

7.1 HERITAGE RESOURCES

Heritage Resources - Summary of Assessment:

- The Project is located in an area that has a long history of human habitation and therefore has very high archaeological potential.
- The designation of New Westminster as the early Colonial Capital increases the post-AD 1846 heritage potential of the study area.
- Heritage potential was modelled using information from a range of sources including; Aboriginal Traditional Knowledge, known archaeological sites, information about named places, ethnographic and historical sources including letters, gazetteers, and other post-AD 1846 sources.
- Potential Project-related residual effects on tangible and intangible aspects of heritage resources could arise as result of:
 - Disturbance of protected heritage resources
 - Changes to landscapes
 - Changes to land use
 - Changes to Fraser River scour and deposition and its effect on shoreline heritage resources
- Key mitigation measures will include:
 - Inclusion of Aboriginal Groups in the research, planning and execution of ongoing heritage assessments, the development of management recommendations, the development of a Heritage Management Policy, and an Interpretive Plan.
 - Implementation of a Project-specific Ancestral Remains Protocol, which is currently being updated in consultation with Aboriginal Groups.
 - A commitment to minimize impacts to significant intact archaeological resources and to focus, wherever possible, on previously disturbed corridors for construction.
 - A commitment to avoid protected historical heritage resources within the Project area wherever possible. Where protected historical heritage resources cannot be avoided they will be documented and impacts appropriately offset
- No significant Project-related residual or cumulative effects on heritage resources are expected.

7.1.1 Context and Boundaries

This section describes the context for assessment of potential Project-related effects on Heritage including the selection and rationale of the VC and its subcomponents and indicators, overview of the regulatory context, and defines and rationalizes the spatial, temporal, administrative, and technical assessment boundaries.

7.1.1.1 Valued Component Selection

Heritage is one of the five pillars of the Valued Components within the Environmental Assessment Process. Heritage Resources is a selected VC because it is important to Aboriginal Groups, regulators, and stakeholders. The VC includes two subcomponents; archaeological and historical heritage resources.

Paleontology was not included as a subcomponent in this assessment. Based on correspondence with the BC Fossil Management Office, which is part of the Heritage Branch under the BC Ministry of Forests, Lands and Natural Resource Operations and Rural Development (FLNRORD), the Project is not located in an area of BC that is associated with the recovery of fossils from intact deposits. However, given the potential for fossils to be displaced from their original deposits and transported with fill or other sediments to areas of low paleontological potential, The Fossil Management Office recommended that a chance-find procedure for fossil resources be developed and implemented (2018 email from E. Déom, Senior Stewardship Officer – Palaeontology, to A. Storey).

The delineation of archaeological and historical heritage resources is based in legislation. Archaeological resources are typically those associated with the period before AD 1846 and are automatically protected under the *Heritage Conservation Act*. Historical Heritage Resources are those that post-date AD 1846 and are not automatically protected by law. However, in the assessment of heritage resources, archaeological and historical subcomponents are considered under several categories related to where resources may be found and their status with respect to legal protection under Federal or Provincial legislation or municipal regulation.

The categories of heritage resources that are considered in this assessment include:

1. **Protected Heritage Resources** that include those pre-AD 1846 materials that are automatically protected by the *Heritage Conservation Act (HCA)* [RSBC 1996 chapter 187] post-AD 1846 heritage resources that may be protected under the *HCA* or through the *Local Government Act*, and shipwrecks that are protected both under the *HCA* and the *Canada Shipping Act*.
2. **Unprotected Heritage Resources** that include buildings, features, or other heritage resources that are listed as requiring protection or are of stated interest to specific groups of stakeholders but that do not have formal recognition or protection; and
3. **Cultural Landscapes/Features** that are defined for this assessment as specific geographical areas that are imbued with cultural value and/or meaning, through tangible natural features or human modifications and intangibly through stories, histories, and other connections to practices, traditions, activities, and customs of specific groups of people in the past and the present.

Heritage resources have tangible/intangible qualities that can be identified and assessed with respect to effects and interactions. Values tied to these qualities include the aesthetic, historical, scientific, cultural, social, or spiritual importance or significance of a heritage resource as recognized by a community, and the character-defining elements such as materials, forms, location, spatial configurations, uses, and cultural associations or meanings that embody these values. The rationale for the identification of Tangible and Intangible attributes of Heritage Resources are summarized in **Table 7.1-1**.

Table 7.1-1 Subcomponents of Heritage Resources

Subcomponent	Attribute	Rationale for Selection
Archaeological Resources	Tangible Heritage	Tangible heritage subcomponents are those that are physically present and can be interacted with directly. This may include buried objects associated with archaeological sites, material remains recovered from subsurface assessments, standing structure or remnants thereof, and material remains identified during survey or other surface assessments.
	Intangible Heritage	Intangible heritage subcomponents constitute a connection to the past that is important to individual and group identity. They can include practices, activities, rituals, representations, expressions, knowledge, skills, stories, and/or histories that confer a cultural and personal connection to areas used currently and/or in the past. Intangible heritage is also associated with landscapes and features that are intrinsically tied to ancient historical events, origin stories, and/or events preserved only through oral histories (Basso 1996; Schaepe 2007). Places and landscapes are also often tied to the transfer of knowledge.
Historical Heritage Resources	Tangible Heritage	Tangible heritage subcomponents are those that are physically present and can be interacted with directly. This may include buried objects associated with historical sites, standing structures or remnants thereof, material remains recovered from subsurface assessments, and material remains identified during survey or other surface assessments.
	Intangible Heritage	Intangible heritage subcomponents constitute a connection to the past that is important to individual and group identity. They can include practices, activities, rituals, representations, expressions, knowledge, skills, stories, and/or histories that confer a cultural and personal connection to areas used currently and/or in the past. Intangible heritage is also associated with landscapes and features that are intrinsically tied to ancient historical events, origin stories, and/or events preserved only through oral histories (Basso 1996; Schaepe 2007). Places and landscapes are also often tied to the transfer of knowledge.

7.1.1.1.1 Indicators of Potential Effects

The effects of the Project on tangible heritage subcomponents can be evaluated in terms of the removal or impairment of, or changes to, identified heritage resources, or related change to heritage value. These can be evaluated in part by;

- the amount/percentage of a resource that has been documented (e.g., systematic data recovery during archaeological excavations and/or or the documentation of standing heritage) [quantitative]
- the number of resources documented during mitigation [quantitative]
- reference to scientific or cultural values of material remains, cultural features, and heritage resources [qualitative]
- novel contributions to academic or cultural knowledge that may be gained through the documentation of these remains [qualitative]

The effects on intangible heritage resources are more difficult to quantify or qualify and may be perceived differently by different groups of people. Intangible effects may be more pronounced in communities that draw no conceptual line between the cultural and spiritual significance of archaeological sites and burial places (McLay et al. 2008). In this world-view, material remains and archaeological sites are locations where the First Ancestors fell from the sky, and the tangible physical remains represent a connection to ancient history. Within this perspective material remains still belong to the ancestors and therefore are connected to their spirits. As a result, some Aboriginal groups refer to material remains as belongings rather than artifacts, to make this cultural tenet clear (e.g., Musqueam Indian Band 2017b). As a result, material remains also require appropriate spiritual care and when this is not provided there are perceptible repercussions within contemporary communities (McLay et al. 2008).

In some communities, landscapes also have an ancestral connection. In the earliest times of creation the First Ancestors were transformed by *xe'e/s* into animals, plants, and even stones (McLay et al 2008). As a result some features of the landscape are conceived of as distant relatives, and their displacement or destruction can bring about similar reactions to the exhumation and reburial of human remains. These embedded cultural associations with landscape contribute to a Sense of Place and Identity (i.e., Musqueam Indian Band 2017b). These community level effects are addressed in **Section 12.0 Aboriginal Consultation**.

For historical heritage resources, significance is generally defined as the aesthetic, historic, scientific, cultural, social, or spiritual importance, or importance for past, present, or future generations. The heritage value of a historic place is embodied in its character-defining materials, forms, location, spatial configurations, uses, and cultural associations or meanings.

Indicators and measurable parameters for the assessment of effects of Heritage Resources are described in **Table 7.1-2**.

Table 7.1-2 Indicators for Assessment of Potential Effects

Subcomponents	Indicators	Measurable Parameter
Archaeological Resources	Disturbance and change in access to known heritage values - protected buried heritage resources that include sites, features, and objects protected under the British Columbia <i>Heritage Conservation Act</i> R.S.B.C. 1996, c. 187.	<p>Amount of disturbance through direct impacts (e.g., percentage of a resource affected).</p> <p>Amount of disturbance through indirect impacts including drainage and erosion (e.g. changes in the soils and sediments that change the nature of a wet site deposit).</p> <p>Changes to access and whether this has a positive or negative effect.</p> <p>Changes that enhance or destroy the tangible values of protected heritage resources.</p> <p>Changes that enhance or destroy the intangible value of protected heritage resources. The determination of how this parameter is measured includes inputs from stakeholder groups.</p>
Historical Heritage Resources	Disturbance and change in access to known heritage values - unprotected buried heritage resources.	<p>Amount of disturbance through direct impacts (e.g., percentage of a resource affected).</p> <p>Amount of disturbance through indirect impacts.</p> <p>Changes to access and whether this has a positive or negative effect.</p> <p>Changes that enhance or destroy the tangible values of unprotected heritage resources.</p> <p>Changes that enhance or destroy the intangible value of unprotected heritage resources. The determination of how this parameter is measured includes inputs from stakeholder groups.</p>
Historical Heritage Resources	Disturbance and change in access to known heritage values - protected standing heritage resources that are designated or listed on local or provincial heritage registers or inventories.	The materials, forms, location, spatial configurations, uses, and cultural associations or meanings that contribute to the heritage value of protected standing heritage resources.

Subcomponents	Indicators	Measurable Parameter
Historical Heritage Resources	Disturbance and change in access to known heritage values - unprotected standing heritage resources.	The materials, forms, location, spatial configurations, uses, and cultural associations or meanings that contribute to the heritage value of unprotected standing heritage resources.
Archaeological Resources Historical Heritage Resources	Disturbance and change in access to known heritage values - cultural landscapes/features.	Extent of direct or indirect disturbance to the wider cultural landscape components that may be affected by the Project including: natural systems and features, spatial organization, land use, cultural traditions, circulation, topography, vegetation and open space, buildings and structures, views, and small-scale elements.

7.1.1.2 Regulatory Context

In the province of BC, heritage resources are protected under the *Heritage Conservation Act (HCA)* and the *Local Government Act (LGA)*. Automatic protection is conferred to remains considered to pre-date AD 1846; the year of the Oregon Treaty and the year that is recognized by Canadian courts for the establishment of British sovereignty in the province. Post-AD 1846 remains may also be protected by the Act. Work that may cause disturbance in areas of protected heritage sites must be conducted by a professional archaeologist with a valid Section 14 Site Inspection permit or Section 12 Site Alteration permit (*HCA R.S.B.C. 1996, c. 187*). These permits are issued by the Archaeology Branch, a department within the Ministry of Forests, Lands, Natural Resource Operations and Rural Development [FLNRORD]. Archaeological studies for this environmental assessment were conducted under a Section 14 Heritage Inspection permit (Permit #2016-0390).

The *Heritage Conservation Act* also covers the protection of heritage wrecks. In British Columbia heritage wrecks are defined as wrecked vessels or aircraft that have been abandoned or are more than two years past the date of wreckage (crash, sinking, etc.). Such finds are also protected under the *Canada Shipping Act* [2001, c. 26]. The *Canada Shipping Act* provides rules and regulations about the designation of heritage wrecks. The *Heritage Conservation Act* prohibits the damage or alteration of a heritage wreck and the removal of objects or other materials from wrecks without a permit.

The *Heritage Conservation Act* does not apply on federal land, so work that overlaps with the Vancouver Fraser Port Authority land is covered under Port permits (Permit #16-171 and #16-172). For consistency, all archaeological impact assessment work that informed this assessment was conducted in accordance with Archaeology Branch standards on both federal and provincial land. The guiding documents for the preparation of archaeological assessments are the *BC Archaeological Assessment Guidelines* (Apland and Kenny 1998) and the *Provincial AOA Standards and Guidelines* (British Columbia Archaeology Branch 2009).

In New Westminster and Surrey Historical Heritage sites may be legally protected by the Heritage Designation Bylaw, a Conservation Covenant, or through a Heritage Revitalization Agreement. Properties that are protected by any of these three mechanisms can only be altered under the auspices of a Heritage Alteration Permit. Properties or buildings may also appear on the Heritage Register indicating they have been recognized as having Heritage Value but are not legally protected (City of New Westminster 2016; City of Surrey 2018). Municipal heritage protection mechanisms often include the tools available in the LGA – Part 15 – Heritage Conservation.

If human remains are encountered that are clearly post-AD 1846 one of two acts will apply. Those associated with registered cemeteries, abandoned or in use, (such as the Agnes-Dufferin Grounds), are protected and must be cared for under the *Cremation, Interment, and Funeral Services Act* [SBC 2004] c. 35. The act covers the exhumation, and disinterment of Human Remains as well as stipulating where such remains may be reinterred. If historical human remains are encountered outside of a known cemetery then they are protected under the *Coroner’s Act* [SBC 2007] c. 15.

Heritage is also considered under the *Canadian Environmental Assessment Act*. In the federal regulatory framework, heritage is addressed under sections 5(1)(c)(ii) *physical and cultural heritage*; 5(1)(c)(iv) *any structure, site or thing that is of historical, archaeological, paleontological, or architectural significance*. In addition, these two elements are also covered under sections 5(2)(b)(ii) and 5(2)(b)(iii). The defining characteristic of a heritage resource is the value placed on it. This includes the links between the object or site and human history; archaeological significance; and the association of the structure, site, or thing with the practices, customs, or traditions of a particular group.

Within the Project area, several Aboriginal Groups also have permitting requirements and issue permits for work within their traditional territory. The archaeological study for this environmental assessment was conducted under permits from the Kwantlen First Nation (SQ 2017-17; SQ 2018-67; SQ 2018-68), the Stó:lō; Research and Resource Management Centre (SHIP 2016-074), the Squamish Nation (16-0114) the Musqueam Indian Band (MIB-16-110-AIA), and the Tsleil-Waututh Nation (CHIP 2014-023).

Table 7.1-3 Relevant Regulatory Requirements, Standards, and Best Management Practices and Policies

Description	Relevance to Heritage Resources Assessment
<i>Heritage Conservation Act</i>	Provincial legislation that governs the protection of heritage resources. Automatic protection is conferred to remains considered to pre-date AD 1846; however, other post-AD 1846 remains may also be protected by the Act. Work in areas of known archaeological sites or of archaeological potential must be conducted by a professional archaeologist with a valid Section 14 Site Inspection permit or Section 12 Site Alteration permit.
Heritage Designation Bylaw	Long-term legal protection of a specific property enabled with a bylaw and registered on the land title of a property. This designation can be adopted by City Council with or without the consent of the owner. Alteration or demolition requires a Heritage Alteration Permit issued by New Westminster/Surrey City Council.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART B SECTION 7.1 HERITAGE RESOURCES

Description	Relevance to Heritage Resources Assessment
Heritage Conservation Area	Long-term legal protection of an area. These areas are specified on the City of New Westminster and the City of Surrey's Official Community Plans and applies to the zoning of properties within them. The protection applies to all properties within the identified area regardless of the age of properties within it. All building permit applications and subdivision applications require a New Westminster or City of Surrey Heritage Alteration Permit.
Heritage Revitalization Agreement (HRA)	Long-term protection of a property through an agreement between the City of Surrey or New Westminster and a property owner enacted as a bylaw. Alterations or demolition require Public Hearings for the amendment of the HRA.
Conservation Covenant	Long-term legal protection of a property – a contractual agreement between the property owner and the City of New Westminster/Surrey or a heritage organization.
<i>Canadian Environmental Assessment Act (CEAA 2012)</i>	Heritage is addressed under sections 5(1)(c)(ii) <i>physical and cultural heritage</i> ; 5(1)(c)(iv) <i>any structure, site or thing that is of historical, archaeological, paleontological, or architectural significance</i> . In addition, these two elements are also covered under sections 5(2)(b)(ii) and 5(2)(b)(iii).
Vancouver Fraser Port Authority	Rules and regulations that govern known and potential heritage resources on Port-held lands. Federal lands are not subject to provincial legislation. A valid permit to conduct work on Port Land is required.
Aboriginal Groups permits for archaeological assessment	Several Aboriginal Groups in the Project Area issue permits for archaeological assessments within their asserted Traditional Territories. Kwantlen First Nation (SQ 2017-17; SQ 2018-67; SQ 2018-68), the Stó:lō; Research and Resource Management Centre (SHIP 2016-074), the Squamish Nation (16-0114) the Musqueam Indian Band (MIB-16-110-AIA), and the Tsleil-Waututh Nation (CHIP 2014-023).
Kwikwetlem First Nation Ancestral Remains – Practice and Protocols (April 2013)	Procedures and Protocols regarding encountered ancestral remains.
Kwikwetlem First Nation Heritage Policy (May 2013)	Provides information related to the care and protection of heritage resources within the territory of the Kwikwetlem First Nation
Musqueam Nation: Policy Statement on Heritage Resources (Provided July 2015)	Policies and procedures for heritage resources within Musqueam territory.
Ancestral Remains Policy for Archaeology to be Performed During Pattullo Bridge Decommissioning (Kleanza Consulting and Musqueam Indian Band) (December 2016)	Procedures and Protocols regarding encountered ancestral remains specifically for the Pattullo Bridge project.
Seyem' Qwantlen Business Group Stewardship Policy (July 2013)	Provides information on stewardship of lands, waters, and resources within the territory of the Kwantlen First Nation.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART B SECTION 7.1 HERITAGE RESOURCES

Description	Relevance to Heritage Resources Assessment
X̱ay Temíxw Land use Plan (May 2001)	Land use plan for the Squamish Nation. Includes information on the territory, resources, and spiritual places.
Semiahmoo First Nation Treatment of Human Remains Protocol	Procedures and Protocols regarding encountered ancestral remains.
Stó:l̓ Heritage Policy Manual (May 2003)	Policies and Procedures for the protection, preservation, and management of Stó:l̓ Heritage. Includes information about ancestral remains.
<i>Tsawwassen First Nation Final Agreement Act</i> [SBC 2007] Chapter 39 – Chapter 14 Culture and Heritage	Includes information on artifacts, heritage resources, and ancestral remains.
Tsleil-Waututh Nation – Ancestral Remains Policy (August 2017)	Procedures and Protocols regarding encountered ancestral remains.
<i>Canada Shipping Act</i>	Rules and regulations that govern shipwrecks and their management.
Part 15 BC <i>Local Government Act</i>	Enables municipalities and regional districts to better integrate heritage conservation activities into the mainstream of development and community planning through the provision of guidance and legislative tools.
BC Heritage Branch <i>Heritage Impact Assessment Guidelines</i>	Outline the purpose and process for undertaking a heritage affect assessment (HIA) on sites identified as having heritage value potential. They provide the legislative reference for such assessments, the methodology for conducting HIAs, and suggest content to be included in an HIA report.
BC Archaeological Assessment Guidelines	Developed by Apland and Kenney in 1996, these are the standards by which Archaeological Impact Assessments are executed and reported.
Technical Guidance for Assessing Physical and Cultural Heritage or any Structure, Site or Thing that is of Historical, Archeological, Paleontological or Architectural Significance under the <i>Canadian Environmental Assessment Act, 2012</i>	Provides preliminary guidance on how to conduct heritage assessments related to designated projects when the Canadian Environmental Assessment Agency (the Agency) is the responsible authority. Since the Project is not a designated project subject to review by the Agency, this guidance does not directly apply, but may provide useful information to inform the assessment of Project-related effects.
Provincial AOA Standards and Guidelines	Developed by the Archaeology Branch in consultation with experienced practitioners in 2009 that set the standards for desktop assessments.
Standards and Guidelines for the Conservation of Historic Places in Canada. Second Edition	Developed by Parks Canada as a way to provide benchmarks for National heritage protections. Includes guidelines for archaeological and historical heritage resources.

Description	Relevance to Heritage Resources Assessment
Charters developed by the International Council on Monuments and Sites (ICOMOS)	<p>ICOMOS is a global non-governmental organization associated with UNESCO with a mission to promote the conservation, protection, use, and enhancement of monuments, building complexes, and sites. It participates in the development of doctrine and the evolution and distribution of ideas, and conducts advocacy.</p> <p>The organization produces charters and other doctrinal texts providing researched, reviewed, universal guidance on best-practices in heritage conservation, including the Burra Charter for Places of Cultural Significance; the Dublin Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes; and the Ename Charter for the Interpretation and Presentation of Cultural Heritage Sites, among many others.</p>

7.1.1.3 Assessment Boundaries

7.1.1.3.1 Spatial

Three spatial assessment boundaries were defined for the buried heritage resources assessment. From smallest to largest these are 1) the *Heritage Conservation Act* and Aboriginal permit area for archaeological field testing in 2017; 2) the Local Study Area (LSA); and 3) the Regional Study Area (RSA). The assessment boundaries for the heritage resources assessments are illustrated in **Figure 7.1-A-1 (Attachment 7.1-A)** and defined in **Table 7.1-4**.

The permit area boundaries were established in the applications to the Archaeology Branch, the Vancouver Fraser Port Authority, and Aboriginal Groups. The boundaries were based on the 2016 conceptual design and reflect the area in which targeted archaeological field assessments were to take place during the study of existing conditions. The current LSA is based on the 2017 Reference Concept and maximum dimensions of potential impact corridors for the new bridge and ancillaries.

The RSA for buried heritage resources was extended not only to provide a 1 km buffer around the LSA but also to include potential impacts to archaeological sites upstream and downstream in the desktop model. The 1 km buffer allows heritage resources sites to be considered in a larger regional context as part of ancient and modern networks. A riverside RSA boundary extending from the tip of Annacis Island to the Port Mann Bridge was identified to model potential changes to riverside resources. This reflects the modelled extent of potential influence of the Project on Fraser River hydraulics and morphology (further detail is included in **Section 4.2 River Hydraulics and Morphology**). This shoreline expansion to the RSA was prompted by questions posed by Aboriginal Groups about potential Project effects to riverside archaeological resources. Changes in the study area were reflected in an expanded desktop study, or Archaeological Overview Assessment (AOA), conducted to inform this environmental assessment and detailed design (ARCHER CRM Partnership 2018).

All heritage resources assessments for post-AD 1846 heritage resources, including protected, unprotected and standing were undertaken within the more standardized project LSA and RSA. In this assessment the LSA included a 50 m wide buffer and was based on the Reference Concept drawing and the RSA was a 1 km wide zone around the outside of the LSA boundary.

Table 7.1-4 Spatial Boundary Definitions for Heritage Resources

Spatial Boundary	Description of Assessment Area
HCA Permit Boundary	Limits within which ground disturbing archaeological assessments could be undertaken. Defined by the 2016 conceptual design.
Local Study Area (LSA)	Project Boundary with a 50 m wide buffer. Based on the 2017 Reference Concept.
Regional Study Area (RSA)	1 km wide zone around the outside of the LSA boundary. For the assessment of protected archaeological resources this was expanded along the banks of the Fraser River from Annacis Island to Port Mann to examine potential impacts to shoreline resources.

7.1.1.3.2 Temporal

Impacts to heritage resources may occur during preliminary feasibility studies and those required to inform detailed design (such as geotechnical, environmental, and archaeological assessments), during construction of new bridge components, during decommissioning of the existing bridge, and during operation of the new bridge through maintenance of the bridge itself as well as associated utilities and ancillary infrastructure. Temporal boundaries of the assessment were therefore defined to include all of these activities.

7.1.1.3.3 Administrative

The administrative boundaries of the assessment of protected buried heritage resources are defined within the permits issued by FLNRORD, VFPA, Musqueam Nation, Tsleil-Waututh Nation, Kwantlen First Nation, Squamish Nation, and Stó:lō Nation. The municipal boundaries of New Westminster and Surrey were designated as the administrative boundaries associated with protected and unprotected standing historical heritage resources.

7.1.1.3.4 Technical

Technical boundaries of protected buried heritage resource assessments relate to access for in-field assessment. Testing was largely restricted to crown and municipal lands where permission had been granted to undertake excavations. Where field studies were not conducted, desktop modelling was employed to develop probability models related to archaeological potential, otherwise known as Archaeological Overview Assessment. Areas of archaeological potential, both high and low, are typically based on reconstructed landscapes, shorelines, and vegetation communities, as well as information for modern disturbance agents. As a result, models are subject to error, as reconstructed landscapes and shorelines are rarely precise, particularly in an area as diverse as the LSA. Modelled potential must be validated or negated by field testing conducted by a professional archaeologist under a valid permit.

Technical boundaries for unprotected buried and standing heritage resources include lack of detailed information about a particular resource, the potential for the future recognition of new heritage resources, changes to the cultural landscape over time, and the complexity and diversity of the area within the LSA and RSA.

7.1.2 Existing Conditions

7.1.2.1 Paradigms of Time

There are four measures of time that are represented in the history of the Project area; ancient time or time immemorial, geological time, archaeological time, and the times documented in written historical documents. Several Aboriginal Groups have stated that they have occupied and used the LSA and RSA since time immemorial (Cowichan Nation Alliance 2017; McLay et al. 2008; Musqueam Indian Band 2017b; Roy 2007). This deep time has ties to both tangible and intangible attributes of Heritage Resources but is most strongly associated to intangible values such as origin stories, oral histories, and place names. However, tangible components of ancient times are rooted in landscapes and features of the landscape as well as the connections between them. Geological time is reflected in the reconstructions of changes to the landscape, particularly with respect to glacial events and the formation of the Fraser River delta. Geological time is linked to tangible information from landforms, sediments, and both absolute and relative dating techniques; the results of which are tied strongly to a Julian/Gregorian calendrical system. Archaeological time builds on geological time with an emphasis on the documentation of human activities that is related to geological events, relative and absolute dating. Archaeological time is also based on a European calendrical system. The construction of archaeological time is based on the recovery of tangible heritage objects, and organic materials that provide radiocarbon dates, or documentation of landscapes. The interpretive and cultural value of these results is enhanced when they can be related to intangible heritage resources and aspects of ancient history. Historical events are most often reconstructed through the use of documents and the recording of these begins in the Project area by at least AD 1808, although earlier documented evidence for contact in the wider region is known (Harris C 1997). Tangible and intangible attributes of historical heritage resources can also be ascribed to buried remains, structures, as well as physical and cultural landscapes.

Concepts of time can be both independent and interwoven. The understanding of ancient times or ancient history includes concepts of geological and archaeological time, as well as retaining information about changes to landscapes through time also known as geomorphology. Aboriginal histories also include more recent historical events including those related to contact and colonisation. Many of these events are not captured in Colonial historical documents. Archaeological and historical documentary evidence can be used to confirm events that occurred in ancient time periods or more recent Aboriginal histories, but cannot refute them. In this instance the two sources of information are considered at times distinct but always complementary. Aspects of ancient history are discussed in the heritage resources effects assessment when identified tangible and intangible values related to this time may be impacted by the Project. The bulk of the assessment is rooted in geological, archaeological, and historical documentary timelines.

7.1.2.2 Regional Overview and the Establishment of Heritage Resources in the Project Area

The RSA is located in the Fraser Lowland, a triangular-shaped area in the southwest part of the mainland of BC that extends south into the United States. The Canadian part of the Lowland covers approximately 2,600 km². It is of Quaternary origin and is bordered by the Coastal Mountains to the north, the Cascade Range to the southeast, and the Strait of Georgia to the west (Armstrong 1981). The Fraser River is the

dominant landscape feature of the Lower Mainland and Fraser Valley regions of southwestern BC. The Fraser terminates at its western extent in a continuously growing delta (Armstrong 1981).

Archaeological evidence suggests the Lower Fraser Valley (defined as the area west of Mission) has been inhabited for at least 8,000 years. Direct evidence from archaeological sites within and immediately adjacent to the LSA boundaries demonstrates that humans have been living in this area for a minimum of 1,500 years (Golder Associates 2011). The LSA once hosted a variety of diverse landscapes, including cedar forests and cranberry marshes providing a range of plant and animal resources. People lived along and travelled to the banks of the Fraser to fish for salmon, to gather cranberries and other plant remains, as well as to hunt a range of local terrestrial fauna including ungulates and birds (Kwantlen First Nation 2017; Kwikwetlem First Nation 2017; Lyackson First Nation 2017; Musqueam Indian Band 2017b; Tsawwassen First Nation 2017; Tsleil-Waututh Nation 2017).

The history that details ancient time and human occupation in the RSA can be found in oral histories and information from Aboriginal Traditional Knowledge (ATK). Ethnographic information for Aboriginal Groups identified in Schedule B of the Section 11 Order is detailed in **Part C: Aboriginal Consultation** of the Application and will not be duplicated here. However, events that can be reconstructed from ATK and that are detailed in archaeological and documentary sources will be discussed in this section to provide information regarding the likely distribution of heritage resources within the LSA. This provides baseline data for the development of the Heritage Management Plan.

7.1.2.2.1 Aboriginal Traditional Knowledge and Archaeological Data

Aboriginal place names, ethnohistorical accounts, early historical maps, and records kept by explorers and merchants indicate that a range of significant sites were located on both sides of the Fraser in the vicinity of the RSA and LSA (Bouchard and Kennedy 1991; Carlson 2001; Hill-Tout 1902; Kwantlen First Nation 2017; Kwikwetlem First Nation 2017; Musqueam Indian Band 2017a; Neary 2011; Suttles 1955, 2004; Tsawwassen First Nation 2017; Tsleil-Waututh Nation 2017). The locations of Aboriginal settlements were in flux during the early contact period due to the high small-pox mortality rates amongst Aboriginal people as well as the changes brought about through the European colonization of British Columbia. Within the LSA, the urbanisation associated with the growth of New Westminster resulted in changes to Aboriginal settlement patterns. After New Westminster was designated as the Colonial Capital, Aboriginal resource-gathering sites, residences, and villages were overwritten with British urban landscaping and architecture (Scott L 1983). This new Colonial landscape was well established within 50 years of Colonel Moody's arrival in the 1850s. It may never be possible to reconstruct the exact locations of named pre-contact sites and associate them with archaeological materials. However, place names are essential to reconstructing the history of the area, with or without archaeological correlates. The density of place names, stories, historical, and mythological events³ within the RSA is suggestive of the concentration and potential long-term occupation(s) along the Fraser River in the New Westminster and Surrey area. The sites in New

³ The terms legendary, supernatural, and mythological refer to site types recognized as Traditional Use Sites by the British Columbia Archaeology Branch. Some representatives of Aboriginal Groups have stated they would prefer that these events be referred to as recent and ancient history. The terms legendary, mythological and supernatural are used here as they relate to a regulatory standard, and do not reflect an evaluation of the merit or voracity related to these events.

Westminster and along the opposite shoreline on the City of Surrey side of the LSA should be viewed as a distinct interconnected cultural landscape to which a collective community identity is rooted.

North Bridgehead – New Westminster

The City of New Westminster is dominated by a bowl-shaped plateau. In the Project area the landscape is dominated by a relict sea cliff overlooking the Fraser River. The sea cliff is the first spot of high land encountered on the north side of the river as one travels up the Fraser toward the interior and overlooks the first major constriction in the river as one travels inland from the Ocean. Extensive marshes were once present to the northeast, southwest, and west (North et al. 1979). These natural features were impediments to travel and provided defensive advantages to the sea cliff. In addition, the relict sea cliff offers good drainage, excellent accesses to a deep channel for shipping, and is protected by several rivers from overland attack. In earlier times this position allowed some political and military control over vessels travelling up or down the Fraser River through the narrows (Kwkwetlem First Nation 2017; Moody 1859; Scott L 1983).

Named places in New Westminster are associated with villages, resource-gathering locations, seasonal camps, and mythological events. These locales were connected by complex and often long distance transportation networks of trails and waterways and have been identified from ATK provided for the Project, ethnographic sources, historical journals and maps. A description of some of the named places within the RSA follows.

sxəyəmət

sxəyəmət [also *sx'əyəmətm sqaiamət*, *sxwoóymelh*, *sxáyemelh*, *sxwéyemelh*, *sxayemelh*, *sx'áaymət*, *swymuth*, *sqai'amEtl*, *sw'eyuma*] is a significant site in the project area. The term, *sxəyəmət*, may refer to New Westminster as a whole (Neary 2011; Suttles 2004) and a more specific locale. It has been suggested that *sx'əyəmət* represents the general eastern limit of Musqueam Nation territory (Musqueam Indian Band 2017b). Chief Joe of the Tsawwassen indicated that the site of *sxwáymelh* was located in New Westminster at the end of the Railway Bridge, and was associated with sockeye salmon fishing and preparation (Bouchard & Kennedy, 1991). This would suggest the site was south of Royal Avenue and north of Columbia Street as is illustrated on some maps (e.g., Musqueam Indian Band 2017a).

Hill-Tout (1902) has identified that New Westminster was an important seat of the Kwkwetlem First Nation, occupied by high-born members of the community. It is also reputed to have once been a stronghold of the Kwkwetlem First Nation. It has been suggested that funerary boxes placed in trees that lined the high banks of the New Westminster side of the river, and also that in some places ancestral remains were placed inside the hollows of trees that formed beneath the roots (Wolf 2005). It is not clear if these grave sites were affiliated with a specific place or were observed in associated with all of the inhabited places. Information from a variety of sources seems to indicate that *sxəyəmət* was along or immediately adjacent to the relict sea cliff (Bouchard and Kennedy 2001; Hill-Tout 1902; Kwkwetlem First Nation 2017; Musqueam Indian Band 2017a; 2017b; Neary 2011). As a distinct geographical feature, the sea cliff would have been prominent on the landscape for thousands of years (Kovanen and Slaymaker 2017).

sxwóymelh/sxʷəyem (Transformation Site and Transformer Stone)

A more specific location bearing the same name as the general New Westminster area is related to the transformer stone [referred to alternatively as *sʷəyém* (Suttles 2004) and *sxwáymelh* (Carlson 2001)]. The Transformation event has been linked to the location near the Pattullo Bridge or close to Albert Crescent Park (Jenness 1955; Musqueam Indian Band 2017a; Suttles 2004). The man turned to stone (*sʷəyém*) was once an important part of the landscape on the western side of the Pattullo Bridge (Suttles 2004). The location of this stone has been reconstructed on several maps and labelled as *sxwóymelh* (Carlson 2001) and *sxʷəyem* (Musqueam Indian Band 2017a). Many believe the transformer stone is now buried in the fill for the approach to the Pattullo Bridge from New Westminster as was related to Suttles by Simon Pierre (Kwantlen First Nation 2017; Musqueam Indian Band 2017b; Suttles 1955). This supposition is based on an interview in which Simon Pierre told Jenness that the “white engineers” had buried the stone while building the bridge (Jenness 1955). However, others have suggested that the stone will be found farther west under the fill of Prospect Park (Musqueam Indian Band 2017a). Interpreting the location of the event as opposed to the presumed location of the stone can be difficult. However, all potential locations are situated in and around the Albert Park, Pattullo Bridge, and Leopold Place locality associated with the relict sea cliff and thus firmly within the LSA.

ćícəł , qʷa:ńłəl'n, ńsícəłəs

The site of *ćícəł* (also *scli'qən*, *qʷa:ńłəl'n q'wántal*) was likely near or in the location of the old BC Penitentiary, east of the Glenbrook Ravine (Kwantlen First Nation 2017; Neary 2011). The name has been interpreted by some to refer to the high-born or elite individuals who used to live there (Neary 2011). The original village may be documented by cultural materials observed at the protected archaeological site DhRr-1. This site was either very close to or was also known as *ńsícəłəs* [also *ché-tsh-lus*, *chehtch-lus*, *Chitsulus*, *cictəs*]. While the site of *ńsícəłəs* is not in the LSA, it is related to the site of *qəqəyt*, located on the Surrey side of the RSA. It was reported that the land associated with the Government House in New Westminster (now the approximate location of Royal City Manner near the Glenbrook Ravine) was the residence of *ćsəmlenəxʷ* and his family, who were affiliated with Musqueam (Brew 1865; Roy 2007). Other sources have reconstructed the location of *ćsəmlenəxʷ* house as being closer to the mouth of the Brunette River (Musqueam 2017a). When the Royal Engineers (also known as Sappers) set up camp and laid out the town of New Westminster the people living in this area, including *ćsəmlenəxʷ*, were moved across the river to the Reserve in South Westminster that is associated with a portion of the site of *qəqəyt* (Brew 1865). This site or sites were an important stop on a trail network that once connected Port Moody to *qəqəyt*. The trail linking them later became the basis for another transportation corridor connecting New Westminster and Port Moody; namely North Road.

statəłw

The village of *statəłw* [also *stá'telew*, *stótelo*], or little river, is another site said to lie downstream from the site at the BC Penitentiary. Given the evidence from ATK and other available maps (Carlson 2001; Suttles 2004) the site of *statəłw* may have also been in the area around Glenbrook Ravine. There are several named places in this general area, highlighting its importance.

South Bridgehead – Surrey

In the early contact period the Surrey side of the LSA was predominantly a large cranberry marsh. This was bordered by a thin strip of raised land approximately 75 m to 130 m in width that hugged the river shore (**Figure 7.1-A-2, Attachment 7.1-A**). Reconstructions from historical sources suggest that the cranberry marsh was once a significant feature of the LSA, perhaps as large as 1.3 km wide and 5 km long (North et al. 1977, 1979). The marsh was an important resource-gathering area and defensive feature.

q'əq'əyt

Based on early historical accounts it appears that the village of *q'əq'əyt* [alternatively *Kikayt*, *qiqá:yt*, *Qaxqa'yət*, *qiqə*, *qiqéyft*], crossed through the Surrey side of the LSA. The site was used by several Aboriginal communities and likely stretched across a portion of north Surrey (Golder Associates 2009). An approximation of the size of the habitable land may be reconstructed from maps drawn in the early 1800s that show the extent of the cranberry marsh as well as the thin strip of well-drained land along the river bank. One such map produced by Trutch in 1859 shows the likely extent of the land available between the marsh and the Fraser (Anonymous 2012b). Consultation of this map suggests that the strip of raised, well-drained land extended farther west than Old Yale Road, perhaps as far as 104 Street.

Doe (2016) has suggested that *q'əq'əyt* was not a single long village but one of several distinct villages along this raised bank of the river. His research indicated that the village site near Brownsville was called *stéqwó:thel* [also *stəq"əθen*, *stcuwā'cE*] and is illustrated on Simpson's 1827 map. Doe (2016) opined that the site of *q'əq'əyt* was, in fact, opposite Sapperton between Brownsville and Port Mann. This is reflected in the illustration of these places in Carlson and McHalsie's (2001 p. 136) reconstruction. The Stó:lō map shows the site of *qiqá:yt* farther upstream than the Pattullo Bridge. The source also identifies the location as a major town associated with a high-status family known to host major intercommunity gathering, or a "tribal hub." Such hubs are estimated to have had between 400 and 1,200 residents (Carlson 2001, pp. 76-77). The site of *stéqwó:thel*, however, is illustrated further downstream than Brownsville and the name has been translated to mean "across from but facing you" (Carlson 2001, p. 149).

The ancient fishing site of *q'əq'əyt* is identified as having both cultural and spiritual importance for Aboriginal communities (Kwantlen First Nation 2017; Kwikwetlem First Nation 2017; Musqueam Indian Band 2017b; Tsleil-Waututh Nation 2017). This includes seasonal activities such as fishing for and processing of salmon, as well as collecting food and medicinal plants (Musqueam Indian Band 2017b). Musqueam (2017) community members recall the area in and around *q'əq'əyt* as being important for gathering plants used in the production of regalia. Ethnographic and historic sources also mention members of several distinct communities in their descriptions of *q'əq'əyt* (Bouchard and Kennedy 1991; Hill-Tout 1902; Musqueam Indian Band 2017b). This reflects not only shared use of the south bank of the Fraser at the narrows but also the bi-lateral kinship system and the fission-fusion aspects of the social system where people moved between locales and residences with greater fluidity. Kwikwetlem (2017) reports these movements were often referred to by Elders as "going to stay."

The site of *q'əq'əyt* [which some have translated to mean resting place (Carlson 2001 p. 145; Neary 2011 p. 29)] has been associated with the preparation of the dead and ancestral remains (Kwikwetlem First Nation 2017; Neary 2011; Pearson 1960). Several historic informants report that there were once ancestral remains and funerary boxes in the trees associated with Aboriginal settlements, particularly at *q'əq'əyt*

(Pearson 1960; Sheepshanks 1909). In the early post-contact period Aboriginal communities took down the boxes at *q̓əq̓əyt* and buried them in the ground. Some were taken up to Langley IR7 and presided over by Father Durieu (Musqueam Indian Band 2017b; Pearson 1960). Others remained at *q̓əq̓əyt* but were interred in the ground in the village (Anonymous 2010). Also associated with the village of *q̓əq̓əyt* is the Chief's Grave House pictured in **Figure 7.1-A-3 (Attachment 7.1-A)** that was described as being situated opposite New Westminster. This photograph seems to confirm an uncited account by Mather and McDonald (1958) that the use of above ground boxes was part of the suite of burial practices used by local Aboriginal Groups in the 1800s. The exact location of the Chief's Grave in the photograph has not yet been established, and more research is needed to determine if the individual within was also moved to the cemetery at IR7.

The Fraser River and Islands In-Between New Westminster and Surrey

The Fraser River itself is not only an important source of food, and a shaper of the landscapes, but is also a transportation corridor of central importance to Aboriginal Groups who lived, hunted, fished, trapped, and gathered in the Project area. This is clearly attested by named places, historical and mythological events, and known archaeological sites along the river, particularly in the LSA. It is also strongly reflected in the personal statements of local community members (Cowichan Nation Alliance 2017; Haa'yuups 2017; Kwantlen First Nation 2017, Kwikwetlem First Nation 2017; Lyackson First Nation 2017; Musqueam Indian Band 2017b; Tsawwassen First Nation 2017; Tsleil-Waututh Nation 2016). Two islands outside of the LSA but within the RSA have received specific mention by Aboriginal Groups with respect to the Project: Douglas Island and Poplar Island.

Douglas Island and the sand banks adjacent to it are noted as areas used for the acquisition of sturgeon (Musqueam Indian Band 2017). Poplar Island was an established location for the collection of resources and for habitation in the pre-contact era. Local communities also report that other important cultural sites may still exist on Poplar Island.

7.1.2.2.2 Documentary Evidence, Standing Heritage, and Heritage Neighbourhoods

The early history of the Project Area is one of colonisation, urbanisation, and industrialisation. Although Europeans tended to keep the records, which focused more firmly on European history, there were several important groups of people who lived, worked and undertook a range of activities within the Project Area. This included Aboriginal people, European settlers, as well as Chinese and Japanese immigrants, and Pacific Islanders; the latter three often immigrated to British Columbia as indentured servants. It didn't take long after the arrival of the Royal Engineers in 1859 for sharp inequality in demography to be evidenced in New Westminster. For example, in 1865 Birch estimated that the European population of the Colony of British Columbia was approximately 6,000 Europeans, 3,000 Chinese immigrants and 35,000 First Nations (Birch to Carnarvon 31 October 1866). However, in the general area of New Westminster in 1881 European colonists numbered approximately 1,500, the Chinese population was estimated to be over 200 individuals, while Aboriginal Groups numbered just over 200 individuals (Harris C 2004). The following sections attempt to reconstruct some of the historical events and places within the Project area that also contribute to its heritage value, including information about the continuity of Aboriginal occupation and activities into the present day. More information on the post-AD 1846 use of the project area by Aboriginal Groups can be found in **Part C Section 12.0**. The long and rich history of the Project area has resulted in the potential

preservation of heritage resources related to Aboriginal occupations, European colonists, and other immigrants including Chinese, Japanese, and Pacific Islander populations. The boundaries of historical communities relevant to historical heritage resources and discussed in the sections that follow are shown in (Figure 7.1-A-4)

North Bridgehead – New Westminster

European Contact, Changing Demography, and the Movement of People

Contact with Europeans along the coastlines and the interior rivers of British Columbia in the years after AD 1774 led to the transmission of small pox along trade and travel networks far beyond the locales visited by Europeans. This had dramatic effects on people living along the Fraser before AD 1790. The high mortality rates would have resulted in changes to residential mobility and to the groups of people who lived within and adjacent to the Project area. In spite of epidemic disease and economic enticements to move closer to HBC forts people affiliated with a number of Aboriginal Groups were living in and adjacent to the Project area when the Royal Engineers led by Colonel Richard Clement Moody arrived and set up camp in the late 1850s.

Moody's Colonial Town Plan

In response to an expanding American presence on the west coast of the Americas a defensible capital city was required to assert British Crown interests in the Colony of British Columbia. The site of New Westminster was nominated by Moody to be the new Colonial Capital and in 1860 he and the Royal Engineers mapped out a plan for a town that mimicked British urban landscapes (Scott L 1983). However, the thick bush and towering trees that existed in the planned town site had to be cleared before Moody's vision could be realized. This was a massive undertaking that was manned by Gold Miners who came south to New Westminster in the winter, by indentured labour from islands in the tropical Pacific (e.g., Hawai'i), and by local Aboriginal workers – particularly in the spring months (Mather and McDonald 1958; Woodland 1973). The massive stumps left behind were notoriously difficult to remove and had to be dug or burned out of the ground (Mather and McDonald 1958). This process took well over 20 years to complete and the large stumps came to characterise the town site; often referred to as 'Stump City'.

In the mid to late 1800s Aboriginal people were an integral part of local businesses providing both goods and labour. Aboriginal labour was particularly important in the success local canneries. Until 1900s canned salmon was the main export of British Columbia and many of the first canneries were built in New Westminster (Newell 1989). As a result immigrant businessmen (predominantly Europeans), presented an internal resistance to the Government's efforts to remove Aboriginal Groups from the urban centre. In 1862 the New Westminster City Council reported that over 3000 Aboriginal people were visiting the New Westminster and the Reserves set aside for them near the city were not large enough to contain them (Roy 2007). Aboriginal people took up residence where they could and were observed to camp along the city streets, in public squares (including Victoria Gardens and Merchant's Square), as well as in vacant lots. Some individuals also leased land in privately owned lots (McDonald 1947). By 1878 Indian Superintendent Lenihan reported that 800 individuals from Aboriginal communities were living in New Westminster to work at the canneries, and that another 400 had built homes and established permanent residence in the city (Roy 2008). Many of these more permanent residences were likely established close to local canneries

(Harris C 1997). As late as 1889 it was noted that Aboriginal Groups were holding annual fall potlatch ceremonies on Customs House Square (Mather and McDonald 1958) despite the fact the gatherings had been federally outlawed in 1885.

Although some Aboriginal people had established homes in the city, most were living or camping in the Reserves established on the outskirts of town or across the river in Surrey. These Reserves became important economic and social centres for local communities after the establishment of the City of New Westminster. Aboriginal people came from local communities, from further east up the Fraser, and from Vancouver Island to sell handicrafts, produce, and fish in the city, as well as to work, and to meet up and socialize with people from other communities (Kwikwetlem First Nation 2017). This appears to be a continuation of the pre-European pattern, with adjustments to the items and mechanisms of trade.

Albert Crescent Neighbourhood/Downtown

Within the LSA the sites and resource gathering areas on the old sea cliff were transformed into the well-to-do neighbourhood of Albert Crescent (**Figures 7.1-A-4 and 7.1-A-5**). Albert Crescent was conceptualized to mimic the style of upper class British neighbourhoods with gardens and public gathering places, distanced from the trade ports, and industrial areas such as mills and canneries (Hainsworth and Freund-Hainsworth 2005; Scott L 1983). The streets were named after Royal and affluent British figures and abundant parks and green spaces were planned around Albert Crescent Park (Wolf 2005). The survey of Albert Crescent was largely undertaken by the Royal Engineers (Mather and McDonald 1958). Although the final vision of Albert Crescent Park was not achieved until 1889 it was an important space for public gatherings, including May Day celebrations starting in 1862.

The Albert Crescent Neighbourhood has been substantially altered from its original form and many of the houses that were once in the neighbourhood were demolished or moved for the construction of the current Pattullo Bridge. However, during archaeological excavations or construction works historical remains may be uncovered related to the occupation of this neighbourhood in the late 1800s and early 1900s. Some of this may – if in context – be linked to the inhabitants of the homes. Consultation of early Gazetteers and City Directories reveals that several historical figures lived in the Albert Crescent Neighbourhood within the LSA. The list is not exhaustive but provides insights into the members of the community prior to 1920. Residents included Aulay Morrison who became a Chief Justice, was a commissioner of the New Westminster Public Library and also served as a member of the Board of Trade. Morrison was elected as a Liberal member of Parliament in 1896 (Library of Parliament 2018; Waterloo Region Generations 2018). John Forin was a lawyer in New Westminster in the 1890s and was appointed as the County Court Judge in the West Kootney District in 1896 (British Columbia Archives 2018). Forin lived between Alfred Crescent and Dufferin Street in 1891. Another prominent citizen of Albert Crescent was C.E. Woods who lived on Leopold Place. Woods was a land surveyor who made survey maps of the Chilliwack area from 1886 to 1906. During this period Woods also served on the Board of Arbitrators for the Board of Trade (New Westminster Board of Trade 1891). The Captain of the sternwheelers Gladys and Sampson that travelled between South Westminster and Chilliwack, J.A. Robinson also lived on Leopold Place in 1892 (Anonymous 2015). Arthur Shepherd, an assistant Provincial Land Agent and collector of statistics, lived on Columbia Street in the 1890s. W. J. Mathers who was the President of the New Westminster Creamery

Society lived on Dufferin Street in 1908. Mather's home in Burnaby, built in 1912, is a heritage home located in Deer Lake Park (Heritage Burnaby 2018).

Many of the contemporary roads in the LSA were established in the early historical period including Front Street (AD 1868) which was named for its location along the river at the 'front' of the city and along the railway line northwest of the docks (New Westminster Public Library 2017). Columbia Street was established by the Royal Engineers between 1859 and 1863. Important arteries such as these were often paved with corded lumber to assist with travel on foot and by horse and buggy.

The arrival of Europeans to the Colony of British Columbia also required the establishment of a cemetery. The first was set up on two lots that were adjacent to Agnes and Dufferin Street. Based on information from an 1861 map it appears the cemetery proper was located on what are now residential lots; 42 Dufferin Street and 38 Agnes Street (Golder Associates 2017). This burial ground was initially used for the burial of Royal Engineers and their family but when it was officially acquired by the Anglican Church in 1860 it became a denominational cemetery that discouraged use by adherents to other religious beliefs (Pullem 1985; 1992). This prompted a call for a cemetery to be established elsewhere, and one was designated on Douglas Road (at the contemporary location of Eighth Street and Eighth Avenue). In addition there were concerns that the location of the Agnes Dufferin cemetery would create a contamination risk for homes being built downslope from the interments. Despite the establishment of a new cemetery Anglicans continued to use the Dufferin Street Grounds until the grounds at St. Mary's church were consecrated in 1869.

It has been suggested that Aboriginal people began to use the Agnes/Dufferin cemetery at this time and they continued to use it well into the 1870s. Golder Associates (2017) reported that in 1874 the City Council minutes included a specific request that the local police prevent further use of the site by Aboriginal people for burial. In 1908 the Anglican Church lost the Agnes/Dufferin cemetery due to an inability to pay the requisite taxes for it, and the Anglican headstones and interments were moved to the Fraser Cemetery (Pullem 1985). It has been suggested that all non-Anglican interments were moved to the Douglas Street Cemetery at this time (Pullem 1992), however, if unrecorded burials were made at the Dufferin Street Grounds in the past it is possible that some individuals still remain in the old cemetery. An empty lot at 43 Hastings Street is the only portion of the old church grounds that have not been developed. This lot has recently been examined by Golder Associates (2017). Based on information from an 1861 map it appears the cemetery proper was located on land now occupied by residential properties (Golder Associates 2017). It is not clear if any burials may remain in the undeveloped portions of this and adjacent lots.

In 1889 the City of New Westminster invested heavily in municipal upgrades. This included the final clearance and grading of Albert Crescent Park and the establishment of a garden (Wolf 2005). The existing maple trees were left in place and some still stand in and around the park today (City of New Westminster Parks and Recreation n.d). This brought added value to the affluent Albert Crescent Park community.

The original stately homes of residents of the Albert Crescent, and other neighborhoods, have been lost to a variety of municipal demolition orders and both natural and human-mediated disasters. While portions of Albert Crescent within the Project area were spared from the Great Fire in 1898 as industrialisation increased along the waterfront many of the upper class residents of Albert Crescent moved north to the lots west of Queens Park. As a result the character of the community changed in the 1920s. More of the large-scale older

homes were lost in the 1930s due to a combination of non-payment of taxes and a municipal order. The City Council became concerned that the empty foreclosed homes might attract the destitute and homeless. As a result many grand homes were demolished rather than resold or repurposed (Wolf 2005). Of those that remained on the former Alfred Terrace, Busby Street, Alice Street, and Leopold Place several more were moved or demolished to make way for the approach from McBride to the new Pattullo Bridge in the late 1930s (Wolf 2005 p. 152). The area was further altered in the 1950s when the approaches to the bridge were reconfigured. Despite the changes, traces of early Aboriginal occupations and the remains of the Albert Crescent neighbourhood may be encountered as buried heritage resources.

The contemporary Albert Crescent neighbourhood was the subject of a Heritage Resource Inventory in 1990. The researchers concluded that the area was significant for its street patterns and names, as well as its historic buildings (Enns 1990). The Inventory Committee also concluded that aspects of topography, view, and landscaping were critical to the neighbourhood's heritage value – these facts would likely qualify the neighbourhood for protection as a Heritage District under the Guidelines for Canadian Historic Places; if such a designation were pursued (Parks Canada 2011). Further information on the Standing and Historical Heritage Resources associated with the Albert Crescent Neighbourhood can be found in the **Heritage Report Appendix 18.2** and the 2016 Historic Context Statement related to the Downtown neighbourhood (NWNHCSU 2016). It is important to note that aesthetic features of the landscape highlighted in the Heritage Resource Inventory are also valued by contemporary Aboriginal Groups with continued connection to and use of these locations.

Queen's Park

There is no information to suggest that there were specific named places in pre-contact Queens Park (**Figure 7.1-A-4**), however, it would have been part of the local interconnected community of sites, resource gathering locations, and networks of trails and transportation corridors used by Aboriginal people to travel between communities. A great deal of the contemporary Queens Park neighbourhood was surveyed and laid out by the Royal Engineers (Mather and McDonald 1958). Queens Park took on its more contemporary form in 1889 when the whole of New Westminster was being upgraded. Stumps were burned and the vegetation cleared for carefully planned gardens and groves of trees, as designed by Peter Latham. At this time the recreational fields were also established (Wolf 2005). In the late 1800s one of the most popular sports played at Queens Park was lacrosse. Originally an Aboriginal sport, lacrosse was popular across the Colonies with Aboriginal Groups and settlers alike. Aboriginal people from several south coast communities came together to form a local lacrosse team, the Brownsville Indians, who played in the inter-municipal league (Anonymous 2014a). So popular were the sporting events at Queens Park, particularly those featuring the local New Westminster Salmonbellies, that the BC Electric interurban trains put on extra runs to transport all of the spectators to and from matches. Trains were also used to bring people from all over the Lower Mainland to the annual New Westminster Exhibition which moved to Queens Park in 1891 (Mather and McDonald 1958; Wolf 2005). During World War I the exhibitions were put on hold as barracks were established for the military on the grounds (Mather and McDonald 1958). Unfortunately the Exhibition buildings were consumed by a fire in 1929 (Wolf 2005).

Glenbrook South

The neighbourhood of Glenbrooke South (**Figure 7.1-A-4**) occupies the space associated with the pre-contact villages of *ćícəł* or *q̣ʷa:ńłəl'n* and *ťsicəłəs*. In a letter to Governor Douglas in 1859, Colonel Moody noted that the brush was incredibly thick in the Glenbrook area, and he speculated that it would make a prime location for a park (Mather and McDonald 1958; Wolf 2005). Moody also indicated in his letter that he had dubbed the area Queens Ravine, and noted the narrow valley cut by the Glen Creek separated the Royal Engineers camp from the town site.

The original Aboriginal settlements in the Glenbrook area were quickly repurposed and overwritten by encampments and buildings belonging to the Royal Engineers, including a substantial cricket pitch (Brew 1865; Suttles 1993; Wolf 2005). Government House was constructed for Colonel Moody and his family overlooking the Ravine in 1860. When Governor Seymour took over residence of Government House in 1864 he invited local Aboriginal People to celebrate the Queen's birthday with Government officials on the grounds. As a result on May 24th of that year approximately 3,500 individuals from a number of Aboriginal communities came to New Westminster to join in the festivities. Some of the people came from the Thompson River area and further up the Fraser Valley (Seymour to Cardwell 31 August 1864). It is said that between six and seven hundred canoes carried the celebrants. The canoes landed at the Royal Engineers camp and after lunch a program of sports, games and canoe races was undertaken.

The Glen Creek was also critical for fire suppression in the early days of New Westminster. The local fire brigade, also known as the Hyacks received their first Fire Engine in 1863. The engine was drawn by hand by a team of European and Aboriginal Firemen. The engine drew water from the Glen Creek (McDonald 1947). During the celebrations for the Queen's Birthday in 1864 the Royal Engineers camp, along with several other locations, caught fire. The Hyacks were called to extinguish the fire at the Engineers Camp and the engine was pulled by a group of volunteers from the contingent of local and visiting Aboriginal people (Seymour to Cardwell 31 August 1864).

When the Royal Engineers left in 1868 a former Sapper was employed to guard the grounds to ensure that Aboriginal people did not reoccupy the site (Woodland 1973). The site was instead reserved for community events such as the first May Day celebration on May 4th 1870 (Adolph 1996). One of the abandoned buildings was leased in 1871 by Stamp and Deas for the establishment of a cannery (Ralston 1976-77). Canneries such as these often had on site residences for workers, who in the early 1870s were predominantly Aboriginal and Chinese (Newell 1989). The site of the cricket pitch ultimately became the location for the Woodlands Asylum while the Royal Engineers Camp was developed as the site for the Penitentiary. Government House was torn down in 1889 and became the site of the Warden's House for the prison.

Infrastructure for the Woodlands buildings and the Penitentiary included a dam across Glen Creek in the ravine above the institutions to facilitate drawing of water from the creek. By 1879 issues with continued siltation and susceptibility to frost led to the excavation and maintenance of the fresh water pipes (Adolph 1993). In 1881 a significant portion of the dam (21 feet) was washed away during the spring melt (Adolph 1993). In 1892 the Woodlands buildings were connected into the New Westminster fresh water supply from Coquitlam Lake allowing for the abandonment of the Glen Creek source (Adolph 1993). The creek was enclosed in a pipe in 1912 as part of the Glenbrook Sewage project and the Ravine was substantially

altered in 1929 when the terrace on the northeastern side was excavated and shaped into a low hill that was necessitated to keep prisoners from escaping into the wild ravine lands (City of New Westminster Parks and Recreation n.d.).

The BC Interurban Line and the New Westminster Railway Bridge

The first of the interurban trolley cars associated with the BC Electric Railway (BCER) Company began running in New Westminster in 1891. The expansion of this service had many impacts on the Project area including the establishment of track through Albert Crescent and Queens Park. The line travelled east from Columbia Street up Leopold Place and then west along Royal Avenue to a horseshoe shaped loop that proceeded northwest up the hill through Park Row and First Street to travel past Queens Park (Ewert 1986). In 1900 a line was added along the Columbia Street line to follow Cumberland Street to Royal Columbian Hospital (Ewert 1986). The first line through Queens Park was installed in 1903 and served mainly as a freight line for the Brickworks that were located northeast of McBride Boulevard above the Penitentiary (Ewert 1986).

The popularity and expansive nature of the BCER led to mounting pressure for a Railway Bridge to expand the BCER Interurban line into the Fraser Valley. In 1904 the Railway Bridge opened providing the first link between Brownsville and New Westminster that did not involve water craft. The placement of the contemporary railway bridge was chosen not only to take advantage of the narrows in the river, but also the highest point of land on the northern end of the bridge. This made for a more manageable grade for pedestrians and wagon traffic to enter and exit the upper level deck (Sanford 2004). However, this same feature created engineering issues for trains using the lower deck leading to the spread span design at the north end of the bridge (Sanford 2004). On the Surrey side the installation of more than 3000 cedar piles was required to provide support for two rail trestles, one for the railway and one for the roadway (Sanford 2004). The construction of the trestles immediately abutted the Musqueam IR1 and Kwantlen IR8 lands that are discussed in more detail in the following section.

The next major change to the Project area came, of course, with the establishment of the Pattullo Bridge in the 1930s. Not only did the establishment of the Pattullo Bridge lead to a change in rail traffic that could use the railway bridge, the Columbia Street overpass was not constructed with consideration for electric streetcars – leading to the end of the BCER network in New Westminster (Sanford 2004). Landscape and topography changes in the LSA have continued into the present day as can be observed in the 1950s change in road access to the Pattullo and the reference concept for the Project.

South Bridgehead – Surrey

In July of 1808 a group of Aboriginal people inhabiting a fishing village on the banks of the river were visited by Simon Fraser. The records indicate that the village was equipped with two rows of plain houses, which were in contrast to some of the more ornate long houses Fraser had recorded farther up the river. This village was most likely *q̓əq̓əyt*, although alternative interpretations have been offered, including the suggestion the village Fraser visited was at Port Hammond (Doe 2016). In 1858 Kennerly reported that there were extensive huts in the village of *q̓əq̓əyt*, (Bouchard and Kennedy 1991). Just a year later Brew reported the village was abandoned (Brew 1865). This may reflect changing demographic profiles during

the push by Europeans to colonize New Westminster, or it may reflect the season. Brew's letter was written in January, outside of the salmon season and a period when the village was traditionally unoccupied.

Establishment of Reserves

In 1861 a portion of the site of *čəpəyt* and the cranberry marsh beyond was set aside as a Colonial Indian Reserve (Crockford 2010; Turner 1861). The initial purpose of this Reserve was as an area where Aboriginal Groups could camp while they were near New Westminster for work, trade, fishing, or visiting. The stated use of the Reserve land was not restricted to a specific community and was not anticipated to be a permanent settlement (Roy 2008). The original reserve was 104 acres; however, the size of the Reserve was significantly reduced in 1868 with the remainder allotted to Samuel Herring (Anonymous 2013; Ford 1999). In 1871 the portion of that Reserve land within the LSA was designated Musqueam IR1, an adjacent area was designated as Langley IR8, and the remainder of the original Colonial Reserve was set aside as a New Westminster Reserve for other Aboriginal Groups to use while in the area (Crockford 2010; Roy 2008). The third unassigned Reserve is remembered within the oral histories of several Aboriginal Groups (Kwikwetlem First Nation 2017). Due to increasing efforts to keep Aboriginal people out of urban areas, and to provide more land for pre-emption by European settlers, the general New Westminster Reserve in South Westminster was decommissioned in 1891 (Crockford 2010; Roy 2008). The small 5.16 acre IR1 and IR8 properties were retained.

Musqueam IR1 was officially recognized as a Reserve for the Musqueam community in 1878. This was, in part, due to the fact that a Musqueam Chief *čsəmlənəx^w* was living in the area at the time after being evicted from his house in the Glenbrook area (Brew 1865). A specific Reserve for Kwantlen First Nation was established in 1879, although maps from the period suggest Kwantlen First Nation people were living in the area already (Crockford 2010; Neary 2011). People who lived and camped in the Reserves were working at local canneries, both as fishermen and labourers, as longshoremen, millers, hop pickers, and continued the production of traditional handicrafts for a European market (Oliver 2013; Royal Commission on Indian Affairs 1916). Seeds and seedlings were imported in vast numbers from the United States and other Canadian provinces and were given to Aboriginal Groups living on Reserves in an attempt to encourage the adoption of arboriculture (Dominion of Canada 1890b; Kostuchenko 2000). The fruit, including peaches, plums, cherries, pears, and apples were then sold in the local markets (Dominion of Canada 1891). Evidence for several of these species was recovered from archaeological excavations at Musqueam IR1 in 2017 (ARCHER CRM Partnership 2017b). While European domestic plants and animals were introduced and tended at Musqueam IR1 and Langley IR8 in the late 1880s, people still relied on fishing for economic support rather than agriculture (Dominion of Canada 1891).

The Musqueam IR1 land allocation in 1879 was 5.16 ha. The history of subsequent land allotments and reductions are summarized here, although it is not a comprehensive account. In 1891, 2.7 acres of IR1 were sold to the New Westminster Southern Railway for a right-of-way (ROW) (Government of Canada 1881). The land purchase was made in order to facilitate connections to the Fraser Valley by the BCER once the railway bridge was built. This ROW bisected the Reserve, introduced a great deal of noise and traffic, and interrupted access to the shoreline which was the primary means of accessing the property and getting across the river to New Westminster. As discussed in the previous section the establishment of the Railway Bridge required the installation of two trestles that wrapped around the northwestern and

southeastern portions of Musqueam IR1 bringing rail, pedestrian, horse and carriage, and eventually vehicular traffic to their settlement (Sanford 2004). In 1923 the South Westminster Dyking Commission appropriated 0.28 acres of land across IR1 and IR8 for the establishment of a dyke immediately south of the rail line (Roy 2008). In 1924, the Province of BC was granted 0.53 acres of IR1 for a Bridge Approach ROW (Department of Mines and Resources 1943; Government of Canada 1924). Finally, in the 1940s dredge materials were deposited on the IR1 lot without permission (Roy 2008). This also served to extend the foreshore into the river, further distancing the residents of Musqueam IR1 from the river, a main transportation route and a source of economic independence (Roy 2008).

Regional Infrastructure

Connecting the regional centres within the colony and also encouraging trade and traffic from the United States required the development of transportation infrastructure. As part of this push a road was established between Brownsville and the United States Border by way of Liverpool in Port Mann. The survey and clearance of the road was undertaken in the spring and summer of 1888 using Aboriginal workers to remove the vegetation along the route (Anonymous 2014b). By the fall of 1888 the area had been graded using gravels acquired in Port Kells (Anonymous 2014b). The railway was not established along this route until 1891 when the Great Northern Railway extended their line from Liverpool (contemporary Port Mann) to the South Westminster Port just west of Brownsville, to tie into dock and ferry facilities at Mud Bay Road (Sanford 2004). The construction of the railway was largely undertaken by Chinese workers, except during the height of canning season, when European labour was required to fill the gaps.

Many of the early roads were planked or corded to allow for travel over the muddy and uneven terrain of dirt roads. The use for planks as road base was particularly important on the Surrey side of the project area as much of the land was cranberry marsh. Early planked roads included Mud Bay Road – the northern end of which is now called Tannery Road (Sanford 2004), Old Yale Road or the Semiahmoo Wagon Road, and the Pacific Coast Highway – which the route of King George Avenue now largely follows. In 1919 the increased use of automobiles led for a call to pave the Pacific Coast Highway, starting at the New Westminster Railway Bridge and ending at the Port Mann area. The paving began in 1920 and in the marshy flats peat was excavated and the voids filled with cedar and gravels to provide a more suitable roadbed, less prone to flooding (Anonymous 2011a).

South Westminster

South Westminster (**Figure 7.1-A-4**) was originally purchased and developed out of necessity when the city of New Westminster developed a wharf in Surrey to provide direct ferry services between incoming trains and the New Westminster markets (Sanford 2004). In order to stifle public outcry for expenditures outside of the municipal boundaries the city purchased the land around the wharf in 1886. The land included Lots 2, 3, and 4 in Group 5 which extend from west of Brownsville to the Musqueam IR1 Reserve lands. These lots along the Fraser are now occupied by Brownsville Bar Park and the Brownsville RV Park (Anonymous 2011b). As a result South Westminster is one of the oldest Colonial neighbourhoods in Surrey. Within the LSA the community of South Westminster includes lands pre-empted for agricultural and other uses by Ebenezer Brown, John Herring, and John Robson. Ebenezer Brown was a successful merchant and businessman who established the wharf at South Westminster and gave his name to the community

of Brownsville (Anonymous 2010). Brown's attempts to improve transportation between the Fraser River and his properties in south Surrey led to his investments in the road from Brownsville landing to the US boarder; now Old Yale Road. In the 1870s and early 1880s Brown served on the Legislative Assembly of British Columbia. John Robson was affiliated with the British Columbian newspaper and became a critical figure in British Columbia's participation in Canadian Confederation. Robson was twice elected as Premier of British Columbia (1871-1873 and 1882-1892) (Library and Archives of Canada 2005). Excavations and construction in these lots may reveal historical artifacts or features related to the occupation and use of these lands by notable historical figures in the mid to late 1800s and early 1900s.

Initially recognized as a natural confluence point for early trails, South Westminster's historical importance relates to its location on the Fraser River and its use as a transportation hub for people and goods. It was home to the community of Brownsville, which by 1910 had two hotels, a school, and a grocery store. Brownsville was originally established in the 1870s as part of the Semiahmoo Wagon Road that connected Brownsville Wharf with the international border. It was the location of the earliest cannery, English and Company, which was for a time the largest cannery on the Fraser. Initially this cannery was mainly staffed Chinese and Aboriginal women; Aboriginal men were employed to work fishing boats owned by the Cannery. Brownsville Bar waterfront park is still used today for pulling canoes (Musqueam Community Meeting, January 2018) and is a popular recreational and fishing amenity, connected to New Westminister by the nearby Pattullo Bridge (Musqueam 2017a).

Modern heritage characteristics of the South Westminister Neighbourhood include early transportation infrastructure in the form of trails, roads, and railways, as well as the industrial and commercial ventures that dotted the highways and railway stations. The green spaces have been developed to follow the paths of original creeks and sloughs and across the community there are views and relatively easy access to the Fraser River.

Bridgeview

Named for its proximity to the Pattullo Bridge, Bridgeview (**Figure 7.1-A-4**) is significant for its history. Early land pre-emptions within the project area included land farmed by Samuel Herring and John Robson. As time progressed Bridgeview gained its contemporary character as a modest neighbourhood of local workers. In the early 1900s it was a neighbourhood where many employees of the BC Penitentiary in New Westminister lived and crossed the Fraser River by boat to get to work. Today, the area is a multi-ethnic community with a suburban-rural character that is distinguished by its wide, ditch-lined streets suited to its low-lying topography, the views to the Fraser River and the Pattullo Bridge, as well as the Bridgeview Community Hall which is a focal point for neighbourhood activities.

The Fraser River and Islands In-Between New Westminister and Surrey

Even in the years after 1860 the Fraser and other waterways in the Lower Mainland remained essential travel corridors while the towns and arteries between them were established. The roads were only rarely lined with cedar and thus became muddy and inundated in the winter months. Well into the late 1890s travel on water was far preferable to travel by road (Woodland 1973).

Poplar Island was established as a general New Westminister Indian Reserve in 1879. After the smallpox epidemic in 1889 a very small quarantine facility was hastily built on the island to accommodate local small

pox cases. The people sent to the Poplar Island facility tended to be those that were considered lower class people, particularly those who lived in the 'swamp' area of town bounded by Columbia, Tenth, Blackie, and Carnarvon streets; an area that was later established as New Westminster's Chinatown (Wolf and Owen 2008). Aboriginal people not placed in the McBride Boulevard quarantine centre were sent instead to Poplar Island.

The records suggest the use of this facility in 1889 was short: only two months. More research is required to understand who was sent to the Poplar Island Reserve during the 1889 small pox epidemic and who, if anyone, may have been buried there. This search may be complicated by the fact that many of the Public Health records were lost in the Great New Westminster Fire in September of 1898.

In the early 1900s the New Westminster and Poplar Island Reserve lands were claimed by Kwantlen First Nation, Musqueam Nation, Squamish Nation, and Tsawwassen First Nation (British Columbia Royal Commission on Indian Affairs, 1913-1916). The claims were not recognized by the Federal government and the New Westminster City Reserve, as well as the Poplar Island Reserve were officially cut off and removed from the Schedule of Reserves during WWI (British Columbia Royal Commission on Indian Affairs, 1913-1916). Shortly thereafter Poplar Island was cleared for the establishment of a military shipyard to supply the war effort. The clearance of the island purportedly took only 30 days and included the construction of a bridge between the island and the city of New Westminster (Wolf 2005).

7.1.2.3 Data Sources

A variety of sources are used to undertake desktop and field assessments. The existing literature is consulted to identify landscape areas typically associated with cultural features and materials protected by the *Heritage Conservation Act*. Where available ATK and ethnographic literature is also consulted for discussions of past land use. In addition local heritage registers and inventories for New Westminster and Surrey, and the Canadian Register of Historic Places, were reviewed for information about previously identified historical heritage resources in or near the LSA and RSA. The resource information covered:

- Remote Access to Archaeological Data (RAAD), Heritage Resource Inventory Application (HRIA), Provincial Archaeological Report Library (PARL).
- Ethnographic information.
- Historical records including journals, maps, air photos, letters, sketches, etc.
- Reconstructed landscapes, vegetation maps, and lost streams.
- Heritage resources included on a *heritage inventory*, which is a listing of heritage resources that a community, local government, group, or individual has identified as having heritage value, based on particular criteria. Listing on a heritage inventory does not require formal recognition by local government and does not imply protection of a heritage resource.
- Heritage resources included on a *heritage register*, an official list of historic places in a community that have been formally recognized for their heritage value by local governments, regional governments and/or the Province, using heritage conservation powers available in the *Local Government Act* and the *Heritage Conservation Act*.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART B SECTION 7.1 HERITAGE RESOURCES

- *Designated* heritage resources, which consist of property that has been protected by a local government bylaw, on terms and conditions it considers appropriate, in whole or in part under Part 15, Section 611 of the *Local Government Act*.

Table 7.1-5 presents a summary list of the studies specifically related to Aboriginal Traditional Knowledge (ATK), heritage resources, and baseline conditions reviewed during the assessment of heritage resources for the Project. For a more comprehensive list of sources used in the development of the archaeological potential model discussed in **Section 7.1.2.1.1** please see the AOA (ARCHER CRM Partnership 2018) and the **Historical Heritage Report Appendix 18.13**.

Table 7.1-5 Summary of Studies Related to Heritage Resources

Study Name	Study relevance/purpose
PROJECT SPECIFIC ABORIGINAL REPORTS	
Lyackson First Nation Traditional Land Use and Mapping Study	ATK information for the current study area.
Kwikwetlem First Nation Traditional Knowledge and Cultural Heritage Interests Relating to the Pattullo Bridge Rehabilitation Project	ATK information for the current study area.
Musqueam Indian Band Knowledge and Use Study: TransLink's Pattullo Bridge Replacement Project	ATK Information for the current study area.
Tsleil-Waututh Nation Traditional Use Study Review in Relation to the Pattullo Bridge Replacement Project	ATK information for the current study area.
Kwantlen Land Use and Occupation in the Vicinity of the Pattullo Bridge	ATK information for the current study area.
Ts'uubaastx Interests: Pattullo Bridge Replacement Project 2017 (Lake Cowichan First Nation)	ATK information for the current study area.
Tsawwassen First Nation – Pattullo Bridge Replacement: Project Impact Study	ATK information for the current study area.
Pattullo Bridge Replacement Project: Cowichan Nation Alliance Strength of Claim Report	ATK information for the current study area.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART B SECTION 7.1 HERITAGE RESOURCES

Study Name	Study relevance/purpose
ETHNOGRAPHIC INFORMATION	
Cultural Heritage Sites Literature Review – Kwantlen Territory Knowledge Project	Ethnographic resource.
Musqueam Online Mapping Portal – Place Names. Electronic document	Traditional place names and archaeological sites within the study area.
A Stó:lō Coast Salish Historical Atlas	Maps of traditional place names and information related to the pre-contact and post-colonial use in the study area.
ARCHAEOLOGICAL INFORMATION	
Archaeological Impact Assessments under the following permit numbers: 1978-006; 1993-032; 1999-003; 2010-002; 2010-0234; 2011- 0112; 2014-0154	Details archaeological assessments previously undertaken within the current study area.
Remote Access to Archaeological Data (RAAD)	The web interface for archaeological assessments. Checked regularly for updates to sites within the LSA.
Archaeological Overview Assessment for the Proposed Pattullo Bridge Replacement Project	Provides a desktop assessment of potential within the current study area as an appendix to this report.
HISTORICAL INFORMATION	
Goad's Atlas of the City of New Westminster	Provides Lot information related to parts of the Albert Crescent neighbourhood that were demolished for the construction of the Pattullo Bridge.
Streets of New Westminster. Electronic resource	A resource for the establishment of major streets in New Westminster and name changes over the years. Will be used in the historic part of the heritage resources assessment.
New Westminster Heritage Resource Inventory: Albert Crescent a Supplement to Volume 2	Provides information about the Albert Crescent Neighbourhood and the concerns of local heritage groups with respect to its future development.
Vegetation of the Southwestern Fraser Lowland, 1858-1880	Used to assist with modelling the extent of the cranberry marsh on the Surrey side of the Project area.
A Brief Guide to the Use of Land Surveyors' Notebooks in the Lower Fraser Valley, B.C., 1859-1890. B.C. Studies, 34: 45-60.	Used to assist with modelling the extent of the cranberry marsh on the Surrey side of the Project area.
GeoBC	A database that identifies geographical and community place names, their origin, meanings, and history.
Land of the Royal Kwantlen: a history of North Surrey, BC	A resource for historic information related to Surrey.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART B SECTION 7.1 HERITAGE RESOURCES

Study Name	Study relevance/purpose
HERITAGE INFORMATION	
Technical Data Report, Heritage Resource Assessment, George Massey Tunnel Replacement Project	A technical data report describing the methods and results of the heritage resources assessment within the LSA and RSA of the George Massey Tunnel Replacement Project, including archaeological and historical sites, objects, and features that comprise the heritage resources valued component, and a determination of whether the Project would adversely affect them.
Heritage Significance and Conservation Opportunities for the Highway 99 Corridor and the George Massey Tunnel	A heritage assessment study providing historical information about the development and evolution of the Highway 99 corridor and the George Massey Tunnel, downstream of the Pattullo Bridge, along with an assessment of their heritage significance and recommendations for conservation, commemoration, and interpretation.
Cultural Heritage Evaluation and Heritage Affect Assessment of the Hillsburgh Dam Bridge	An example of a heritage impact assessment for a bridge of comparable scale and timeframe as the Pattullo Bridge, providing a baseline reference and comparison for the current study.
Official Community Plans for New Westminister and Surrey	Outlines of general policies and approaches to the identification and protection of heritage resources.
New Westminister Heritage Resource Inventory. Downtown, Glenbrooke South, Uptown, Queen's Park, and Albert Crescent	History and information about identified heritage features in New Westminister neighbourhoods and the concerns of local heritage groups with respect to its future development.
City of New Westminister. Community Profiles for Downtown, Glenbrooke South, Uptown, and Queen's Park	Demographic, historical, and other information about the individual neighbourhoods.
City of Surrey. Heritage Strategic Review	Outlines context and strategies for the identification and protection of Surrey's heritage resources.
City of Surrey. Bridgeview Industrial Area Development Strategy 1995	Historical background and proposed development of the Bridgeview neighbourhood in Surrey.
City of Surrey. South Westminister Opportunities and Strategies 1998	Historical background and proposed development of the South Westminister neighbourhood in Surrey.
Ministry of Transportation and Highways. <i>Pattullo Bridge Information Manual</i> c.1980	History, information, and technical details on the design and construction of the Pattullo Bridge.

7.1.2.4 Current Conditions

The current landscape of the Project area consists of layers of overlapping historical developments as discussed previously in **Existing Conditions**. The first inhabitants of the LSA used the area intensively in the millennia prior to contact. This is evidenced by the number of archaeological sites identified in the area, and the density of named places identified by Aboriginal Groups. The LSA was a well-known hub for fishing, trade, and cultural events prior to the arrival of Europeans. Many of these activities still occur in the LSA

and RSA today. The contemporary landscape within the LSA has four main uses; residential, transportation (roads, rail, and water), recreation (e.g. Brownsville Bar and Queens Parks), and industrial (e.g., Amix Recycling).

Several heritage resources assessments were undertaken to address data gaps in the current literature regarding the density and distribution of heritage resources in the Project Area. This included an archaeological overview assessment (ARCHER CRM Partnership 2018), an archaeological impact assessment (ARCHER CRM Partnership 2017a, 2017b), and a historical heritage study (Cook 2017). This has resulted in the identification of three new archaeological sites, an archaeological potential model for the entire LSA and shoreline portions of the RSA and the identification of 12 heritage homes that may be affected by the Project. These results are presented in the subsections that follow and are divided geographically and by both their status as protected and unprotected and also by their context; buried or standing.

7.1.2.4.1 North Bridgehead

Protected Buried Heritage Resources

DhRr-376

The archaeological site of DhRr-376 is located in the LSA on the New Westminster side of the Pattullo Bridge. Archaeological and historical materials have been recovered from this site. After consultation with several individuals who worked on the Millennium line portion of the SkyTrain that runs beneath DhRr-376 it has become clear the recovered cultural materials are disturbed and may also be locally displaced. The SkyTrain was installed using a cut and cover method and thus the entire area underlying DhRr-376 had previously been excavated leaving no intact soils and sediments. Excavated sediments were either stockpiled for backfilling or sent to the landfill at the Katzie Indian Reserve in Pitt Meadows (Arcas Consulting Archaeologists 1999). As a result it will never be clear whether the recovered materials are from heavily disturbed local deposits or represent imported fill. The material remains that may be recovered from these sediments may be disturbed and/or displaced, but they are still protected under the HCA.

DhRr-418

DhRr-418 is located in an area that was once along the edge of a relict sea cliff with a commanding view of the Fraser River to the southeast and northwest. The locale would have been easily defensible, and a lost stream has been reconstructed in the area (Precision Identification Biological Consultants 1998). This stream would have provided fresh water for a settlement in the past. The age of this sea cliff may have provided opportunities for people to live in the area thousands of years before other known sites across the Fraser River in the lowlands and marsh edges were occupied. Archaeological materials were recovered in 2017. The current condition of the site at this depth is unknown as testing was suspended due to conflicts with existing active utilities.

DhRr-419

The site of DhRr-419, along with DhRr-376 and DhRr-418, is located near the Fraser River edge of the relict sea cliff. Both archaeological and historical remains were recovered during the impact assessment, but no discrete intact archaeological deposits were identified.

DhRr-420

The site of DhRr-420 is set back from the edge of the sea cliff, but is still close to DhRr-376, DhRr-418, and DhRr-419. A few of the stone objects recovered during shovel testing appear to be from an intact archaeological deposit. Radiocarbon dating of this deposit suggests it is approximately 800 to 900 years old. This is the only directly dated, intact archaeological deposit currently documented along the Fraser River in New Westminster (ARCHER CRM Partnership 2017a).

Agnes/Dufferin Cemetery

The Dufferin Street Grounds once held the first cemetery in the Colonial Capital. Historical sources suggest that individuals buried in this Anglican Cemetery were exhumed in 1908 and moved to other cemeteries (Pullem 1992). The possibility remains, however, that some individuals are still interred here. Golder Associates (2017) undertook work at the only undeveloped lot on the old church grounds but the cemetery proper was on land that is now private residential property.

Unprotected Buried Heritage Resources

Work within the LSA corridor on the New Westminster side has the potential to encounter a range of historical objects related to the early European settlement of New Westminster, particularly those associated with the Albert Crescent Neighbourhood. Archaeological assessments have already uncovered a clay pipe stem, ceramics, and other refuse related to occupations in the late 1800s and early 1900s. It is likely that other locales within this neighbourhood will result in the recovery of disturbed and intact historic stratum and materials. It is anticipated that the objects recovered from these works will include those belonging to resident upper class European families, to people who came to use the public green spaces (such as Albert and Queens Park), and those of minority groups living in these area. For example, due to a lack of suitable young British servants in New Westminster, Chinese people filled the gap by providing domestic support to affluent New Westminster citizens (Wolf and Owen 2008). As a result archaeological excavations may reveal distinct objects that are associated with European and non-European immigrants working, and perhaps living, in these neighbourhoods in the past. Objects and features associated with the post-AD 1846 occupation of the Albert Crescent area are not automatically protected but may be of interest to stakeholder groups including local historical societies, heritage planners and museum curators in the New Westminster municipal government.

Protected Standing Heritage Resources

Two designated heritage resources are located in the LSA; the former Woodlands Asylum grounds and cemetery, and a section of the Woodlands Wall (DhRr-67). A complete listing of protected standing heritage resources in the RSA can be found in **Table 7.2-A-1** and the Historical Heritage Report (Cook 2017).

DhRr-67

A portion of Woodlands Wall dated to AD 1909 that intersects with the Project area was conferred formal protection under the *Local Government Act* in 2003/2004. The standing structure is a concrete and wrought iron fence that borders Columbia Street to the north. The Woodlands Wall is part of the Woodlands complex and is one of the few remaining structures.

Woodlands Grounds (DhRr-47, DhRr-48, DhRr-49, DhRr-65, DhRr-66, and DhRr-67)

All of the Woodlands buildings have been demolished. The Woodlands grounds are now occupied by a variety of newer buildings, including large residential complexes. Regardless, the grounds are still protected under a Heritage Revitalization Agreement. Only a small portion of the Woodlands grounds are included within the LSA and most of the protected components are located in the RSA. Due to the holistic nature of the Heritage Revitalization Agreement all of the components are included in **Table 7.1-6**, however, those that are in the LSA and RSA are clearly differentiated.

The heritage values of the Woodlands site lie in its historical and cultural significance, and is tied its age, architectural style and construction, and its association with notable New Westminster architect G.W. Grant, as well as for its significant role in the history of public health in the province A memorial garden was opened in 2007 in association with the Asylum cemetery.

Table 7.1-6 Protected Historical Resources North Bridgehead

Site Identifier (Borden Number)	Address	Name	Heritage Status	Bylaw #	Year of Designation	LSA or RSA
DhRr-47		Woodlands School Main Building	Heritage Revitalization Agreement	6868	2003	RSA
			Municipal Designation	6874	2004	
DhRr-48	12 East Royal Avenue	Woodlands Nurses' Lodge	Heritage Revitalization Agreement	6868	2003	LSA
			Municipal Designation	6874	2004	
DhRr-49		Woodlands Boiler House/Steam Plant	Heritage Revitalization Agreement	6868	2003	RSA
			Municipal Designation	6874	2004	
DhRr-60		BC Penitentiary Gaol Block	Municipally Designation	5968	1990	RSA
DhRr-65		Woodlands Recreation Centre	Heritage Revitalization Agreement	6868	2003	RSA
			Municipal Designation	6874	2004	

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART B SECTION 7.1 HERITAGE RESOURCES

Site Identifier (Borden Number)	Address	Name	Heritage Status	Bylaw #	Year of Designation	LSA or RSA
DhRr-66	245 Francis Way	Woodlands Carpenter Shop	Heritage Revitalization Agreement	6868	2003	RSA
			Municipal Designation	6874	2004	
DhRr-67	9 East Columbia Street	Woodlands Wall	Heritage Revitalization Agreement	6868	2003	LSA
			Heritage Designation	6874	2004	
			Municipally Designated		2004	
DhRr-93		BC Penitentiary Gatehouse	Municipally Designated	6132	1993	RSA

Unprotected Standing Heritage Resources

Heritage resources include buildings, streetscapes, landscapes, and engineering or industrial works. Buildings can be structures related to habitation, business, government, cultural, or social functions. Streetscapes consist of groups or collections of heritage buildings along with their context. Heritage landscapes are exterior spaces that have cultural meaning or are the result of human mediated changes to natural landscapes for aesthetic, cultural, or functional reasons. Engineering works include civil, industrial, or military infrastructure that contributes to services, transportation, or production.

A number of standing heritage resources in the LSA and RSA are listed on the heritage inventory and community heritage register of New Westminster. A Heritage Inventory is a list of resources that have been identified as being of interest to local stakeholders but are not formally recognized. In contrast a Heritage Register provides formal recognition but not formal protection. A full listing of resources on the heritage registers of each municipality that are within the LSA can be found in **Table 7.2-B-1** in **Attachment 7.2-B**.

Twelve heritage properties that are on the New Westminster Heritage Register represent standing heritage in the contemporary neighbourhood. This includes several lone houses and more uniquely a cluster of seven listed Heritage Homes on the same block bounded by Wellington, Hastings, Dufferin, and Agnes Streets. This cluster includes homes at 37 and 41 Wellington Street that were built in the 1890s. Albert Crescent and Queens Parks are also recognized for their heritage value but not formally protected.

The Pattullo Bridge may be viewed by some as a heritage resource, as it was established as a critical link for the Pacific Highway to the south and the Trans-Canada Highway to the east. The Pattullo Bridge and its road networks were essential to the growth of tourism. Traces of this past importance are found in gas stations, garages, cafes, hotels, and other services that lined the routes, including auto camps, one of which was located in Queen's Park in New Westminster.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART B SECTION 7.1 HERITAGE RESOURCES

Aside from its physical condition, the Pattullo Bridge generally retains a high degree of historical integrity. It remains in its original location, which is integral to its heritage value as a historical connection between New Westminster and Surrey, and to its role in the Lower Mainland and provincial highway systems. Its original materials are intact, aside from the replacement of one small approach span and a section of wooden trestle. Alterations and repairs made to the bridge over the years have not negatively affected its heritage value to any degree. In fact, it tells the story of the bridge having been adapted over time to suit new circumstances, including increases in population and vehicular traffic.

The bridge demonstrates historical integrity of location and setting. Other character-defining features not formally identified as heritage resources by local governments or the province contribute to the heritage value, character, and context of the Pattullo Bridge within the LSA and RSA. Documentation of these features can be found in **Appendix 18.13**.

Table 7.1-7 Unprotected Historical Resources North Bridgehead

Site Identifier (Borden Number)	Address	Name	Heritage Status	Bylaw #	Year of Designation
DhRr-195	119 Royal Avenue	Marshall Martin English House	New Westminster Heritage Register	6684	2002
DhRr-297		Queens Park	Community Heritage Register Council Resolution		2009
DhRr-427		BC Penitentiary Wharf Warehouse	Community Heritage Register	n/a	2008
		Albert Crescent Park	New Westminster Heritage Inventory		
	50 Leopold Place	n/a	New Westminster Heritage Inventory		
	37 Wellington Street	n/a	New Westminster Heritage Inventory		
	41 Wellington Street	n/a	New Westminster Heritage Inventory		
	35 Hastings Street	n/a	New Westminster Heritage Inventory		
	38 Agnes Street	n/a	New Westminster Heritage Inventory		
	44 Agnes Street	n/a	New Westminster Heritage Inventory		
	38 Dufferin Street	n/a	New Westminster Heritage Inventory		
	42 Dufferin Street	n/a	New Westminster Heritage Inventory		
	55 Dufferin Street	n/a	New Westminster Heritage Inventory		

Site Identifier (Borden Number)	Address	Name	Heritage Status	Bylaw #	Year of Designation
	12 Royal Avenue	n/a	New Westminster Heritage Inventory		
	38 Royal Avenue	n/a	New Westminster Heritage Inventory		
		Remnant dock at Fruit Cannery	Not listed		
		Pattullo Bridge	Not listed		
		1904 Railway Bridge	Not listed		

7.1.2.4.2 South BridgeHead

Protected Buried Heritage Resources

DhRr-2

Archaeological site DhRr-2 is situated in the LSA near the old town of Brownsville and is likely to represent part of the ancient village of *q̓oq̓yt*. In 2010, Golder Associates (2011) encountered archaeological deposits in this site. Cultural materials included historic debris and pre-contact era materials such as stone tools. Radiocarbon dates suggest the site is approximately 1,000 years old. In 2014 ARCHER (2016) recovered a single stone flake from a shovel test in the area and extended the boundaries of the site.

Due to weather conditions in the early part of 2017 (i.e., record rain and snowfalls) no work was undertaken at DhRr-2 as part of the 2017 assessment. Further work will be required to establish the full extent of the site and determine how much of the site remains intact. These details will assist in collaborative assessment of the potential impacts of the decommissioning of the existing Pattullo Bridge on local archaeological resources.

DhRr-74

The boundaries of site DhRr-74 were drawn based on finds of pre-AD 1846 cultural remains (e.g., stone tools, animal bones, and plant remains) in the northeastern extent and also to include the post-AD 1846 lot boundaries associated with historical Reserve sites. The locality in and around DhRr-74 is well-known from ethnographic and historical accounts as an important fishing site and was later designated Reserve land.

Although it was thought for some time that the site of DhRr-74 may have been destroyed (Ham et al. 1979), Golder Associates (2011) undertook work on the southwest side of DhRr-74 in 2010, and AMEC (2013) investigated the northeastern end in 2011/2012. These investigations resulted in the recovery of a range of archaeological and historical materials that included a variety of tools made of stone, bone, and wood, as well as ochre and a variety of animal bone and historical debris. In addition to the other remains excavated from the site, nine bones that could be definitively identified as human were recovered from disturbed contexts (Golder Associates 2011). Radiocarbon dates for these archaeological deposits suggest they are about 1,200 years old and that the site has been used regularly if not continuously in each fishing season since that time. In addition, the presence of early historical materials (such as trade beads, glass containers,

household debris, an 1886 silver dollar, and flaked glass) supports historical accounts suggesting this was an important area for early contacts between local Aboriginal Groups and foreigners.

In 2017 ARCHER undertook an impact assessment at the site to determine if any pre-AD 1846 deposits could be identified in this part of the protected archaeological site (ARCHER CRM Partnership 2017b). The study confirmed that extensive deposits relating to the occupation of the Reserve are preserved in a damp/wet organic matrix that conserves not only historical objects such as glass trade beads, porcelain, and metal, but also animal bones and plant remains. This rich deposit provides a unique source of evidence relating to the early Colonial period and the lives of Aboriginal people living in urban Reserves. In addition, stone tools and waste from the production of stone tools (lithic debitage or flakes) were found in layers of fill overlying the historical Reserve deposit and within the deposit itself. It is most likely that these stone objects were imported to the area with fill and do not reflect archaeological deposits that were disturbed from intact deposits at 12009 Musqueam Drive.

DhRr-377

Site DhRr-377 is located on the Surrey side of the Pattullo Bridge. The reconstructed location of the AD 1860 cranberry marsh suggests that this site is either within the marsh area or on its margins (North et al. 1977; 1979). An impact assessment in 2014 did not include mechanical excavations, and the full extent of the stratigraphy and the potential for intact deposits beneath the fill could not be adequately evaluated using shovel tests (ARCHER CRM Partnership 2016). At present it is unclear if the archaeological materials recovered from the fill layers at DhRr-377 reflect disturbed archaeological remains from an intact deposit that may be found under the fill, or if they have been introduced with fill and as a result are dislocated and out of context.

DhRr-378

DhRr-378 is located in the LSA. Cultural materials were recovered from a single shovel test that contained mixed deposits. It is unlikely that intact cultural deposits are present at this location because it is well inside the reconstructed extent of the ancient cranberry marsh, and also because the immediate area was significantly altered in the 1920s for the establishment of the Pacific Highway and again in the 1930s for the Pattullo Bridge.

Unprotected Buried Heritage Resources

On the Surrey side of the RSA, in addition to the historical Reserve occupations, several plots of land were pre-empted for farming by notable BC historical figures, including Ebenezer Brown and Samuel Herring (Anonymous 2010). In addition, the town of Brownsville, once located in the RSA, was the end of the line for international connections with the United States until the establishment of the Railway Bridge in 1903. Old Yale Road was originally established in the 1870s as part of the Semiahmoo Wagon road. This road, just west of the Project area on the Surrey side, connected Brownsville Warf with the international border. Several important early historical infrastructure developments — the Great Northern Railway, the Pacific Highway, and the Collins Overland Telegraph — were established within the LSA and may have buried remains of value to stakeholders (Anonymous 2011a).

Protected Standing Heritage Resources

No protected standing heritage resource is present in the LSA on the Surrey side of the project area. However, several unprotected, recognized heritage resources are present.

Unprotected Standing Heritage

One municipally designated heritage resource is located in the LSA; the BCER railway (DhRr-64). However, the resource is not formally protected. A full listing of resources on the heritage register can be found in **Table 7.2-A-2** Summary of Protected or Identified Heritage Features within the LSA.

DhRr-64

Incorporated in 1897, the BC Electric Railway (BCER) operated an Interurban Line with service from Vancouver, through Surrey, and to Chilliwack in the Fraser Valley for nearly 40 years (Ewert 1986; Sanford 2004). Since 1950, the line has been a short-line freight railway. The BCER was taken over by the provincial government when BC Hydro was created in 1961. The line is leased by Southern Railway of British Columbia. The railway line has resonance with the community for its role in opening up Surrey to local and international trade and commerce, connecting its early communities, and providing a transportation corridor to the Fraser Valley. The operation of the line as a freight railway is important for its representation of Surrey's industrial economy, much of which was located in the vicinity of the Pattullo Bridge. The heritage resource site of DhRr-64 is protected from the south bank of the Fraser River to the Langley border. Designation of the line was formalized through the *Local Government Act* in January of 2000. Within the Project Area the track is elevated.

Table 7.1-8 Unprotected Historical Resources South Bridgehead

Site Identifier (Borden Number)	Address	Name	Heritage Status	LSA or RSA	Year of Designation
DhRr-64		BCER Interurban line	Municipally Designated	LSA/RSA	
		Old Yale Road/1873 Semiahmoo Wagon Road	Surrey Heritage Register	RSA	2006
	1100 Block of Portage Road	Brownsville Bar Park and Sandbar	Surrey Heritage Register	LSA/RSA	2004
		Pacific Coastal Highway	n/a	LSA/RSA	

7.1.2.4.3 Areas of Archaeological/Heritage Potential in the LSA

Potential for Buried Heritage Resources

Areas of Archaeological Potential

In addition to the known heritage resource sites and locales discussed in the preceding sections an Archaeological Overview Assessment undertaken by ARCHER in 2018 also identified several areas of archaeological potential within the LSA. It was once thought that the extensive and overlapping disturbance agents in the Project area destroyed the archaeological resources on both sides of the Pattullo (Ham et al. 1979). However, archaeological investigations on both sides of the bridge in the last seven years have shown that this is not true (AMEC Environment and Infrastructure 2013; ARCHER CRM Partnership 2016; 2017a; 2017b; Golder Associates 2011). Many buried heritage resource sites do show evidence of extensive disturbance; however, some sites buried under fill and those that were relatively undisturbed through the urbanisation of New Westminster have intact components (ARCHER CRM Partnership 2017a; 2017b). Consequently, there is significant potential for other disturbed and undisturbed archaeological deposits to be encountered within the LSA, and these areas have been identified in the AOA for field assessment during detailed design.

Several sources of information were used to identify areas of potential for future permitted archaeological impact assessments. These included air photos, historical documents, archaeological reports, records from BC One Call, and available information relating to municipal utilities. These data were used to support an assessment of where buried heritage resources are likely to be preserved where these sites could be intact versus locations where they may be seriously disturbed and/or destroyed. Named places are particularly important sources of data. Places that are tied to traditional stories and/or myths are considered interconnected spiritual sites that are important to Aboriginal Groups (Musqueam Indian Band 2017b). Such places are also significantly correlated with the location of archaeological sites (Tsleil Waututh Nation 2017).

7.1.3 Potential Effects

Pre-construction, construction, operations, and decommissioning, may all have effects on heritage resources. Heritage resources in the project area represent several categories as described in **Section 3.1 Issue Scoping and Selection of Valued Components**. The focus of this assessment are archaeological and historical heritage resources. These subcomponents have been further subdivided into protected heritage resources, unprotected heritage resources, and cultural landscapes/features. Within these major subcategories there are two types; buried and standing heritage resources. The effects on these types of heritage resources are discussed in the following sections. Effects can be positive or negative and may affect tangible and intangible attributes of heritage resources.

Statutory requirements under CEAA 2012 were integrated throughout the assessment and are summarized in **Section 11.0**.

7.1.3.1 Potential Effect #1: Disturbance

7.1.3.1.1 Disturbance to Protected Heritage Resources: Buried

Ground disturbance will have the most profound effect on heritage resources because most of the cultural materials in the Project area are buried. Ground disturbance in the form of geotechnical and environmental tests, archaeological impact assessments, establishment of and interaction with utilities, ground clearance (including removal of vegetation), large mechanical excavations, the construction of structural elements, and the addition of fills can all impact heritage resources. Ground disturbance can also happen during revegetation and land remediation. The tangible effect is the partial or complete destruction of heritage resource materials that are in conflict with a Project component. Indirect tangible impacts may include changes to the nature of soils and sediments, including altered drainage patterns, erosion, and/or soil pH, resulting in changes to the preservation conditions of site components. The addition of fill may introduce excess loads that could compress or crush heritage resources or may contribute to changes in drainage patterns.

Ancestral Remains and Historical Burials

Burials may be encountered in several areas within the LSA. Human remains of any age are automatically protected by law. The exhumation of human remains often reverberates through the community to which they are connected. The exposure and exhumation of Aboriginal ancestral remains and associated materials are also subject to customary law and obligations to care for the ancestors. As a result, the effects of exhumation and reburial of ancestral remains are considered separately from the excavation of other culturally associated materials.

Intact, disturbed, and displaced ancestral remains associated with Aboriginal communities are more likely to be found in the Project area than historical burials are. This is because Aboriginal peoples have lived in the LSA for a much longer period of time and also because the locations for deposition of the deceased were not limited to specifically delineated burial grounds in the pre-contact period. The use of trees for the placement of ancestral remains is documented on both sides of the project area (Sheepshanks 1909; Wolf 2005). Repeated disturbances to ancient landscapes and illicit collection of remains in the past has affected their current distribution (e.g. Sheepshanks 1909, p. 36). Desecration of Aboriginal graves by Europeans was so pronounced in the 1860s that a Legislative Ordinance had to be passed with a fine of £100 and six months imprisonment for a first offence (Letter from Birch to Carnarvon 31 October 1866). The letter describing the Ordinance also noted that the repeated and blatant disturbance of Aboriginal graveyards was likely to create a breach of the peace between the two populations.

Contemporary archaeological work includes consultation with Aboriginal Groups regarding the policies and procedures for the proper and respectful care of encountered ancestral remains. However, the disturbance of these remains by development is of significant concern to Aboriginal Groups. During Project consultation, this issue was raised by Musqueam community members in the context of the Project itself and more broadly, with respect to the effects of increased urbanisation (Musqueam Indian Band 2017b).

The discovery and exhumation of human remains has a significant effect on contemporary Aboriginal Groups. The identification of ancestral remains in any context has tangible and intangible effects. The residual effects can be multiplied if appropriate measures for spiritual care and reburial are delayed. This

has impacts on contemporary communities (McLay et al. 2009). In some cases, where a reburial location is not identified, ancestral remains can be left in the care of repositories. Despite the advances in cultural sensitivity that have been incorporated into repositories that are equipped to temporarily house ancestral remains (e.g., the cedar room at the Laboratory of Archaeology, UBC established in 2011) the retention of ancestral remains by museums has lasting effects on Aboriginal communities. This is compounded by the fact that the housing of human remains at Canadian museums is much less common for historical era burials associated with non-Aboriginal Groups. Although this is no longer standard practice, Aboriginal remains continue to comprise the majority of, if not all, the individuals housed in Canadian repositories.

More information on the tangible and intangible effects of the exhumation of ancestral remains, the disproportionate number of Aboriginal burials moved for contemporary developments, the categorization of ancestral remains as scientific objects for study, and the storage of ancestral remains in museums is available in Blair (2005); Larsen (2016); McCarthy (2012); McLay et al. (2008); Pryce (1999); Riding In (1992); Roy (2007); and Scott S (2013). The intangible effects of these exhumations can persist for several generations; it may be perceived as a devaluation of Aboriginal ancestors in the facilitation of modern urbanisation/industrialisation (McLay et al. 2008). As a result the spiritual and cultural value of ancestral remains to Aboriginal communities is discussed topic of ongoing discussions and consultation with Aboriginal Groups to continue to develop appropriate procedures and protocols to mitigate the effects.

Cultural Materials and Features

Cultural materials that pre-date AD 1846 are automatically protected under the HCA whether they are in registered archaeological sites, or encountered outside of them. The disturbance of materials and features associated with Aboriginal occupations has tangible and intangible effects. The material remains within a site are items that belonged to the ancestors of Aboriginal people and have spiritual connections (Musqueam Indian Band 2017b). In addition, the places where people lived and worked in the past are often associated with places inhabited by the First Ancestors (McLay et al. 2008). The excavation of sites creates disturbances both to the ancestors and to contemporary communities and thus avoidance is the best management option. The spiritual and cultural value of archaeological sites to Aboriginal communities is part of ongoing discussions and consultation with Aboriginal Groups to better understand their perspectives on the issue and to develop appropriate procedures and protocols to mitigate intangible effects.

The empirical or documentary value of a site is determined in part by the links between objects and sites, the association between objects and features within sites, and how that information can enhance our understanding of the past. Commercial archaeology is typically undertaken to collect tangible archaeological and/or historical materials, to document the site and provide insights into the past, and to preserve subcomponents for further study or preservation in advance of development. Efforts are also made to maintain intangible connections between objects and history for Aboriginal and other communities. However, undertaking archaeological work has effects on both tangible and intangible attributes of archaeological resources.

Archaeological sites are non-renewable resources. The excavation of materials from sites separates the material remains from their depositional environment. Once an object has been removed from the ground and placed in a museum it has lost its context (i.e., the associations between cultural materials and their

depositional environment that are used to inform scientific studies of archaeological materials). Archaeological excavations, do not result in 100% data recovery. In the case of archaeological excavation for development, it is sometimes deemed unnecessary to fully excavate a site or site component before construction, if representative samples of site material are determined to have been collected.

It is rarely clear what will be recovered from specific parts of archaeological sites. Rare or unique finds (such as organics recovered from wet sites, or objects of spiritual importance) may have a more pronounced effect on archaeological heritage resources than the recovery of waste flakes from the production of stone tools, or a large quantity of fire-altered rock. Excavating only parts of a site that is slated for development may result in the loss of invaluable information, such as associated radiocarbon dates or older components not detected by a shovel testing program that cannot be recovered once a site is altered (ARCHER CRM Partnership 2008; 2016). This has tangible and intangible effects.

The types of materials collected and preserved change over time as scientific and cultural perspectives change. Therefore, not all materials may be retained during an excavation and even fewer will be kept in repositories because museums and other repositories have finite storage capacity. However, future researchers may deem uncollected materials types to be valuable to their research (e.g., the advent of ancient DNA and biomolecular archaeology techniques), or find new methods of understanding the context of objects in place (e.g., 3D photography techniques). The significance of this effect on tangible attributes of archaeological heritage resources must be weighted on a case-by-case basis against the alternatives, particularly when avoidance is not possible. These effects can be mitigated, at least in part, by developing a design that will not fully impact sites with intact deposits.

The disturbance of archaeological sites and/or areas immediately adjacent to them may change the equilibrium of a depositional environment; for example, altering localized drainage conditions could result in the acceleration of degradation of material remains that are left in place. If the installation of a project component or ancillary changes the drainage pattern of an area, then wet sites could dry out, leading to degradation, or dry sites could be inundated, also leading to incomplete preservation. The unique depositional environment and diagenetic history of each site suggests that subtle changes to the environment in whole or in part could have significant effects on the preservation of materials within the sites in future. For further information refer to Caple (1994; 2004); Corfield (1996); Wilson and Pollard (2002). The effect can be managed through design of project components so that secondary disturbance is not likely to impact archaeological sites. The use of specific types of fill, geotextile, and other methods may help to preserve sites through the construction and operations phases.

The recovery of disturbed and displaced material remains through archaeological excavations is likely to have no or reduced effects in either tangible or intangible archaeological heritage resources. The displaced materials are out of context and can only rarely be linked back to the site from which they came. As a result, their scientific value is low. Also, the dissociation of these materials from their original location lowers the intangible effects related to Identity and Sense of Place. Aboriginal Groups may require that appropriate spiritual care be given to displaced remains regardless of their context. Their responsibilities to care for items that belonged to their ancestors are not lessened by the context of the materials. In addition, displaced and disturbed archaeological materials are protected by law, and despite their reduced scientific value any potential impacts to these resources must be mitigated.

If archaeological sites and materials are exposed through interactions with the project, either directly or indirectly, than they are at risk of destruction through natural processes (such as erosion) and/or malicious trespass (such as site looting). Aboriginal communities perceive the exposure or collection of archaeological materials without proper assessment as a lack of respect for cultural and spiritual values (Kwkwetlem First Nation 2017). In addition, it is a cumulative loss of information for both Aboriginal Groups and archaeologists (Kwantlen First Nation 2017; Musqueam Indian Band 2017b; Tsleil-Waututh Nation 2017).

The likelihood of increased access and its effect on archaeological sites will need to be determined once a final design has been developed, given that access will increase in some areas and decrease in others. If concerns related to access to archaeological resources are considered in the design phase, then the residual effects of increased access may be eliminated or become less pronounced. The residual effects of increased access may be reduced by capping the sites; protecting them by installing components that travel over but not into sites (such as utilities established in overlying fill; and design measures to make sites unattractive or to inhibit access. Such measures could include planting thick and unpleasant vegetation (e.g. rose, native berries), installing lighting to expose areas, or even fencing off sites or site components at risk.

Sites that are protected by deep overlying fill deposits may provide the greatest interpretive potential and thereby positive effects associated with the project. Signage, virtual tours, installations of Aboriginal Groups art, and other means may be used to communicate the existence of the site and its importance in both pre-contact and early historic times to local visitors. Access to intact site components is likely to require machine-assisted excavations; as a result, identifying the location of a deeply buried site puts it at a lower risk of malicious destruction.

In addition to the effects discussed in the preceding paragraphs, positive effects can be associated with site excavations. Documentation of archaeological sites has the potential to add to our understanding of human behaviour and interactions in the pre-contact period, providing scientific and academic value. The excavation, documentation, and dissemination of information about archaeological finds provides evidence for the long-term use of land by Aboriginal Groups. Excavations may reveal new information related to technological advancements or environmental adaptations that can enrich the history of Aboriginal people, both within their own communities and in a broader public perception. The inclusion of Aboriginal monitors/technicians in archaeological excavations can provide opportunities for community members to interact directly with tangible heritage values, to share information regarding intangible heritage values, and to influence archaeological methods and professional practitioners to incorporate Aboriginal perspectives and methods into their work.

7.1.3.1.2 Disturbance to Protected Heritage Resources: Standing

Heritage resource features in the LSA may be impacted by the project.

The tangible aspects of Standing Heritage Resources are often tied to elements of structure; architectural, and engineering values. Intangible heritage resources are often linked to the period in which they were developed, to community identity and to both past and contemporary social values. Stakeholders often refer to the both the unique and the historical value of particular properties or features to relay the history of the local community and the Province.

Intangible attributes of standing heritage resources can be found in historical documents, community stories and recollections, and the sense of place that is conjured by interactions with the heritage resource in its landscape. Standing heritage resources are often tied to events and personalities from the past that give it extra intangible attributes; a way to remember a celebrate lives lived in local communities.

Impacts can include physical interventions, such as demolition or physical changes, or direct impacts to intangible heritage values, such as the loss of space for community events or the removal of a place associated with important community stories. Demolition and translocation of standing heritage resources tends to have negative effects on local communities as it greatly decreases the opportunities arising from the existence of authentic, physically intact, and visible historic places that are tied to their original landscapes.

Consideration will also be given to chance finds of historical materials by applying a policy of minimal intervention and recognizing that future assessment may identify other features of potential standing heritage value within the LSA.

7.1.3.1.3 Unprotected Heritage Resources: Buried

Historical materials have and will continue to be recovered as part of archaeological assessments. These materials and features represent the living spaces and activities of a number of diverse groups including; Aboriginal people, European settlers, and minority populations including Chinese and Japanese immigrants. They may include historical debris (such as glass bottles and cans), objects of daily life (e.g., clay pipes and clothing buttons), features (e.g., house foundations and old utilities including wooden culverts and sewers), amongst others. Post-AD 1846 materials are not automatically protected under the *Heritage Conservation Act*. Historical era debris and remains associated with exclusively Aboriginal settlements are also known to exist in the LSA and RSA. As with protected buried resources there are tangible and intangible attributes of unprotected heritage resources. These attributes have already been fully discussed for protected buried heritage resources and will be only summarized here. Regardless of their age, Aboriginal Groups perceive the same spiritual and cultural values for objects and other material remains associated with their communities. The empirical and documentary value of historical sites is like that of protected archaeological sites; that is the more intact and undisturbed a site, the more information it can provide for reconstructing past events.

7.1.3.1.4 Unprotected Heritage Resources: Standing

The Pattullo Bridge

The over-arching effect on unprotected historical heritage resources is the proposed demolition of the existing Pattullo Bridge. Decommissioning will affect both tangible and intangible heritage values related to the bridge itself and its immediate surroundings as defined by the boundaries of the LSA. The tangible heritage value of the bridge is linked to its utilitarian structure; architectural and engineering values. Intangible heritage value is derived from ties to the politics and the depression era that led to its construction, to civic identity, and social values. The bridge has been identified as iconic, part of the history of New Westminster, Surrey, and the province. Bridge demolition has negative effects on heritage resources as it greatly decreases the opportunities arising from the existence of authentic, physically intact, and visible historic places.

Residents of Surrey and New Westminster long accustomed to the presence of the Pattullo Bridge and its associated landscapes may find that the changes have particular meaning for them. Careful and sensitive design and interpretation related to the new Pattullo Bridge can be an opportunity to incorporate the remediation of meaningful landscapes that may alleviate these adverse effects. By acknowledging the values and meanings of places, landscapes can be designed to reflect the past, while ensuring that new work is compatible yet distinguishable from the original.

Positive tangible effects may also be realized from demolition in the remediation of contaminated or damaged sites. Educational and scientific value can be added by critical studies of the issues and processes surrounding environmental remediation.

Other Standing Heritage Resources

The same effects are anticipated for the unprotected heritage resources in the project area which include the heritage houses on the New Westminster heritage register and inventory identified in **Table 7.2-B-1** in **Attachment 7.2.B**. Other unprotected heritage resources in the Project area include the 1904 Railway Bridge, as well as Albert Crescent, Brownsville Bar, and Queens Parks

Historical heritage resources that may be affected by the Pattullo Bridge replacement include existing and identified heritage resources in the South Westminster neighbourhood in Surrey, originally associated with the settlement of Brownsville, which was a major hub for rail transportation, with still-existing traces of the original industrial district occupied by sawmills, shingle mills, and canneries, and currently home to a number of industries, along with some residential land use, both of which give the area its current character.

The intangible heritage resources of stories, history, remembrances, and sense of place evoked by the presence of the heritage resources is associated with events and personalities that now reside in the collective memory of the community; it is the physical, tangible presence of heritage resources itself that creates this sense of place.

7.1.3.2 Potential Effect #2: Changing Landscapes

Cultural landscapes are defined for this assessment as specific geographical areas that are imbued with cultural value and/or meaning, through tangible natural features or human modifications and intangibly through stories, histories, connections to practices, traditions, activities and customs of specific groups of people in the past and the present. This definition amalgamates aspects of the CEAA definition and that found in the Standards and Guidelines for the Conservation of Historic Places in Canada (Parks Canada 2011) with inputs from the anthropological literature. Defining a cultural landscape is a complex task and is generally regionally specific and influenced by the theoretical or political perspectives of the person defining the term. For more information on cultural landscapes and their definition the reader is referred to Alderman (1988), Colwell-Chanthaphonh et al. (2008), Fowler (2002), Nicholas (2006), and Tilley (2006).

Construction of a new bridge and demolition of the existing bridge will have lasting impacts on the landscape, which in turn could have a direct impact on heritage resources; including the alteration of existing physical landscapes and the isolation of sites from their natural setting (Apland and Kenny 1989). Landscape changes also have intangible effects (Albrecht 2005).

Altering the topography of an area or removing features such as large boulders, vegetation, and or structures are tangible effects on landscapes. However, most of the effects experienced as a result of landscape change are linked to intangible qualities. One of the intangible effects of changes natural and human modified landscapes, is *solastalgia*. Solastalgia is described as an emotional or physical response to the loss of solace provided by connections to a landscape and territory identified as home (Albrecht 2005; Albrecht et al. 2007). Solastalgia is likely to have a disproportionate impact on Aboriginal Groups when compared to other stakeholders affiliated with the Project area. The landscapes and ancient and historical places that are described in the oral traditions and early historical/ethnographic records are part of the concept of home for Aboriginal people (Carlson 2001; Kwantlen First Nation 2017; Kwikwetlem First Nation 2017; Lyackson First Nation 2017; Musqueam Indian Band 2017b; Suttles 2004; Tsawwassen First Nation 2017; Tsleil-Waututh Nation 2017). The occupation of the Musqueam IR1 and Langley IR8 Reserves is within living memory, and people have watched as their traditional villages, locations of ancient historical events, traditional landscapes, and resource-gathering areas have become increasingly urbanized and industrialized. The effect of Project-related changes in landscape on specific Aboriginal Groups is discussed in **Part C**.

Landscapes are also tied to the First Ancestors, and some features of the landscape, including the plants and animals that live there, and even inanimate objects such as stones, have ancestral connections to contemporary communities. Transformer sites, archaeological sites, and sites of First Contact, among others, are considered places of spiritual connections between people and their ancestors (Tsleil-Waututh Nation 2017). The alteration of these landscapes have long-lasting effects on Aboriginal communities (McLay et al. 2008). Incorporating information from ATK into design may assist in reducing residual effects associated with irreversible change to landscapes.

An important aspect of landscapes are the views from one location to another. Being able to ground a narrative by standing or sitting in a single spot and point to village sites, resource gathering locations, topographic features, and locations related to ancient historical events is an important aspect of modern information transmission. This is true for Aboriginal peoples as well as for other individuals and groups who have a significant historical connection to New Westminster. Archaeological and traditional use sites on both sides of the Fraser River are within sight of each other. This would have been true prior to European contact, and the views have since been altered by the construction of both the railway and Pattullo bridges. The visual obstacle represented by the current and potential future structures represents an alteration of existing heritage landscapes within the LSA and even the RSA. The inter-visibility of these locations is important to retaining their connectivity and for knowledge transfer.

Historical landscapes and neighbourhoods are also important cultural landscapes within the LSA and RSA. These may overwrite, incorporate, or reclassify features of cultural landscapes that are valued by Aboriginal Groups. Cultural landscape characteristics include site and landscape, location, natural systems and features, spatial organization, land use, cultural traditions, circulation, streetscapes, topography, vegetation and open space, buildings and structures, views, and small-scale elements. This is not an exhaustive list, however, and ongoing awareness of those elements that play a role in the historic character of the LSA should be encouraged throughout the Project.

The demolition of the existing Pattullo Bridge will remove the opportunity to enjoy the view from the contemporary bridge as well as the view of the bridge from the communities of Uptown, Glenbrook, Queens Park and Downtown in New Westminster, as well as those of South Westminster, Bridgeview, and St. Helens in Surrey. However, these views may be restored and enhanced on the new bridge with more accessible crossings for pedestrians and cyclists allowing more people to enjoy the view than do on the contemporary span.

Many changes to landscapes may be perceived as negative effects; however, the nature of the change and the individual that perceives it may hold different views in the significance and impact of a landscape change. For example the demolition of the Pattullo Bridge will be viewed by some as a detrimental change to the landscape, for others it may restore more ancient landscapes and views that predated the construction of the Pattullo in 1938. Large infrastructure projects, such as the construction of a new bridge, present the opportunity to incorporate land and landscape remediation measures that may return landscapes and resources to a state more reflective of conditions prior to implementation of those projects. Ongoing discussions with affected communities, including Aboriginal Groups, will be included to ensure that the opportunities for remediation and maximized.

7.1.3.3 Potential Effect #3: Changes to Land Use

Changes to land use around both the old and new bridge resulting from construction and decommissioning may also have an impact on Heritage Resources. An enhanced transportation artery may make some areas more accessible or appealing, and new developments could be established in areas of high archaeological potential and/or within the boundaries of protected archaeological sites. This may result in building or renovation work requiring the excavation of archaeological sites.

More recreational traffic may be drawn to some areas in the LSA and RSA and this could result in damage to archaeological resources. A large project such as this generates a great deal of public attention. Although safeguards are in place to obscure the location of archaeological and historical resources within the Project area, the assessment work can attract the attention of individuals who damage heritage resource sites by excavating deposits for curiosity or perceived profit. The looting of sites or intentional site disturbance has effects on both tangible and intangible attributes of archaeological resources.

The potential impact of such damage to archaeological resources is less likely in areas where sites are deeply buried under fill. As a result, sites that are protected by fill have the potential to provide interpretive value while not putting the archaeological remains at risk.

Changes to land use may also have impacts on historical resources, both protected and unprotected. Changes to land use that result in greater density of residential, commercial, or industrial spaces may put pressure on heritage resources and lead to removal from their original landscape context through displacement or demolition of structures (Harris J 2014). Increased access may also change the layout and character of streets and landscaping that may be linked to the heritage value of a particular neighbourhood.

However, increased access to historical sites and structures may have a positive impact on the tangible and intangible attributes of historical heritage resources. Access may foster intangible connections between standing heritage resources with visitors which may in turn lead to the preservation of physical remains.

7.1.3.4 Potential Effect #4: Changes to River Flow and Patterns of Erosion and Sedimentation

The establishment of a new bridge and decommissioning of the existing bridge may result in changes along the riverbank. Changes to the flow of the river and to transportation of sediment loads, due to the addition of piers in the river (new bridge) and loss of other piers (decommissioning of old bridge), may affect sites both up and downstream along the riverbank and in ancillary channels. This could lead to exposure of sites, the deposition of additional sediments on sites, changes to the water table within sites both known and unknown, and changes in access/visibility of sites. Changes to erosion and sedimentation patterns could also change land and river use patterns by plants, animals, and people, and in turn could affect archaeological resources.

Sedimentation and deposition of additional sediments over archaeological sites may provide greater protection and enhance their preservation. The capping of resources may create wet site environments that are more stable over time, are inaccessible to the general public, and thus effectively “cap” the sites. The river hydraulics and morphology assessment completed for the Project (see **Section 4.1**) included an assessment of potential effects on protected archaeological sites and shorelines at risk. As described in **Section 4.1 River Hydraulics and Morphology** and **Appendix 18.2 Hydraulic Modelling Report**, the model predicts that the changes to river velocity and changes to sedimentation are not significant in the identified areas and will not affect protected archaeological sites or shorelines deemed to contain potential for archaeological remains. However, a comprehensive shoreline survey and site inventory is warranted prior to construction. Any newly identified sites should be considered with respect to the hydraulic model.

7.1.4 Mitigation Measures

7.1.4.1 Mitigation Approach and Relevant Management Plans

In general, the management of heritage resources may entail one or more strategies. These include avoidance, minimization, documentation, restoration, interpretation, and offsetting. The management of buried heritage resources is typically only managed through the first three strategies but may incorporate interpretation, while standing heritage resources may be managed using one or more of the six listed strategies. Mitigation requirements are specific to individual sites and will follow the management direction provided by the Archaeology or Heritage Branch, as appropriate, and be set out in the associated permits. When sites or AOPs are identified on federal land, the same methodology will be applied for consistency across the LSA. Representatives of Aboriginal Groups have also stressed that mitigation measures and site management plans should be developed in consultation with Aboriginal communities. A detailed Heritage Management Plan will be developed through ongoing discussion and consultation with Aboriginal Groups. That plan will include the strategies outlined in the following subsections.

7.1.4.1.1 Avoidance

Site avoidance is highly effective when it can be achieved. Avoidance is achieved by excluding heritage resource sites from the development area and establishing a defined no-work zone around their boundaries. The zone should be demarcated with a fence around the buffer zone to prevent mistaken trespass. Compliance should be monitored with periodic sites visits. Avoidance requires that no changes be made to the site. Filling, capping, preloading, and groundwater and drainage changes are all potentially damaging.

The LSA under consideration for the Project is, however, one that is dense with buried heritage resources, both intact and disturbed, as well as materials displaced and introduced with fill. As a result, the use of avoidance as a blanket protective measure has only moderate certainty within the current LSA.

Avoidance of ancestral remains is particularly important to minimize residual and cumulative effects. The first and best course of action is to identify areas that contain or are likely to contain ancestral remains and to avoid them through design. To achieve this, archaeological impact assessments will be scheduled in advance of final design to provide adequate time to consider avoidance and/or minimization in Project design and to discuss the care of ancestral remains with Aboriginal Groups. The Project team will work with Aboriginal Groups to update the Project's Ancestral Remains Policy in advance of Project construction to ensure appropriate care for encountered remains.

7.1.4.1.2 Minimization

Buried Heritage Resources

Where heritage resources cannot be avoided, construction and/or ground disturbance impacts will be comprehensively assessed through subsurface testing in advance of works. Where intact or disturbed local resources are identified, they will be managed in accordance with Archaeology Branch requirements and the HCA. If ancestral remains are encountered, the Project-specific Ancestral Remains Protocol will be implemented. Consultation with Aboriginal Groups to inform an update of the Protocol is ongoing.

Minimization of Project effects must also include consideration of indirect impacts to buried heritage resources through changes to land use, increased access leading to malicious trespass, and changes to the physical or chemical nature of the burial environment leading to accelerated deterioration of cultural materials (Apland and Kenny 1989, p. 14). Changes to drainage, relative levels of moisture, pH, the nature of overlying fills, and other site environmental condition through secondary processes must be evaluated by appropriate experts in advance of construction.

Standing Heritage Resources

The minimization of impacts to heritage resources involves using identified heritage values to develop a ranking of the components that make up the historic place, and applying conservation measures to manage change based on opportunities and constraints. This ranking is based on a scale of significance that is evaluated using the *Standards and Guidelines for the Conservation of Historic Places in Canada*. This measure of significance is distinct from the evaluation of significance of Project effects discussed in **Section 7.1.5** of this document. As such, places, areas, or resources identified as having lesser heritage significance are preferred as the location for any interventions.

For example, for engineering works such as the Pattullo Bridge, aspects of the old bridge that demonstrate its technical advances, processes, operations, or functions should be considered as a structure of historical significance. Applying the *Standards and Guidelines for the Conservation of Historic Places in Canada* (Parks Canada 2011), with particular attention to Section 4.4, *Guidelines for Engineering Works Including Civil, Industrial and Military Works*, will minimize the impacts of the Project on key heritage values and character-defining elements associated with the bridge as a significant engineering work. Furthermore,

thoughtful design of the new bridge with respect for aspects of the history, character and values of the local communities and wider region with the intent that it becomes a landmark and icon in its own right.

Landscapes

The construction of a new bridge and demolition of an old one will necessitate landscape changes within the Project area. Design will take into account the potential for other changes to the landscape, such as those that may occur through the realignment of roads and utilities, in an attempt to minimize the impact of landscape change on the Project area. Opportunities to remediate or restore landscapes will be taken wherever possible, and interpretation and commemoration will be incorporated into the Heritage Management Plan through ongoing discussions with Aboriginal Groups and other stakeholders.

7.1.4.1.3 Documentation

Buried heritage resources that are excavated will be documented using appropriate site-specific techniques for systematic data recovery as detailed in the HCA Permit.

Documentation of standing heritage resources may involve as-found measured drawings, photography, laser scanning, and other accepted methods. Documentation would also be used to identify any new cultural landscape features within the Reference Concept, and potential impact on them, to avoid and maximize the protection of cultural landscape resources.

7.1.4.1.4 Restoration

In heritage conservation terms, restoration is the action or process of accurately revealing, recovering, or representing the state of a historic place or individual component as it appeared at a particular period of its history, while protecting its heritage value. A more comprehensive approach is conservation, which includes all aspects or processes that are aimed at safeguarding the character-defining elements of a heritage resource so as to retain its heritage value and extend its physical life. Conservation can include restoration, preservation, stabilization, rehabilitation, documentation, interpretation, or a combination of these actions or processes.

7.1.4.1.5 Interpretation

Interpretation and commemoration are processes of communicating messages about cultural and natural heritage resource, or telling stories about a place, that forge emotional and intellectual connections between the interests of the audience and meanings inherent in the resource. The presentation can relate to the way the place is now, or has been, used, seen, touched, and smelled, giving impact to evocative stories and meanings. Guidance on interpretation will be sought from Aboriginal Groups, municipalities, and other stakeholders and developed through the seven principles outlined in the ICOMOS Charter for the Interpretation and Presentation of Cultural Heritage Sites, known as the Ename Charter.

The range of interpretive techniques is broad and creative, and can include such things as interpretive signs, the retention of parts of buildings or structures, interpretive interventions designed into new construction, site furnishings or public art, written material, marking historic resource and event locations, storytelling, guided tours, demonstrations and ceremonies.

7.1.4.2 Summary of Proposed Mitigation Measures

Table 7.1-9 outlines the potential mitigation measures discussed in the previous section, considering both tangible and intangible effects. Mitigation measures include avoidance, minimization, documentation, restoration, and interpretation.

In terms of effectiveness, the rankings are defined as follows:

- High – The mitigation measure will protect the resource from the potential effect.
- Moderate – The mitigation measure will protect some portions of the site from complete loss or destruction through either excavation of partial sites or systematic data recovery.

In terms of certainty, the rankings are defined as follows:

- High – The mitigation measure will not create residual effects.
- Moderate – The mitigation measure may result in residual effects along other pathways or create either a tangible or intangible residual effect, but not both. An example of moderate certainty may be avoidance of sites; however, while this may circumvent most residual effects, construction in an adjacent area that affects the drainage of the site could destroy site components left in the ground.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART B SECTION 7.1 HERITAGE RESOURCES

Table 7.1-9 Summary of Proposed Mitigation Measures for Heritage Resources

Potential Effect	Mitigation Measure	Project Phase	Effectiveness	Certainty	Relevant Management Plan	Residual Effect (Y/N)
Disturbance Protected Heritage Resources	Avoidance Update and implementation of the Project-specific Ancestral Remains Protocol Minimize disturbance in accordance with Heritage Management Plan informed by the results of the Archaeological and Heritage Impact Assessments Document remains using appropriate standards and guidelines under permit. Interpretation and Commemoration	Design and Construction	High	Moderate	Archaeological and Historical Resources Management Plan Ancestral Remains Policy	Tangible = Y Intangible = Y
Disturbance of Unprotected Heritage Resources	Avoidance Minimize disturbance in accordance with Heritage Management Plan informed by the results of the Archaeological and Heritage Impact Assessments Document resources using appropriate standards and guidelines. Restoration and conservation. Interpretation and Commemoration.	Design and Construction	High	Moderate	Archaeological and Historical Resources Management Plan	Tangible = Y Intangible = Y
Changing landscapes	Design that considers landscapes and connections to heritage resource landscapes	Construction and Operations	High	Moderate	Archaeological and Historical Resources Management Plan	Tangible = N Intangible = Y

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
 PART B SECTION 7.1 HERITAGE RESOURCES

Potential Effect	Mitigation Measure	Project Phase	Effectiveness	Certainty	Relevant Management Plan	Residual Effect (Y/N)
Changes to land use	Consider interpretive potential of protected and unprotected historical heritage resources. Consider interpretive potential of deeply buried or otherwise protected sites	Design and Operations	High	High	Archaeological and Historical Resources Management Plan	Tangible = N Intangible = N
Erosion of upstream and downstream riverside archaeological resources	A shoreline survey and site inventory as part of the Project AIA and review of hydraulic modelling of the final river crossing design, supplemented by development and implementation of appropriate mitigation and management strategies if potential for effects is identified.	Design	High	High	Archaeological and Historical Resources Management Plan	Tangible = N Intangible = N

7.1.5 Residual Effects and their Significance

7.1.5.1 Characterization of Residual Effects

Residual effects on heritage resources are those that remain once mitigation measures are implemented and are analysed to predict the nature and extent of effects and changes that could result from the project. The residual effects assessment assumes that mitigation will work (even given a particular level of certainty and effectiveness), but that some effects will continue to be experienced and for which significance should be determined. The identified residual effects on heritage resources are discussed below.

7.1.5.1.1 Disturbance of Protected Heritage Resources

Sites are a non-renewable resource, and residual effects on both tangible and intangible heritage values are likely in the event of partial site mitigation of an intact deposit. However, these effects would be less pronounced if some portion of the site could be left intact and not damaged by the constructed component. Residual effects are inevitable if an intact site is completely destroyed by the development component.

All subsurface disturbance to archaeological sites have impacts on the tangible and intangible attributes of heritage resources. Therefore, where cultural materials are excavated residual effects are expected. Residual effects are likely to be perceived differently within and among groups of stakeholders. The excavation of a site results in its dissociation from its context and its location. The extensive impacts to highly significant ancestral sites, with little return in the form of hard data was specifically raised as a concern by the Tsleil-Waututh Nation (2017).

Archaeological sites, even those that do not contain ancestral remains, may be considered sacred; and therefore their excavation in whole or in part is likely to have a residual effect on some communities (e.g., Kwikwetlem First Nation 2017; Musqueam Indian Band 2017b). Also, some Aboriginal communities consider all archaeological materials to have active spiritual connections to ancestors. As a result, disturbing objects that belonged to people in the past has implications for contemporary communities (e.g., Musqueam Indian Band 2017b; McLay et al. 2008). Seven sites identified in the LSA have already been disturbed, and not only are these likely to be further disturbed to inform preliminary design, but other sites may also be encountered and disturbed. This disturbance dissociates more and more material from its original context, but also from the landscape. This has deleterious effects on a Sense of Place and Identity (i.e., Musqueam Indian Band 2017b).

Positive residual effects may also be realized. Working with Aboriginal Groups to develop the Heritage Management Plan provides an opportunity to incorporate Aboriginal perspectives and cultural stewardship into the excavation and recovery of cultural materials. The documentation of archaeological sites and materials that confirm ethnographic accounts and oral histories provides a means by which a Sense of Place and Identity may be enhanced. Identification of archaeological sites through a systematic inventory in advance of construction will assist with the protection of sites from future development. Systematic data recovery will provide an opportunity to collect significant scientific data related to understanding and interpreting previously disturbed sites.

7.1.5.1.2 Disturbance of Ancestral Remains

The discovery, exhumation, and reburial of ancestral remains that may take place during archaeological assessments, monitoring, and/or systematic data recovery have tangible and intangible residual effects. Many community members feel that powerful spiritual sites, particularly burial areas, should be avoided (McLay et al. 2008). The Musqueam Indian Band (2017b) has articulated that community members feel it is their responsibility to maintain and protect their ancestors. The specific residual effects associated with the exhumation and reburial of ancestral remains will be discussed with Aboriginal Groups.

It is not possible to predict with absolute certainty where or in what context ancestral remains may be encountered. However, the Surrey side of the Project area is associated with appropriate care and placement of the deceased (Sheepshanks 1909), and ancestral remains were recovered from a site in the RSA. Therefore, the likelihood that such remains will be encountered is high; residual effects are only likely if the remains are encountered.

7.1.5.1.3 Disturbance of Standing Heritage Resources

There are anticipated residual effects to protected and unprotected standing heritage resources. Heritage homes at 50 Leopold Place, 38 Royal Avenue, and 55 Dufferin Street, as well as the cluster of seven heritage homes on the same block as the Agnes Dufferin Cemetery will be impacted as the changing traffic patterns and road network will affect the area in which they are located, thus changing their characteristics. These impacts may be more pronounced in larger neighbourhoods including Queen's Park and Albert Crescent Park, which are on the City of New Westminster's heritage register. Standing heritage resources will be impacted if the identified footprint of the roads, ramps, and approaches is extended and eradicates part of these designed landscapes.

Places in the South Westminster neighbourhood in Surrey, originally associated with the settlement of Brownsville, include still-existing traces of the original industrial district occupied by sawmills, shingle mills, and canneries, and is currently home to a number of industries, along with some commercial and residential land use. The character of this area will also be impacted by changes to the footprint of the roads, ramps, and approaches.

7.1.5.1.4 Disturbance of Unprotected Heritage Resources

Decommissioning of the existing Pattullo Bridge will result in a loss of context from both the standpoint of the bridge itself and through the absence of the bridge in the local communities of New Westminster and Surrey. The significance of this loss is considered high, and there are few, if any, fully effective mitigation measures that can properly ameliorate this loss.

Decommissioning the Pattullo Bridge will result in a loss of key views of this iconic structure from a number of locations in both New Westminster and Surrey. The significance of this loss is considered high, and there are few, if any, fully effective mitigation measures that can properly remediate this change in the viewscape (British Columbia Heritage Branch, date unknown). Alternatively, the removal of the bridge may restore views that connect landscape features and named places of importance to Aboriginal Groups.

7.1.5.1.5 Disturbance to Landscapes and Features

Heritage resource sites and features are more than singular entities and either currently or formerly existed within a cultural landscape. As a result heritage landscapes provoke thought, foster understanding, and elicit empathy and nostalgia for the past in communities. Aside from the loss of physical fabric, and the character of the neighbourhoods in which these heritage features are found, the loss of the intangible attributes associated with these features, such as community identity, connection to the past, sense of place and time and, sense of self is often considerable

The loss of stories, memories, and sense of place associated with the history of the sites and landscapes that have existed within the Project area is considered to be of moderate to high significance. It includes the loss of places for rituals, activities, and experiences. These can include activities as diverse as the sharing of family and community histories connected to landscapes, visiting old sites and residential areas, and viewing and walking over the 1938 Pattullo bridge. Mitigation of residual effects may include interpretation, the rehabilitation of landscapes associated with the Project area, collecting information and stories, and sharing those stories through a variety of media with the public. The New Westminster Archives oral history program and online exhibit “Re-Imagining the New Westminster Waterfront” provides an excellent example of how this may be done.

7.1.5.2 Proponent’s Determination of Significance

7.1.5.2.1 Significance Definition

A significant adverse residual effect to the Heritage Resource VC is defined as one that may cause the complete destruction of a protected heritage resource without any documentation. All values related to tangible and intangible aspects of archaeological and historical heritage will be completely lost. The single event would be irreversible and permanent.

7.1.5.2.2 Significance Determination

Disturbance

The significance of Project-related effects on tangible and intangible attributes of heritage resources is linked to contents of sites and the level of integrity of site components. The disturbance of intact sites, and the level of integrity of their components is more significant than the impacts on deposits of disturbed or displaced cultural materials. Protected heritage resources must be completely assessed before the significance of the project effects can be definitely determined for individual sites. However, in general intact sites have a higher overall significance and thus a more substantial residual effect. Impacts to disturbed and displaced resources that are overseen by a qualified professional archaeologist under permit has a low and in some cases null overall residual effect to tangible attributes of heritage resources.

The cultural significance of cultural materials is not diminished by their lack of context or scientific value. The disturbance of all and any cultural remains is significant to Aboriginal Groups with links to the Project area. As a result, the disturbed and displaced nature of archaeological resources does not necessarily change their intangible significance linked to residual effects. Consultation with Aboriginal Groups can lead to the development of a Heritage Management Plan that incorporates Aboriginal views on appropriate

conservation of and respect for excavated cultural materials. This may include cultural work before archaeological assessments and/or construction. The communities may also want to see cultural work conducted after construction has finished.

Despite the range of potential site types and contexts if the appropriate minimization and documentation measures are taken the residual effect is **not significant**.

Exhumation and Reburial of Ancestral Remains

The exhumation of ancestral remains will always be highly significant to vested communities, both Aboriginal and other descendant communities. However, as has been discussed, intact, disturbed, and displaced human remains that pre-date AD 1846 are more likely to be found in the Project area than historical burials, and therefore, Project-related exhumation and reburial of ancestral remains has the potential to have a disproportionate effect on members of the Canadian Aboriginal population. The exhumation of ancestral remains is likely to have significant residual effects both to tangible and intangible attributes of heritage resources. This can be mitigated by avoiding the exhumation of ancestral remains wherever possible. In the case that ancestral remains must be moved mitigation may be achieved by following Ancestral Remains Protocols and allowing sufficient time for the appropriate cultural work to take place as directed by Aboriginal community members. Despite the high potential for ancestral remains to be encountered in the project area if the appropriate minimization and remediation measures are taken the residual effect is **not significant**.

7.1.5.3 Confidence and Risk

All results and conclusion that are based largely on modelled information, the residual effect predictions for this assessment are subject to uncertainty. The uncertainties in this study are the result of several factors and limitations:

- The nature of archaeological resources in AOPs identified in the ARCHER AOA model (2018) have yet to be confirmed.
- The reference concept does not reflect a final design for which more definitive conclusions about residual and cumulative effects can be drawn.
- The management recommendations associated with some of the sites discussed in this assessment have yet to receive approval from the Archaeology Branch.
- This assessment has focused on heritage resources, the physical remains of which represent the tangible attributes of heritage resources. The relationships between heritage resources and named places and/or traditional use sites cannot be fully evaluated and are likely to underestimate the effects to the intangible attributes of heritage resources and knowledge transmission.
- Diverse perceptions of intangible value are expected within and between communities. This study cannot capture the full range of intangible values to stakeholders nor comprehensively estimate the effect of changes to Archaeological Heritage on communities tied to the cultural materials recovered from archaeological and/or historical sites.

As a result of these uncertainties the confidence that applies to the residual effects assessment is moderate. Each site will present unique challenges to manage and as a result flexibility is a critical component of the Heritage Management Plan, to provide more certainty that residual effects can be avoided.

7.1.5.4 Summary of Residual Effects Assessment

The Project will have residual effects if heritage resources cannot be avoided. However, through the implementation of the Heritage Management Plan, significant effects can be avoided. Summarized in **Table 7.1-10** residual effects include the consideration of educational, scientific, and cultural components of the tangible and intangible attributes of heritage resources. These are evaluated using the following criteria:

- Context – the current and future sensitivity and resilience of the VC to change caused by the Project. This may be ranked as *neutral* (i.e. the material remains at a site may be preserved in whole or in part) or *low* (i.e. the material remains at a site are likely to be impacted by the Project and cannot be restored to their original state).
- Magnitude – a measure of the severity of a residual effect. This may be ranked as *high* (i.e. an entire archaeological site or component will be removed from the ground) or *moderate* (i.e. an archaeological site or component will be partially impacted, leaving some intact sections in place).
- Extent – the spatial scale over which the residual effect is expected to occur. Archaeological Heritage Resources is characterised under the socio-economic spatial extents and in all instances will be considered in the context of its effect on *Aboriginal Groups, stakeholders and the general public*.
- Duration – the length of time a residual effect persists. The duration of effects to archaeological heritage resources is *permanent*.
- Reversibility – this characteristic specifically refers to whether an effect will endure. Impacts to archaeological heritage resources are considered *irreversible*.
- Frequency – defined as how often a residual effect occurs. In the case of archaeological heritage resources, impacts may be *one time events* (effect is confined to one discrete occurrence), or *sporadic* (occurring rarely and at irregular intervals). The frequency will be site specific and thus some sites may be impacted only once, and others sporadically. The larger the site the more likely it will be impacted multiple times over the course of the project.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART B SECTION 7.1 HERITAGE RESOURCES

Table 7.1-10 Summary of Residual Effects on Heritage Resources

VC Subcomponent	Residual Effect	Mitigation Measure	Summary of Residual Effect Characterization Criteria	Likelihood	Significance	Confidence
Archaeological and Historical Heritage Resources: Tangible Attributes	Site Disturbance/ Destruction	Minimization & Remediation	Context: Neutral Magnitude: Moderate Extent: Regional/Aboriginal Peoples Duration: Permanent Reversibility: Irreversible Frequency: One time/sporadic	High	Not Significant	Moderate
	Exhumation and Reburial of Ancestral Remains	Minimization & Remediation	Context: Low Magnitude: High Extent: Regional/Aboriginal Peoples Duration: Permanent Reversibility: Irreversible Frequency: One time	High	Not Significant	Moderate
	Exposure of Heritage Sites and Materials	Minimization & Remediation	Context: Neutral Magnitude: Moderate Extent: Regional/Aboriginal Peoples Duration: Permanent Reversibility: Irreversible Frequency: One time/sporadic	High	Not Significant	Moderate

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART B SECTION 7.1 HERITAGE RESOURCES

VC Subcomponent	Residual Effect	Mitigation Measure	Summary of Residual Effect Characterization Criteria	Likelihood	Significance	Confidence
Archaeological and Historical Heritage Resources: Intangible Attributes	Site Disturbance/ Destruction	Minimization & Remediation	Context: Neutral Magnitude: Moderate Extent: Regional/Aboriginal Peoples Duration: Permanent Reversibility: Irreversible Frequency: One time/sporadic	High	Not Significant	Moderate
	Exhumation and Reburial of Ancestral Remains	Minimization & Remediation	Context: Low Magnitude: High Extent: Regional/Aboriginal Peoples Duration: Permanent Reversibility: Irreversible Frequency: One time	High	Not Significant	Moderate
	Exposure of Heritage Sites and Materials	Minimization & Remediation	Context: Neutral Magnitude: Moderate Extent: Regional/Aboriginal Peoples Duration: Permanent Reversibility: Irreversible Frequency: One time/sporadic	High	Not Significant	Moderate

7.1.6 Cumulative Effects and their Significance

A cumulative effects assessment is conducted when adverse residual effects of a project on heritage resources are considered likely to cumulatively interact with the residual effects of other reasonably foreseeable projects and activities.

7.1.6.1 Cumulative Effects Assessment Boundaries

The cumulative effects assessment boundaries for historical heritage resources is generally the RSA (Figure 7.1-A-1). The New Westminster Railway Bridge and the development at 660 Quayside are both within the RSA of the Project.

7.1.6.2 Interactions with Other Past, Present, and Foreseeable Projects

The combination of Project-related effects and effects of other certain and reasonably foreseeable projects and activities, as listed in **Section 3.8.2 Interactions with Other Past, Present, and Foreseeable Projects**, comprise the total cumulative effects on Heritage Resources. A number of ongoing projects within the LSA, including the Project interact with past project effects on buried heritage resources, particularly archaeological resources, creating a cumulative effect. The only other projects or activities that have the potential to have effects that could interact with Historical Heritage Resources those of the Project are the Bosa 660 Quayside Development and the proposed New Westminster Railway Bridge (NWRB) – Seismic Upgrade project. The other eleven projects listed in **Section 3.8-1** are not anticipated to have any cumulative effects on heritage resources associated with the Project. The rationale for the selection of projects includes their heritage value and their proximity to the Pattullo Bridge. A preliminary rating of cumulative effects is shown in **Table 7.1-11** and a list of certain and foreseeable projects that could interact with the Historical Resources that are also affected by the Project are discussed in **Table 7.1-12**.

Table 7.1-11 Preliminary Rating for Cumulative Interactions

Rating	Description
No cumulative effect	A cumulative interaction with residual effects of other certain and reasonably foreseeable projects is likely to occur but is expected to result in relatively minimal contribution to cumulative effects that is negligible.
Potential cumulative effect	A cumulative interaction with residual effects of other certain and reasonably foreseeable projects is likely to occur and is expected to result in a potential cumulative effect on Historical Heritage Resources.

Table 7.1-12 List of Certain and Reasonably Foreseeable Developments

Project Name	Description
Bosa 660 Quayside Development	Proposed multiple residential buildings and tower construction at New West Quay, infill of existing wharf in the Fraser River, and construction of a new pedestrian wharf in the Fraser.
New Westminster Railway Bridge – Seismic Upgrade	Public Works Canada is proposing to seismically upgrade the New Westminster Railway Bridge, which is adjacent to the Project.

7.1.6.3 Existing and Potential Cumulative Effects and Mitigation Measures

7.1.6.3.1 History of Disturbance in the Project Area

The Project is located in an area with a long history of occupation and use by Aboriginal Groups, followed by a relatively short but significant period of urban and industrial development. Many archaeological sites have been disturbed in the area, many before to the advent of modern legislated archaeological assessments. The act of archaeological assessment itself is an agent of disturbance for sites where materials are excavated and the associations between them interrupted in a piecemeal fashion over many years. The recovery of disturbed and displaced materials indicates that past site disturbances have removed most of the scientific value of these materials. More profoundly, repeated disturbances of cultural materials, sacred sites, and ancestral remains reverberate through contemporary Aboriginal communities. This is specifically mentioned in provided ATK documents (e.g., Kwantlen First Nation 2017; Kwikwetlem First Nation 2017; McLay et al. 2008; Musqueam Indian Band 2017b).

“The cumulative effects of land alienation and rapid development of Kwantlen territory without the consent of the Kwantlen First Nation should be taken into account in determining how to proceed with the replacement of the bridge, especially as it might impact on cultural heritage sites in the vicinity” (Kwantlen First Nation, 2017).

“Cumulatively, and over time, Musqueam’s Sense of Place and Identity have been negatively impacted through industrialisation, settlement, environmental damage, and colonial policies, among other causes.... Because of these harms, what remains is of the utmost importance to Musqueam members and requires protection and rehabilitation” (Musqueam Indian Band 2017b).

“Recent major infrastructure projects in this region (e.g., the South Fraser Perimeter Road, the Golden Ears Bridge) have had enormous and irreversible impacts on highly significant cultural heritage sites, and have produced only a small amount of actual archaeological information. This Pattullo Bridge project has similar potential for enormous impacts to highly significant ancestral village sites” (Tsleil-Waututh Nation 2017).

“The Fraser River generally has a high density of archaeological sites within the intertidal portion of the river, as well as along its banks. Many of these sites have extensive archaeological deposits as they are historical village sites. Unfortunately industrial development along the Fraser has impacted a significant portion of these sites” (Kwantlen First Nation 2017).

Any additional disturbance to cultural materials and ancestral remains within the Project area will contribute to these ongoing effects. Archaeological work done in support of nearby and adjacent projects will further dissociate cultural materials from their place of origin and contribute to an erosion of a Sense of Place and Identity (e.g., Kwantlen First Nation 2017; Kwikwetlem First Nation 2017; McLay et al. 2008; Musqueam Indian Band 2017b).

7.1.6.3.2 Residential Buildings at 660 Quayside Drive, New Westminster

Quayside is a former industrial area that is no longer active and has been revitalized as a livable waterfront community, but it still retains a sense of industry. Combined with demolition of the Pattullo Bridge, this project could further erode the historic industrial character and significant infrastructure associated with the development of the riverfront in New Westminster and Surrey. Mitigation of the Project effects will help alleviate some of this cumulative loss.

7.1.6.3.3 Seismic Upgrade of the 1904 New Westminster Railway Bridge

Seismic upgrades will not change the character of the New Westminster Railway Bridge but will prolong its operational life. This project will have no effect on its historical heritage value, and consequently will not contribute to the cumulative effects of the PBrep. It is thus not considered further.

7.1.6.4 Residual Cumulative Effects Assessment

The cumulative effects of the Project on Heritage Resources are summarized in **Table 7.1-13**. This includes the effects related to a history of disturbance to archaeological and historic sites, and two developments that may contribute to a loss of historical value in the LSA and RSA.

Table 7.1-13 List of Certain and Reasonably Foreseeable Developments

Criteria	History of Disturbance	660 Quayside Drive	Fraser Grain Terminal
Context	Low	Neutral	Neutral
Magnitude	Moderate	Moderate	Moderate
Extent	Aboriginal Groups	Local	Regional
Duration	Permanent	Short term	Short term
Reversibility	Irreversible	Partially reversible	Partially reversible
Frequency	Sporadic	One time	One time

7.1.7 Follow-up Strategy

The Archaeological and Historical Resources Management Plan are being prepared through ongoing discussion with Aboriginal and other stakeholder groups and will be implemented at appropriate intervals over the lifespan of the Project. The Plan will contain consideration for an Ancestral Remains Protocol and an Interpretive Plan. **Section 14.2** Archaeological and Historical Resources Management Plan provides more detail. Heritage values will continue to be monitored and documented as the Project proceeds. Consultation with stakeholders about their understanding of heritage values, and the collection of oral histories, will be ongoing. An archaeological impact assessment report and a separate heritage study will be produced after demolition and after the conclusion of the project, reporting on conditions and making management recommendations for the future.

All heritage resources work must follow *The Standards and Guidelines for the Conservation of Historic Places in Canada* (Parks Canada 2011), which provide guidance to proponents for minimizing negative impacts of the proposed development on character-defining elements and heritage values.

7.1.8 Conclusions

With the implementation of mitigation outlined in this chapter, the Project is not likely to cause significant adverse Project-related effects to Heritage Resources valued subcomponents. Pre-existing cumulative effects of the continued loss of cultural materials to urban development within the LSA will be considered and included in the Heritage Management Plan to reduce the cumulative effects of the current Project.

7.1.9 References

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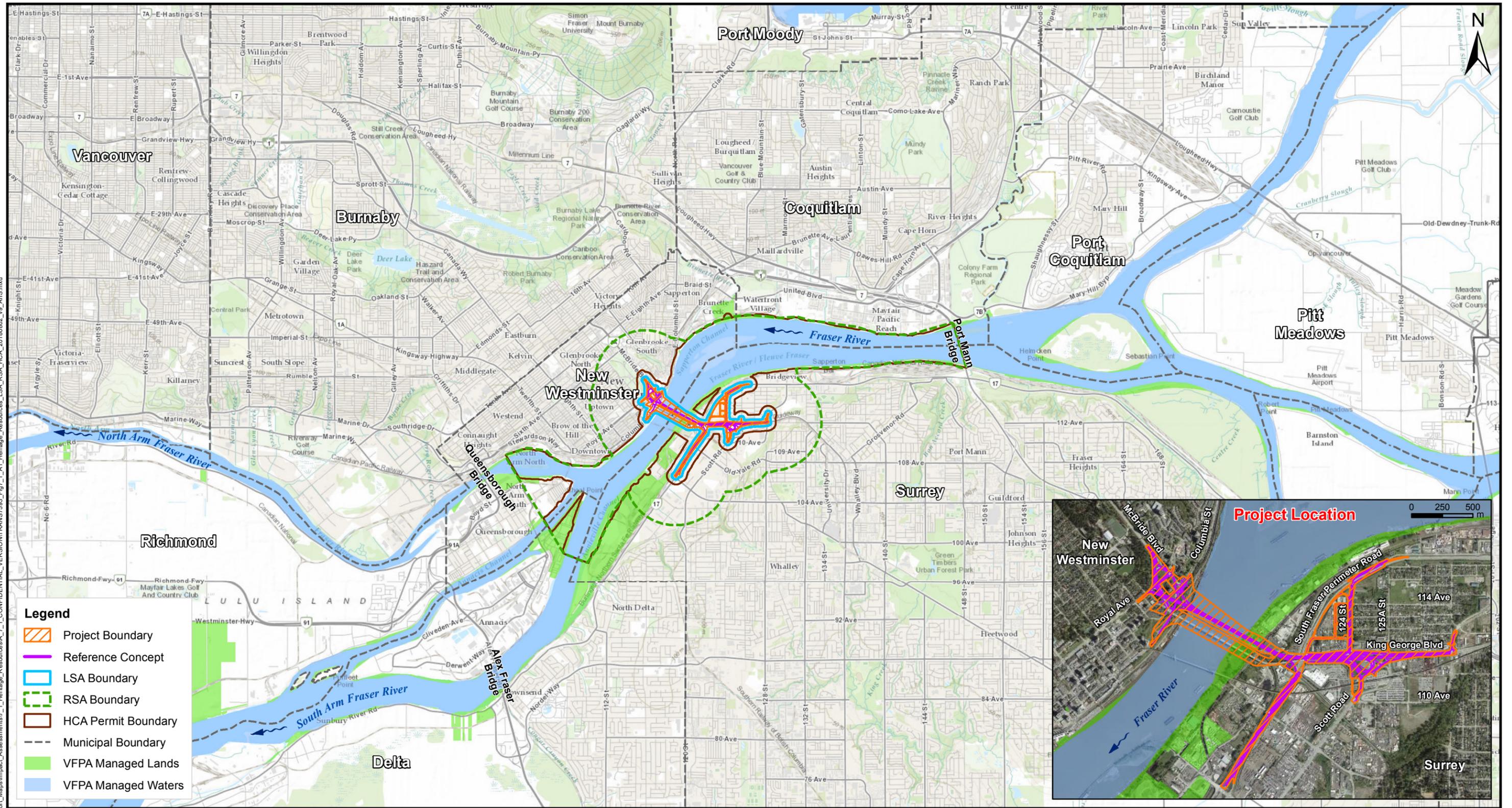
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ATTACHMENTS

Attachment 7.1-A

Figures



DESIGNED	---	---
DRAWN	AS	18 - 08 - 02
CHECKED	---	---
APPROVAL	---	---

REFERENCE DRAWING	
NO.	DESCRIPTION
1	Reference Concept, Parsons 2018.
2	HCA Permit Boundary, Archer CRM 2018.



Proposed Pattullo Bridge Replacement Project

Heritage Resources Assessment Area

Contract No. 0906-14/SC001110CA		
SCALE 1:75,000	FIGURE NO.	REV NO.
0 1 2 Km	7.1-A-1	9

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Figure 7.1-A-2 View from New Westminster Across to Herrings Point

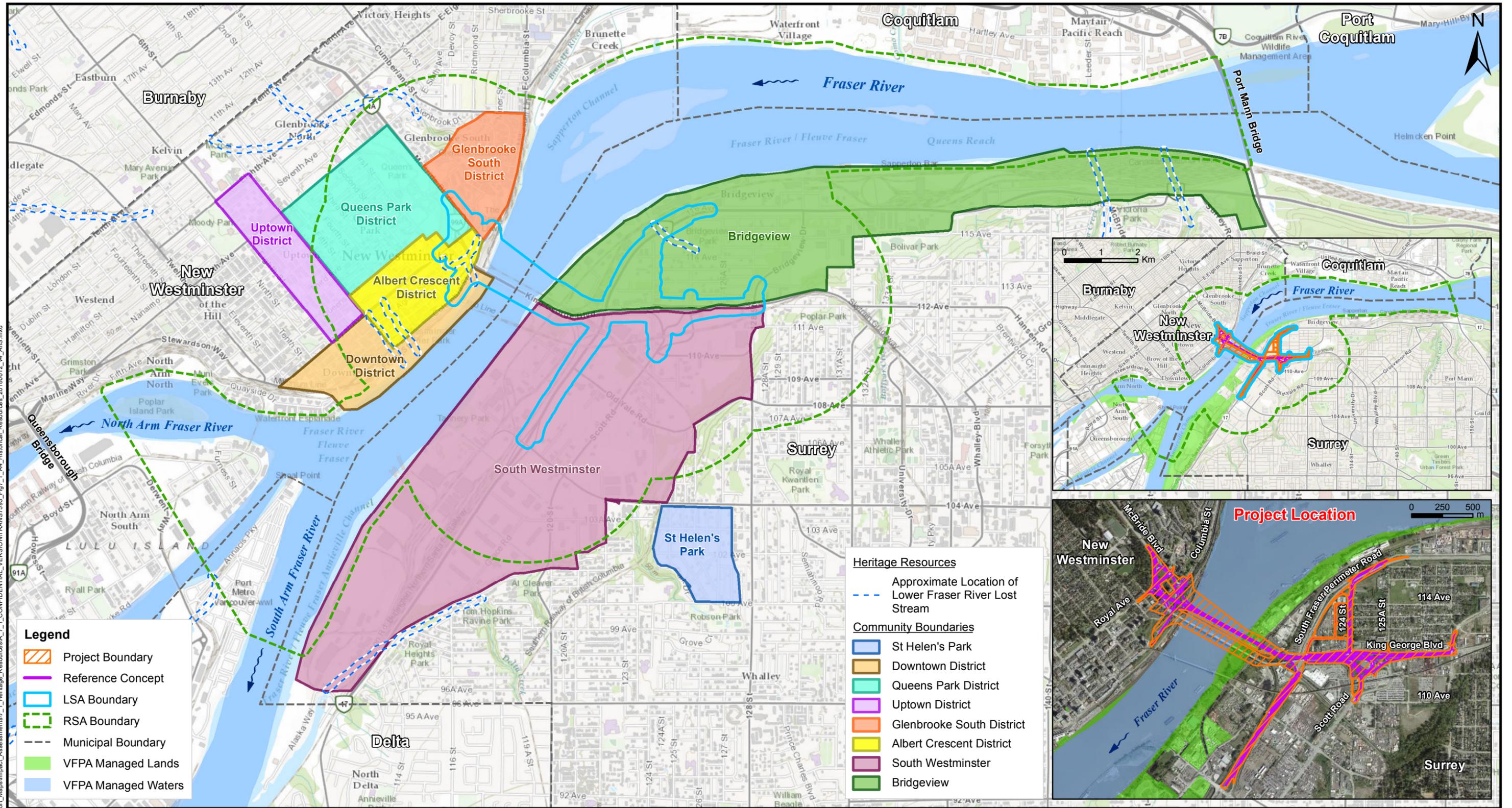


Note the large marsh behind the houses across the river. Photo taken between 1866 and 1870 by Fredrick Dally. Image e-02199 courtesy of the Royal BC Museum and Archives.

Figure 7.1-A-3 A Chief's Grave House Opposite New Westminster



Photo taken by Fredrick Dally between 1866 and 1870. This is very likely located in the village of qəqəyt. Image C-09274 courtesy of the Royal BC Museum and Archives.



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APPROVAL		

REFERENCE DRAWING	
NO.	DESCRIPTION
1	Reference Concept, Parsons 2018.
2	Heritage Resources and Community Boundaries, Archer CRM 2018.



Proposed Pattullo Bridge Replacement Project

Heritage Resources - Community Boundaries

Contract No. 0906-14/SC001110CA		
SCALE 1:30,000 0 250 500 m	FIGURE NO. 7.1-A-4	REV NO. 4

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Figure 7.1-A-5 Albert Crescent Park and Albert Crescent as seen from the New Westminster Railway Bridge



Note the steep bluff that abuts Columbia Street. Photo from New Westminster Archives online – item number IHP2956, record ID 39515.

Attachment 7.2-B

Summary of Protected or Identified Heritage Features Within LSA

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART B SECTION 7.1 HERITAGE RESOURCES

Table 7.2-B-1 Summary of Protected or Identified Heritage Features Within LSA

Heritage feature	Location	Heritage value	Heritage status
Pattullo Bridge and its location, components, materials, on-ramps, outbuildings, topography	New Westminster and Surrey	Opened in 1937, the Pattullo Bridge, its connecting roadways, and its cultural landscape spanning the Fraser River and parts of New Westminster and Surrey have cultural, historical, scientific, aesthetic, and social value as part of the Lower Mainland's transportation history.	Not listed
Constructed elements or features of the Pattullo Bridge	New Westminster and Surrey	The built elements of the bridge offer a physical record of the technical and construction work, demonstrating the fabrication, joinery, and assemblage that characterize a bridge of this type.	Not listed
Views to and from the Pattullo Bridge	New Westminster and Surrey, Pattullo Bridge	A component of the aesthetic values associated with the bridge.	Not listed
Significant historical vegetation on both sides of the bridge, including that at the north end of bridge associated with historical Albert Crescent Park	New Westminster and Surrey	An indication of the original ecology associated with the Fraser River and uplands, past land uses, designed landscapes, and a component of the aesthetic values associated with the bridge.	Not listed
Foremer Musqueam I.R. 1 and Kwantlen (Langley) I.R. 8 First Nation Reserves	New Westminster and Surrey	Significant for extensive pre-contact use of the lands surrounding the bridge. Valuable reminder of past injustices.	Not listed; HCA designation DhRr14
1904 Railway Bridge	New Westminster Downtown/Queen's Park	Significant as an early link across the Fraser River and for its design, with the lower deck used for rail traffic and the upper deck for automobile traffic.	Not listed
Old Yale Road / 1873 Semiahmoo Wagon Road	South Westminster, Surrey	Valued as an early and important transportation route through Surrey, ultimately connecting to the Pattullo Bridge. It recalls how pioneers settled and travelled in Surrey from a very early period. It is valued as a linear park and recreational trail.	City of Surrey heritage register

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART B SECTION 7.1 HERITAGE RESOURCES

Heritage feature	Location	Heritage value	Heritage status
Brownsville Park and Sandbar	1100 Block of Portage Road	In 1882 the steam ferry K de K transported wagons and passengers from Brownsville at the foot of Old Yale Road to New Westminister. Lands in the vicinity of this historic ferry dock are a popular fishing area and a city park.	City of Surrey heritage register
Martin Wilkes House	12432 Old Yale Road	Historical value related to early settlement and farming. Aesthetic value related to Victorian-era detailing and cottage form.	City of Surrey heritage register
Robert Kennedy House	12481 Old Yale Road	Early construction date of 1892. Historical value related to early settlement and farming Aesthetic value found in Folk Victorian style.	City of Surrey heritage register
BC Electric Railway Interurban Line	Bridgeview, South Westminister, City of Surrey	Incorporated in 1897, the BC Electric Railway operated an Interurban Line with service from Vancouver, through Surrey, and to Chilliwack in the Fraser Valley for nearly 40 years.	City of Surrey heritage register
Pacific Highway	Columbia Street and 12 th Street/Kingsway, South Westminister, St. Helen's Park	A key link, via the Pattullo Bridge, to the U.S. border and the Trans-Canada Highway east. The Highway was essential to the growth of tourism in BC.	Not listed
Queen's Park	51 Third Avenue, New Westminister	Important historically as the site of the Royal Agricultural and Industrial Society's annual Provincial Exhibition. Aesthetic values include its early and ongoing tradition of creating outstanding public gardens.	New Westminister heritage register
Queen's Park neighbourhood	City of New Westminister	Significant early neighbourhood in New Westminister, currently with a valuable collection of historic residences of different types and scales, significant streetscapes, adjacency to Queen's Park. Historical and aesthetic value for houses and older apartments in a variety of stately traditional styles set in a landscape of mature trees, shrubs, and planted borders.	Designated Heritage Control Period Under study as Heritage Conservation Area

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART B SECTION 7.1 HERITAGE RESOURCES

Heritage feature	Location	Heritage value	Heritage status
Albert Crescent Park	Agnes and Sarnia Streets, New Westminster	Located high on an escarpment overlooking the Fraser River, was originally designed as part of an ambitious civic planning scheme by Colonel Moody in 1859. Part of historic Albert Crescent neighbourhood.	New Westminster heritage inventory
Disney House	101 Agnes Street, New Westminster	Late Victorian vernacular housing, a pragmatic design and building scale that provided easily-built housing for working-class families of modest income.	New Westminster heritage register
107-109 Agnes Street	107-109 Agnes Street, New Westminster	Late Victorian Italianate home of William E. Fales, a successful New Westminster furniture dealer. Contributes to the heritage character of the Prospect Park Cluster.	New Westminster heritage register
Agnes–Dufferin cemetery	Dufferin and Agnes streets	New Westminster’s first cemetery, established in 1859. Also associated with the Royal Engineers.	Not listed
Marshall Martin English House	119 Royal Avenue, New Westminster	Significant architects, Maclure, Samuel & Sharp, Richard Prior. High aesthetic value through Arts and Crafts style, construction, using local building materials, and fine craftsmanship.	New Westminster heritage register
Captain Oliver Perry Rogers House	107 Park Row, New Westminster	Typical of middle-class, Edwardian-era housing in Queen’s Park. Also valued for association with original owner Ellen Rogers.	New Westminster heritage register
Former Woodlands Asylum and Cemetery	12 & 22 East Royal Avenue / 215 & 245 Francis Way / 9 East Columbia Street	Historical value for opening in 1878 as the Provincial Lunatic Asylum, later the Provincial Hospital for the Insane. In 1950 it became Woodlands School, and closed in 1996.	Municipally designated
Woodlands Nurses’ Lodge	12 East Royal Avenue	Association with the Provincial Lunatic Asylum, later the Provincial Hospital for the Insane. In 1950 it became Woodlands School, and closed in 1996.	New Westminster heritage register

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Heritage feature	Location	Heritage value	Heritage status
Woodlands Wall	9 East Columbia Street	Association with the Provincial Lunatic Asylum, later the Provincial Hospital for the Insane. In 1950 it became Woodlands School, and closed in 1996.	Municipally designated
Woodlands Carpenter Shop	245 Francis Way	Association with the Provincial Lunatic Asylum, later the Provincial Hospital for the Insane. In 1950 it became Woodlands School, and closed in 1996.	New Westminster heritage register
Remnant of dock at former fruit cannery	Waterfront north of Pattullo Bridge	Expresses the early development of New Westminster's downtown industrial waterfront.	Not listed
Great Northern Railway line	Surrey waterfront	Part of the transportation network that established New Westminster as a hub. Association with 1904 Railway Bridge to Surrey.	Not listed
Canadian Pacific Railway line	New Westminster waterfront	Part of the transportation network that established New Westminster as a hub. Association with 1904 Railway Bridge to Surrey.	Not listed
Industrial traces	Surrey waterfront	Express the early and ongoing development of industrial uses along north Surrey's industrial riverfront.	Not listed
Business traces (e.g., Turf Hotel)	King George Highway, Surrey	Symbolize the various businesses that grew up along the original wagon road and later the Pacific Highway.	Not listed
Historical streetscapes (Front Street, Pacific Highway, streets in South Westminster)	New Westminster and Surrey	Different types of streets are part of the historical context of the Pattullo Bridge.	Not formally listed, but Front Street is on New Westminster Historic Preservation Society top 10 endangered sites
Fraser River foreshore	New Westminster and Surrey	Ecological, visual and recreational values associated with the Fraser River.	Not listed

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Heritage feature	Location	Heritage value	Heritage status
Cluster of Downtown houses on Dufferin, Agnes, Hastings, Royal, and Wellington streets	New Westminster Downtown	Represents the early development of New Westminster downtown residential area. Includes primarily modest working class homes.	New Westminster heritage inventory
50 Leopold Place	50 Leopold Place, New Westminster		New Westminster heritage inventory
12 Royal Avenue	12 Royal Avenue, New Westminster		New Westminster heritage inventory
55 Dufferin Street	55 Dufferin Street, New Westminster	Typical Craftsman design elements in its exposed rafters and beam ends emphasized by decoratively cut brackets.	New Westminster heritage inventory
37 Wellington Street	37 Wellington Street, New Westminster	Built 1891.	New Westminster heritage inventory
41 Wellington Street	41 Wellington Street, New Westminster	Built 1890.	New Westminster heritage inventory
Intangible heritage	Throughout LSA and RSA	Valued for representing local traditions, rituals, e.g., New Westminster May Day, stories, place names that recognize uses or traditions: Pattullo Bridge, Musqueam Drive, Timberland Road.	Not listed
S.W. Herring's Point and Ranch	Near Musqueam Drive, northeast of Pattullo Bridge, Surrey	Association with early settlement and farming in Surrey.	Not listed
Former cranberry marsh	Inland of railway tracks in vicinity of Pattullo Bridge, Surrey	Illustration of pre-development landscape and vegetation, use by First Nations.	Not listed
Queensborough Revenue Station	Near Musqueam Drive, northeast of Pattullo Bridge, Surrey	Association with the Fraser River gold rush, established early in 1859 to collect dues from miners travelling to the Fraser River gold diggings.	Not listed