



April 18, 2022

Mr. Tim Schmitt  
Marcon Albert (GP) Ltd.  
5645 – 199<sup>th</sup> Street  
Langley, BC V3A 1H9

Dear Mr. Schmitt:

**Re: Environmental Assessment and Restoration Plan  
2025 St. Johns Street, Port Moody, BC  
Project No. 14296**

We have enclosed the report titled *Environmental Assessment and Restoration Plan*. If you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

**Keystone Environmental Ltd.**

Craig S. Patterson, R.P.Bio.  
Project Manager

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## ***Environmental Assessment and Restoration Plan***

**2025 St. Johns Street  
Port Moody, BC**

**Prepared for: Marcon Albert (GP) Ltd.**

**Project No. 14296  
April 2022**

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## EXECUTIVE SUMMARY

Keystone Environmental Ltd. was retained by Marcon Albert (GP) Ltd. (Marcon) to complete an Environmental Assessment and Restoration Plan for a proposed development at 2025 St. Johns Street, Port Moody, BC (the Site). The proposed project will involve construction of a six-storey residential development featuring underground parking and a private community amenity area, along with habitat improvements to Environmentally Sensitive Area No. 8 (the ESA) and the protected riparian area surrounding Schoolhouse South Creek.

An Environmental Assessment and Restoration Plan is required to guide project planning and meet the requirements of the City's ESA Development Permit Area. The purpose of this report is to identify and characterize the ecological values on-site, describe potential environmental impacts, evaluate the net impacts of the development, and provide procedures to enhance ecological values including a planting and invasive species management plan.

The Site is currently comprised of a paved central area bordered by Environmentally Sensitive Area No. 8 and the Riparian Management Zone surrounding Schoolhouse South Creek, both of which have dense invasive species.

Adjustments to the project building design have been made to be consistent with the City's stream setback bylaw. Project design now proposes a Riparian Protection and Enhancement Area (RPEA) that accommodates habitat restoration of native planting with protection signage and fencing to restrict public access into the municipal 15 m wide Riparian RPEA, which extends into the majority of the 5 m wide Riparian Transition Area (RTA), but excludes development features within remaining areas of the RTA. Despite no longer seeking a stream setback variance, the project is still proposing to include the off-Site ESA and Schoolhouse South Creek habitat restoration works of approximately 1,724 m<sup>2</sup>, which is considered to exceed the City's requirements and general best practices, and achieve an overall net habitat balance.

Potential impacts, including potential impact to bird nesting habitat, accidental spills and sedimentation of stormwater, and proliferation of invasive plant species can be suitably mitigated through implementation of environmental protection measures and standard best management practices provided in this report and detailed in a project Construction Environmental Management Plan as a guide to contractors prior to construction; specifically:

- Completing clearing activities outside the nesting season for passerine species (March 1 – August 31). Alternately, a qualified environmental professional should conduct a pre-clearing bird nest survey if clearing is proposed outside this window, implementing disturbance exclusion buffers specific to species of active nests, if present.
- Implementation an Erosion and Sediment Control Plan and sediment control monitoring program for the duration of on-Site works, along with spill response training for contractor personnel.
- Removing and disposing of invasive species as per the Invasive Species Management Plan detailed in Section 7 of this report.

*This Executive Summary is subject to the same general limitations as contained in the report and must be read in conjunction with the entire report.*

## TABLE OF CONTENTS

|                                                              | Page |
|--------------------------------------------------------------|------|
| EXECUTIVE SUMMARY .....                                      | i    |
| TABLE OF CONTENTS .....                                      | iii  |
| List of In-Text Tables .....                                 | iv   |
| List of Appendices .....                                     | iv   |
| 1. INTRODUCTION AND PROJECT DESCRIPTION .....                | 1    |
| 2. ENVIRONMENTAL REGULATORY FRAMEWORK .....                  | 2    |
| 2.1 Federal Legislation .....                                | 2    |
| 2.2 Provincial Legislation .....                             | 2    |
| 2.3 Municipal Legislation .....                              | 3    |
| 3. BACKGROUND INFORMATION REVIEW .....                       | 5    |
| 4. BIOLOGICAL RESOURCES .....                                | 7    |
| 4.1 Previously Disturbed/Developed Portion of the Site ..... | 7    |
| 4.2 Schoolhouse South Creek and Riparian Area .....          | 8    |
| 4.3 Environmentally Sensitive Area No. 8 .....               | 9    |
| 5. IMPACT ASSESSMENT AND MITIGATION MEASURES .....           | 11   |
| 5.1 Schoolhouse South Creek and Riparian Area .....          | 11   |
| 5.1.1 Setbacks .....                                         | 11   |
| 5.1.2 Upgrades to Project Design .....                       | 11   |
| 5.2 Environmentally Sensitive Area No. 8 .....               | 12   |
| 5.3 Net Habitat Balance .....                                | 12   |
| 5.4 Potential Impacts and Proposed Mitigation Measures ..... | 13   |
| 6. RESTORATION PLANTING PLAN .....                           | 15   |
| 6.1 Plant Survivorship Monitoring and Maintenance .....      | 17   |
| 6.2 Other Restoration Conditions .....                       | 17   |
| 7. INVASIVE SPECIES MANAGEMENT PLAN .....                    | 18   |
| 7.1 Japanese Knotweed .....                                  | 18   |
| 7.2 Himalayan Blackberry .....                               | 19   |
| 7.3 English Ivy .....                                        | 20   |
| 7.4 Other Invasives .....                                    | 21   |

|       |                                                      |    |
|-------|------------------------------------------------------|----|
| 7.4.1 | Cherry Laurel, Spurge Laurel and English Holly ..... | 21 |
| 7.4.2 | Small-Flowered Jewelweed .....                       | 21 |
| 8.    | MONITORING AND MAINTENANCE .....                     | 23 |
| 9.    | CONCLUSION .....                                     | 25 |
| 10.   | STATEMENT OF LIMITATIONS .....                       | 26 |
| 11.   | REFERENCES .....                                     | 27 |

## LIST OF IN-TEXT TABLES

|         |                                                    |      |
|---------|----------------------------------------------------|------|
|         |                                                    | Page |
| Table 1 | Proposed Riparian Planting Plan Species List ..... | 16   |

## LIST OF APPENDICES

|            |                                                                        |
|------------|------------------------------------------------------------------------|
| Appendix 1 | Figures                                                                |
| Appendix 2 | Topographic Survey Plan                                                |
| Appendix 3 | Photographs                                                            |
| Appendix 4 | Stormwater Management Plan                                             |
| Appendix 5 | Schoolhouse South Creek Detailed RAPR (formerly RAR) Assessment Form 1 |

## 1. INTRODUCTION AND PROJECT DESCRIPTION

Keystone Environmental Ltd. was retained by Marcon Albert (GP) Ltd. (Marcon) to complete an Environmental Assessment and Restoration Plan for a proposed multi-unit residential development at 2025 St. Johns Street, Port Moody, BC (the Site). The majority of the Site is currently paved, bordered by Environmentally Sensitive Area No. 8 (the ESA) on the western edge and the riparian habitat surrounding Schoolhouse South Creek to the south (Figure 1). The proposed project will involve construction of a two-building, six-storey apartment complex with underground parking and a private community amenity area (e.g., playground/park) located between the two buildings.

The objective of this Environmental Assessment and Restoration Plan is to guide project planning and meet the requirements of the City's ESA Development Permit Area, by characterizing Site ecological values, identifying potential environmental impacts, and demonstrating the project is able to avoid or minimize these impacts to achieve an overall net gain in habitat. The project has undergone design revisions to avoid impacts to the ESA, riparian habitat, and the municipal Riparian Transition Area (RTA). This report provides revised project design and habitat restoration measures since the previous report prepared by Keystone Environmental, dated March 18, 2021, to demonstrate the projects provides appropriate City setback requirements.

## 2. ENVIRONMENTAL REGULATORY FRAMEWORK

The Site is subject to the following environmental regulatory requirements:

### 2.1 Federal Legislation

- *Migratory Birds Convention Act*: protects birds and their active nests. If vegetation clearing is proposed during the songbird nesting window of March 1 – August 31, a nesting survey should be conducted to confirm active nests are not present, and to implement appropriate buffers if nests are present.
- *Fisheries Act*: prohibits death of fish by any means other than fishing, and the harmful alteration, disruption or destruction of fish habitat

### 2.2 Provincial Legislation

- *Water Sustainability Act* Section (11): regulates "changes in and about a stream."<sup>1</sup>
- *Riparian Areas Protection Act*: establishes the minimum provincial streamside development setbacks for the Lower Mainland and empowers municipalities to establish municipal setback requirements.
- *Riparian Areas Protection Regulation (RAPR)*: establishes the assessment methods for Qualified Environmental Professionals (QEPs) to determine suitable streamside development setbacks. Based on the results of the stream measurements collected on August 14, 2018, Schoolhouse South Creek requires a minimum 15.4 m setback from the high-water mark under the provincial RAPR (formerly known as RAR). The RAPR Detailed Assessment Form 1 for Schoolhouse South Creek is provided as an attachment to this report. The location of the RAPR setback in relation to proposed building works can be viewed in Figures 2 and 3 attached to this report.
- *Wildlife Act* Section (34): protects wildlife, and birds and their nests.

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<sup>1</sup> Permits under the *Water Sustainability Act* are not expected to be required for the project, as construction works below the top-of-bank are not anticipated.

- *Weed Control Act* Section (2): requires an occupier to control provincially-designated noxious weeds, such as Japanese knotweed (*Fallopia japonica*), growing on land and premises occupied by that person.

## 2.3 Municipal Legislation

- Zoning Bylaw No. 2937, 2018: regulates the use and development of lands, buildings and structures in the City of Port Moody, and defines the minimum Riparian Management Zone (i.e., riparian development setbacks) from watercourses. The Riparian Management Zone includes the Riparian Protection and Enhancement Area (RPEA) and Riparian Transition Area (RTA). Development is not permitted within the RPEA setback, with the exception of ecological restoration works. Limited development activities may be allowed within the RTA, including construction of trails and access roads, kiosks, signage, interpretative platforms, fences, stormwater management systems, and landscaping. Under this bylaw, ditches have a minimum RPEA of 5 m and do not require an RTA. The location of the RPEA setback in relation to proposed building works is shown on Figures 2 and 4 attached to this report.
- Official Community Plan Bylaw No. 2955, 2014: outlines the municipality's objectives and policies to guide land use in the community over the long term; and includes the City's ESA management strategy and Development Permit Guidelines for ESAs. The guidelines are a list of requirements and general recommendations to support wildlife corridors, watersheds, forest ecosystems, watercourses, riparian areas, and species at risk.
- Tree Protection Bylaw No. 2961, 2015: requires municipal permits to be obtained before removing trees on lands subject to Development Approval. The permitting process requires preparation of Tree Removal/Retention/Replanting Plans by a professional Arborist.
- Stream and Drainage System Protection Bylaw No. 2470, 2000: prohibits fouling or impeding flow of a watercourse or sewer. The Bylaw requires that a Sediment Control Plan be prepared by a Professional Engineer for developments to outline measures and a sampling program to be implemented during construction works to prevent the discharge of prohibited materials to the drainage system (i.e., water with total suspended solids in excess of 75 mg/L above background levels or a pH value outside of the range 6.5–8.0).

- Pesticide Use Control Bylaw No. 2575: regulates the use of pesticides, herbicides and other chemicals in Port Moody and prohibits their use for cosmetic purposes.

### 3. BACKGROUND INFORMATION REVIEW

The current baseline conditions at the Site and surrounding area was assessed by conducting a review of pertinent background information available from online database searches. The objective of the database searches and background review was to identify potential concerns and issues that may require further investigation, and to collect pertinent bio-physical information to identify sensitive ecosystems or ecosystem components that may be affected by the proposed project works. Information collected during the background review was used to inform the field survey.

A background information assessment for the Site included review of the City's ViewPort GIS Mapping database, the Community Mapping Network online Wildlife Tree Atlas, the BC Conservation Data Centre rare species occurrence map, and the BC Ministry of Environment Fisheries Information Data Queries database.

The desktop review confirmed that a City-designated ESA is located along the western portion of the Site (Figure 1). It is defined as ESA No. 8 and is categorized as high sensitivity (ViewPort 2019a). The desktop review also confirmed that a watercourse, identified as Schoolhouse South Creek on municipal watercourse online mapping (referred as Schoolhouse Brook on provincial databases), flows through the southeast corner of the Site and eventually drains to the marine environment in Burrard Inlet approximately 600m northeast of the Site.

The fisheries information data query of Schoolhouse South Creek (Schoolhouse Brook) identified occurrence records of chum salmon (*Oncorhynchus keta*), coho salmon (*Oncorhynchus kisutch*), coastal cutthroat trout (*Oncorhynchus clarkii clarkii*), rainbow trout (*Oncorhynchus mykiss*), and sculpin species (BC ENV 2019). Under the municipal Zoning Bylaw No. 2937, Schoolhouse South Creek (upstream of Clarke Street) requires a minimum RPEA setback of 15m from top-of-bank, and an additional RTA of 5m from the upland edge of the RPEA.

The stormwater utility layer on the City's GIS database indicated that Schoolhouse South Creek enters an approximately 43 m long 1,750 mm diameter culvert crossing Albert Street before re-emerging as a day-lighted stream on the east side of the road. The layer also showed a storm main beyond the northeast corner of the Site and catch basins along St. Johns Street leading into

a culverted section of Schoolhouse South Creek, crossing St. John's Street approximately 75 m east of the Site (ViewPort 2019b).

A review of the Community Mapping Network Wildlife Tree Atlas did not document Bald Eagle, Osprey, or Great Blue Heron nests on or within a 1 km radius of the Site (CMN 2019). The BC Conservation Data Centre rare species database did not reveal known mapped occurrences of provincially or federally-designated rare or endangered species on Site or adjacent properties (CDC 2019).

## **4. BIOLOGICAL RESOURCES**

Keystone Environmental conducted an initial Site visit on August 14, 2018, to collect general biophysical information and “ground-truth” information gathered during the background review, and to mark the top-of-bank and high-water mark for Schoolhouse South Creek in advance of a topographic survey completed by Butler Sundvick BC Land Surveyors. The topographic survey plan is provided as an attachment to this report. During this initial visit, stream measurements were recorded in accordance with the detailed RAPR methods to determine the minimum development setback required under the provincial RAPR and Riparian Areas Protection Act.

A second Site visit was conducted on January 24, 2019, to confirm Site conditions, and identify opportunities for enhancement of ecological values in the ESA and on-Site portion of the Schoolhouse South Creek riparian area. Vegetation was characterized during this winter field survey. Identification of some plant species may have potentially been limited due to winter dormancy. ESAs on private properties located beyond the western Site boundary were not assessed or viewed, based on accessibility constraints from the western Site slope; however, the City’s mapping database notes these off-Site ESAs as landscaped, single-family residential lots.

During the field survey, observations on biophysical conditions were recorded for three distinct areas on the Site and in the St. George Street right-of-way located immediately south of the Site: the previously disturbed portion of the Site, Schoolhouse South Creek and its associated riparian area, and the ESA on the western portion of the Site. Habitat values were classified as: High value areas as those with a healthy native plant community; areas of Moderate value compromised by vegetated areas with significant presence of invasive plants; and areas that are paved are not considered to provide riparian or terrestrial habitat function classified as Nil value. Representative photographs from the January 24, 2019 field assessment are provided as an attachment to this report.

### **4.1 Previously Disturbed/Developed Portion of the Site**

The majority of the Site that had evidence of previous development was relatively flat, and the surface conditions were composed of asphalt paving or hard-packed gravel (Photograph 1). The edge of the exiting asphalt is presented on Figure 1. There was a narrow slope of maintained grass located at the north perimeter of the paved/gravel area, located above an existing retaining

wall (Photograph 2). This retaining wall extended around the Site frontage on St. Johns Street and Albert Street to support the raised elevation of the Site.

A stormwater catch basin was observed near the northeast corner of the Site, and two more were observed near the southern-central area of the Site (Figure 1). These catch basins were not identified during the City's GIS stormwater utility layer review, but discharge from these catch basins is expected to be connected to storm main beneath St. John's Street, as direct outfalls from the Site were not observed to Schoolhouse South Creek.

The majority of on-Site vegetation was typical of disturbed urban sites and included red alder and black cottonwood saplings, St. John's wort (*Hypericum perforatum*), white clover (*Trifolium repens*), wall lettuce (*Lactuca muralis*), and significant invasive Himalayan blackberry (*Rubus armeniacus*). Vegetation density was sparse on the majority of this area (Photograph 3). Vegetation density was high, however, in the area adjacent to the ESA where material sloughing appeared evident (Photograph 4). Dense blackberry was also present along the west side of the paved area, extending from the ESA (Photograph 5).

Landscaping vegetation was present on the east perimeter of the Site. A patch of Japanese knotweed, approximately 40 m<sup>2</sup> in area, was present near the northeast corner of the Site (Photograph 6).

## 4.2 Schoolhouse South Creek and Riparian Area

Based on observations and measurements recorded during the initial field assessment on August 14, 2018, Schoolhouse South Creek flows northeast in a low-gradient (approximately 2%) channel. Channel width averaged 5.1 m and instream substrate was mixed, dominated by gravel, cobble, and sand, with sub-components of boulders and fines (Photographs 7 and 8).

Riparian habitat was characterized during the January 24, 2019 field survey. It consisted of mixed (primarily deciduous) forest, dominated by bigleaf maple (*Acer macrophyllum*), red alder (*Alnus rubra*), and black cottonwood (*Populus trichocarpa*), with lesser components of coast Douglas-fir (*Pseudotsuga menziesii* var. *menziesii*), western hemlock (*Tsuga heterophylla*), and western redcedar (*Thuja plicata*) (Photograph 9). Native understory vegetation was comprised primarily of salmonberry (*Rubus spectabilis*) and sword fern (*Polystichum munitum*), with lady fern

(*Athyrium filix-femina*) and red elderberry (*Sambucus racemosa*) as the main sub-dominant species (Photograph 10).

Significant invasive vegetation was present in the Schoolhouse South Creek riparian area, particularly near and above the top-of-bank in the road right-of-way on the northwest side of the brook. English ivy (*Hedera helix*) was well-established along the top-of-bank and appeared established on a significant portion of the native trees in this area (Photographs 11 and 12). Occurrences of English holly (*Ilex aquifolium*), spurge laurel (*Daphne laureola*), cherry laurel (*Prunus laurocerasus*) and small-flowered jewelweed (*Impatiens parviflora*) were also observed in the riparian area.

An unnamed ditch was identified within the Schoolhouse South Creek riparian area south of the Site (Figure 1) (Photograph 13). The ditch did not originate from headwaters or a significant source of groundwater, and appeared to collect surface water flow from the slope to the west. The upper reach was linear, with a consistent channel width of 1.4 m, suggesting it may be a historically constructed drainage channel. The ditch appeared ephemeral as it was dry during the August 14, 2018 field survey but contained water during the January 24, 2019 survey (Photograph 14). Water in the ditch appeared stagnant and flow was not observed during the January 2019 visit, however, scour patterns in the leaf litter on the bank of Schoolhouse South Creek indicated that water from the ditch flows to the brook during rainfall events. This ditch is considered to be non-fish bearing, based on the lack of upstream fish habitat and the steep slope between the watercourse and Schoolhouse South Creek.

A significant portion of the Schoolhouse South Creek Riparian Management Zone (15 m RPEA and 5m RTA from top-of-bank) was occupied by paved asphalt surface from previous Site development (Photograph 15), and included a lock block retaining wall near the south border of the Site that extended into the RPEA by approximately 20 m (Photograph 16).

#### **4.3 Environmentally Sensitive Area No. 8**

The ESA habitat along the western side of the Site consisted of mature mixed forest located on a steep slope. Plant species present were similar to those in the Schoolhouse South Creek riparian forest. Coniferous trees, however, made up a greater portion of the tree canopy than that of the

riparian area, particularly near the top of the slope (Photograph 17). Extensive invasive Himalayan blackberry and English ivy were present, with English ivy more prevalent in the southern portion of the ESA, while Himalayan blackberry was more prevalent in the northern portion (Photographs 18 and 19). High-density thickets of blackberry were present on the eastern side of the north end of the ESA, along the interface with the disturbed central portion of the Site. Blackberry appeared to be less dense further up the slope on the north-west portion of the ESA, which was mixed with native plant species.

Raptor nests were not observed in trees within the ESA. Wildlife use in this area is anticipated to be limited to urban-associated species, although it is noted that community streamkeepers reported black bear have been observed within the Schoolhouse South Creek riparian area. The ESA exhibited diverse habitat structure (i.e., trees, shrubs, and ground-cover plants) with the potential to provide nesting opportunity for a variety of songbird species.

Evidence of a historic slope failure was visible near the central on-Site portion of the ESA, which included a portion of the slope where mature trees were not present (Photograph 20), as well as accumulation of deadfall timber and soil/vegetation material on the paved area at the base of the ESA (Photograph 21). Areas originally designated by the City as ESA (located on and north of the lock block retaining wall, including the section north of the retaining wall in the northwest corner of the Site) were not found to exhibit typical ESA values due to the extent of asphalt (see attached topographic survey plan), previous disturbance from commercial land use, and dominance of invasive plant species. The approximately 139 m<sup>2</sup> paved area is considered to have Nil ESA value, as shown on Figure 1.

## **5. IMPACT ASSESSMENT AND MITIGATION MEASURES**

This section identifies the environmental setbacks and proposed project design features/footprint are assessed for potential effects to the environment with appropriate mitigation measures provided in an effort to reduce the level of impact and residual effects. Other sources of impact potential include sedimentation of stormwater, spills, threats to songbird nesting habitat in on-Site vegetation, and invasive species. By identifying and assessing potential impacts to environmentally sensitive features during the planning process, there is an opportunity to manage and mitigate those impacts.

### **5.1 Schoolhouse South Creek and Riparian Area**

#### **5.1.1 Setbacks**

It is understood the RTA area would be adequate to facilitate future building maintenance requirements. The RPEA would remain protected and undisturbed. The RPEA and associated protected habitat values of native planting restoration (described in Section 6) will be provided with protection signage and fencing to restrict public access.

Approximately 1,724 m<sup>2</sup> (Figure 2) of restoration works are proposed for the off-Site riparian area along Schoolhouse South Creek and the unnamed ditch, increasing habitat quality from Moderate value (areas compromised by significant presence of invasive plants) to High value (areas with a healthy native plant community) through removal of the existing pedestrian access trail, and low-intensity removal of invasive species and supplemental planting as necessary.

#### **5.1.2 Upgrades to Project Design**

The building design has been updated to accommodate the full extent of the 5 m RTA (Figure 2) and reflect RTA design treatment, as per the municipal bylaw; paving stones have been replaced with permeable ground cover, and the size of overhanging balconies and patios has been reduced. Regrading of the RPEA toward Schoolhouse South Creek is expected to result in an improvement of water quality and flow consistency entering the brook, compared to current conditions, which direct surface flow into stormwater catch basins.

Further enhancement work in the form of a drainage interceptor ditch/bioswale (refer to Stormwater Management Plan, Appendix 4 for detail) (Figures 5A and 5B), will be placed along the western perimeter of the building footprint to collect and infiltrate runoff beyond the base of the ESA, and direct high flow volume events from bioswale to a catch basin at the southwest corner of the built area. Continuation of the bioswale or other stormwater management features within the protected ESA or riparian areas is avoided.

Removal of trees for the bioswale is not anticipated, save for the clearing required for removal of the cement and lock-block wall currently on-Site. Furthermore, the Stormwater Management Plan implemented for the development will reduce the stormwater release rate to the municipal storm system through absorbent landscaping, on-Site detention facilities, and flow-control measures.

## **5.2 Environmentally Sensitive Area No. 8**

Upon field review, it was determined that due to extensive paving, approximately 139 m<sup>2</sup> of the northwest portion of the Site mapped by the City as ESA and within the project building footprint, does not reflect typical ESA values and has been excluded from the Proposed ESA (Figure 2).

Ecological restoration works are proposed for the ESA, as described in Sections 6 and 7. A combination of high- and low-intensity invasive species removal techniques, followed by grade amendments at the base of the slope (installation of bioswale and retaining wall) and replanting with native species are planned, as per the Invasive Species Management and Restoration Planting Plans detailed below. The approximate extent of invasive species mapped during the January 24, 2019 field assessment is presented on Figure 3. The proposed works are intended to transform approximately 1,724 m<sup>2</sup> of off-Site riparian and ESA habitat (Figure 2) to High habitat value, and provide restoration of the historic slope failures on Site, promoting the establishment of a resilient and stable native plant community.

## **5.3 Net Habitat Balance**

ESA and riparian areas located on-Site and in the City right-of-way south of the Site will be restored from Nil value (areas that are paved are not considered to provide riparian or terrestrial habitat function) and Moderate value habitat to High value habitat through removal of high-density

blackberry and knotweed invasive species and native replanting, with removal of ivy and other invasives and supplemental low-density planting in the off-site City right-of-way.

The proposed project restoration works are estimated to result in an overall increase in High value habitat on-and off-Site. Specifically, in addition to the expected restoration works taking place in the on-Site ESA and Riparian Management Zone, approximately 1,724 m<sup>2</sup> of off-Site riparian and ESA habitat will be enhanced to High value habitat.

#### **5.4 Potential Impacts and Proposed Mitigation Measures**

There is potential for adverse environmental impacts to occur from proliferation of invasive plant species, including the Japanese knotweed located near the northeast corner of the Site (Figure 3). Japanese knotweed is provincially designated as noxious and required under the provincial *Weed Control Act* to be controlled by the occupier of the land where it is present. The Japanese knotweed was located outside of the Site boundary on the boulevard of Albert Street. There is potential, however, for the underground root system to extend into the Site. Herbicide treatment or complete removal of the full root system and surrounding soil through excavation is typically required to treat Japanese knotweed. Negative impacts resulting from invasive species on Site are not expected, provided the restoration planting described in Section 6, and Invasive Species Management Plan in Section 7 are followed.

There is also potential for impacts to nesting birds to occur if vegetation clearing is proposed during the songbird nesting window of March 1 to August 31. The forested area on-Site provides abundant bird nesting opportunity for avian species protected under the *Migratory Birds Convention Act* and the *BC Wildlife Act*, and songbirds may nest in other vegetation on and around the Site during the nesting window. If vegetation clearing is proposed during this window, a nesting survey will be conducted in advance of clearing to confirm active nests are not present, or to implement suitable 'no-go' buffer areas if active nests are present.

Other typical construction best management practices and environmental protection measures will be provided in a Construction Environmental Management Plan as a guide to construction contractors, which will include but not be limited to recommended clearing periods to avoid impacts to active bird nests, accidental spill protection measures, and an Erosion and Sediment

Control Plan and monitoring requirements in accordance with the City's Stream and Drainage System Protection Bylaw No. 2470 to prevent deleterious substances entering municipal catch basins and Schoolhouse South Creek.

## 6. RESTORATION PLANTING PLAN

The on-Site Schoolhouse South Creek RPEA and the portion of the ESA where removal of dense Himalayan blackberry is proposed, will be restored through planting of native shrubs and trees to support riparian habitat, wildlife and pollinators. The proposed planting areas are presented on Figures 4 and 5, and planting specifications are presented on Figure 6. Additional supplementary planting may be conducted in the ESA and RPEA if required following removal of English ivy, as described in the following Section 7.

The existing asphalt and lock block wall will be removed, and following removal and regrading, topsoil (30 cm deep) should be applied to facilitate plant growth. Geotextile fabric should be applied in addition to topsoil in planting areas affected by Himalayan blackberry to assist in preventing regrowth.

Permanent riparian protection fencing will be installed around the RPEA and ESA perimeter to prevent accidental encroachment, as shown on Figures 4 and 5. The fencing will be aligned along the edge of the ESA and the RPEA limit south of the building, and south along the eastern property line to tie-in with existing fencing at the Schoolhouse South Creek headwall. The protection fence will consist of standard post-rail construction with a wire mesh fixed to the lower half to prevent access by dogs but allows for the movement of wildlife. A gate will be installed in the fence to enable access for the post-restoration monitoring program. A sign will be installed on the east side of the fencing that states “Environmentally Sensitive Area, Do Not Disturb” or similar.

Table 1 presents the native plant species proposed for restoration planting within the RPEA. These plants have been selected based on native plants observed on-Site, as well as ecologically beneficial species included in the BC Ministry of Environment Riparian Restoration Guidelines (BC ENV 2008). Species have been selected to create a diverse vertical structure to support songbird nesting and provide a range of flowering times, which will encourage and extend the benefits for pollinators and insectivore bird species.

Upon consultation with the City and local streamkeeper groups, adjustments to the proposed species were made to exclude species producing fruit frequently sought out by bears (i.e., salmonberry), while maintaining staggered flowering times and fruiting ability within the restoration areas for birds and pollinating insects.

**Table 1 Proposed Riparian Planting Plan Species List**

| Common Name        | Scientific Name              | Ecological Value                                                           |
|--------------------|------------------------------|----------------------------------------------------------------------------|
| <b>Trees</b>       |                              |                                                                            |
| Bigleaf Maple      | <i>Acer macrophyllum</i>     | Litter inputs, food source for pollinators, nesting habitat                |
| Cascara Buckthorn  | <i>Frangula purshiana</i>    | Litter inputs, food source for pollinators, fruit bearing, nesting habitat |
| Douglas Fir        | <i>Pseudotsuga menziesii</i> | Shade value, nesting habitat                                               |
| Sitka Mountain Ash | <i>Sorbus sitchensis</i>     | Pollinating flowers                                                        |
| Shore Pine         | <i>Pinus contorta</i>        | Adaptable to many sites, fast growing                                      |
| Vine Maple         | <i>Acer circinatum</i>       | Shade value; sprouts from roots; autumn colour                             |
| <b>Shrubs</b>      |                              |                                                                            |
| Mock Orange        | <i>Philadelphus lewisii</i>  | Spreading, fast growing, pollinating flowers                               |
| Nootka Rose        | <i>Rosa nutkana</i>          | Fruit bearing, deer resistant, slope stability                             |
| Pacific Ninebark   | <i>Physocarpus capitatus</i> | Pollinating flowers/seeds, shade, slope stability                          |
| Beaked Hazelnut    | <i>Corylus cornuta</i>       | Fruit-nut bearing, spreading by suckers, pollinating flowers               |
| Snowberry          | <i>Symphoricarpos albus</i>  | Fruit bearing, slope stability                                             |
| Sword Fern         | <i>Polystichum munitum</i>   | Forage, prevents erosion, ground cover                                     |

The following criteria from the Riparian Restoration Guidelines were used in preparation of the Planting Plan (Figures 4 and 5):

- All plant material used in the restoration planting will meet current BC Landscape and Nursery Association Standards.
- All riparian plantings should be based on 1 tree or shrub per 1 square metre density.
- All tree/shrub species should be of guaranteed nursery stock.
- The botanical name should be used when ordering stock to ensure that the desired native species is being purchased. Each specimen should be tagged with the botanical name and the tag should be left attached after planting.
- Tree stock should be a minimum of 1.2 metres (4 feet) in height when purchased and planted 3 to 5 metres apart.

- Stock planted during the fall (Sept.–Oct.) and spring (March–April) has the greatest likelihood of surviving. Regular watering may be required until the plants are established.
- Planting on a given area being enhanced must be successful to an 80% take. If more than 20% die over one year, replanting is necessary.

### **6.1 Plant Survivorship Monitoring and Maintenance**

Annual monitoring of restoration planting survivorship for a period of five years post-planting will take place, which meets the five-year recommended monitoring duration requested by the City, with an annual report to be submitted to the City by a Qualified Environmental Professional (QEP). Replacement of moribund plants and plant watering will occur, and based on the abundance of invasive plants in and around the proposed planting areas, it is likely that annual maintenance and removal of invasive species will be required during the five-year monitoring duration, as described in Section 8.2.

### **6.2 Other Restoration Conditions**

As existing riparian conditions beyond Schoolhouse South Creek are considered stable and High-value functioning riparian habitat following removal of isolated invasive plants, installation of other streambank restoration measures (i.e., providing habitat logs, trees for leaf-litter and shading, etc.) are not included as part of the project restoration plan.

## 7. INVASIVE SPECIES MANAGEMENT PLAN

The following section presents a plan for management of invasive plant species identified at the Site, including BMPs to be implemented during the removal, disposal, and ongoing maintenance and monitoring. Environmental monitoring visits should be conducted during invasive species removal to confirm that the plan is being implemented as intended and to provide recommendations for adaptive management, if required. The approximate extent of invasive plant species based on the January 2019 field survey is presented on Figure 3.

High-density invasive species along the northwestern portion of the Site (primarily Himalayan blackberry) is to be controlled using intensive removal methods as stipulated in this plan, followed by replanting in conjunction with the planting plan detailed in Figures 4 and 5. Japanese knotweed off-Site along the northeast corner will be treated using chemical or mechanical methods. Low intensity invasive species removal (primarily English ivy and other invasives) will take place along the southern portion of the Site, as well as the City right-of-way connecting to St. George Street. Below are detailed recommendations for the removal of individual plant species, with description of applicable low and high intensity removal methods.

### 7.1 Japanese Knotweed

Japanese knotweed was identified along the boulevard of Albert Street, east of the Site boundary. Although located off-site, there is potential for knotweed roots to have extended onto the Site. It is understood that the City has undertaken a comprehensive, multi-year action to address knotweed on City land through herbicide treatment by certified pesticide applicators. Japanese knotweed typically requires multiple herbicide applications to kill the plant completely.

According to the City, knotweed treatment did not take place in 2019. It is recommended that chemical knotweed treatment by a professional applicator during the growing season be considered prior to construction and vegetation removal.

In the event that live knotweed roots are present within the project footprint prior to construction, the following BMPs should be implemented to appropriately remove the knotweed:

- If herbicide treatments over multiple growing seasons are not feasible, mechanical excavation of the plants and root system, in conjunction with on-going environmental monitoring under the guidance of a professional biologist (QEP), will provide the most effective control of Japanese knotweed for the Site.
- Control efforts should target the underground system of root rhizomes, which can spread as 6m deep to 10 m away from the stem.
- Stems of existing plants on the Site are to be hand cut as low as possible ensuring that stems or root fragments are not scattered. Mechanical excavation can be used and go approximately 2 m deep with constant checking for the presence of root growth in the bottom of the excavation. The resulting excavations should be backfilled with clean inert fill and compacted.
- Knotweed cuttings should be placed in enclosed bags that will be taken to a commercial facility for disposal using one or both of the following methods:
  - Knotweed cuttings will be placed into haul trucks that will have tarp covers and sent to a disposal facility where they will be destroyed.
  - Excavated soil potentially containing knotweed will be hauled by dump truck to an approved disposal site where it will be destroyed or buried at least 6 m deep.
- On-site handling of the knotweed-contaminated materials, including excavation of soils within the vicinity of the knotweed patch, should be supervised full time by an environmental monitor acting under the direction of a professional biologist (QEP).

## **7.2 Himalayan Blackberry**

Himalayan blackberry was identified along the northwest side of the Site, within and adjacent to the ESA. High intensity removal efforts during initial clearing to remove as much of the blackberry root material as possible, may require use of an excavator, brush cutters or equivalent, with due care and attention required when working around slopes and existing native vegetation to be retained. The method of removal should be determined in consultation with the responsible contractor and the project geotechnical engineer.

The following BMPs should be implemented during blackberry removal:

- Remove as much of the above-ground blackberry stems as possible by mowing, brushing, or cutting, taking care to minimize disturbance to existing native trees.
- Use excavators and/or brush cutters, as high-intensity measures for removal of Himalayan blackberries and their roots to a depth of approximately 10-30 cm, where possible. It is important to remove the root crowns and as much of the roots as possible, without compromising the roots of existing trees that are planned for retention.
- Use due care and attention when grubbing and clearing near native trees to prevent root, bole and stem damage. Low-intensity removal with use of hand-held manual or powered equipment where possible when clearing blackberry material within the drip line of native trees while achieving a 10-30 cm root removal depth.
- Shake soil loose from rhizomes and avoid plant material left in the soil, as blackberry can become re-established from root fragments.
- Use tarps, plastic sheets or equivalent to contain plant fragments for disposal separate from the soil, and dispose off-site at a facility that accepts invasive plant material.
- Geotextile fabric should be applied to the treatment area to suppress blackberry regrowth. Topsoil (30 cm deep) should be deposited over the geofabric and native tree and shrub species should be installed to restore the ecological function of the area, as described in the Planting Plan section of this report.

### 7.3 English Ivy

English ivy was identified along the south and southwest portions of the Site, intermixed with the native plant community. It is proposed that English ivy will be treated using low-intensity methods (i.e., removed using hand tools) in order to preserve as much of the native plant community as possible. The following BMPs should be implemented when removing English ivy:

- Ivy vines should be cut and pulled from the ground, taking care to minimize damage to native shrubs.
- Ivy on trees should be cut at a comfortable height (e.g., 1.5 m). The rooted portion of the vine should be pulled by hand and the upper portion should be left to desiccate, as removal may harm the tree.

- Ivy should be segregated be loaded into a covered bin or truck hopper, and removed from Site for disposal at a facility that accepts invasive plants.
- The treatment area will be assessed following removal of ivy. If significant disturbance to the native plant community has occurred (i.e., less than one native plant remaining per m<sup>2</sup>) supplementary planting of native container stock will be conducted where needed.

## 7.4 Other Invasives

Invasives including cherry laurel, English holly, spurge laurel and small-flowered jewelweed were identified along the south and southwest portions of the Site, intermixed with the native plant community and English ivy. It is proposed that these invasives be treated using low-intensity methods (i.e., removed using hand tools) in order to preserve as much of the native plant community as possible. The following BMPs should be implemented during removal:

### 7.4.1 *Cherry Laurel, Spurge Laurel and English Holly*

- Stems should be removed and pulled out with root if possible, taking care to minimize damage to native shrubs. If roots cannot be pulled, the remainder of the stem should be cut as close to the ground as possible to reduce the likelihood of re-sprouting.
- Plants should be segregated be loaded into a covered bin or truck hopper and removed from Site for disposal at a facility that accepts invasive plants.
- Removal should take place in winter, spring, or early summer - outside the fruiting window to prevent spread. Repeat removal over multiple growing seasons may be required if plants re-sprout.
- The treatment area will be assessed following removal of these species. If significant disturbance to the native plant community has occurred (i.e., less than one native plant remaining per m<sup>2</sup>) supplementary planting of native container stock will be conducted where needed.

### 7.4.2 *Small-Flowered Jewelweed*

- Plants should be hand-pulled from the ground in their entirety, including the root system.

- Plants should be removed in spring, prior to seed capsule formation. Seeds are dispersed through physical contact with pods, are resilient and can easily be spread to colonize novel areas. It is recommended plants are removed during the flowering stage (May-June), to prevent misidentification with native Impatiens species.
- Plants should be segregated be loaded into a covered bin or truck hopper and removed from Site for disposal at a facility that accepts invasive plants. Plants exhibiting seed pods should be placed in plastic bags immediately upon removal, to promote safe transfer from the Site.
- The treatment area will be assessed following removal of jewelweed. If significant disturbance to the native plant community has occurred (i.e., less than one native plant remaining per m<sup>2</sup>) supplementary planting of native container stock will be conducted where needed.

## **8. MONITORING AND MAINTENANCE**

### **8.1 Environmental Compliance Monitoring During Construction**

Environmental monitoring and reporting will be conducted by Keystone Environmental for the duration of project works. The Environmental Monitor will observe invasive removal, Site grading and riparian restoration for compliance with mitigation measures provided in this report, the project's Construction Environmental Management Plan, and applicable environmental regulations.

Environmental monitoring visits will be conducted at the following minimum frequency:

- Full-time monitoring will be conducted during works along the top-of-bank prior to installation of erosion and sediment control measures (i.e., protective silt fencing) described in the Construction Environmental Management Plan, and until it is demonstrated Site conditions are maintained and in compliance with the projects mitigation measures.
- Weekly for works once erosion and sediment protection measures are in place and environmental non-compliance issues are not noted, during site restoration works.
- After significant rain events (25 mm within 24 hours) while exposed soils are present.

### **8.2 Post-Construction Habitat Monitoring and Maintenance**

A five-year post-restoration monitoring program will be conducted by a QEP to demonstrate that the restoration area is stable (e.g., invasive species regrowth is being removed and re-establishment not occurring within restoration areas) and functioning as intended. The post-construction monitoring will involve conducting surveys twice annually to assess whether the objectives of the restoration plan are being met. Restoration planting in a given area should be successful to an 80% take. If deficiencies in the restoration works are documented through the monitoring program, adaptive management will be implemented to correct the issue and achieve the restoration goals. An annual report will be provided to the City that summaries the monitoring visit findings and adaptive measures completed, to demonstrate conditions of the restoration plan are being met.

### 8.2.1 *Watering Plan*

Watering of plants in restoration areas where planting is to occur, will be conducted over at least the first two growing seasons to support plant health and prevent drought-related mortality. It is understood that municipal or regional watering restrictions will be adhered to when planning watering events.

The following watering plan will be implemented:

- Plants will be watered at a minimum frequency of every ten days from April 1 to July 31, and every fifteen days between August 1 and September 15 during the first year.
- Plants will be watered at a minimum frequency of every twenty days from April 1 to July 31 and will be watered at least once between August 1 and September 15 during the second year.
- During warm periods, watering will occur in the morning or late evening to avoid loss through evaporation.
- Planting areas and soil moisture will be monitored during the growing season and watering frequency will be increased if plants begin to exhibit drought stress, (e.g., wilting).

## 9. CONCLUSION

Adjustments to the project building design have been made to be consistent with the City's stream setback bylaw. Project design now proposes a Riparian Protection and Enhancement Area (RPEA) that accommodates habitat restoration of native planting with protection signage and fencing to restrict public access into the municipal 15 m wide Riparian RPEA, which extends into the majority of the 5 m wide Riparian Transition Area (RTA), but excludes development features within remaining areas of the RTA. Despite no longer seeking a stream setback variance, the project is still proposing to include the off-Site ESA and Schoolhouse South Creek habitat restoration works of approximately 1,724 m<sup>2</sup>, which is considered to exceed the City's requirements and general best practices, and achieve an overall net habitat balance.

Other potential impacts, including potential impact to bird nesting habitat, accidental spills and sedimentation of stormwater, and proliferation of invasive plant species can be suitably mitigated through implementation of environmental protection measures and standard best management practices provided in this report and detailed in a project Construction Environmental Management Plan as a guide to contractors prior to construction; specifically:

- Completing clearing activities outside the nesting season for passerine species (March 1–August 31). Alternately, a qualified environmental professional should conduct a pre-clearing bird nest survey if clearing is proposed outside this window, implementing disturbance exclusion buffers specific to species of active nests, if present.
- Implementation an Erosion and Sediment Control Plan and sediment control monitoring program for the duration of on-Site works, along with spill response training for contractor personnel.
- Removing and disposing of invasive species as per the Invasive Species Management Plan detailed in Section 7 of this report.

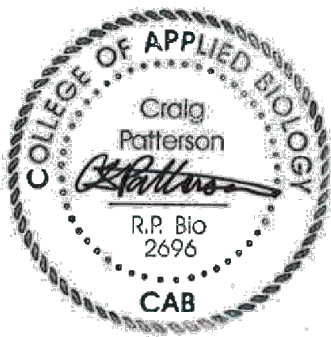
## 10. STATEMENT OF LIMITATIONS

This report has been prepared and reviewed by Keystone Environmental Ltd. approved personnel who have the credentials and knowledge of the applicable public laws, regulations and/or policies which apply to this report.

Findings presented in this report are based upon (i) reviews of available documentation, (ii) observations of the project area and surrounding lands. The conclusions and recommendations documented in this report have been prepared in a manner consistent with that level of care and skill normally exercised by other members of the environmental science profession, practicing under similar circumstances in the area at the time of the performance of the work.

This report has been prepared solely for the internal use of Marcon Albert (GP) Ltd., pursuant to the agreement between Keystone Environmental Ltd. and Marcon Albert (GP) Ltd. By using this report, Marcon Albert (GP) Ltd. agrees that they will review and use the report in its entirety. Any use which other parties make of this report, or any reliance on or decisions made based on it, are the responsibility of such parties. Keystone Environmental Ltd. accepts no responsibility for damages, if any, suffered by other parties as a result of decisions made or actions based on this report.

\_\_\_\_\_  
April 18, 2022  
Date



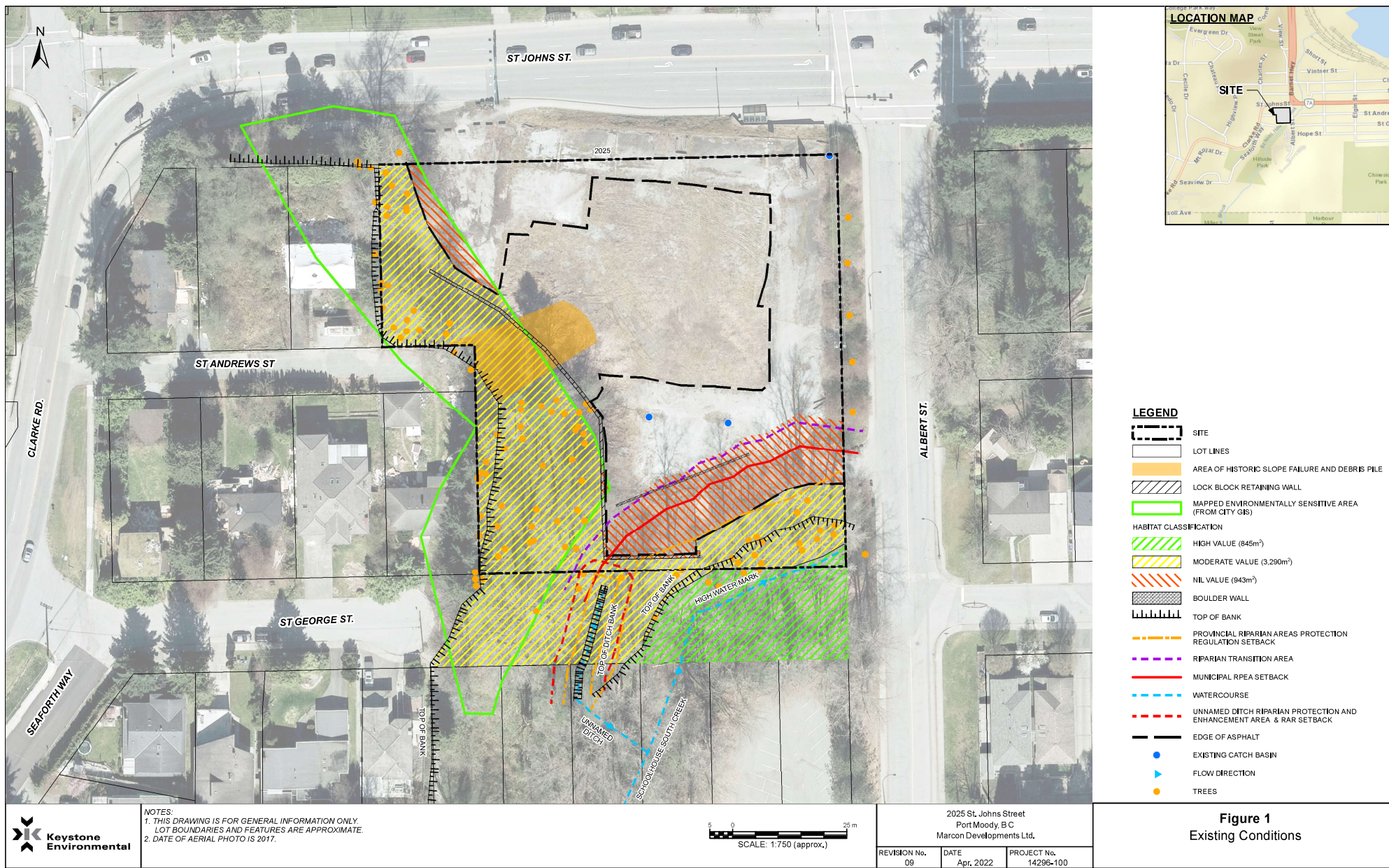
\_\_\_\_\_  
Craig S. Patterson, R.P.Bio.  
Project Manager

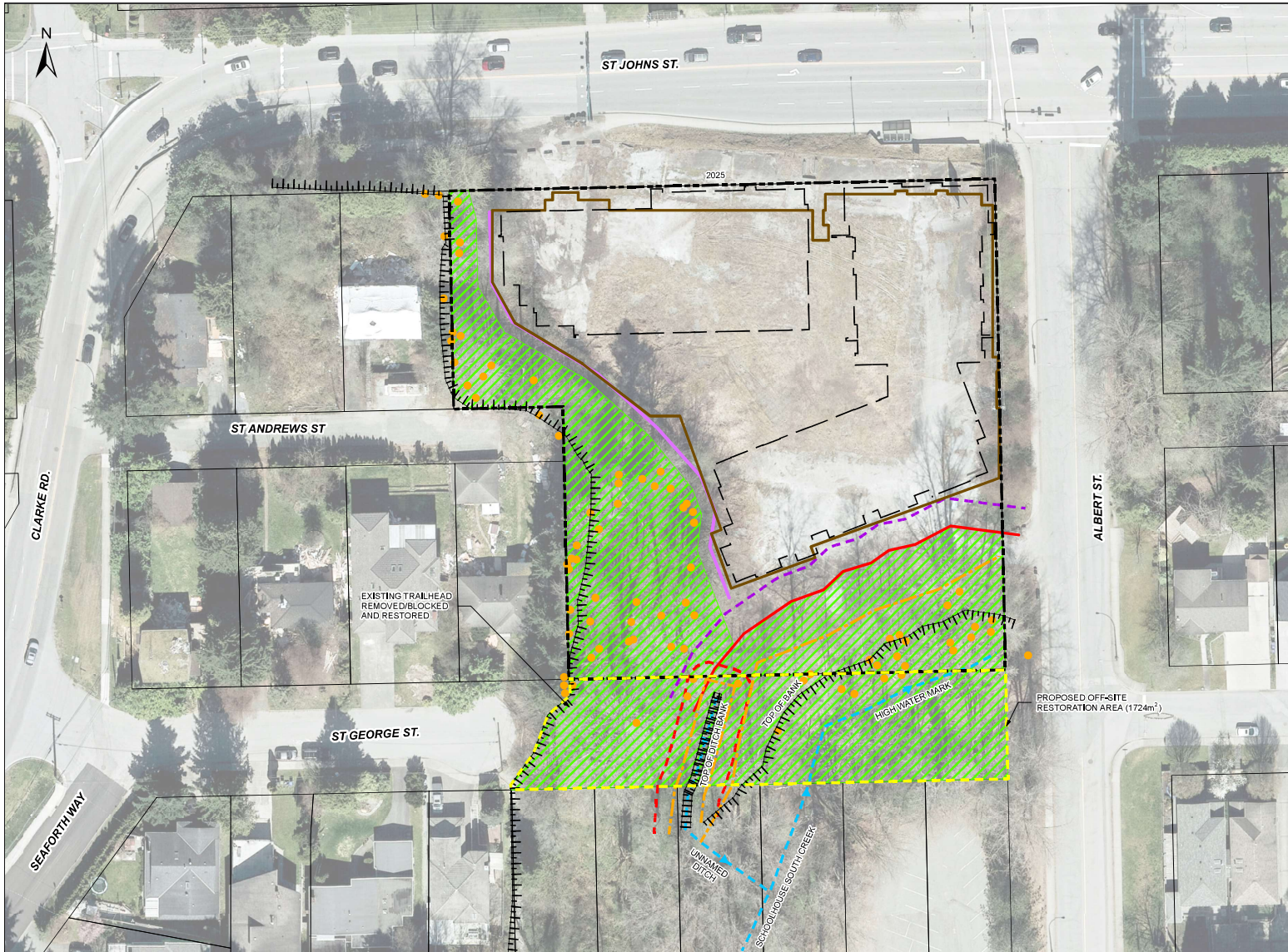
## 11. REFERENCES

- BC Conservation Data Centre (CDC). 2019. Element occurrence data layer on iMapBC. Available at: <http://maps.gov.bc.ca/ess/hm/cdc/>. Accessed on January 25, 2019.
- BC Ministry of Environment and Climate Change Strategy (BC ENV). 2019. Fisheries Information Data Query for Schoolhouse South Creek. Available at: <http://a100.gov.bc.ca/pub/fidq/viewSingleWaterbody.do>. Accessed on January 25, 2019.
- BC Ministry of Environment and Climate Change Strategy (BC ENV). 2008. Riparian Restoration Guidelines. Available at: [http://www.env.gov.bc.ca/lower-mainland/electronic\\_documents/RiparianRestorationGuidelines.doc](http://www.env.gov.bc.ca/lower-mainland/electronic_documents/RiparianRestorationGuidelines.doc). Accessed on February 15, 2019.
- Community Mapping Network (CMN). 2019. Wildlife Tree Stewardship Atlas and Great Blue Heron Atlas. Available at: <http://cmnmaps.ca/wits/> and <http://cmnmaps.ca/GBHE/>. Accessed on January 25, 2019.
- ViewPort. 2019a. City of Port Moody's Public GIS Mapping System. Environmentally Sensitive Area Data Layer. Available at: <https://view.portmoody.ca/index.php>. Accessed on January 25, 2019.
- ViewPort. 2019b. City of Port Moody's Public GIS Mapping System. Utilities Data Layer. Available at: <https://view.portmoody.ca/index.php>. Accessed on April 22, 2019.

## **APPENDIX 1**

### **FIGURES**





#### LEGEND

- SITE
- LOT LINES
- PROPOSED BUILDING FOOTPRINTS
- PROPOSED PARKADE FOOTPRINTS
- PROPOSED OFF-SITE RESTORATION AREA (1724m²)
- RESTORATION/CONSERVATION AREA - HIGH VALUE (4,308m²)
- TOP OF BANK
- PROVINCIAL RIPARIAN AREAS PROTECTION REGULATION SETBACK
- RIPARIAN TRANSITION AREA (RTA)
- RETAINING WALL
- MUNICIPAL RPEA SETBACK
- WATERCOURSE
- UNNAMED DITCH RIPARIAN PROTECTION AND ENHANCEMENT AREA
- FLOW DIRECTION
- RETAINED TREE

NOTES:  
1. THIS DRAWING IS FOR GENERAL INFORMATION ONLY.  
LOT BOUNDARIES AND FEATURES ARE APPROXIMATE.  
2. DATE OF AERIAL PHOTO IS 2017.

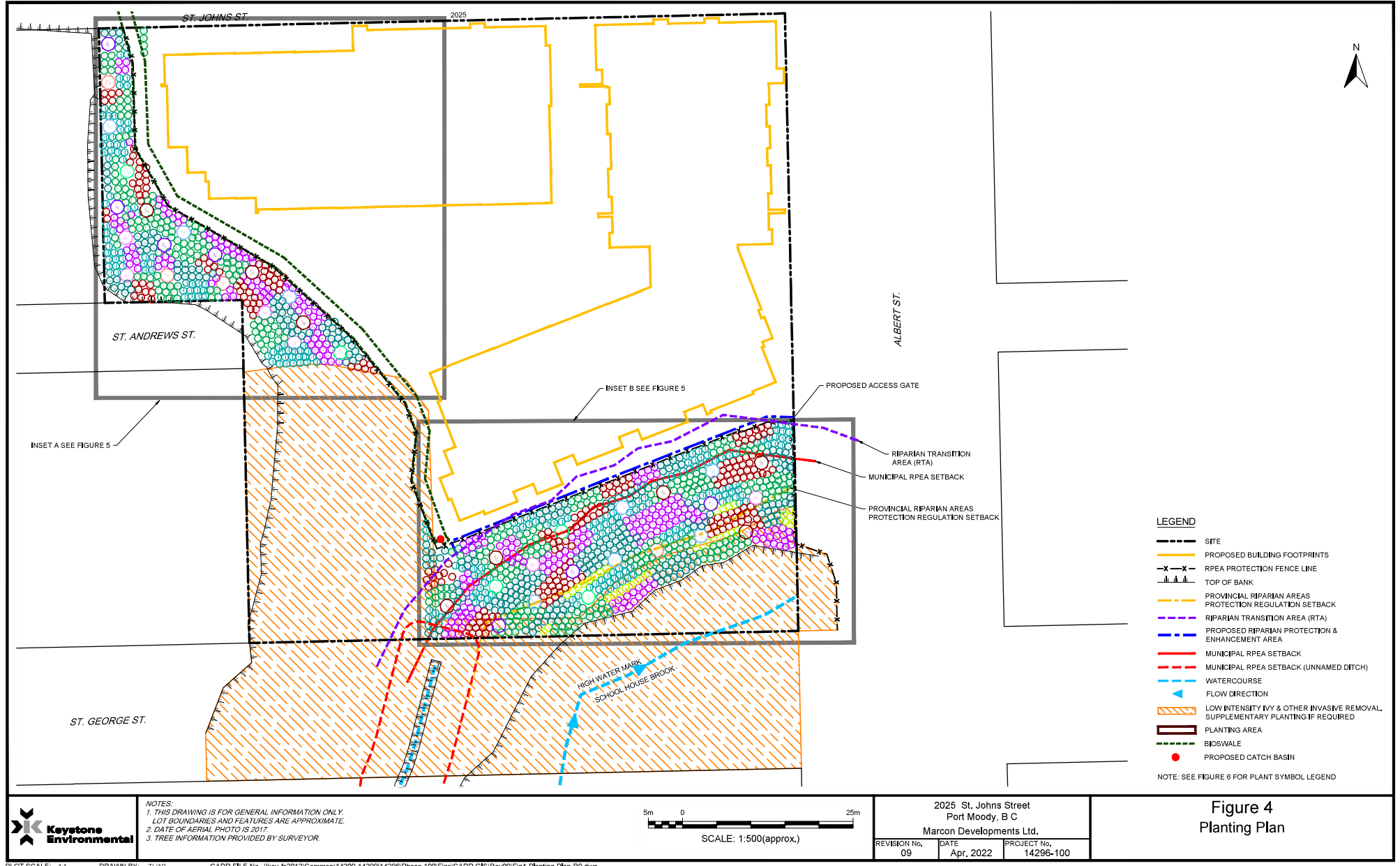
5 0 25 m  
SCALE: 1:750 (approx.)

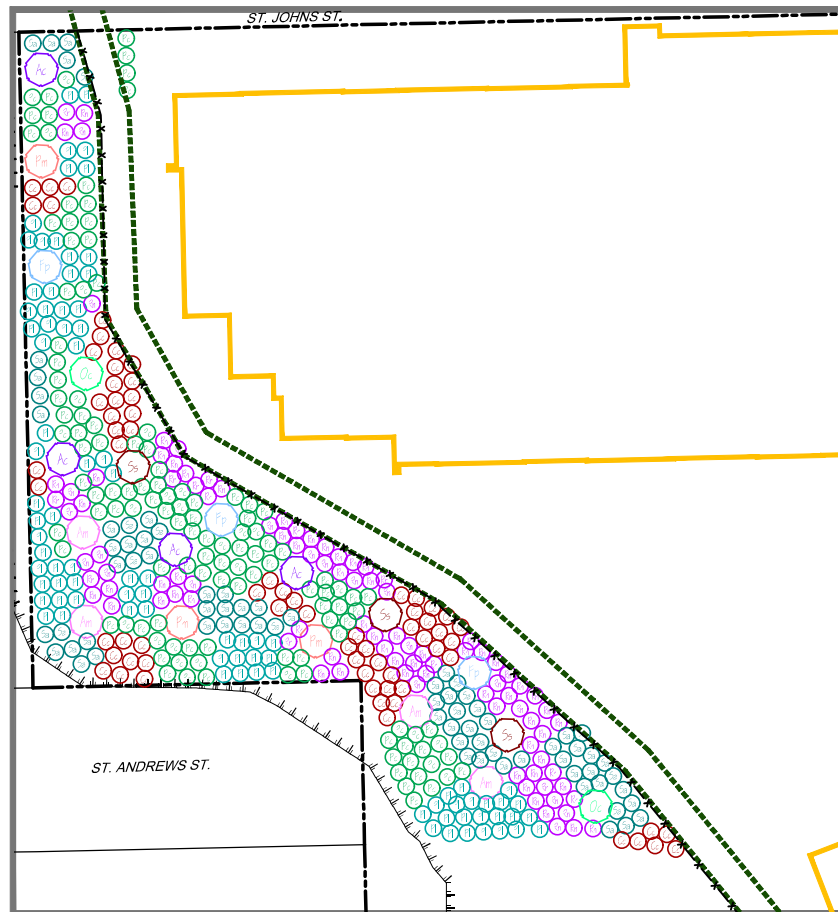
2025 St. Johns Street  
Port Moody, B.C.  
Marcon Developments Ltd.

|                    |                   |                          |
|--------------------|-------------------|--------------------------|
| REVISION No.<br>09 | DATE<br>Apr. 2022 | PROJECT No.<br>14296-100 |
|--------------------|-------------------|--------------------------|

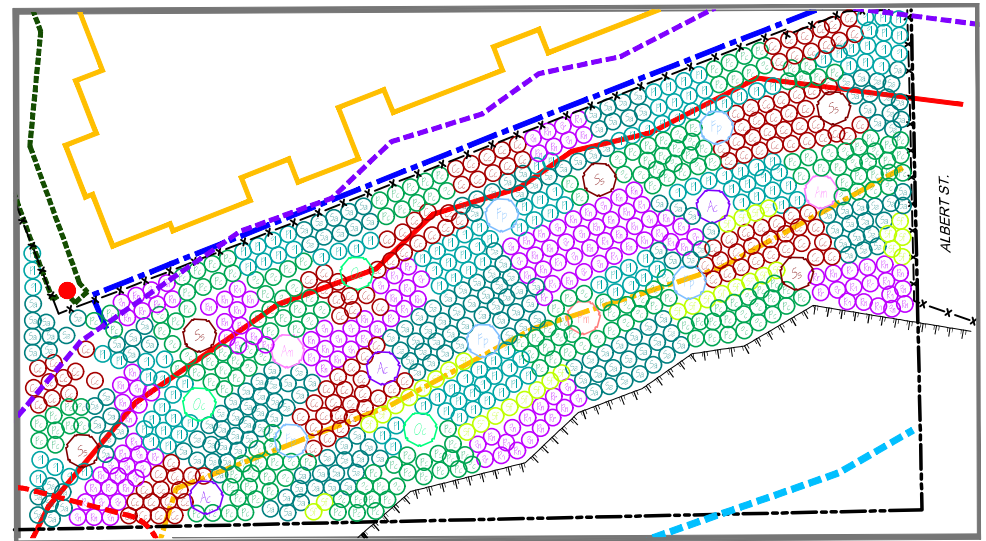
**Figure 2**  
Proposed Conditions







INSET A



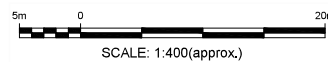
INSET B

#### LEGEND

- SITE
- PROPOSED BUILDING FOOTPRINTS
- X-X- RPEA PROTECTION FENCE LINE
- TOP OF BANK
- PROVINCIAL RIPARIAN AREAS PROTECTION REGULATION SETBACK
- RIPARIAN TRANSITION AREA (RTA)
- PROPOSED RIPARIAN PROTECTION & ENHANCEMENT AREA
- MUNICIPAL RPEA SETBACK
- MUNICIPAL RPEA SETBACK (UNNAMED DITCH)
- WATERCOURSE
- FLOW DIRECTION
- BIOSWALE
- PROPOSED CATCH BASIN



NOTES:  
1. THIS DRAWING IS FOR GENERAL INFORMATION ONLY.  
LOT BOUNDARIES AND FEATURES ARE APPROXIMATE.  
2. TREE INFORMATION PROVIDED BY SURVEYOR.



2025 St. Johns Street  
Port Moody, B C  
Marcon Developments Ltd.

Figure 5  
Planting Plan

|              |           |             |
|--------------|-----------|-------------|
| REVISION No. | DATE      | PROJECT No. |
| 09           | Apr, 2022 | 14296-100   |

| SHRUBS                                                                              |                    |                              |       |                                                                      |
|-------------------------------------------------------------------------------------|--------------------|------------------------------|-------|----------------------------------------------------------------------|
| SYMBOL                                                                              | COMMON NAME        | LATIN NAME                   | COUNT | SPECIFICATIONS                                                       |
|    | Sword Fern         | <i>Polystichum munitum</i>   | 35    | 1 Gallon; Fast-growing, slope stability, ground cover                |
|    | Beaked Hazelnut    | <i>Corylus cornuta</i>       | 218   | 2 Gallon; spreading by suckers, pollinating flowers                  |
|    | Mock Orange        | <i>Philadelphus lewisii</i>  | 230   | 2 Gallon; spreading, fast growing, pollinating flowers               |
|    | Nootka Rose        | <i>Rosa nutkana</i>          | 249   | 2 Gallon; Fruit bearing, slope stability                             |
|    | Pacific Ninebark   | <i>Physocarpus capitatus</i> | 347   | 2 Gallon; Fruit bearing, slope stability                             |
|    | Snowberry          | <i>Symphoricarpos albus</i>  | 284   | 2 Gallon; Fruit bearing, slope stability                             |
| TREES                                                                               |                    |                              |       |                                                                      |
|    | Bigleaf Maple      | <i>Acer macrophyllum</i>     | 6     | 5 Gallon; Litter inputs, shade value, nesting habitat                |
|    | Cascara Buckthorn  | <i>Frangula purshiana</i>    | 8     | 5 Gallon; Litter inputs, shade value, nesting habitat, fruit bearing |
|    | Douglas-Fir        | <i>Pseudotsuga menziesii</i> | 4     | 5 Gallon; Shade value, nesting habitat                               |
|    | Sitka Mountain Ash | <i>Sorbus sitchensis</i>     | 8     | 5 Gallon; pollinating flowers                                        |
|    | Shore Pine         | <i>Pinus contorta</i>        | 5     | 5 Gallon; adaptable to many sites, fast growing                      |
|  | Vine Maple         | <i>Acer circinatum</i>       | 7     | 5 Gallon; Shade value; sprouts from roots; autumn colour             |

NOTES:

- ALL RIPARIAN PLANTINGS SHOULD BE BASED ON 1 TREE OR SHRUB PER 1 SQUARE METRE DENSITY (4x10cm PLUGS PER SQUARE METRE FOR RUSHES).
- ALL TREE/SHRUB SPECIES SHOULD BE OF GUARANTEED NURSERY STOCK.
- THE BOTANICAL NAME SHOULD BE USED WHEN ORDERING STOCK TO ENSURE THAT THE DESIRED NATIVE SPECIES IS BEING PURCHASED. EACH SPECIMEN SHOULD BE TAGGED WITH THE BOTANICAL NAME AND THE TAG SHOULD BE LEFT ATTACHED AFTER PLANTING.
- STOCK PLANTED DURING THE FALL (SEPT. - OCT.) AND SPRING (MARCH - APRIL) HAS THE GREATEST LIKELIHOOD OF SURVIVING. REGULAR WATERING MAY BE REQUIRED UNTIL THE PLANTS ARE ESTABLISHED. ADDITIONAL ADVICE ON PROPER PLANTING PROCEDURES SHOULD BE OBTAINED FROM THE NURSERY SUPPLYING THE STOCK.
- CONIFEROUS TREES SHOULD COMPRISE NOT LESS THAN 10% NOR MORE THAN 25% OF THE TREE STOCK PLANTED.
- TREE STOCK SHOULD BE A MINIMUM OF 1.2 M (4 FT) IN HEIGHT WHEN PURCHASED AND PLANTED 3 TO 5 M APART.
- PLANTING ON A GIVEN AREA BEING ENHANCED MUST BE SUCCESSFUL TO AN 80% TAKE. IF MORE THAN 20% DIE OVER ONE YEAR, REPLANTING IS REQUIRED.
- A MINIMUM OF 50% OF TREES AND SHRUBS PLANTED SHOULD BE FRUIT-BEARING SPECIES.



NOTES:  
1. TREE INFORMATION PROVIDED BY SURVEYOR.

2025 St. Johns Street  
Port Moody, B C  
Marcon Developments Ltd.

|                    |                   |                          |
|--------------------|-------------------|--------------------------|
| REVISION No.<br>02 | DATE<br>Apr, 2022 | PROJECT No.<br>14296-100 |
|--------------------|-------------------|--------------------------|

Figure 6  
Planting Plan Table and Notes

## **APPENDIX 2**

### **TOPOGRAPHIC SURVEY PLAN**

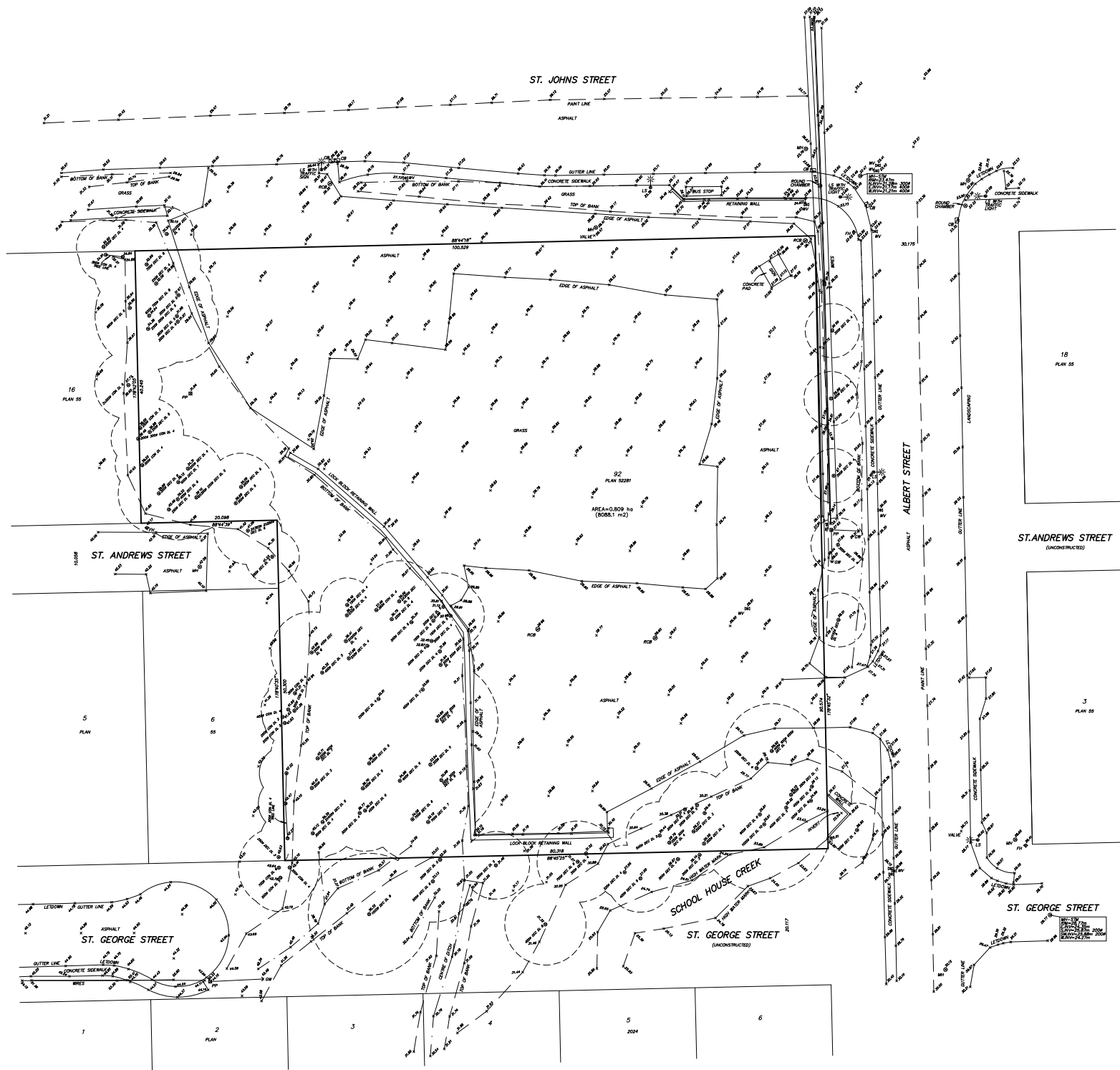
TOPOGRAPHIC PLAN OF LOT 92  
DISTRICT LOT 202 GROUP 1  
NEW WESTMINSTER DISTRICT PLAN 52281

SCALE 1:200 DISTANCES ARE IN METRES  
THE HORIZONTAL SCALE OF THIS PLAN IS 1:200  
IN WIDTH BY 50% AND IN HEIGHT (E SIDE) WHEN  
PLOTTED AT A SCALE OF 1:200

ELEVATION DERIVATION  
ELEVATIONS ARE DERIVED FROM CITY  
OF VANCOUVER CONTROL MONUMENT  
NO. 405275 ELEVATION 12.70M  
(CHG8000)



- LEGEND:
- PP 10 DENOTES POWER POLE
  - GW 4 DENOTES GUY WIRE
  - CB 10 DENOTES CATCH BASIN
  - RCB 10 DENOTES ROUND CATCH BASIN
  - FW 4 DENOTES FIRE HYDRANT
  - MM 10 DENOTES MANHOLE
  - LS 10 DENOTES LAMP STANDARD (UNLESS NOTED OTHERWISE)
  - WV 10 DENOTES WATER VALVE
  - GV 10 DENOTES GAS VALVE
  - SEC 10 DENOTES SEWER
  - CON 10 DENOTES CONCRETE
  - XXX TREE TYPE CL X TREE CANOPY RADIUS (m)
  - XXX TREE TYPE CL X TREE CANOPY RADIUS (m)



## **APPENDIX 3**

### **PHOTOGRAPHS**



**Photograph 1:** Looking northeast at the brownfield portion of the Site.



**Photograph 2:** Looking west at the north perimeter of the Site.



**Photograph 3:** Looking southwest at sparse vegetation in the brownfield area.



**Photograph 4:** Looking north at vegetation growth in the brownfield area, adjacent to the ESA.



**Photograph 5:** Looking northwest at a thicket of blackberry growing from the ESA.



**Photograph 6:** Looking northeast at canes of Japanese knotweed located near the northeast corner of the Site.



**Photograph 7:** Looking west at Schoolhouse South Creek from the edge of Albert Street.



**Photograph 8:** Looking southeast at Schoolhouse South Creek from the top-of-bank immediately south of the Site.



**Photograph 9:** Looking southeast at the primarily deciduous forest canopy in the riparian area of Schoolhouse South Creek.



**Photograph 10:** Looking northwest at native understory vegetation on the north bank of Schoolhouse South Creek.



**Photograph 11:** Looking west at English ivy growing on trees near the Schoolhouse South Creek top-of-bank.



**Photograph 12:** Looking northeast at ground-cover ivy located above the top-of-bank in the Schoolhouse South Creek riparian area.



**Photograph 13:** Looking north and upgradient at the unnamed drainage ditch.



**Photograph 14:** View looking down-gradient of the upstream excavated section of the unnamed drainage ditch.



**Photograph 15:** Looking west at the interface between the paved and vegetated portions of the Schoolhouse South Creek riparian area.



**Photograph 16:** Looking southwest at the southwest corner of the lock block retaining wall located within the Schoolhouse South Creek riparian area.



**Photograph 17:** Looking southwest at the ESA on the west side of the Site.



**Photograph 18:** Looking northwest at extensive English ivy within the southern part of the ESA.



**Photograph 19:** Looking northwest at extensive Himalayan blackberry within the northern part of the ESA.



**Photograph 20:** Looking west at the section of the ESA slope where mature trees were not present.



**Photograph 21:** Looking north at a mound of material with vegetation growth on top of asphalt.

## **APPENDIX 4**

### **STORMWATER MANAGEMENT PLAN**



## **APPENDIX 5**

### **DETAILED RIPARIAN AREAS PROTECTION REGULATION ASSESSMENT FORM 1**

## Section 2. Results of Riparian Assessment (SPEA width)

Refer to Chapter 3 of Assessment Methodology

Date: 2018-08-14

Description of Water bodies involved (number, type)

1, Schoolhouse Brook

|                   |   |
|-------------------|---|
| Stream            | X |
| Wetland           |   |
| Lake              |   |
| Ditch             |   |
| Number of reaches | 1 |
| Reach #           |   |

1.1.1 Channel width and slope and Channel Type (use only if water body is a stream or a ditch, and only provide widths if a ditch)

| Channel Width(m)       |      | Gradient (%) | I, <u>Libor Michalak</u> , hereby certify that:<br>a) I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i> ;<br>b) I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Marcon Developments Ltd.</u> ;<br>c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and<br>d) In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation. |
|------------------------|------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| starting point         | 3.5  | 2            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| upstream               | 6.6  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                        | 5.2  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                        | 7.0  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                        | 4.1  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| downstream             | 5.4  | 2            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                        | 5.5  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                        | 5.0  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                        | 4.8  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                        | 4.1  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                        | 5.5  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Total: minus high /low | 46.2 |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| mean                   | 5.13 |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                        | R/P  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Channel Type           |      | X            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

1.1.2 Site Potential Vegetation Type (SPVT)

|               | Yes | No |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |    |
|---------------|-----|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| SPVT Polygons |     | X  | Tick yes only if multiple polygons, if No then fill in one set of SPVT data boxes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |    |
|               |     |    | I, <u>Libor Michalak</u> , hereby certify that:<br>a) I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the <i>Fish Protection Act</i> ;<br>b) I am qualified to carry out this part of the assessment of the development proposal made by the developer <u>Marcon Developments Ltd.</u> ;<br>c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and<br>d) In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation. |    |
| Polygon No:   |     |    | Method employed if other than TR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |    |
|               | LC  | SH |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | TR |
| SPVT Type     |     |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | X  |

### 1.1.3 Zone of Sensitivity (ZOS) and resultant SPEA

|                                         |                                                                                                                     |                                                                                                                                                         |    |    |                                                          |  |  |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----------------------------------------------------------|--|--|
| Segment No:                             | 1                                                                                                                   | If two sides of a stream involved, each side is a separate segment. For all water bodies multiple segments occur where there are multiple SPVT polygons |    |    |                                                          |  |  |
| LWD, Bank and Channel Stability ZOS (m) | 15.4                                                                                                                |                                                                                                                                                         |    |    |                                                          |  |  |
| Litter fall and insect drop ZOS (m)     | 15.0                                                                                                                |                                                                                                                                                         |    |    |                                                          |  |  |
| Shade ZOS (m) max                       | 15.4                                                                                                                |                                                                                                                                                         |    |    |                                                          |  |  |
|                                         | South bank                                                                                                          | Yes                                                                                                                                                     | X  | No |                                                          |  |  |
| Ditch                                   | Justification description for classifying as a ditch (manmade, no significant headwaters or springs, seasonal flow) |                                                                                                                                                         |    |    |                                                          |  |  |
| Ditch Fish Bearing                      | Yes                                                                                                                 |                                                                                                                                                         | No |    | If non-fish bearing insert no fish bearing status report |  |  |
| <b>SPEA maximum</b>                     | <b>15.4</b>                                                                                                         | (For ditch use table3-7)                                                                                                                                |    |    |                                                          |  |  |

I, Libor Michalak, hereby certify that:

- a) I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the *Fish Protection Act*;
- b) I am qualified to carry out this part of the assessment of the development proposal made by the developer Marcon Developments Ltd.;
- c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and
- d) In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation.

## 1.2 Comments

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