

**ARCHAEOLOGICAL IMPACT ASSESSMENT  
OF A RESIDENTIAL DEVELOPMENT AT  
3707, 3715 AND 3749 DOLLARTON HIGHWAY,  
NORTH VANCOUVER, B.C.**

**Heritage Inspection Permit #2008-100**



**ARCAS**  
CONSULTING ARCHEOLOGISTS

**ARCHAEOLOGICAL IMPACT ASSESSMENT  
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3707, 3715 AND 3739 DOLLARTON HIGHWAY,  
NORTH VANCOUVER, B.C.**

Conducted under:  
**Heritage Inspection Permit #2008-100**

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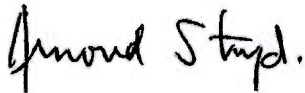
June 2008

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Arcas Consulting Arcas Ltd.

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## MANAGEMENT SUMMARY

This report describes the results of an Archaeological Impact Assessment (AIA) of three residential lots at 3707, 3715 and 3739 Dollarton Highway in the District of North Vancouver. The landowner, represented by Diamond Head Consulting Ltd. is proposing to redevelop the lots (the “subject property” herein). The legal descriptions for the lots are as follows:

Address	Lot	P.I.D.
3707 Dollarton Hwy	West ½ Lot 1 Block K, DL 230, Plan 7990	010-290-826
3715 Dollarton Hwy	East ½ Lot 1 Block K, DL 230, Plan 7990	010-291-741
3739 Dollarton Hwy	Lot 2 Block K, DL 230, Plan 7990	010-291-938

The subject property is located on the north shore of Burrard Inlet between Cates Park and Burrard Inlet IR 3. It was identified as having a high potential for archaeological remains based on the proximity of previously recorded sites to the east and west, including the large Whey-ah-Wichen/Cates Park archaeology site (DhRr-8) that extends west along the beach to the southwest corner of Lot 2. Accordingly, an AIA was required prior to the proposed development of the property.

Trevor Cox (Diamond Head Consulting Ltd.) engaged Inlailawatash Forest Products Ltd. (Tsleil-Waututh Nation) to carry out the archaeological study required as a condition of project approval by the District of North Vancouver. A Heritage Investigation Permit was issued by the Archaeology Branch to Margaret Rogers (Staff Archaeologist, Tsleil-Waututh Nation). Subsequently, Rogers left the Tsleil-Waututh to accepted employment with another firm. In order to complete the project, Evan Stewart (Tsleil-Waututh Nation) engaged Arcas Consulting Archeologists Ltd. (Arcas) to complete the work on for IFP with Geordie Howe as the field director. As Arcas was listed on the permit application to assist Rogers with the archaeological assessment, it was not necessary to amend Heritage Inspection Permit #2008-100.

The the subject property is located within the asserted traditional “core” territory of the Tsleil-Waututh Nation and is immediately adjacent to their main reserve. This area that is also within the claimed territory of the Musqueam Indian Band, Squamish Nation, and Stó:lō Nation, and is recognized as an area of interest to the Tsawwassen First Nation.

The project undertaken on the subject property was an archaeological impact assessment as defined in the *British Columbia Archaeological Impact Assessment Guidelines*. The assessment was carried out under Heritage Inspection Permit 2008-100.

No archaeological remains were identified within the subject property during the field survey. The field methodology included excavation of 10 shovel tests within the subject property, as well as a visual inspection of exposed soil deposits. A single flake was located on the foreshore fronting the subject property. Based on the findings of this assessment, the following resource management recommendations are made:

- (1) **No further archaeological studies are required for the proposed redevelopment of District Lots 3707, 3715 and 3739 on the Dollarton Highway.**

- (2) **If the foreshore (intertidal zone) of the subject property is developed, the single flake should be collected and additional archaeological studies of the intertidal zone are warranted.**

Even the most thorough investigation may fail to reveal all archaeological remains, including those protected by provincial legislation that might occur within a property. In consideration of this, it is further recommended that:

- (3) **The landowners and/or their representatives inform building contractors that:**
- (i) archaeological remains in B.C. are protected from disturbance, intentional or inadvertent, by Section 13 of the *Heritage Conservation Act*; (ii) in the event that archaeological remains are encountered, all ground disturbance in the immediate vicinity must be suspended at once; (iii) it is the individual's responsibility to inform the Archaeology Branch as soon as possible, about the location of any archaeological remains and the nature of the disturbance; and (iv) the *Heritage Conservation Act* prescribes severe penalties for failing to comply with these requirements.**

## **ACKNOWLEDGEMENTS**

Arcas Consulting Archeologists would like to thank Inlailawatash Forest Products Ltd. (Tsleil Waututh First Nation) for the opportunity to conduct this study. In particular, we would like to acknowledge the assistance and support of Evan Stewart and Margaret Rogers throughout the course of this project.

We also wish to thank Josh George (Tsleil-Waututh First Nation) for his assistance during the field survey.

The professional opinions expressed in this study are exclusively those of Arcas Consulting Archeologists and not those of any other individuals, groups, or institutions involved in the study. Arcas is solely responsible for the content of this report, including any errors, omissions, or other shortcomings.

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## 1.0 INTRODUCTION

This report describes the results of an Archaeological Impact Assessment (AIA) for a proposed residential development at 3707, 3715 and 3739 Dollarton Highway in the District of North Vancouver, B.C. (Figure 1). The landowner, represented by Diamond Head Consulting Ltd. is proposing to redevelop the lots (the “subject property” herein). Legal descriptions for these lots are:

Address	Lot	P.I.D.
3707 Dollarton Hwy	West ½ Lot 1 Block K, DL 230, Plan 7990	010-290-826
3715 Dollarton Hwy	East ½ Lot 1 Block K, DL 230, Plan 7990	010-291-741
3739 Dollarton Hwy	Lot 2 Block K, DL 230, Plan 7990	010-291-938

The subject property (ca. 0.71 hectare) is located on the north shore of Burrard Inlet between Whey-ah-Wichen/Cates Park and Burrard Inlet IR 3. The lots are on the south side of the Dollarton Highway on a steep slope above the beach. The AIA addressed only the lot boundaries (terrestrial area) from the present natural boundary and natural boundary according to the lot plans northward to Dollarton Highway. This locality was identified as having a high potential for archaeological remains based on the proximity of previously recorded sites to the east and west, including the large Whey-ah-Wichen/Cates Park archaeology site (DhRr-8) that extends along the beach to the southwest corner of Lot 2. Accordingly, an AIA was required prior to the proposed development of the property.

Trevor Cox (Diamond Head Consulting Ltd.), on behalf of the land owner, engaged Inlailawatash Forest Products Ltd. (IFP) to carry out the archaeological study required as a condition of project approval by the District of North Vancouver. IFP is an independent company owned by the Tsleil-Waututh Nation specializing in providing planning, stewardship, and archaeological services.

A Heritage Investigation Permit was issued by the Archaeology Branch to Margaret Rogers (Staff Archaeologist, Tsleil-Waututh Nation). Subsequently, Rogers left the Tsleil-Waututh to accepted employment with another firm. In order to complete the project, Evan Stewart (Tsleil-Waututh Nation) engaged Arcas Consulting Archeologists Ltd. (Arcas) to complete the work on for IFP with Geordie Howe as the field director. As Arcas was listed on the permit application to assist Rogers with the archaeological assessment, it was not necessary to amend Heritage Inspection Permit #2008-100.

The subject property located within the asserted traditional “core” territory of the Tsleil-Waututh Nation and is immediately adjacent to their main reserve. These lands are also within the claimed territory of the Musqueam Indian Band, Squamish Nation, and Stó:lō Nation, and recognized as an area of interest to the Tsawwassen First Nation.

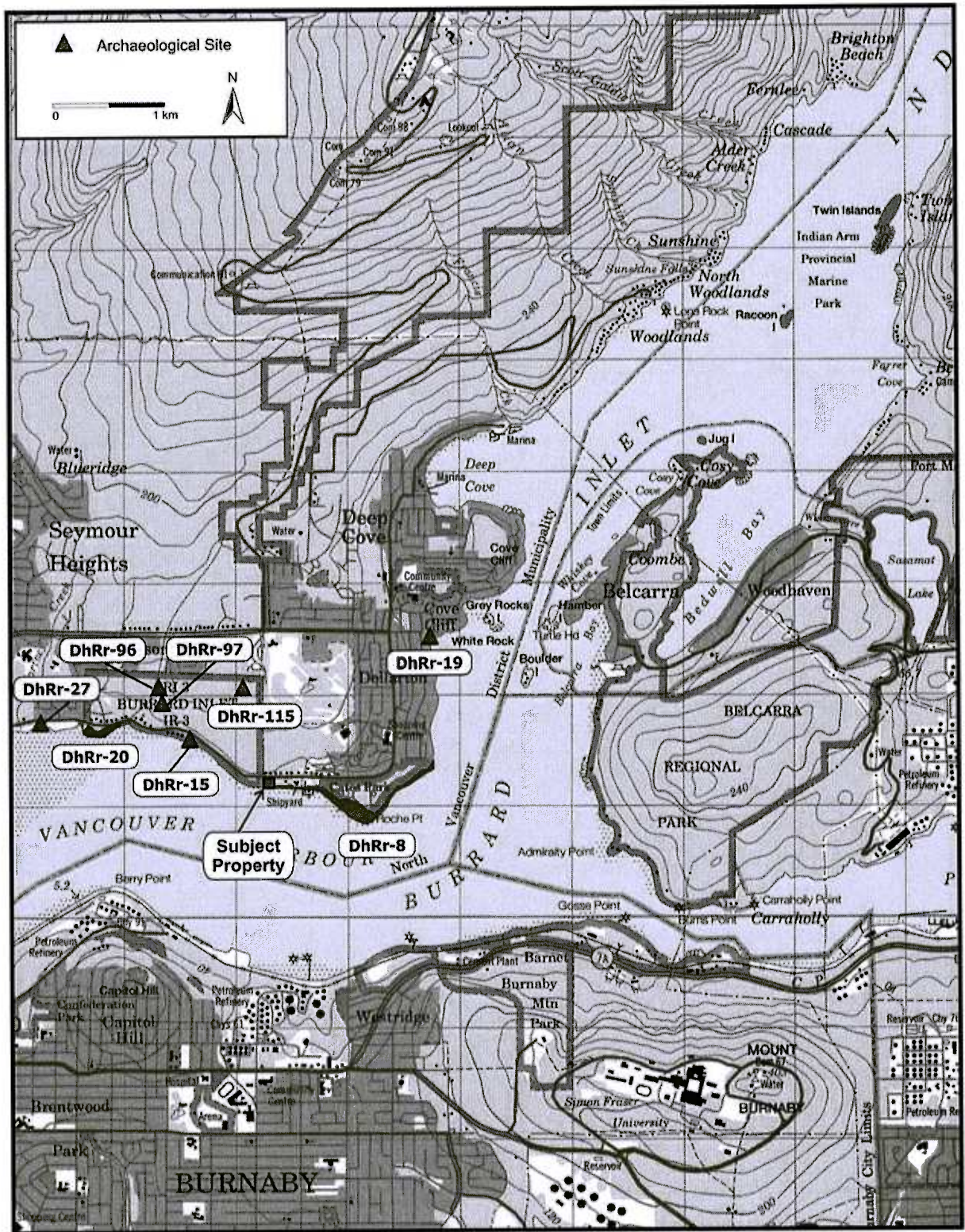


Figure 1. Location of subject property and archaeological sites within 2 kilometres on the north side of Burrard Inlet (1:50,000; NTS 92 G/7).

## 1.1 HERITAGE RESOURCE PROTECTION

### 1.1.1 Regulatory Requirements for Studies

Archaeological sites in British Columbia are protected by the *Heritage Conservation Act* (RSBC 1996, c.187) which is administered by the Archaeology Branch. The *Heritage Conservation Act* (HCA) confers automatic protection upon archaeological sites that pre-date 1846, or undated sites that could pre-date 1846, regardless of whether they are recorded in the Provincial Heritage Register, and whether they are located on private or public lands. Post-1846 historic heritage sites can be protected by Ministerial Order, Designation by an Order-in-Council, or by municipal and regional governments in accordance with the *Local Governments Act*.

Sites automatically protected in B.C. include:

- archaeological sites occupied or used before AD 1846;
- aboriginal rock art with historical or archaeological value;
- burial places with historical or archaeological value;
- heritage ship and aircraft wrecks; and
- sites of unknown attribution, that could have been occupied prior to AD 1846.

Protected archaeological sites may not be altered or disturbed in any manner without a Permit issued under Sections 12 or 14 of the *HCA*. Section 36 of the *HCA* provides for penalties against violations of Section 13; upon conviction of an individual, a fine up to \$50,000 can be assessed, or a term of imprisonment up to two years, or both. For corporations, a fine of up to \$1,000,000 could be assessed, and individuals acting on behalf of corporations may also be subject to the same penalties assessed against unaffiliated individuals.

### 1.1.2 Provincial Archaeological Impact Assessment Guidelines

The requirements and procedures for archaeological studies undertaken for development projects are described in the *British Columbia Archaeological Impact Assessment Guidelines* (Archaeology Branch 1998), issued by the provincial Ministry of Tourism, Sport and the Arts. These guidelines identify three investigative stages for managing potential impacts to heritage sites: (1) archaeological overview assessment; (2) archaeological impact assessment; and (3) impact management. Each of these stages has explicit objectives and characteristic research components, described as follows:

- **Archaeological Overview Assessment:** An overview assessment is intended to: (i) identify lands within a proposed development area that have potential to contain archaeological resources; (ii) identify potential conflicts between archaeological resources and proposed project activities; and (iii) provide recommendations for additional archaeological investigations as required. The usual research components of an overview are documentary research, consultation with stakeholders, and preliminary field reconnaissance.

- **Archaeological Impact Assessment:** An impact assessment is intended to: (i) identify archaeological resources located within a development area and evaluate their significance; (ii) assess potential impacts by the proposed development on archaeological resources; and (iii) recommend appropriate impact management measures where necessary. The typical research components of an impact assessment are site inventory, significance evaluation, and assessment of project impacts.

A site inventory is intended to find and record archaeological resources (i.e., sites) within a specified development area. Sites are normally identified by pedestrian traverses across the development area, supplemented by subsurface testing to find buried archaeological remains. Metric and biophysical attributes of the site are recorded, and its location precisely determined. This information is documented, and recorded by the Archaeology Branch in the Provincial Heritage Register.

The evaluation of site significance represents a second phase of information-gathering that usually occurs at the same time as the site inventory, particularly when lands are being inspected to assess project effects. Using criteria provided by the Archaeology Branch (Archaeology Branch 1998), the scientific, historic, ethnic, public, and economic significance of a site are established.

When sites identified during an inventory are determined to conflict with proposed development activities, potential project impacts are assessed. Impact assessments typically consider both direct and indirect impacts to archaeological resources.

- **Archaeological Impact Management:** Impact management studies are required when unavoidable conflicts exist between archaeological resources and development projects. There are four principal types of impact management: (i) mitigation; (ii) compensation; (iii) surveillance and/or monitoring; and (iv) emergency impact management.

The actions undertaken for an impact assessment study normally involve disturbance of archaeological remains by field procedures such as subsurface testing, which is used to identify and evaluate sites. For this reason, an impact assessment must be conducted in accordance with a Heritage Inspection Permit, issued pursuant to Section 14 of the *HCA*. Impact management studies such as mitigation are conducted in accordance with a Heritage Investigation Permit. Lastly, any disturbance or alterations to the integrity of a site must be conducted in accordance with a Site Alteration Permit, issued to the proponent or proponent's representative pursuant to Section 12 of the *HCA*.

## 1.2 OBJECTIVES

The project undertaken at 3707, 3715 and 3739 Dollarton Highway was an archaeological impact assessment as defined in the *British Columbia Archaeological Impact Assessment Guidelines* (Archaeology Branch 1998). The purpose of the impact assessment, based on these guidelines, was to:

- identify and evaluate the significance of any archaeological resources within the subject property;
- identify and evaluate possible impacts by proposed redevelopment of the property on archaeological resources; and
- recommend appropriate impact management measures where necessary.

The impact assessment was carried out in accordance with Heritage Inspection Permit 2008-100, issued by the Archaeology Branch.

This project does not address the traditional use of the Dollarton locality by the Musqueam Indian Band, Squamish Nation, Stó:lō Nation, or Tsleil-Waututh Nation, nor should the findings of this study be interpreted as necessarily representing the past relationship of these aboriginal communities with lands in the vicinity of the proposed development.

### 1.3 PROPOSED DEVELOPMENT

The land owner, who currently resides at 3707 Dollarton Hwy, owns all three landscaped properties, each of which has one single dwelling structure. The owner proposes to subdivide the three properties and commence development activities immediately after the AIA is completed and the required District of North Vancouver development and building approvals and permits have been issued. The AIA was confined to those lands north of the present natural boundary and natural boundary as illustrated on the development lot plans.

Development plans include removing the existing structures from 3715 and 3739 Dollarton Highway and constructing six (three on each lot) single family dwellings in a lot configuration that features four lots along Burrard Inlet accessed by a new cul-de-sac and the creation of two additional lots off Dollarton Highway. The existing dwelling structure at 3707 Dollarton Highway will not be removed or altered in any way (see Figure 2). Plans further include: (1) introduction of a public open space that runs along the entire foreshore of the subject property on the south, as well as on the west side of the site, with the area at the south portion of the site consisting of a publicly accessible seaside walkway, seating area and viewing platform that is approximately 6 m above sea level and forms a continuous 12.5 m wide park space across the bottom of the site; a 1.5 m hard surface walkway is located within a 2.5 m planted easement and has been designed to connect with the public walkway at Cates Park, which is roughly the same elevation, 500 m to the east; (2) excavating trenches for upgrading the existing utility lines (telecoms, electricity, water and sewer lines); (3) installing a north-south trending fence along the eastern and western boundary of 3707; and (4) levelling activities associated with general construction, paving and landscaping.

Further to these plans are two proposals that have been put forth, but yet have to be accepted by the District of North Vancouver and the Vancouver/Fraser Port Authority respectively. The first is a walking trail adjacent to the western boundary of the subject property that would allow public access to the beach within a District of North Vancouver right-of-way and immediately to the west of an unnamed creek referred to as "Aju Creek". This proposal has the trail starting at the Dollarton Highway within the DNV right-of-way, descending to the beach where a "public viewing platform" would be constructed. From this platform, the trail would continue east-

northeast along the southern boundaries of 3715 and 3739. The second proposal involves the construction of two “piers” or boat docks that would extend south into Burrard Inlet from 3707 and 3715 Dollarton Highway. This proposal has been removed from the District application and placed on hold until the Vancouver/Fraser Port Authority has completed and implemented a new Policy Review of dock facilities, which is anticipated to be in place in early 2009. A brief archaeological inspection was conducted for the intertidal zone but the intertidal zone is outside of the terrestrial limits of the three lots.

## 2.0 METHODOLOGY

The research for this impact assessment project included the following activities:

- background research, involving a documentary review of ethnographic and archaeological documents for the Burrard Inlet area generally and the Dollarton locality particularly;
- a field survey of the subject property, to assess archaeological potential and identify archaeological remains; and
- preparation of a report describing the outcome of the field survey and other research.

### 2.1 DOCUMENT REVIEW

The background research consisted of in-office reviews of ethnographic and archaeological literature for the project locality and its environs. Documents in the libraries of Arcas, and the Tsleil-Waututh Nation were reviewed. This aspect of the research sought general information on pre-Contact archaeology and ethnohistoric information about traditional First Nations' land use and settlement along the north shore of Burrard Inlet.

Locational data for documented archaeological sites in the vicinity of the subject property was obtained from an electronic database (the Provincial Heritage Register) maintained by the Archaeology Branch. This information, including site-distribution maps and TRIM-based orthophotos, is available via the Remote Access to Archaeological Data (RAAD) online application. RAAD was also used to search for information about nearby sites in comparable environmental settings, to establish the possible distribution and kinds of archaeological resources within the subject property.

Topographic information was obtained from 1:50,000-scale NTS maps for the Burrard Inlet locality, as well as low-elevation coloured orthophotos available from Google maps, and development plans produced by Diamond Head Consulting Ltd. Biophysical information was obtained from maps prepared by the Geological Survey of Canada (surficial geology) and the Ministry of Forests Research Branch (biogeoclimatic zonation).

### 2.2 FIRST NATIONS' INVOLVEMENT

Readers are reminded that communications between Arcas staff and representatives of the First Nations' communities, whose asserted traditional territories include the subject property, do not constitute "consultation" as defined by those communities, or as may be required by Provincial regulatory authorities in order to gain project approval.

Copies of the Inspection Permit application prepared by IFP were submitted by for review by the Archaeology Branch to each First Nation, to ensure that specific archaeological concerns, if any, could be addressed before the fieldwork was carried out. All of the First Nations' communities received copies of the final permit report. A member of the Tsleil-Waututh Nation's community participated in the fieldwork.



## 2.3 FIELD SURVEY METHODS

The field inspection (survey) of all three lots (2707, 3715, and 3739 Dollarton Highway) was carried out by Geordie Howe (Arcas), and Josh George (Tsleil-Waututh) on June 2, 2008. The primary focus of the survey was to identify and evaluate any archaeological remains that might be present. Field procedures consisted of a visual inspection of the surface and of subsurface exposures for midden deposits, fire-altered rocks, artifacts, and animal bones. Survey coverage included all open lands (i.e., those not presently covered by structures) within the subject property with the exception of very steep and profoundly landscaped areas.

Surface exposures were rare on the subject property and subsurface testing was used search for buried deposits in areas with moderate to high archaeological potential. Ten shovel tests were excavated at the southern, less-developed portion of the subject property, primarily at the leading edge of steep slope to the beach. These tests were dug through the A-horizon into the B-horizon. The tests ranged in size from 30 cm<sup>2</sup> to 40 cm<sup>2</sup> and were typically 40-50 cm deep. Sediments from the tests were screened through 6 mm mesh to recover any artifacts or other cultural materials that may be present. All subsurface tests were backfilled after completion.

The sediments encountered in the subsurface tests were examined and information about the natural strata recorded in fieldnotes. Test locations were plotted on the development plan, and various views of the property were photographed with a digital camera.

## 2.4 REPORTING

This document represents the final report for work completed under Heritage Inspection Permit 2008-100, in compliance with the requirements of the Permitting and Assessment Section (Archaeology Branch), as well as the provincial *Guidelines* (Archaeology Branch 1998). One bound copy and one digital copy in PDF format has been submitted to the BC Ministry of Tourism, Sport and the Arts in fulfillment of the conditions of the Permit. Copies of this report have also been sent to the development proponents and each First Nations' community.

### 3.0 NATURAL AND CULTURAL BACKGROUND

#### 3.1 BIOPHYSICAL SETTING

The subject property is located within the residential neighbourhood of Dollarton, in the District of North Vancouver. It is situated south of the Dollarton Highway, on the shore of Burrard Inlet (Figure 1). The northern edge of the property near the highway stands at an elevation of approximately 31 m above sea level (asl). The property is heavily landscaped.

A physical description of the lots is provided in the following table.

Address	Section	Description
3707 Dollarton Hwy	Top 1/3	North-south trending black-top driveway from Hwy to home. Home is north-south oriented with a south facing balcony, located along the eastern boundary. Trees include maple and cedar. Area is very steep.
	Lower 2/3	Area is open and undeveloped with a north-south flowing creek along the western boundary. Trees include maple, cedar, birch, and alder. There is a hedge along the eastern boundary.
3715 Dollarton Hwy	Top 2/3	West-east trending black-top driveway along Hwy. Heavily treed with deciduous, hemlock, cedar, holly, apple, cherry, and fir. A northeast-southwest trending rock wall runs along the bottom of the section.
	Lower 1/3	North-northwest to south-southeast trending home with a southeast facing sundeck located in the centre of the property. Trees include fir, cherry and cedar. There is a hedge along the western boundary. Half of a west-east oriented shared "wood patio" runs along the eastern 1/2 of southern property boundary.
3739 Dollarton Hwy	Top 2/3	Northeast-southwest trending black-top driveway from Hwy to home which has a concrete wall along the top (north) along its full length. The home is northwest-south southeast trending with a southeast facing balcony located along the western boundary. The dwelling also has a car garage attached to the north northwest corner. Trees include cedar, dogwood, pear, apple, hemlock, cherry and alder.
	Lower 1/3	Area is open and undeveloped. Trees include fir, cherry and cedar. There is a hedge along the entire length of the western boundary. Half of a west-east oriented shared "wood patio" runs along the western 1/2 of southern property boundary.

No bedrock exposures are present on or near the subject property. The surficial geology of this locality is mapped by the Geological Survey of Canada (1979) and most of the property is characterized by glacial drift. A small intermittent stream runs along the western boundary of the property (known by the property owner as "Aju Creek"). The subject property is situated within the Eastern Variant of the Very Dry Maritime subzone of the Coastal Western Hemlock Zone

(CWHxm1) (Ministry of Forests Research Branch 1994). The native vegetation of this locality has been extensively modified by more than a century of historical timber harvesting and settlement.

### 3.2 TRADITIONAL CULTURES

It is important to note that not all aspects of traditional aboriginal cultures are recorded in the anthropological and historical literature. Additional knowledge of traditional land use and lifestyles still exists in many contemporary First Nations' communities. Moreover, First Nations' societies underwent profound changes following contact with Europeans, and some aspects of traditional culture reported in the literature may not be an accurate reflection of those cultures prior to contact.

The Dollarton locality was occupied in aboriginal times by the ancestors of the **Musqueam** (*x<sup>w</sup>mχθk<sup>w</sup>χ<sup>y</sup>χm* in their own language), **Squamish** (*skxwimish7úlh*), and **Tsleil-waututh** (*sχ'lélwχt*) people, three groups of Salishan language speakers in the Central Coast Salish group (Barnett 1955; Hill-Tout 1978; Kennedy and Bouchard 1986; Suttles 1990a). Squamish is a distinct language spoken in Burrard Inlet, Howe Sound, and the Squamish River valley. The Musqueam speak Halkomelem, which is also spoken on the east coast of Vancouver Island, throughout the Fraser Delta, and up the Fraser River as far as Spuzzum; the Musqueam are part of the "Downriver" division of this language. Many Tsleil-Wauthuth now speak the Squamish language, but are descendents of a Halkomelem group that originally lived around Burrard Inlet and Indian Arm. The Burrard Inlet locality is also within the asserted traditional territory of the Stó:lō Nation, which represents 24 communities of Halkomelem-speaking people in the Lower Fraser River Watershed (K. Carlson 2001).

Traditional Coast Salish culture was characterized by a semi-sedentary lifestyle dependent upon fishing, gathering, and hunting for subsistence. Their society was slightly stratified and three classes of people were usually present; a large upper class, a smaller lower class, and a very small class of slaves. The primary socio-economic unit of Coast Salish society was the house group, each consisting of one or more extended families occupying a single plank house. Residence was usually with the man's family ("patrilocal") while descent was reckoned bilaterally. Each house group owned its house, rights to resource procurement sites, and ritual property including ancestral names, legends, songs, and dances. Rights to these properties were acquired through inheritance and were normally held by the most important members of the household.

Coast Salish villages were usually comprised of one or more houses. Leadership was provided by the *siyam*, a "council" made up of the most respected family heads in the village. The prestige of the *siyam* was based on inherited social position and demonstrated abilities of leadership. Each village was linked through ties of marriage and kinship with other villages to form a social network without distinct boundaries. Marriages arranged between socially-equal families in different villages and from different nations helped to establish a co-operative system for resource procurement, including shared access to specific resource locations and shared labour.

Population and settlement were contingent upon the availability and distribution of seasonal resources. These resources would have included: (1) anadromous salmon runs in the Fraser,

Capilano, Seymour Rivers and Lynn Creek, as well as numerous smaller streams that emptied into Burrard Inlet; (2) in-shore fishes such as surf smelts and herring, particularly important in Burrard Inlet; (3) off-shore fishes such as lingcod and rockfishes; (4) sea mammals such as seals, sea lions, and porpoises; and (5) land mammals such as deer, elk, and bears. Available forest plant resources available would have included Douglas-fir, hemlock, and redcedar trees (for timber and bark), salmonberries, huckleberries, cranberries, crabapples, and chokecherries, among many others (Turner 1975, 1998).

### 3.3 ARCHAEOLOGICAL BACKGROUND

An archaeological site is a location that contains physical evidence of past human activity, and which can be studied by archaeological methods of investigation, including site survey, excavation, and data analysis (Canadian Environmental Assessment Agency 1996). In British Columbia, most archaeological sites are attributable to pre-Contact settlement and land use by First Nations' people, though locations of Euro-Canadian or Asian-Canadian settlement pre-dating 1940 are often recorded as historic archaeological sites. Records of archaeological sites in BC are maintained in the Provincial Heritage Register by the Archaeological Site Inventory Section of the Archaeology Branch, the provincial agency responsible for the management of archaeological resources in accordance with the *Heritage Conservation Act*.

Archaeological sites are numbered according to the Borden Site Designation Scheme used throughout Canada (Borden 1952). This scheme is based on the maps of the National Topographic System and uses latitude and longitude to pinpoint the location of a site. The four alternating upper and lower case letters (e.g., DhRt) designate a unique block measuring 10 minutes of latitude by 10 minutes of longitude. Sites are numbered sequentially within a block, based (usually) on their date of discovery; therefore, DhRt-6 would be the sixth site recorded in block "DhRt."

#### 3.3.1 Types of Archaeological Remains in the Burrard Inlet

Archaeological sites are classified according to the types of **archaeological remains** (i.e., artifacts and features) present, and according to the types of traditional activities suspected to have taken place at the site. A particular site can be comprised of one or more of these types of archaeological remains, and generally speaking, the larger the site, the more complex it is likely to be.

The most common sites in the Burrard Inlet area are comprised of **shell middens, burial places, and artifact scatters**:

- **Shell middens:** The most abundant archaeological remains in marine coastal settings, middens represent the physical remnants of ancient villages or recurrently-occupied seasonal camps. In coastal environments, middens consist primarily of shellfish remains, black anthropogenic soils<sup>1</sup>, fire-altered rocks, ash and charcoal, faunal remains (i.e., fish, bird, and mammal bones), artifacts, and cultural (i.e., archaeological) features such as

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<sup>1</sup> "Anthropogenic soils" are formed by past human activities, as opposed to natural soil formation processes.

fire-hearths, storage pits, and post-moulds. Middens were frequently used as burial places by First Nations' people.

- **Burial Places:** Burial places are locations used by First Nations' people to inter their dead. Through most of prehistory in this region, middens were favoured burial places. However, by about 900 years ago, some First Nations' communities were interring their dead in above-ground settings, which leave few remains for the archaeological record. Between the abandonment of midden burial and the widespread adoption of surficial interment, some First Nations' communities in this region buried their dead in earthen mounds that usually covered a stone substructure.
- **Artifact Scatters:** These tend to be small sites, representing seasonal or transitory resource-procurement camps. They are often marked by artifacts and fire-altered rocks, sometimes with concentrations of ash and charcoal. Post-moulds from drying racks or temporary shelters could be present. Hunting and plant-gathering camps can be expected in landward settings, either along the routes of traditional trails or beside streams and sloughs.

### 3.3.2 Summary of Regional Culture History

The Fraser Delta - Burrard Inlet area lies within the southern Strait of Georgia region of the Northwest Coast Culture Area, which encompasses the west coast of North America, from southeastern Alaska to southern Oregon (Suttles 1990b). The pre-Contact cultural sequence for this region is based on many years of archaeological site investigations along the Fraser River between Yale and Vancouver, in Whatcom County and the San Juan Islands of Washington, on the east coast of Vancouver Island between Comox and Victoria, and in the southern Gulf Islands. Recent summaries of Northwest Coast prehistory include Ames and Maschner (1999), Matson and Coupland (1995), R. Carlson (1990), and Mitchell (1990).

Archaeological research has recovered evidence for over 9000 years of human occupation on the Northwest Coast. The archaeological evidence for the Lower Mainland of British Columbia has been organized into a sequence of periods, known as "phases" (Borden 1970). Each phase is marked by distinctive artifact styles and technologies, as well as inferred economic, social, and other traits. The archaeological periods of this area, from oldest to youngest, are named Old Cordilleran, St. Mungo, Locarno Beach, Marpole, and Stselax (Table 1). The sequence is conventionally terminated at AD 1800, after which most authorities agree that European influences came to dominate First Nations' material culture.

**Table 3. Archaeological chronology of the Lower Mainland, southern Strait of Georgia region.**

Phase	Dates <sup>1</sup>	Selected Cultural Characteristics
Old Cordilleran	9000 to 4500 years BP	<ul style="list-style-type: none"> <li>- initial adaptation to marine coastal environments</li> <li>- terrestrial resources are more important than later times</li> <li>- shellfish and sea mammals locally important; salmon and eulachon were caught but not yet dominant</li> <li>- no evidence for ranked social organization</li> <li>- no evidence of permanent villages</li> </ul>
St. Mungo	5500/4500 to 3300 years BP	<ul style="list-style-type: none"> <li>- fully adapted to marine coastal environments</li> <li>- very localized evidence for ranked social organization, including both achieved and ascribed status</li> <li>- localized evidence for mass-harvesting of salmon and herring; inferred presence of resource storage</li> <li>- permanent houses known (e.g., central Fraser Valley)</li> <li>- burials in middens widespread</li> </ul>
Locarno Beach	3300 to 2400 years BP	<ul style="list-style-type: none"> <li>- large permanent villages and plank houses absent or at least rare</li> <li>- ascribed status apparently absent; achieved status widespread; head deformation possibly used to denote social standing</li> <li>- resource mass-harvesting and food storage widespread</li> </ul>
Marpole	2400 to 1000 years BP	<ul style="list-style-type: none"> <li>- large, permanent villages widespread</li> <li>- plank houses present</li> <li>- ascribed status present (but localized); achieved status widespread</li> <li>- long-range trading networks present</li> <li>- salmon is most important food resource at this time</li> </ul>
Stselax	1000 years BP to ca. 200 years BP	<ul style="list-style-type: none"> <li>- traditional ethnographic villages established</li> <li>- artifacts identical or similar to those used by ethnographic Coast Salish peoples</li> <li>- subsistence activities identical to those recorded by ethnographers</li> <li>- switch from midden to surface burials</li> </ul>
Historic (Ethnographic) Period	About 200 years BP to present	<ul style="list-style-type: none"> <li>- gradual abandonment of traditional house styles and artifact types</li> <li>- adoption of European house styles and tools</li> <li>- subsistence activities become oriented to European cash economies</li> </ul>

<sup>1</sup> Following archaeological convention, dates are expressed as radiocarbon years BP (Before Present), where present equals AD 1950.

### 3.3.3 Archaeological Research in the Dollarton Area

A search of RAAD identified sixty-three (63) recorded archaeology sites located along the shores and in the waters of the Burrard Inlet from Stanley Park, east to Port Moody, and north through the Indian Arm to the confluence of the Indian River. The site types generally include subsurface shell middens, subsurface and surface lithic scatters, and burials. Less common site types include pictographs, petroforms, cultural depressions, prehistoric trails, shipwrecks, a wooden fish weir, a canoe skid, a stone fish trap, an earthwork mound, a CMT and historic habitations, structures, burials and cemeteries.

Eight archaeological sites are located within 2 km of the study area (Figure 1). DhRr-115 consists of an aboriginally-logged barber chair cedar stump and possible burial mounds. DhRr-15, 20 and 27 are subsurface shell middens and DhRr-20 also includes an historic cemetery and earth mound. DhRt-19 is an isolated artifact. DhRr-97 and 96 are historic sweat house localities. The closest archaeology site in the immediate area, site DhRr-8 commonly known as the “Cates Park Site”, is a subsurface shell midden, surface lithic scatter, burial and habitation (refuge) site and has been interpreted in the records as a Tseil-Waututh winter village or seasonal campsite.

Whey-ah-Wichen/Cates Park was first recorded by Charles Borden, Jim Gardner and David Sanger in 1960 and was the subject of a six-week archaeological field school, led by Art

Charlton, for Vancouver City College in 1972. Since the initial recording and subsequent excavation, several smaller scale studies have been conducted including a revisit by archaeologists Stephanie Yip and Peter Gose in 1979, the removal of exposed human remains in 1998 by Lindsay Oliver. A post impact assessment of the park picnic area and an archaeological survey of the entire park was conducted by Diana Alexander, and Alexander and Colin Grier respectfully, in 1999. The latter study resulted in the identification and recording of archaeology sites DhRr-103 and 104. In March 2007, Margaret Rogers conducted a post impact assessment of the entire park following the winter windstorms of late 2006 and recorded midden materials including shell, fire-broken rock (FBR), faunal remains and hundreds of lithic artifacts, eroding onto the beach and into the intertidal zone along the entire length of the foreshore of the park. Most recently, the boundary of the Whey-ah-Wichen/Cates Park site was extended hundreds of meters to the west as a result of a survey associated with the Kinder Morgan Oil Release of July 2007, where artifacts were found by Margaret Rogers and Geordie Howe consistently along the foreshore to just before the eastern edge of Tsleil-Waututh IR #3.

An AIA of a similar residential development at 3785 Dollarton Highway to the east of the subject property did not locate any archaeological remains (Golder 2005).

## 4.0 RESULTS

No archaeological remains were identified on the subject property during the field survey. Figure 3 shows the survey coverage, as well as the location of the shovel tests. Typical profiles in the tests had 5 to 20 cm of dark brown silty sand with gravel, overlying reddish brown coarse silty sand with gravel, inferred to be weathered till sediments. No cultural materials were identified in any of the subsurface tests.

Extensive and intensive historic land use for residential housing and landscaping (due to the degree of slope within each property) has significantly altered the landscape integrity of the three properties (see Figures 4 and 5). No cultural materials were observed in surface exposures or locations which provided subsurface exposures such as the banks of the creek along the western lot boundary (3707 Dollarton Highway), the shoreline cutbank or within disturbed areas of the three properties resulting from activities associated with historic occupation of the lots (see Figures 6, 7, 8 and 9). Appendix 1 provides a table of the results from the ten subsurface test locations.

A single water-rolled flake was found on the foreshore and left *in situ*. This flake is similar to other artifacts found along the shoreline between Cates Park and IR 3. It is unclear whether these redeposited finds represent cultural materials: eroded out of nearby land based pocket middens or lithic scatters, moved downshore from the Cates Park site during storms and daily wave action; or left on the foreshore during beach-based activities. This find seems to be less than 100 m from flakes located at during the Kinder Morgan release project. As a consequence, this flake is identified as a further extension of such finds associated with the Cates Park site.





Figure 4: View south along boundary of 3707 - 3715 Dollarton Highway from Dollarton Highway.



Figure 5. View southeast of 3707 Dollarton Highway from house to 3715 Dollarton Highway house.



Figure 6. View east at north side of house at 3715 Dollarton Highway.



Figure 7. View east at south side of house at 3739 Dollarton Highway.



Figure 8. View southwest of access to 3715 Dollarton Highway.



Figure 9. View northeast to boathouses on foreshore of 3715 and 3739 Dollarton Highway.

## 5.0 IMPACT ASSESSMENT

No archaeological remains were encountered during the field survey of the subject property, and it is believed that no such remains exist within this profoundly altered setting. Therefore, proposed redevelopment of the three lots at 3707, 3715, and 3739 Dollarton Highway will not impact protected archaeological resources. The likelihood that undiscovered archaeological remains exist within the subject property is considered to be low.

A single flake (possibly redeposited and not *in situ*) was located on the foreshore of 3707 Dollarton Highway. No management recommendations are provided for this isolated flake as the artifact is outside of the lot as defined in Heritage Inspection Permit #2008-100. However, if proposed riprapping of the shoreline is permitted during development of the terrestrial portion of 3707 Dollarton Highway then such development could potentially impact the artifact if riprap extends into the intertidal zone. Furthermore, if the District of North Vancouver agrees to development of the foreshore for 3707, 3715 and 3739 Dollarton Highway then this artifact will be impacted and further archaeological study of the intertidal zone is warranted.

## 6.0 RECOMMENDATIONS AND CONCLUSION

Based on the findings of this assessment, the following resource management recommendations are made:

- (1) **No further archaeological studies are required for the proposed redevelopment of District Lots 3707, 3715 and 3739 Dollarton Highway.**
- (2) **If the foreshore (intertidal zone) of the subject property is developed, the single flake should be collected and additional archaeological studies of the intertidal zone are warranted.**

Even the most thorough investigation may fail to reveal all archaeological remains, including those protected by provincial legislation that might occur within a property. In consideration of this, it is further recommended that:

- (3) **The landowners and/or their representatives inform building contractors that: (i) archaeological remains in B.C. are protected from disturbance, intentional or inadvertent, by Section 13 of the *Heritage Conservation Act*; (ii) in the event that archaeological remains are encountered, all ground disturbance in the immediate vicinity must be suspended at once; (iii) it is the individual's responsibility to inform the Archaeology Branch as soon as possible, about the location of any archaeological remains and the nature of the disturbance; and (iv) the *Heritage Conservation Act* prescribes severe penalties for failing to comply with these requirements.**

This report is concerned with potential impacts to archaeological sites by the proposed redevelopment of the subject property. It does not address potential impacts to traditional places or land use by this development. As such, this report does not comprehensively document all First Nations' interest in the land. The study was conducted without prejudice to First Nations' treaty negotiations, aboriginal rights, or aboriginal title.

## 7.0 REFERENCES CITED

Alexander, Diana

- 1999 *Archaeological Post-Impact Assessment of the Picnic Shelter at Cates Park, District of North Vancouver.* Report prepared for the Corporation of the District of North Vancouver and the Archaeology Branch.

Alexander, Diana, and Colin Grier

- 2000 *Archaeological Investigations at Cates Park, District of North Vancouver.* Report prepared for the Corporation of the District of North Vancouver, and the Archaeology Branch (Permit Number 1999-244).

Ames, K.M. and H.D.G. Maschner

- 1999 *Peoples of the Northwest Coast: Their Archaeology and Prehistory.* Thames and Hudson, London.

Archaeology Branch

- 1998 *British Columbia Archaeological Impact Assessment Guidelines* [3<sup>rd</sup> revised edition]. Archaeology Branch, Ministry of Small Business, Tourism and Culture, Victoria.

Barnett, H.G.

- 1955 *The Coast Salish of British Columbia.* University of Oregon Monographs, Studies in Anthropology No. 4. Eugene, Oregon.

Borden, C.E.

- 1952 A uniform site designation scheme for Canada. *Anthropology in British Columbia* 3: 44-48. Victoria.

Borden, C.E.

- 1970 Cultural history of the Fraser River-delta region: An outline. In *Archaeology of British Columbia, New Discoveries*, edited by R.L. Carlson. *B.C. Studies, Special Issue* 6-7: 95-112.

Carlson, K.T. (editor)

- 2001 *A Stó:lō-Coast Salish Historical Atlas.* Douglas & McIntyre, Vancouver/Toronto, University of Washington Press, Seattle, and Stó:lō Heritage Trust, Chilliwack, B.C.

Carlson, R.L.

- 1990 Cultural antecedents. In *Handbook of North of American Indians, Volume 7, Northwest Coast*, edited by W. Suttles, pp. 60-69. Smithsonian Institution, Washington.

Charlton, Arthur S.

- 1974 *Archaeological Investigations at the Cates Park Site (DhRr 8).* Report submitted to the Archaeology Branch, Permit No. 1974-24.

Golder Associates

- 2005 *Archaeological Impact Assessment of 3785 Dollarton Highway, North Vancouver, B.C. (Heritage Conservation Act Permit 2005-055).* Report on file with the Archaeology Branch, Victoria.

Hill-Tout, C.

- 1978 *The Salish People: The Local Contributions of Charles Hill-Tout Volume. II: The Squamish and Lillooet.* Edited with an introduction by Ralph Maud. Talon Books, Vancouver.

Geological Survey of Canada

- 1979 *Surficial Geology - Vancouver, British Columbia* [map]. Geological Survey of Canada, Map 1486A. Ottawa.

Kennedy, Dorothy and Randy Bouchard

- 1986 *Squamish Indian Land Use and Occupancy Study* [Volumes 1 and 2]. Report prepared for the Squamish Nation, and on file at B.C. Indian Language Project, Victoria.

Matson, R.G. and G. Coupland

1995 *Prehistory of the Northwest Coast*. Academic Press, San Diego.

Ministry of Forests Research Branch

1994 *Biogeoclimatic Units of the Vancouver Forest Region: Fraser Valley - Lillooet River* [map sheet 6 of 6,]. Ministry of Forests, Nanaimo.

Mitchell, D.H.

1990 Prehistory of the coast of southern British Columbia and northern Washington. In *Handbook of North of American Indians, Volume 7, Northwest Coast*, edited by W. Suttles, pp. 340-358. Smithsonian Institution, Washington.

Oliver, Lindsay

1998 *Found Human Remains 98-28B, Archaeological Site DhRr-8, Cates Park, Deep Cove, North Vancouver, B.C., Conducted Under the Coroner's Act*. Report prepared for the Archaeology Branch.

Rogers, Margaret

2007 Non permit, Letter report for 2007 work completed in Whey-ah-Wichen/Cates Park.

Suttles, W.

1990a Central Coast Salish. In *Handbook of North American Indians, Volume 7, Northwest Coast*, edited by W. Suttles, pp. 453-475. Smithsonian Institution, Washington.

1990b Introduction. In *Handbook of North American Indians, Volume. 7; Northwest Coast*, edited by W. Suttles, pp. 1-16. Smithsonian Institution, Washington.

Turner, Nancy, J.

1975 *Food Plants of British Columbia Indians. Part One, Coastal Peoples*. British Columbia Provincial Museum Handbook, Victoria.

1998 *Plant Technology of the First Peoples in British Columbia*. Royal British Columbia Museum Handbook, UBC Press, Vancouver.

**APPENDIX 1**

**Results of Subsurface Testing at 3707, 3715 and 3739 Dollarton Highway**



<b>Appendix 1. Results of subsurface testing</b>			
Shovel Test # Location	Metrics: (length x width x depth below surface)	Location	Results
ST1	30 x 30 x 50 cm	3 m east of creek; 10U 0502261E 5461177N ± 8.3 m	no cultural material; no cultural stratigraphic observed; dark brown silty sand with gravels changing to light brown course sand with gravels
ST2	30 x 30 x 60 cm	10 m east of ST1 @ 108°; 13 m from creek; 1.5 m from terrace edge; 10U 0502266E 5461184N ± 6.9 m	no cultural material; no cultural stratigraphy observed; dark brown silty sand with gravels changing to orangey brown course silty sand with gravels
ST3	30 x 30 x 60 cm	24 m @ 355 ° from ST2; on higher terrace; 10U 0502285E 5461182N ± 6.6 m	no cultural material; no cultural stratigraphy observed; dark brown silty sand with gravels changing to reddish brown silty sand with gravels
ST4	30 x 30 x 25 cm	on third terrace; 12 m east of creek; 10U 0502271E 5461215N ± 6.8 m	no cultural material; no cultural stratigraphy observed; course red silty sand with gravels
ST5	30 x 30 x 65 cm	East of house 3715; 10U 0502291E 5461195N ± 7.7 m	no cultural material; no cultural stratigraphy observed; fine grained dark brown silty sand with gravels changing to orangey brown course silty sand with gravels
ST6	30 x 30 x 65 cm	1.5 m from break in slope; 10U 0502322E 54611190N ± 4.5 m	no cultural material; no cultural stratigraphy observed; dark brown silty sand with gravels changing to orangey brown course silty sand with gravels
ST7	30 x 30 x 60 cm	10U 0502331E 5461200N ± 13.8 m	no cultural material; no cultural stratigraphy observed; black to dark brown loam changing to reddish brown and grey silty sand
ST8	30 x 30 x 45 cm	10U 0502308E 5461196N ± 6.6 m	no cultural material; no cultural stratigraphy observed; dark brown loam changing to reddish brown course sand
ST9	30 x 30 x 60 cm	5 m from southeast corner House 3739 10U 0502305E 5461217N ± 5.1 m	no cultural material; no cultural stratigraphy observed; compact light brown silty sand with gravels
ST10	30 x 30 x 65 cm	10U 0502337E 5461203N ± 4.5 m	no cultural material; no cultural stratigraphy observed; black to dark brown silty sand with gravel changing to orangey brown silty sand