding principles recognize that:

- Some uses will require greater height, but that height flexibility above the guideline limit will only be considered in limited instances over a small portion of a site;
- Existing structures should generally have the ability to remain or be rebuilt even if they do not comply with the height guidelines

The Columbia Containers modernization project seeks to replace and rebuild existing or previously removed structures. The truck shed / elevator, railcar shed and silos that are being replaced are all either present on the site currently, or in the case of the silos were temporarily substituted with stacked container storage for the past eight years. The proposed alterations to the Columbia Containers site are consistent with current and historical land uses, and with zoning for the land.

These changes affect only a small portion of the Columbia Containers site. The total footprint of the proposed modernization (railcar shed and truck shed with elevator tower) will have a smaller footprint than the existing infrastructure due to the removal of the system II loading facility, which occupies 3300 ft<sup>2</sup> and will be surplus to requirements after this phase of the project is completed. The proposed elevator tower will sit at a slightly lower height than the existing tower and its footprint will be comparable to the existing

tower (**Table 3**). The replacement silos occupy a larger and different area than they did prior to their removal but the proposed silos occupy a smaller area than do the stacked container storage arrangement that is used today.

A number of policies from section 3.1.6 Heights and Views Policies in the EVPL Area Plan (EVPL 2007) are relevant to this visual assessment. For each of the policies that directly apply to the Columbia Containers modernization project a discussion of how it is addressed in the design and site layout is provided.

**H5: In Areas 1 through 5, heights above the guideline limits will normally be considered only for structures occupying a small portion of any site (such as loading towers) and will be limited to a maximum width of 12 metres (40 feet) in most instances. Where functional requirements can be shown to require greater width, an increase in this maximum width may be considered where view impacts are limited.**

The proposed elevator (107.5') and silos (49') will exceed the recommended 45' height guideline for EVPL Area 4, due to functional requirements for these structures. Consistent with the EVPL Area Plan, these structures only occupy a small portion of the site. The total site area is 14 ha, and the area within which some structures will exceed the height restrictions is approximately 1.5 ha. The actual area of structures that will exceed the height limit is under 0.5 ha. The maximum width of structures that exceed the height limit (the elevator and three of the silos) are at or under the width maximum (12 m). The design of the elevator respects the maximum width restriction by locating the long-axis of the structure (14.4 m) in the north-south orientation – where it will not impact community views.

**H8: Stored containers differ from fixed structures because their view impacts change frequently. In Areas 2 and 5 [with fixed structure guidelines of 10.7 metres (35 ft)] containers will not be stacked more than four high [up to 11.6 m / 38']; ....**

Columbia Containers is in Area 4. Containers will only be stacked to a maximum of four high. Approximately 200 containers at the east end of the site, that since 2008 have been used for temporary grain storage prior to truck transfer, will be removed and replaced with the new grain silos. The storage capacity of the replacement silos is equivalent to the use of 500 containers (*pers comm* Columbia Containers). Containers in the west part of the site will continued to be stored at current levels. With the removal of storage containers, views of the east portion of the site will change. The silos, while taller, will be located closer to Commissioner Street and the Wall Street escarpment (**Figures 6-8**), and depending on the viewpoint location views of Burrard Inlet will be similar or better than existing views. The silos will be located closer to Commissioner St and the Wall St escarpment than the current location of the containers, hence providing a similar visual barrier despite their greater height.

**H9: The design aesthetics of new structures will be optimized through high quality industrial materials, colour, detailing, landscaping and general design to reduce the obtrusiveness and minimize the visual impact of the structure.**

Columbia Containers will engage with the community, and consider input from noise assessment studies before determining the colour and cladding for the silos and the new grain elevator, and the landscaping of the site. Therefore, the renderings presented in this report have been left in a neutral colour palette without discernable materials, detailing, or landscaping (**Figures 3b – 5b**). Along with community input, the EVPL Landscape Design Guidelines Document will be consulted before designs are finalized.

The replacement and reinstated structures will include modern design materials, and will be a visual improvement over the aged and rusting cladding on existing structures.

**H10: Leases with owners of new structures will contain provisions to ensure a high standard of exterior maintenance for the life of the structure.**

The Columbia Containers modernization will bring all structures on the site to a suitable standard of exterior maintenance, which will be maintained as they age.

**H12: Preserving public views will take precedence over preserving a private view. Where existing structures are currently in a public view corridor, they will have the ability to remain or be rebuilt within the public view corridor, but only if view impacts do not increase as confirmed through a views analysis.**

Replacement and reinstated infrastructure on Columbia Containers site will alter but not increase the obstruction of public viewsheds. Existing views of Burrard Inlet and the North Shore mountains will be maintained.

**H13: In the following instances existing structures will be “grandfathered” and need not comply with the height guidelines:**

- **...Where the use on the site remains the same but the structure has reached the end of its useful life, it can be rebuilt if the form of the new structure does not increase view impacts....**

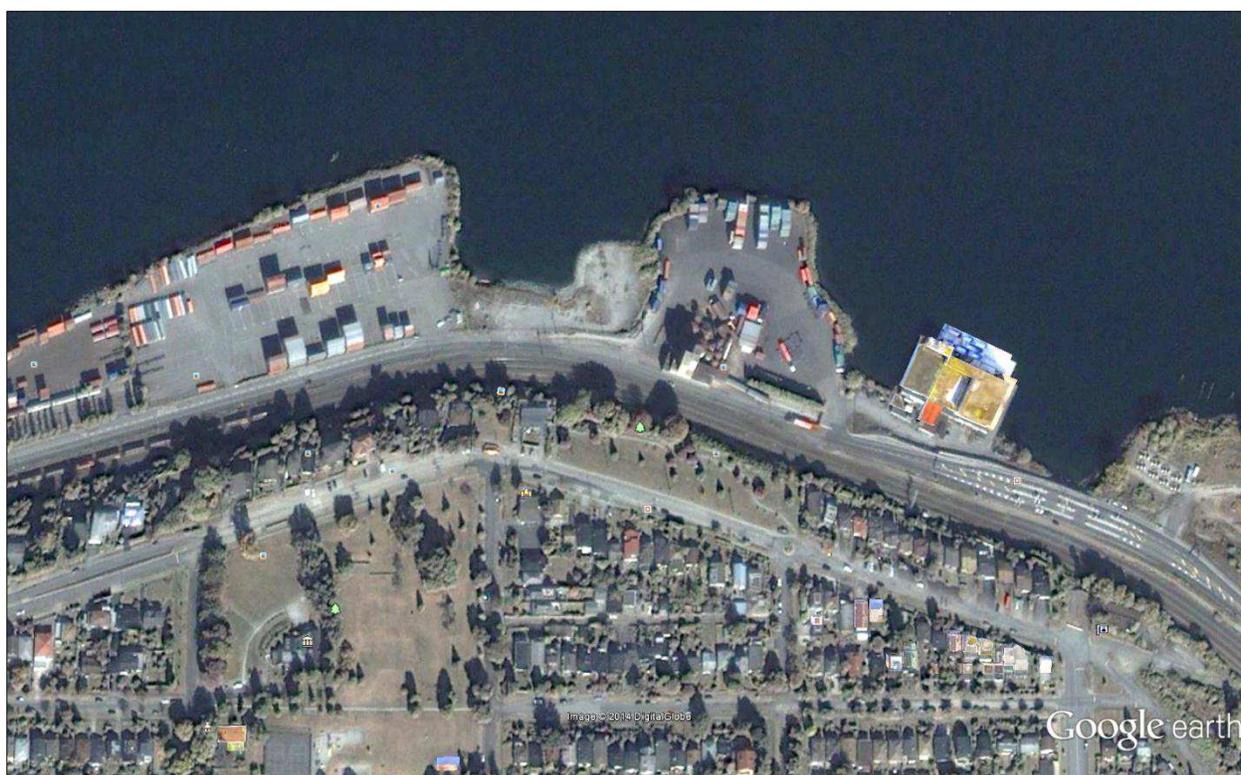
Grain transloading has been ongoing at the Columbia Containers site for 40 years. Historical air photograph analysis (**Figures 11-13**) show few changes in the last 10 years, aside from the temporary removal of the eight grain silos in 2008 (**Figure 12**) and the extension of the rail receiving area and grade-leveling over a portion of the site in 2012 (**Figure 13**).

The proposed changes are to replace infrastructure that has reached the end of useful life, ensuring that Columbia Containers can continue to operate as a grain transloading facility. In particular, the new silos will reinstate silos removed in 2008 which had reached the end of their useful life, and will replace containers that have been temporarily used for grain storage since silo removal. The

existing elevator tower is no longer efficient and its exterior requires maintenance, making it a timely replacement. While the placement of infrastructure on the site will shift slightly north-west, this will not result in increased public view impacts (**Figures 3b-5b**).

While the height of the proposed replacement elevator and re-instated silos will exceed height guidelines for Area 4 of Port lands, this is considered permissible under the EVPL Area Plan guidelines as these activities involve rebuilding outdated existing structures in almost the same location, with very similar impact on views. The elevator size increase has been carefully positioned to be on the north-south orientation, to minimize changes to views. The proposed upgrades of the truck shed and rail car shed are both well below the 45 foot height guideline (**Table 2 and 3**) and will not impact views, or increase the area of permanent infrastructure of the site. The new locations for the truck shed/elevator tower will not result in an increased effect on public view corridors through Dusty Greenwall Park (**Figures 3b – 5b**).

The proposed project also makes room to realign Commissioner Street, which PMV will undertake as part of the South Shore Corridor Project.



**Figure 11** Air photograph of Columbia Containers site 2005 (Google earth)



Figure 12 Air photograph of Columbia Containers site 2008 (Google earth)

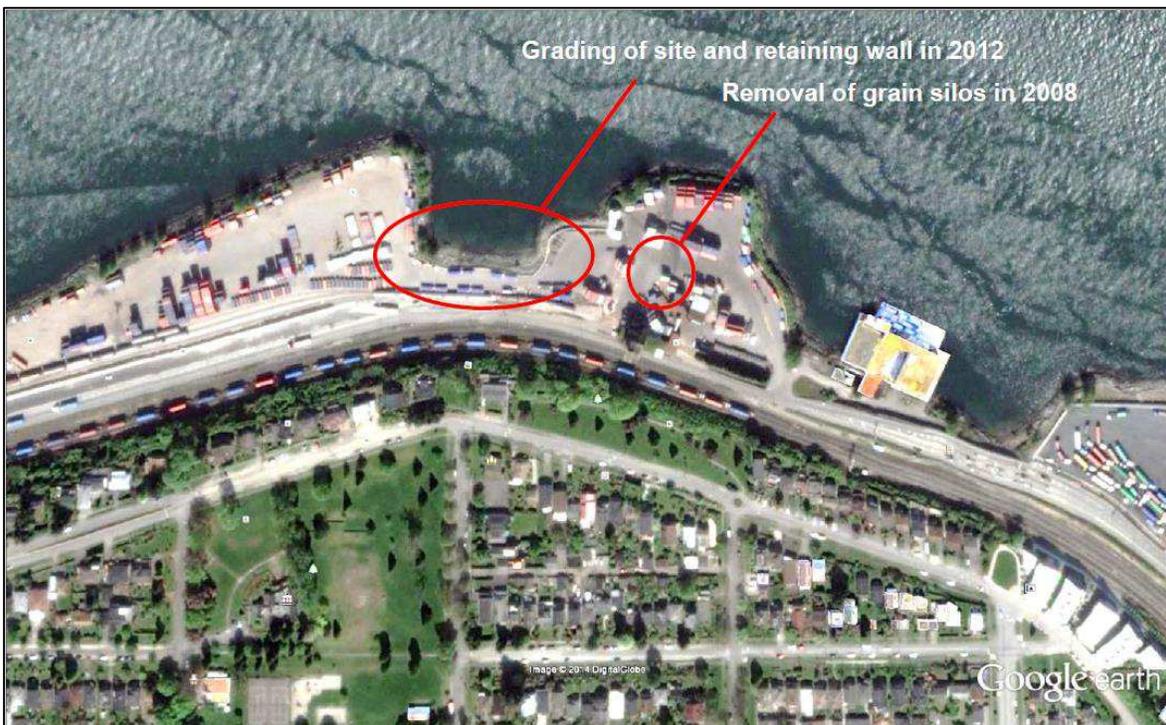


Figure 13 Air photograph of Columbia Containers site 2013 (Google earth)

## 5.0 CONCLUSION

Based on the 2014 renderings of the proposed modernization of the Columbia Containers facility the relevant provisions of the EVPL Area Plan (EVPL 2007) have been respected. The design includes mitigations that respect the intent and language of the EVPL Area Plan. The proposed project is also consistent with existing land uses and continuation of viable transloading operations in an area zoned as Port Terminal. The EVPL area plan (EVPL 2007) acknowledges “a spectrum of industrial uses, from light to heavy, including warehouses, cranes and loading towers for grain or other products... dry docks, boat repair (noise and air quality issues), and grain processing and transshipment (rail noise, view blockage, and air quality), have potentially high impacts requiring extensive mitigation to be acceptable.”

The proposed modernization of the Columbia Container facilities will not increase obstruction of the view corridors of Burrard Inlet and the North Shore mountains compared to the current view of the existing structures. The replacement elevator is slightly lower than the current one, and though larger in width and depth than the current elevator it does not exceed maximum width dimensions in the EVPL. The reinstated silos will replace the need for approximately 200 storage containers and likely will present less of a visual barrier because the silos are closer to the escarpment and below the Burrard Inlet and North Shore mountain sightline (refer to renderings and silo-height simulation). The system II loading facility will be made redundant and will be removed.

The current viewscape is dominated by port activities, both surrounding the Columbia Containers site, and in the backdrop on the North Shore port lands. The proposed changes are consistent with expectations for such a viewscape, and they amalgamate with the surrounding views of similar land uses. Views of key landscape features such as the North Shore mountains and Burrard Inlet are maintained intact.

Aging and unsightly structures (the rusting elevator and truck/railcar shed, and up to 100 containers) will be replaced with new ones of overall similar dimensions when viewed from nearby public places. The replacement facilities will be visually less intrusive than current over-height infrastructure because of their modern design and location slightly further north of Commissioner Street.

Report prepared by:  
**Hemmera**



Charlie Palmer, P.Biol., R.P.Bio.  
Practice Leader, Environmental Impact Assessment

## **6.0 STATEMENT OF LIMITATIONS**

This report was prepared by Hemmera, based on fieldwork conducted by Hemmera, for the sole benefit and exclusive use of Columbia Containers Ltd. The material in it reflects Hemmera's best judgment in light of the information available to it at the time of preparing this Report. Any use that a third party makes of this Report, or any reliance on or decision made based on it, is the responsibility of such third parties. Hemmera accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this Report.

Hemmera has performed the work as described above and made the findings and conclusions set out in this Report in a manner consistent with the level of care and skill normally exercised by members of the environmental science profession practicing under similar conditions at the time the work was performed.

This Report represents a reasonable review of the information available to Hemmera within the established Scope, work schedule and budgetary constraints. The conclusions and recommendations contained in this Report are based upon applicable legislation existing at the time the Report was drafted. Any changes in the legislation may alter the conclusions and/or recommendations contained in the Report. Regulatory implications discussed in this Report were based on the applicable legislation existing at the time this Report was written.

In preparing this Report, Hemmera has relied in good faith on information provided by others as noted in this Report, and has assumed that the information provided by those individuals is both factual and accurate. Hemmera accepts no responsibility for any deficiency, misstatement or inaccuracy in this Report resulting from the information provided by those individuals.

The liability of Hemmera to Columbia Containers Ltd. shall be limited to injury or loss caused by the negligent acts of Hemmera. The total aggregate liability of Hemmera related to this agreement shall not exceed the lesser of the actual damages incurred, or the total fee of Hemmera for services rendered on this project.