

DESIGN GUIDELINE RESPONSE REPORT

January 27, 2017

INTRODUCTION

The purpose of this document is to demonstrate the elements of the design that respond to each point of the Design Guidelines.

Note Regarding Formatting:

Text shown in green is extracted from the *OCP*.

Text shown in blue is extracted from the *Revised McLoughlin Point Wastewater Treatment Plant Design Guidelines* dated May 2013.

Text shown in black is a written response describing the overall design approach as well as specific design solutions and that address each point respectively.

Architectural Approach

The siting of this important public works facility poses both a great challenge and a great opportunity for the Greater Victoria area. Situated at the entry of the harbour and along a prominent rocky shoreline, the design respects the natural setting and reflects the highest standard of design, materiality and aesthetics.

The bulk of the plant is located at the west end of the site along Victoria View road, allowing the lower mass of the highly articulated and well designed Operations and Maintenance [O&M] building to screen the plant. The O&M building is stepped to further mitigate the perceived mass. In addition, 80% of the roof of the O&M building will be planted to increase onsite habitat and provides storm water management. In conjunction with on-site rain gardens, there is considerable improvement in reducing storm-water runoff from the existing highly impervious rocky site. All buildings are set back from the high water mark between 7.5m to 10m. A landscape buffer and seawall are located within this setback.

The seawall and landscape buffer is a major component of the design. The design conforms to the Design Guidelines for seawalls. The seawall system reflects the rugged and textured surface of the exposed-rock shorelines. The mass and length of the wall is broken up visually with different materials, projections and protrusions. The materials utilized for the seawall will be a combination of concrete with various textures. The angular composition of the O&M building is reflected in this wall. Where walls extend vertically greater than 4m they are stepped to reduce their apparent height.

In addition to the extensive planting around the perimeter of the plant, care has been taken to break up the mass of concrete walls with a combination of materials and the introduction of glazing and screening elements.

A palette of materials has been selected for the site which complements the stunning natural setting. Lower elements will be a combination of smooth and textured concrete and visually connect the building to the rocky shoreline. These walls will feature stained concrete highlights to add colour, variation and warmth at key locations on the site. The lower portions of the O&M building and the plant will be rendered with heavier materials such as precast concrete and masonry cladding, and include clerestory windows to the shops and change rooms areas. The upper floor of the O&M building will incorporate considerably more glazing for the office and multipurpose spaces and is designed to permit natural ventilation. Upper portions of the plant as well as the O&M building will feature highly durable metal cladding. Translucent panels are incorporated into the plant buildings to provide natural light to interior spaces and articulate the wall surfaces.

Parking and Loading

The provision of 4 on-site parking spaces is in excess of the 2 onsite parking spaces required by the zoning bylaw.

The loading space is in accordance with Parking Bylaw, 1992, No. 2011 Part 6, 15 Location, Siting, and Design of Loading Areas, Table 4, Industrial Zones. 2 loading spaces are being incorporated.

Onsite parking areas are screened by landscape or wall elements.

Approach to Landscape Design

The landscape design is a major component of the project and will focus on providing screening of the treatment plant as per the zoning bylaw and conformance to the Design Guidelines. Part of the strategy to screen the plant from view from the water is to wrap the east side of the plant with the O&M building, presenting an attractive face to those on the water and from viewpoints across the harbour. Landscape planting and other screening elements will be employed in areas where the plant is not screened by the O&M building. The roof of the O&M building will also incorporate extensive planting.

The landscape will be comprehensively designed to increase the ecological integrity of the site, create a strong vegetative edge along Victoria View Road, provide vegetative screening from the harbour, contribute to on-site storm water management, and create an attractive and varied educational opportunity for visitors. Viewing opportunities and a potential future walkway will be situated to provide controlled connectivity to the site's coastal edge and ensure no negative impact on the foreshore and waterway. The design intent is to provide a viewing platform and interpretive signage to inform visitors about the coastal environment as well as plant operations.

New vegetation will be limited to native or adaptive species selected for their suitability to the site and resilience to anticipated climate change. Trees, shrubs, rain gardens and extensive style green roofs will create a bio-diverse landscape with seasonal interest, provide treatment plant screening, and treat on-site storm water before discharge to the ocean. New plantings will be irrigated for establishment only, using non-potable water from the treatment plant.

The pre-vegetated sedum mat green roofs will contribute to storm water management, reduce heat island impacts, and moderate internal temperature in the operations and maintenance building below. The upper green roof will include an area of deeper soils along the west edge to support vines being planted to reduce the impact of the upper east wall of the plant.

Approach to Lighting Design

The site's public presence and high visibility from the water has been a strong consideration in the lighting approach. All light fixtures will be energy efficient and will be aligned with *Illuminating Engineering Society for North America Recommended Practice Manual: Lighting for Exterior Environments* and will conform to the Design Guidelines. Providing safe and secure lighting for all publicly accessible areas is paramount. Light shields will direct all lighting downward and within property boundaries.

Sustainability

Considerable effort has been made towards incorporating sustainable standards into the project. The O&M building will be designed and built to LEED Gold v4. Heat recovery will occur within the facility to provide heating for the O&M building.

A major component of the overall facility will be the opportunity for public education in the water cycle and particularly with Storm-water management. Onsite storm water management includes rain gardens and areas of permeable paving with under drain systems.

Site Amenities, Public Art and Public Education

There are several amenities incorporated within the site design. A prominent observation deck is located adjacent to the main building entry. This will act as the front porch and gathering place for visitors to the site, including school groups and educational tours. An Education and Interpretive Centre has been incorporated on the second floor of the Operations and Maintenance Building. There is easy access up a central organizing stair and elevator from the main entry to the Education Centre. The Education Centre opens onto a rooftop terrace, offering views of the city and harbour. Opportunities for Public Education will be incorporated throughout the design of the facility.

The significant landscape buffer along the waters edge will be contained within a series of sloped and angled concrete retaining walls. The landscaped areas are tipped toward the waters edge to minimize exposed retaining walls while maximizing the amount of planting visible from the water. Care has been taken in the design of the perimeter to facilitate the future addition of a public walkway which could extend along the full length of the shoreline.

There will be opportunities for public art within the overall design in accordance with the Township's policies. See commentary later in this document.

In our experience, successful public art is achieved when the artist is brought on early in the design process and we look forward to working with Esquimalt and the CRD in selecting an artist in the near future.

9.5.5 Guidelines for Owners of Land within the Development Permit Area

a) Buildings should be designed to minimize the intrusion into the privacy of existing surrounding homes.

RESPONSE: Refer to Architectural Site/Roof plan for evidence of compliance.

The areas of the wastewater treatment plant (WWTP) that are regularly occupied are located away from the existing surrounding homes. The parking areas where most employees would park are screened with landscaping.

b) Buildings should be located to avoid casting shadows onto adjacent residential properties.

RESPONSE: Refer to Architectural Site/Roof plan for evidence of compliance.

The WWTP building is set 6m east of the west property line of the site, which in turn lies several metres across Victoria View Road to the adjacent residential property to the west. The other neighbouring residential property is located southwest of the site where shadows could never be cast by the WWTP.

c) Outdoor storage and parking areas will be screened by berms, fences, landscaping or solid noise-absorbing barriers or a combination of these methods. Landscaping should also be incorporated within the parking areas to "break up" large expanses of pavement.

RESPONSE: Refer to Architectural drawing Level 1 Floor Plan for evidence of compliance.

The onsite parking is screened by solid wall near observation deck and by the height of the adjacent tsunami wall.

d) The style and finish of new buildings should enhance the appearance of the industrial area, which is surrounded by urban residential development.

RESPONSE: Refer to Architectural drawings for evidence of compliance.

Various cladding finishes, colours, tones and textures are incorporated to enhance the appearance of this building

e) Buildings should be designed to avoid doors and openings that would tend to direct noise in the direction of immediately adjacent residentially-zoned lands.

RESPONSE: Refer to Architectural drawings for evidence of compliance.

Doors and openings adjacent to residentially zoned lands are very rarely opened so little noise will escape. The workshops are located on the east side of the site away from the residentially zoned lands.

f) Retention and protection of trees and the natural habitat is encouraged wherever possible.

RESPONSE: There is only a small amount of brushy vegetation on this barren, brownfield site but this must be removed in order to building a tsunami wall to protect the WWTP. There is considerable native planting and trees incorporated in the new project which will provide new habitat for wildlife.

9.5.6 McLoughlin Point Revitalization

a) Description and Justification: Site of a former oil storage facility, McLoughlin Point is an oceanfront site and a prominent entrance to Victoria Harbour. An objective is redevelopment of mixed uses, including revitalization when commercial uses are permitted, as is encouraged under section 2.4.5 of this plan, of impeccable design and cohesive operation, respecting adjacent DND lands as well as the broader communities. Public access from land and the water is encouraged, primarily for educational purposes, the latter recognizing historic uses and the heritage of the property, while recognizing the former is and may be limited given upland access through DND lands. As an oceanfront site, there are nearby natural habitat considerations worthy of protection and preservation, as well as enhancement of the subject property itself given the history of heavy industrial use. The subject property is susceptible to high winds, and high tides, including risk of tsunami and therefore development on the site must occur in a manner to protect it from these natural hazards, while respecting the need to do so in a manner that does not increase risks for other properties or harm the natural environment. The report "Modelling of Potential Tsunami Inundation Limits and Run-up" for the Capital Region was completed by the Capital Regional District's Local Government Emergency Program Advisory Commission; it identified risks for McLoughlin Point that the CRD has indicated it has been considering to-date in its proposal for this site.

The CRD has also prepared and submitted a number of professional reports which identify special conditions at McLoughlin Point, including for a sewage treatment plant, and further justify designation to achieves objective both the CRD's and Township's objectives. These include but are not limited to the reports entitled:

- "Core Area Wastewater Treatment Program McLoughlin Point Zoning Application, Township of Esquimalt McLoughlin Point Risk Assessment" dated December 18, 2012 prepared by Stantec Consulting Ltd.;
- "Archaeological Review of the Proposed Capital Regional District McLoughlin Point Wastewater Treatment Facility" dated January 2013 prepared by Tera Environmental Consultants;
- "Capital Regional District Core Area Wastewater Treatment Program McLoughlin Point Wastewater Treatment Facility Traffic Considerations" dated January 23, 2013 prepared by Bunt & Associates;
- "Terrestrial Environmental Effects of the Proposed Capital Regional District McLoughlin Point Wastewater Treatment Facility" dated January 2013 prepared by Tera Environmental Consultants; and the

- “Community Impact and Mitigation Report” dated January 2013 and prepared by CitySpaces Consulting Ltd.

Prominent regional facilities should be models of energy and water efficiency and reduction of greenhouse gas emissions, and such is an objective of this development permit area. This is supported and/or required under the goals established pursuant to the 2007 Capital Region Community Energy Planning process. The objective, requirements and guidelines of previous sections under Section 9.5 DPA extend to McLoughlin Point, and are further supplemented, except as specifically varied below, as follows:

RESPONSE: The WWTP will be designed and built to LEED v4 Gold standard, with particular emphasis on energy and water efficiency. The main source of heat for this building will be through heat recovery from the effluent rather than through burning of fossil fuels, thereby contributing to reduction of greenhouse gas emissions.

b) Requirement and Exemptions: A development permit is required for all activities in accordance with section 920 of the Local Government Act and there are no exemptions for McLoughlin Point except for 9.5.4(b)(iii).

RESPONSE: An application has been submitted for a Development Permit which covers any activities on site which are not exempt above.

c) Guidelines: In addition to guidelines identified above, all of the following apply to McLoughlin Point:

i) All those identified in ‘Design Guidelines – McLoughlin Point Wastewater Treatment Plant’ prepared by CitySpaces (Revised May 2013), a copy of which is attached as Appendix H to this bylaw, as are appropriate to these development permit area designations;

RESPONSE: See detailed response below to “Design Guidelines – McLoughlin Point Wastewater Treatment Plant” prepared by CitySpaces (Revised May 2013).

ii) Consider the establishment of an 8.0 m buffer from the High Water Mark;

RESPONSE: Refer to Architectural Site/Roof plan and ‘Proposed Buildings Average Grades’ by WSP for evidence of compliance.

After consideration and discussion with Esquimalt staff, we have a minimum 7.5m setback along the southern marine boundary and a minimum 10m setback along the eastern marine boundary from the High Water Mark (HWM) to the building, resulting in a buffer averaging at least 8 metres in width.

iii) Consider the establishment of a 4.0 m heavily landscaped buffer within the 8.0 m buffer to hide the building(s) on the site;

RESPONSE: Refer to Landscape drawings for evidence of compliance.

After consideration and discussion with Esquimalt staff, we have incorporated a landscaped buffer between the HWM and the building which varies in width but is a minimum 4.5 metres. The buffer is planted heavily wherever not prohibited in the "Design Guidelines – McLoughlin Point Wastewater Treatment Plant" prepared by CitySpaces (Revised May 2013).

iv) Consider stepping buildings back on the site with the lowest buildings (the tanks) located closest to the shore;

RESPONSE: Refer to Architectural Drawings for compliance.

The height of the WWTP steps back on the site from the shore with the lowest portions located close to the shore.

v) Consider the establishment of a seawall using as its design precedent, the convention centre in Seattle;

RESPONSE: A variety of precedents were considered regarding the seawall. The seawall design responds more directly to the "Design Guidelines – McLoughlin Point Wastewater Treatment Plant" in terms of the form and character than to any particular precedent.

vi) Consider the establishment of an historical interpretation program;

RESPONSE: Refer to Architectural Drawing Level 1 for compliance.

Historical Interpretive signage is indicated at the perimeter of the observation deck. Specific locations, format and content of this signage will be developed in conjunction with Esquimalt staff.

vii) Consider the establishment of public access to the 8.0 m buffer area via a public dock;

RESPONSE: After consideration and discussion with CRD and Esquimalt staff, a public dock has not been incorporated into the site.

viii) Consider the incorporation of water features as public art within the design of the building;

RESPONSE: After consideration and discussion with Esquimalt staff, the inclusion of public art to this site has not been currently indicated for the following reasons:

- 1) Esquimalt may wish to locate the Public Art in a more publicly accessible location where it may be more widely experienced.
- 2) Esquimalt has an existing policy and procedure for commissioning and/or procurement of public art.

ix) Consider design and construction in a manner that mitigates environmental and human health impacts (in particular those related to odour and noise), and contributes to the visual quality and scenic beauty of the harbour entrance; and

RESPONSE: The design of the WWTP is in accord with very high standards for odour and noise control. The conveyance line from Ogden Point under Victoria Harbour is to be done by directional drilling which will avoid potential disruption of the seabed of Victoria Harbour.

Refer to the Architectural and Landscape drawings for compliance regarding the contribution to the visual quality and scenic beauty of the harbor entrance.

The design of the WWTP locates the most attractive elements of the building toward the harbour and integrates the building with the site through terracing, form, materials, colours, and planting.

x) Any proposed buildings or structures must incorporate the findings of the "Modelling of Potential Tsunami Inundation Limits and Run-up" for the Capital Region that has been completed by the Capital Regional District's Local Government Emergency Program Advisory Commission.

RESPONSE: The WWTP has been designed taking into account the findings of the report "Modelling of Potential Tsunami Inundation Limits and Run-up" which was also independently reviewed and corroborated in the report entitled 'Reviews of Documents Related to Tsunami Run-up and Inundation Limits, Proposed McLoughlin Waste Water Treatment Plant, Capital Regional District.

Design Guidelines - McLoughlin Point Wastewater Treatment Plant, May 2013

GUIDING PRINCIPLES

1. SUSTAINABILITY

- a) The treatment system will support environmental, social and economic sustainability, and be considered part of CRD climate action initiatives.

RESPONSE: The WWTP supports environmental, social and economic sustainability through the secondary and tertiary treatment of the region's wastewater prior to release into the ocean, which is a crucial part of our physical, social and economic environment.

The environmental, social and economic benefits will expand as markets develop for products arising from processing the bio-solids extracted in the treatment process.

In comparison to fuel-fired heating methods, the harvesting of energy from the effluent to heat the plant will contribute to the reduction of GHGs in support of the CRD climate action initiatives.

b) Wastewater should be treated as a resource and, wherever possible and practical, provide opportunities for resource recovery and reuse.

RESPONSE: The WWTP will harvest the energy from the effluent for use in heating the occupied spaces.

The sludge resulting from the secondary treatment process in the WWTP will be conveyed to a site where the bio-solids can be recovered for re-use.

c) The McLoughlin Point facility should meet, or exceed the CRD's and the Township of Esquimalt's policies on sustainability and building excellence.

RESPONSE: There is no recognized sustainability rating system suitable for application to Wastewater treatment plants. However, the O&M portion of the WWTP will be designed and constructed to LEED v4 Gold standards and constructed with attractive durable materials.

All of the structures are to have a design life of 100 years design life with exterior cladding materials a design life of 50 years. Other building systems typically have a design life of 25 years. Moreover, the facility is designed to Post-Disaster standards.

2. RESPECT FOR THE SITE

a) Respect the site as a gateway location.

RESPONSE: Refer to the Architectural and Landscape drawings for compliance.

The siting of this important public works facility poses both a great challenge and a great opportunity for Esquimalt and the Greater Victoria area. Situated at the entry of the harbour and along a prominent rocky shoreline, the design respects the natural setting and reflects the highest standard of design, materiality and aesthetics.

The bulk of the plant is located at the west end of the site along Victoria View road, allowing the lower mass of the highly articulated and well designed Operations and Maintenance [O&M] building to screen the plant. The O&M building is stepped to further mitigate the perceived mass. In addition, over 80% of the roof of the O&M building will be planted to increase onsite habitat and provides storm water management.

In addition to the extensive planting around the perimeter of the plant, care has been taken to break up the mass of concrete walls with a combination of materials and the introduction of glazing and screening elements.

b) Respect the natural shoreline.

RESPONSE: Refer to Architectural and Landscape Drawings for compliance.

A significant amount of the rocky shoreline has been retained in balance with other requirements for seawalls and planting on the site. The angular shapes and colours of the rocky shoreline are reflected in the shapes, colour and textures of the retaining walls and building.

c) Respect the site context, and respond to the site and its surroundings.

RESPONSE: Refer to Architectural and Landscape Drawings for compliance.

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A palette of materials has been selected for the site which complements the stunning natural setting. Lower elements will be a combination of smooth and textured concrete and visually connect the building to the rocky shoreline. These walls will feature weathering steel highlights to add colour, variation and warmth at key locations on the site.

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The seawall and landscape buffer is a major component of the design. The design conforms to the Design Guidelines for seawalls. The seawall system reflects the rugged and textured surface of the exposed-rock shorelines. The mass and length of the wall is broken up visually with different materials, projections and protrusions. The materials

utilized for the seawall will be a combination of concrete. The angular composition of the O&M building is reflected in this wall. Where walls extend vertically greater than 4m they are stepped to reduce their apparent height.

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3. PLAN FOR THE FUTURE

a) Acknowledge and plan for major tsunami events, climate warming effects, and post-disaster resiliency.

RESPONSE: The WWTP is designed as a 'post disaster facility', taking into account the findings of the report "Modelling of Potential Tsunami Inundation Limits and Run-up", and predicted sea level rise.

b) Incorporate durable, long-lasting, and timeless materials and design strategies.

RESPONSE: The WWTP is designed with durable materials and cladding such as cast-in-place concrete, pre-cast concrete panels, masonry, and corrosion resistant metal cladding and fittings.

4. LIVABILITY

a) Provide a design solution that meets, or exceeds, Township of Esquimalt and City of Victoria noise by-law requirements.

RESPONSE: The WWTP design is a fully enclosed plant. Emergency generators are self-contained, fully enclosed units with high efficiency mufflers. Potential noise sources are located away from any adjacent properties

b) Provide a design solution that restricts odours to a maximum of five (5) odour units, or less (not detectable by humans).

RESPONSE: The WWTP design is a fully enclosed plant with exhaust filtration systems designed to operate at a maximum of 5 odour units measured at the property line.

c) Respect view impacts from all sides, and from above.

RESPONSE: Refer to the Architectural and Landscape drawings for compliance.

The view of the plant from the west is restricted by a landscape buffer along Victoria View Road.

The view of the plant from the north is restricted by a landscape buffer along the north property line.

The view of the plant from the water is restricted by a landscape buffer between the shoreline and the building face. In addition, other planting is provided on a green roof to grow up the upper wall of the east face of the highest parts of the plant.

The most attractive elements of the building are located facing Victoria Harbour to screen other elements beyond.

The roofs above the Operations and Maintenance components are green roofs planted in a distinct pattern that complements the shape and forms of the building, and when viewed from above create terraces of planted areas from the higher roof to the large landscaped planters between the shoreline and the building.

5. SENSE OF PRIDE

a) Incorporate designs that, while respecting the site, ensure the highest standards of materials and workmanship, and are aesthetically pleasing.

RESPONSE: Situated at the entry to the harbour and along a prominent rocky shoreline, the design respects the natural setting and reflects the highest standard of design, materiality and aesthetics.

The shoreline remains intact, the building mass is stepped away from the shore, the forms of the elements near the rocky shore are angular and rendered in texture and colours sympathetic to the natural site.

A palette of materials has been selected for the site which complements the stunning natural setting. Lower elements will be a combination of smooth and textured concrete and will visually connect the building to the rocky shoreline. These walls will feature weathering steel highlights to add colour, variation and warmth at key locations on the site. The lower portions of the O&M building and the plant will be rendered with heavier materials such as precast concrete and masonry cladding, and include clerestory windows to the shops and change rooms areas. The upper floor of the O&M building will incorporate considerably more glazing for the office and multipurpose spaces and is designed to permit natural ventilation. Upper portions of the plant as well as the O&M building will feature highly durable metal cladding. Translucent panels are incorporated into the plant buildings to provide natural light to interior spaces and articulate the wall surfaces.

b) Incorporate public art into the design.

RESPONSE: We welcome public art to be incorporated into the design. However, after consideration and discussion with Esquimalt staff, the specific inclusion of public art to this site has not been currently indicated for the following reasons:

1) Esquimalt may wish to locate the Public Art in a more publicly accessible location where it may be more widely experienced.

2) Esquimalt has an existing policy and procedure for commissioning and/or procurement of public art.

DESIGN GUIDELINES

SUSTAINABILITY STANDARDS

Treating its wastewater should be viewed as an element of the region's long-term sustainability objectives. Design considerations to support environmental, social, and economic sustainability include:

- Design the Operations and Controls building to a LEED® Gold standard.

RESPONSE: The Operations and Maintenance Building will be designed and constructed to LEED v4 Gold standard.

- Where feasible, design for on-site heat recovery, and plan for future, long-term, neighbourhood, heat-resource opportunities.

RESPONSE: The WWTP will harvest the energy from the effluent for use in heating the occupied spaces in the plant.

- Incorporate a green roof system into the Operations and Controls building and other buildings, where appropriate.

RESPONSE: The Operations and Controls building features a pre-vegetated sedum mat green roof system on the second and third levels.

- While much of the site is impervious rocky shoreline, where possible, introduce methods to clean and reduce stormwater runoff, incorporate rain gardens, and consider practical ways to re-use water.

RESPONSE: A significant amount of rainfall to the site will be intercepted by the extensive style green roofs which will absorb and hold runoff for eventual uptake by the roof plants, and release any filtered overflow to the planting beds below at grade. The site has been softened with planting beds wherever possible, significantly increasing the amount of absorbent surface and biomass which will catch, detain, absorb and filter stormwater. Additionally, the design includes rain gardens.

- Restrict impact on the shoreline, except for those areas where wastewater lines enter or exit the treatment plant.

RESPONSE: The shoreline will remain unaffected by any permanent structures including the influent and effluent lines which are constructed under the surface using tunneling techniques. Care will be taken during construction to avoid the impact of construction activities on the shoreline.

VIEW CONSIDERATIONS

View impacts are an important design consideration given that the site is a waterfront property. The impact on views from all sides (including from east and south perspectives, from across the harbour, and from above) need to be considered in the design process.

Building and design view impacts will be evaluated from the following locations:

- Shoal Point and Ogden Point;

RESPONSE: Refer to Architectural Drawings for compliance

- Songhees Walkway to West Bay; and

RESPONSE: Refer to Architectural Drawings for compliance

- From above.

RESPONSE: Refer to Architectural Drawings for compliance

MARINE SHORELINE CHARACTER DESIGN CONSIDERATIONS

- Building forms should respect the site.

RESPONSE: Refer to Architectural and Landscape drawings for compliance.

Situated at the entry to the harbour and along a prominent rocky shoreline, the design respects the natural setting and reflects the highest standard of design, materiality and aesthetics.

The shoreline remains intact, the building mass is stepped away from the shore, the forms of the elements near the rocky shore are angular and rendered in texture and colours sympathetic to the natural site. A palette of materials has been selected for the site which complements the stunning natural setting.

- Wall elements, relating to tsunami and associated catastrophic event protection, such as stepped walls that incorporate angled features, projections, wall terraces, and textures, should reflect the character of the rocky shoreline.

RESPONSE: The seawall and landscape buffer is a major component of the design. The seawall system reflects the rugged and textured surface of the exposed-rock shorelines. The mass and length of the wall is broken up visually with different materials, projections and protrusions. The materials utilized for the seawall will be a combination of smooth and board-formed concrete. The angular composition of the O&M building is reflected in this wall. Where walls extend vertically greater than 4m they are stepped to reduce their apparent height.

MASSING, SITING & EXTERIOR ARCHITECTURAL ELEMENTS

- The design must demonstrate how the buildings and structures will fit into the site, responding to the shoreline in the forefront, and the evergreen treeline and rocky knoll backdrop.

RESPONSE: Refer to Architectural and Landscape Drawings for compliance.

The bulk of the plant is located at the west end of the site along Victoria View road, allowing the lower mass of the highly articulated and well designed Operations and Maintenance [O&M] building to screen the plant. The O&M building is stepped to further mitigate the perceived mass. In addition, over 80% of the roof of the O&M building will be planted to increase onsite habitat and provides storm water management. In conjunction with on-site rain gardens, there is considerable improvement in reducing stormwater runoff from the existing highly impervious rocky site. All buildings are set back from the high water mark at least 7.5m along the south and 10m along the east. A landscape buffer and seawall are located between the shoreline and the buildings.

In addition to the extensive planting around the perimeter of the plant, care has been taken to break up the mass of concrete walls with a combination of materials and the introduction of glazing and screening elements.

A palette of materials has been selected for the site which complements the stunning natural setting. Lower elements will be a combination of smooth and textured concrete and will visually connect the building to the rocky shoreline. These walls will feature weathering steel highlights to add colour, variation and warmth at key locations on the site. The lower portions of the O&M building and the plant will be rendered with heavier materials such as precast concrete and masonry cladding, and include clerestory windows to the shops and change rooms areas. The upper floor of the O&M building will incorporate considerably more glazing for the office and multipurpose spaces and is designed to permit natural ventilation. Upper portions of the plant as well as the O&M building will feature highly durable metal cladding. Translucent panels are incorporated into the plant buildings to provide natural light to interior spaces and articulate the wall surfaces.

- Building heights should vary, but not exceed 15 metres, from the finished grade.

RESPONSE: Refer to Architectural Sections and Elevation Drawings for compliance.

The building heights vary from 5 metres to 15 metres from average grade.

- Design aesthetics should be optimized with the use of appropriate, high quality materials.

RESPONSE: Refer to Architectural Drawings and Materials Board for compliance.

The WWTP is designed with durable materials and cladding such as cast-in-place concrete, pre-cast concrete panels, masonry, and corrosion resistant metal cladding and fittings.

- Exterior building materials, including exterior details, must be selected to withstand intense weather and sea conditions, and must be of a high standard to ensure low maintenance.

RESPONSE: Refer to Architectural Drawings and Materials Board for compliance.

The WWTP is designed with durable materials and cladding such as cast-in-place concrete, pre-cast concrete panels, masonry, and corrosion resistant metal cladding and fittings.

- Doors, overhead doors, and other closures (including hatches, grilles, and louvres) should be durable, thermally resistant, and suitably finished for the marine environment.

RESPONSE: The design of the WWTP complies.

The energy requirements to meet LEED 2009 Gold standard necessitates a high performance building envelope including all doors etc.

- Windows should have high performance glazing, and be capable of providing natural ventilation, where appropriate.

RESPONSE: The design of the WWTP complies.

The energy requirements to meet LEED 2009 Gold standard necessitates a high performance building envelope including all glazing. Operable glazing units will be employed where appropriate.

- Roof areas must consider views from above.

RESPONSE: Refer to Architectural and Landscape Drawings for compliance.

The roofs above the Operations and Maintenance components are green roofs planted in a distinct pattern that complements the shape and forms of the building, and when viewed from above create terraces of planted areas from the higher roof to the large landscaped planters between the shoreline and the building.

- Clarifiers and aerated filters must be covered to meet noise and odour principles.

RESPONSE: Refer to Architectural drawings for compliance.

All plant functions are enclosed.

LIGHTING

- Light fixtures should provide no more than the minimum lighting needed for their intended purposes, and not exceed levels recommended by the Illuminating Engineering Society for North America Recommended Practice Manual: Lighting for Exterior Environments.

RESPONSE: Refer to Site Lighting Drawing for compliance.

- Light fixture shields should be specified to reduce impacts on other properties, and when seen from the designated viewpoints.

RESPONSE: Refer to Site Lighting Drawing for compliance.

- All lighting should be directed downward, and not into the night sky.

RESPONSE: Refer to Site Lighting Drawing for compliance.

- Energy efficient fixtures should be specified, with consistent colour for all lighting

RESPONSE: Refer to Site Lighting Drawing for compliance.

LANDSCAPE ELEMENTS

The design concept is based on site conditions, views from the harbour, and a windswept rocky shoreline. With this in mind, landscape elements should include:

- Use of plant species that are designated hardy to harsh, and for salt spray environments; situate plants such that the force of the wind shapes their future forms;

RESPONSE: Plant species have been selected based on their resilience (low maintenance, salt and wind tolerance), availability, appearance, site suitability (available soil volume, growth habit), and adaptability to the Pacific Northwest climate and anticipated climate change. The site is located in the Coastal Douglas-fir Biogeoclimatic Zone, a zone dominated by Douglas fir in both upland and rock outcrop areas, and for this reason Douglas fir have been selected as the primary tree species for the site. They will take on a characteristically windswept appearance while screening the building and providing some shelter to the massed plantings below. The predominantly native plant palette will enhance the ecological integrity of the site, and the combination of native and

adaptive perennials, shrubs and grasses whose hardy blooms will provide seasonal interest and habitat.

Note that scientists who study 'thigmorphogenesis' or the response of plants to high winds, indicate Douglas-fir is a 'streamliner' or wind avoider while Black Pine is a 'non-streamliner' or wind tolerator. In a nutshell this means that Douglas-fir will bend with the wind (a preferred condition in the Design Guidelines), while Austrian (Black) Pine will not. Trees exposed to wind will not grow as tall, will have shorter branches and will have thicker stems and stronger roots than those not exposed to wind.

- A retaining wall system designed to reflect the rugged and rough-textured surface of boulders and exposed-rock shorelines;

RESPONSE: The seawall system reflects the rugged and textured surface of the exposed-rock shorelines. The mass and length of the wall is broken up visually with different materials, projections and protrusions. The materials utilized for the seawall will be a combination of smooth and board-formed concrete. The angular composition of the O&M building is reflected in this wall. Where walls extend vertically greater than 4m they are stepped to reduce their apparent height.

- Outdoor storage and parking areas screened through the use of berms, fences, landscaping and/or solid noise-absorbing barriers;

RESPONSE: Refer to Landscape drawings for evidence of compliance through Landscape screening of parking along Victoria View Road.

Planting beds have been mounded wherever possible in order to improve screening – this includes mounding against the building face as well as within the wider beds themselves. Much of the visual screening of the site comes in the form of coniferous trees, whose dense evergreen foliage doubles as an effective sound barrier. Wherever possible, vines have been trained on trellises across the building face, further improving the vegetative screening in areas where trees cannot be planted.

Refer to Architectural drawing Level 1 Floor Plan for wall as screening of parking near observation deck.

GUIDELINES FOR SEAWALL AND WALLS

The retaining wall system should be designed to reflect the rugged and textured surface of the exposed-rock shorelines. To reduce view impacts for neighbouring communities and water/air traffic, the mass of the wall (combined height and width) will be broken up visually with features such as board form relief, wall projections, vertical elements, and wall protrusions. It should feature both rounded, smooth, and angular surfaces to reflect the natural shoreline. Walls are divided into two types: 1) primary walls,

which are prominent perimeter retaining walls, and feature walls within the plant; and 2) secondary walls, which serve as infill between the primary walls.

- Walls must not protrude beyond the High Water Mark (HWM 1.804m geodetic).

RESPONSE: Refer to Architectural Drawings for compliance.

No walls protrude beyond the HWM.

- The site must be protected by a continuous tsunami protection wall that has a top elevation of not less than 6.5 metres above the High Water Mark.

RESPONSE: Refer to Architectural Drawings for compliance.

The site is protected by a tsunami wall with a top elevation of minimum 6.5 metres along the shoreline and the north side. The thick concrete walls of the plant at the southwest and the west form a continuation of the tsunami wall.

- The appearance of wall heights greater than 4.0 metres must be minimized by placing step walls in the tsunami protection wall.

RESPONSE: Refer to Architectural Drawings for compliance.

Retaining walls in front of the tsunami wall are employed to create landscape planters which reduce the apparent height of the tsunami wall.

- Planted stepped walls should be a minimum depth of 1.0 metre horizontally to allow for landscape elements to be introduced. Where this is not possible, shallower multiple steps may be used.

RESPONSE: Refer to Architectural and Landscape Drawings for compliance.

Planted stepped walls are typically 2.5 metres or more in width.

- All surfaces of the primary perimeter retaining walls must be finished with random board-formed recesses or other suitable architectural treatment. Vertical recesses should be spaced randomly. A smooth finish should be considered for secondary walls.

RESPONSE: Refer to Architectural Drawings and Materials Board for compliance.

We have considered the primary retaining walls those closest to the shore. These are to be board formed concrete intended to refer to the forms and materials of historical military emplacements directly adjacent to this site and nearby Macauley Point. In contrast, the tsunami wall will be a smooth finish concrete.

Trees are situated more than 10 metres away from the south-facing wall. Hardy shrubs are incorporated in these areas.

• The following species are considered appropriate for use along the waterfront:

- *Pinus contorta* var. *Contorta* (*Shore Pine*)
- *Arbutus menzesii* (*Pacific Madrone*)
- *Rosa nutkana* (*Nootka Rose*)
- *Symphoricarpus albus* (*Snowberry*)
- *Arbutus unedo* (*Strawberry Tree*)
- *Myrica californica* (*Sweet Gale*)
- *Lonicera pileata* (*Privet Honeysuckle*)
- *Mahonia aquifolium* (*Oregon Grape*)

RESPONSE: Refer to Landscape Drawings for compliance.

The landscape design incorporates most of the shrub species from the provided list, as well as additional species that are well-adapted to PNW shoreline conditions. Plants have been selected with consideration for resiliency, growth habit (maintenance), impact on habitat and ecological integrity, capacity to contribute to a dynamic seasonal landscape aesthetic, and commercial availability. Proposed plants are available in sizes required to meet the expectations of the Design Guidelines (plant screening, 100% ground coverage in two years).

As noted in Landscape Elements, because this is a Coastal Douglas-fir zone, Douglas-fir has been selected as the primary tree for the site; they are readily available in 5 gallon or larger sizes from commercial nurseries. Shore Pine is not a tree representative of the Douglas-fir zone and its typical growth pattern, short and crooked, would not contribute to the screening requirement outlined in the Design Guidelines. Arbutus trees are not commonly available though can occasionally be found in 1 gallon size; they are very slow growing, notoriously difficult to transplant and *heavily* browsed by deer when saplings.

GUIDELINES FOR PLANTING ADJACENT TO BUILDING ENTRANCES

Planting around the building entrances can be more design driven, and specific hard and soft landscaping should complement the building architecture.

RESPONSE: Refer to Landscape Drawings for compliance.

The building entrance planting beds reflect the form and content of the shoreline planting beds albeit in a smaller and more detailed scale. In both, massed plants stretch through mounded beds in geometric forms that reflect the building architecture. Near the entrances, flowering vines are trained across trellises on the building faces to provide seasonal bursts of color and scent. The decorative paving surface of the viewing platform also reflects the geometry of the architecture, in conformance with the intent of the guideline.

GUIDELINES FOR SCREENING ON VICTORIA VIEW ROAD

- To break up the mass of concrete walls, introduce screening (mostly of coniferous tree plantings) along the road frontage and adjacent property lines. The CRD should work with the Department of National Defence to allow for landscaping along the road frontage adjacent to the site. Cluster trees to provide clear 8-metre wide gaps to allow for future maintenance access (from a crane).

RESPONSE: Refer to Landscape Drawings for compliance.

A significant number of coniferous and deciduous trees have been planted along the frontage of Victoria View Road in mounded beds that further aid visual screening of the site. A mass planting of both Douglas and Grand fir along the North property line creates a substantial visual and auditory screen of the site. Trees along Victoria View Road have been clustered to ensure that there are 8M-wide gaps scattered along the frontage, though this has been limited in an effort to achieve the maximum possible amount of screening (drive aisles also provide crane access).

- A continuous shrub border will be required at the base of the wall to screen the lower retaining wall, and reduce the risk of vandalism. Shrubs in this area are to be native species only, with the exception of those adjacent to the two entrances, where lower evergreen screening is desirable.
- In situations with larger retaining walls, vines can be considered, but must be supported by cable systems.

RESPONSE: Refer to Architectural and Landscape Drawings for compliance.

Vines are planted at the base of the west wall of the WWTP supported on vertical trellis framework mounted on the lower portion of the wall face.

Vines are employed at a variety of locations on the site to create vegetative screening where physical space &/or soil volume does not support planting trees. This includes planting beds along the internal roadway, as well as on the third floor green roof. Wall-mounted trellis systems have been provided for all of the proposed vines with the exception of the Boston Ivy on the third floor green roof as it is better suited to cling to the building face.

- The following species are considered appropriate for use in screening applications:
 - *Pseudotsuga menziesii* (Douglas Fir);
 - *Rosa nutkana* (Nootka Rose);
 - *Symphoricarpus albus* (Snowberry); and
 - *Parthenocissus tricuspidata* (Boston Ivy).

RESPONSE: Refer to Landscape Drawings for compliance.

All of the listed plant species are employed in the screening of the buildings, along with a selection of other native and adaptive plants that are well-suited to the site conditions.

STORMWATER MANAGEMENT

The following stormwater management measures should be considered for the site:

- Stormwater from the internal roadways and parking areas will be treated to remove 80% of TSS from a 6-month rain event prior to discharge.

RESPONSE: The design will comply with this requirement

- Treatment of roadway and parking run-off can come in the form of:
 - A combination of rain gardens and bioswales adjacent to the parking and roadways, complete with raised overflow basins, and under drains connected to the storm drain system;
 - Aqua-pave permeable paving, complete with an under drain system in discrete areas where direction of run-off to a bioswale is not feasible; or
 - A combination of these.

RESPONSE: a combination of the above methods will be utilized to achieve compliance

- A conventional storm drain will be installed with an outfall to the ocean. All drainage from the site will eventually be discharged through this pipe.

RESPONSE: All drainage from the site will eventually be discharged through the storm drain piping to the ocean

- The buildings will connect directly to the piped storm drain system. Building drainage will bypass the treatment system. However, a rain garden, stormceptor, or similar end-of-pipe treatment device could be installed if treatment of roof drainage is required.

RESPONSE: All building drainage will connect to the storm drain system, bypassing the wastewater treatment system and retained and/or treated if required before discharge to the ocean.

PARKING AND SERVICE

- Parking for visitors, plant and system operation staff, and CRD maintenance vehicles should be suitably screened through the use of berms, fences, landscaping, and/or solid noise-absorbing barriers to minimize visual impact.

RESPONSE: Refer to Architectural drawing Level 1 Floor Plan for wall as screening of onsite parking near observation deck.

SIGNAGE

- Limit signage to directional and identification as required for wayfinding.

RESPONSE: Refer to Architectural Drawings for compliance.

No large signs identifying the building or third party signs will be incorporated.

However, in addition to directional and identification signage, in compliance with 9.5.6 (c) (vi) in the OCP, and 55 (2)(d)(10) of the Zoning Bylaw, historical interpretive signage regarding the history of the site is indicated at the perimeter of the observation deck. Specific locations, format and content of this signage will be developed in conjunction with Esquimalt staff.

PUBLIC ART AND EDUCATION

- Public art shall be provided. The CRD and Township of Esquimalt will work together to confirm the process and requirements.

RESPONSE: After consideration and discussion with Esquimalt staff, the specific inclusion of public art to this site has not been currently indicated for the following reasons:

- 1) Esquimalt may wish to locate the Public Art in a more publicly accessible location where it may be more widely experienced.
- 2) Esquimalt has an existing policy and procedure for commissioning and/or procurement of public art.

- Plans should include capacity for organized, educational site visits to learn about the functioning of the treatment system, the regional liquid waste management program, resource recovery, etc.

RESPONSE: Refer to Architectural Drawings for Compliance.

The WWTP contains an Educational and Interpretive Centre intended to accommodate organized educational site visits to learn about the functioning of the treatment system, the regional liquid waste management program, resource recovery, etc. A drop-off for a bus is included in the site design.

Also, historical interpretive signage regarding the history of the site is indicated at the perimeter of the observation deck. Specific locations, format and content of this signage will be developed in conjunction with Esquimalt staff.

