

Vegetation Management Plan

13201 River Road, Richmond, B.C.



Image reference: Envirochem Site Visit, September 2016

Prepared for:



Prepared by:



10 2016

Vegetation Plan

13201 River Road, Richmond, B.C.

Prepared for:

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October 21, 2016

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1.0 INTRODUCTION

Spire Construction Inc. (the client) intend to develop a site at 13201 River Road, Richmond, BC (the site). This land is Federally owned, and the development requires Project and Environmental Review (PER) through the Port of Vancouver (the Port, with legal name as the Vancouver Fraser Port Authority, VFPA).

One of the Port's stated requirements is a vegetation plan, and the client has hired Envirochem Services Inc. (Envirochem) to provide this plan.

The subject site is shown in **Figure 1** below.



Figure 1: Site Location

(Baseplan Ref: Richmond Interactive Map, 8 August 2016). Development planned for southern lot only.

2.0 BACKGROUND

2.1 PROPOSED DEVELOPMENT

The proposed development includes a distribution warehouse facility with paved loading bay and parking area. A draft siteplan has been supplied to Envirochem and is included as **Appendix A**.

2.2 PORT OF VANCOUVER PER

The Port is “responsible for the administration, management and control of land and water within its jurisdiction”, which is managed through a number of permitting processes.

Proposed works and activities within or partially within the Port’s jurisdiction are required to obtain a Project and Environmental Review Project Permit (PER Permit).

PER Permits are divided into categories according to project complexity. Category A is least complex, and Category D is the most complex. The Port considers the development of the subject site to be a Category C project, which can include a requirement for technical studies to be prepared.

The Port have assigned reference number PER 15-165 to the application, and have supplied the client with an application submission requirements list (**Appendix B**), which sets out the additional information that the Port requires. This includes a vegetation plan, which is subject of this report.

2.3 CITY OF RICHMOND

In addition to the Port’s requirements, municipal (City of Richmond, The City) development permit requirements have been considered.

2.3.1 Community Plan Zoning

The City of Richmond Official Community Plan (OCP) Land Use Map shows the site lying within the Bridgeport Community Area and the “Industrial North – East” Sub Area [1]. The site is zoned Industrial, and part of the site (the northern lot) is zoned by the City of Richmond as an Environmentally Sensitive Area (ESA), of two types, Intertidal and Shoreline [2], [3].

The City’s OCP shows trails and requires the protection of Potential Heritage Trees. None of these features are located on or near the site, and so they are not considered further in this vegetation plan.

2.3.2 Riparian Management Areas

The City has a Riparian Response Strategy, which lists a number of listed Riparian Management Areas (RMAs). RMAs are areas which require special protection and management, and are offset between 5m - 15m from designated watercourses within the City. A drainage ditch running along the northern boundary of the southern lot is included in a City of Richmond RMA, which overlaps the site as shown in the vegetation survey plan (**Appendix C-1**).

The site is on Port land, and so strictly speaking, the requirements of the RMA are understood not to apply to the site. However, the City's RMA requirements have been taken into consideration. These requirements include:

- Professional survey and delineation of the RMA. This is based on the surveyed top of bank for the ditch, and has been completed by others as part of the site survey.
- Construction Environmental Management Plan (See separate report by Envirochem).
- Include a number of RMA-specific site notes on plans and surveys submitted for permit approval [4] (see drawings in **Appendix C** and Construction Environmental Management Plan).
- Preparation of Vegetation plan by a Qualified Environmental Professional (this report).

2.3.3 Vegetation Survey Guidelines

The City of Richmond has Vegetation Survey Guidelines, which have been considered in the preparation of this vegetation plan. These include:

- The location, diameter, crown, base elevation and species of all trees greater than 15cm in diameter in and adjacent to (within 6m) the designated ESA.
- The extent of coverage and species of the dominant understory shrubs in and adjacent to (within 6m) the designated ESA.
- The location and type of all known utilities entering or immediately adjacent to the ESA
- Existing and proposed property lines and building footprints
- The location of the high water mark and the extent of the ESA/buffer appropriate to the site.

The City Guidelines also request photographs, a grading plan or cross section and if necessary a landscaping plan. The landscaping plan specifies that at least 50% of the replacement species should be selected from the City's listing of recommended plantings, and should be compatible with natural vegetation growing in the area.

2.4 SPECIES LISTS AND REFERENCES

2.4.1 BC Listed Species (protected and/or conservation species)

In addition to observations made during the site visit, species lists with location data (mapped by the BC Conservation Data Centre) were reviewed to check for previously documented record of any listed species on the site.

The Provincial Government's BC Species and Ecosystems Explorer was reviewed [5]. 24 plants were listed¹, none of which were identified on site in the past, or during the site visit.

2.4.2 BC Invasive Species List

The Invasive Species Council of British Columbia website was reviewed for a list of up-to-date invasive species [6]. The invasive species found on site are listed in section 4.5 of the report.

The City of Richmond Invasive Species Action Plan was also reviewed for a list of invasive species [7]. Both "Priority" and "Moderate Risk" Invasive species lists were considered during the vegetation survey.

¹ Search terms: Plants AND Regional District: MVRD AND Habitat Type/ Sub-type: Riparian, Springs, Stream/ River and Other Unique Habitats

3.0 SITE DESCRIPTION

The subject site (PID: 003-478-670) is located in the North of the City of Richmond, to the West of the Knight Street Bridge. The site area is approximately 1.6 Hectares in area, and consists of two separate parcels (Reference: City of Richmond Interactive Map, download date 9th September 2016), one to the North of river road (Northern Lot) and one to the South (Southern Lot). The northern lot is irregular in shape and is bounded by the Fraser River to the north and River Road to the south. The southern lot is regular in shape and is bounded by River Road to the North, and adjoining industrial lots to the West, South and East.

The Site is currently undeveloped and vacant.

3.1 SITE TOPOGRAPHY

The local area's topography is generally low lying and flat [8]. The site is also generally flat and level. The site elevation is understood to be approximately 2.5m geodetic [9].

3.2 HYDROLOGY

The local area is drained by drainage ditches, one of which runs along the south side of River Road, and bounds the southern lot. This ditch moves surface water from the east to a westerly located pump station located near Number 5 Road that pumps drainage out to the North Arm of the Fraser River. The north bank of the drainage ditch is maintained by the City of Richmond, and has previously had vegetation cleared to allow maintenance (clearing) of the ditch. The Fraser River bounds the northern lot along the north site boundary. No other streams or waterbodies were apparent on site.

3.3 SOIL COVER AND QUALITY

The soil cover on the southern lot is understood to be entirely comprised of mineral fill (with a consistent depth of between ~1.3 and ~2m). The fill was been introduced after 2005. The fill is understood to "generally consist of compact to dense silty sand and gravel mixture, till fill" [9]. Envirochem's observations during the site were consistent with this description.

No soil sampling was completed as part of the vegetation survey. Based on the geotechnical report and visual observations made on site, the fill is assumed to be of poor quality as a growing medium. The vegetation observed on site was typically tolerant, pioneer species, which can survive on a range of poor quality soils (e.g. Alnus spp., Rubus spp.).

4.0 CURRENT VEGETATION

4.1 VEGETATION SURVEY METHODOLOGY

The site visit was completed on the morning of 8th September 2016. Much of the vegetation on site was beginning to show signs of fall, but was still in a condition which enabled clear identification. The vegetation survey was completed on foot. Two professionals (Don Larson, RPBio, and Edward Haythornthwaite, PAg) walked the site perimeter, making observations on the vegetation observed. These observations were based on experience as well as the requirements of the Port and the City's Vegetation Survey Guidelines.

Two significant areas were noted on site: the RMA surrounding the drainage ditch, and the ESA including all of the northern lot. Additional time was spent in these areas.

The tide was rising during the site visit, and the foreshore could only be safely accessed at one point, the northwest corner of the northern lot. All observations of the northern lot were made from River Road.

The top of bank for the drainage ditch was not surveyed, and could not be accessed due to thick blackberry bushes throughout. The top of the ditch was estimated based on what could be seen visually from river road. Photographs were taken throughout the survey.

Adjacent lots were not accessed directly and observations were made from publically accessible areas/ areas where access permission had been granted (e.g. the site and River Road).

Reference guides were available on site for verification purposes [10], [11].

Survey results were presented on a plan drawing, included as **Appendix C-1**.

4.2 VEGETATION TYPES (ON SITE)

Vegetation is summarized below, and detailed observations are presented in the siteplan drawing included as **Appendix C-1**.

4.2.1 Northern Lot

In general, the vegetation on the northern lot consisted of a stand of tall (approx. 40-50ft) black cottonwood (*Populus trichocarpa*) trees, with an approx. 6-8ft high understory of thick blackberry bushes (*Rubus* spp.), small alders (*Alnus* spp.) and Japanese knotweed (*Fallopia japonica*).

4.2.2 Southern Lot:

In general, the perimeter vegetation on the southern lot consisted of predominantly blackberry bushes (*Rubus* spp.), with some alders (*Alnus* spp.) observed (approx. 20-30ft). The centre of the lot contained some small alder, sparse blackberry and grasses and wildflowers.

4.3 VEGETATION TYPES (OFF SITE)

4.3.1 Adjacent Lots

Adjacent lots are typically industrial, and unbuilt areas are hard paved with minimal vegetation. Parking lots had some sparsely planted ornamental trees. The northern boundary of the neighboring site to west was planted ornamentally, with ornamental hornbeam (*Carpinus betulus*) with an understory planting of laurel (*Prunus laurocerasus*).

4.3.2 City of Richmond ESA

The City of Richmond ESA includes the intertidal area, running along the south of the Fraser River, and the shoreline area, which lies between the intertidal area and River Road. The shoreline area extends across the northern lot and an adjoining, smaller lot to the east. The character of vegetation observed in northern lot was consistent across the shoreline ESA. Despite the ESA designation, understory vegetation was noted to be predominantly invasive species. The City of Richmond ESA is understood not to apply to the site, which is under Port of Vancouver jurisdiction.

4.3.3 RMA

The City of Richmond RMA is understood not to apply to the site, which is under Port of Vancouver jurisdiction. The proposed project does not include a 15m buffer zone, and it is understood that to do so would affect the economic viability of the project. However, this vegetation management plan has been designed to help facilitate the objectives of the RMA.

The RMA designation surrounds the drainage ditch, which runs alongside River Road both on site and on adjacent sites. Offsite vegetation along the ditch banks is predominantly ornamental to the west and invasive species (blackberry bushes and ivy, *Hedera helix*) to the east. As shown in **Figure 2**, for adjoining sites within the RMA, boundary planting has a significantly smaller footprint than the 15m prescribed in the City's OCP (likely due to their being implemented prior to the designation of the RMA). All sites fronting onto River Road have at least one culverted access road.

The City of Richmond RMA requirements are designated in part to meet provincial requirements under the Riparian Areas Regulation (RAR) [12]. **Table 1** presents a summary of

the main objectives of the RAR and how the proposed project will support those objectives. Detailed proposals are included in Section 5.

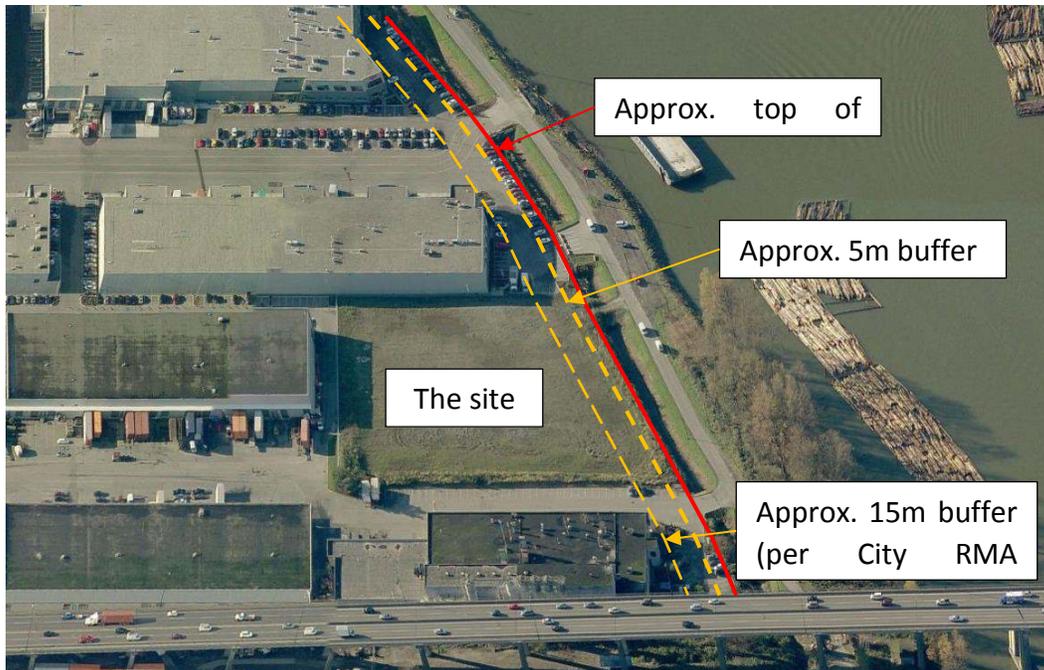


Figure 2: Birds Eye View of site to show implementation of RMA on adjoining sites

(Photo reference Bing Maps, <https://www.bing.com/mapspreview> download date 9th September 2016)

Table 1: Summary of Riparian Area Regulation Objectives and Project Proposals to help achieve them.

RAR Purpose/ Objective:	Description of how the project proposals will help achieve that objective:
Protect “sources of large organic debris, such as fallen trees and tree roots”	The proposals will include planting of new trees along the southern edge of the ditch.
Protect “Area for stream channel migration”	The proposals will include a set-back of 3m from top of bank, and will not encroach on the current ditch channel. The Construction and Environmental Management Plan (CEMP, separate document) includes the measures which will be taken to protect the ditch during construction.
Protect “Vegetation cover to help moderate water temperature”	Trees and shrubs will be planted along the top of the southern bank of the ditch to cast shade on the ditch. New trees will be sufficiently large to cast shade immediately once planted.

RAR Purpose/ Objective:	Description of how the project proposals will help achieve that objective:
Protect “provision of food, nutrients and organic matter to the stream”	Trees and shrubs which are planted along the ditch will include native, deciduous species.
Provide for “Stream bank Stabilization”	All surface water from the parking lot will drain through catch basins (i.e. no sheet flow down the bank). In addition, plant cover will be maintained on the ditch bank and top of bank to reduce erosion from precipitation.
Provide Buffers for streams from excessive silt and surface run-off pollution	Surface runoff will not discharge directly to the ditch. Unpaved areas will be planted to reduce potential for soil erosion. Parking lot will be curbed and slopes will be designed to divert all surface and storm water to onsite catch basins. The water from these catch basins will be run through an oil water separator for treatment prior to discharge.

4.4 NATIVE SPECIES IDENTIFIED

Although most vegetation on site was non-native, some low growing red alders (*Alnus rubra*), wild rose (*Rosa spp.*) and Canada Goldenrod (*Solidago canadensis*) were identified throughout the site. Taller Alder trees were noted along the ditch (to the northern edge of the southern lot). Black Cottonwood trees (*Populus tremuloides*) were noted in the northern lot, alongside the Fraser River. Full details are included in the vegetation survey drawing.

4.5 LISTED SPECIES IDENTIFIED

No listed species were identified during the vegetation survey.

4.6 INVASIVE SPECIES IDENTIFIED

Although the site is not within the City of Richmond jurisdiction, City plant lists were identified to be the most appropriate reference for identification of invasive species, as the neighboring properties are all within the City of Richmond.

City lists were reviewed for priority invasive species [7]. A number of these and other invasive species were identified during the vegetation survey and these are listed in **Table 2** [6]. Locations identified should be cross-referenced with **Appendix C-1**. The Port’s checklist indicated that “there are documented occurrences of purple loosestrife” on site, but this was not observed during the site visit.

Table 2: Invasive Species Identified on site during Vegetation Survey

Scientific Name	Common Name	Location Identified on site.	Reference List (City of Richmond / Invasive Species Council of BC)
<u><i>Fallopia</i></u> spp.	Knotweed	Northern Lot, in City EMA	City [priority] & ISCBC
<u><i>Lythrum salicaria</i></u>	Purple loosestrife	Not identified during visit	City [moderate risk] & ISCBC
<u><i>Cytisus sciparius</i></u>	Scotch broom	Southern lot, by ditch	City [moderate risk] & ISCBC
<u><i>Cirsium arvesne</i></u>	Canada Thistle	Southern lot	City [moderate risk] & ISCBC

4.7 OTHER SPECIES IDENTIFIED

A number of plants were identified which were not native, listed or invasive. These included grasses, soft rushes, bulrushes, horsetail, hardhack, nightshade and clovers.

4.8 OTHER FEATURES IDENTIFIED

No nesting birds were noted on site. No signs of predatory raptors were noted on site.

5.0 PROPOSED VEGETATION MANAGEMENT

A vegetation management plan is included as **Appendix C-2**.

5.1 MANAGEMENT OBJECTIVES

The objective of vegetation management on site (following development) is to improve the habitat value of the existing vegetation through selective removal and replanting.

5.2 PROTECTION OF EXISTING VEGETATION

Existing trees to be retained will be flagged by a qualified professional.

Existing vegetation which is marked for protection will be protected against vehicular impact through adequate signage and with robust fencing (e.g. post and rail with chain-link mesh). Protection will remain in place until all construction activities have been completed, at which point it will be removed.

5.3 PROPOSED VEGETATION REMOVAL

On the northern lot, existing black poplar will be retained and protected with adequate fencing and signage, and Spire will facilitate the continued removal of Japanese knotweed. All existing vegetation on the southern lot will be removed. All vegetation removal will be completed at a time of year that avoids negatively impacting any nesting birds (ideally in winter). All work conducted will comply with an approved CEMP that details provisions for erosion and sediment control.

5.4 PROPOSED NEW AND REPLACEMENT PLANTING

In keeping with the vegetation management objectives (i.e. improve habitat value), this vegetation plan proposes replacement planting for the northern boundary of the southern lot, and provides a list of suitable species for the northern lot, should the removal of knotweed require replacement planting.

The project landscape architect (Landscape Design Inc.) will prepare a detailed landscape scheme for the site, which will include additional portions of the site, as well as management requirements for the successful establishment of all planting on site (e.g. irrigation requirements, maintenance frequency etc.)

Based on communications between Spire and the Port of Vancouver, Envirochem are given to understand that the City of Richmond ESA and RMA do not to apply to the site, which is under the jurisdiction of the Port of Vancouver. Consequently, the 15m buffer is understood not to be required on site and has not been proposed. Despite the lack of a 15m wide buffer, the

proposed planting will improve habitat value through species selection, arrangement of planting and improved maintenance.

Replacement planting described in this report represents the minimum planting required (in Envirochem’s professional opinion) to achieve the vegetation management objective. The specification presented in **Table 3** has been prepared in consideration of the City of Richmond Recommended planting lists [12].

Table 3: Proposed Replacement Planting – Summary of Minimum Requirements

Area	Latin Name	Common Name	Minimum Specification	Minimum Number	Notes
Suggested planting for the Northern lot (others to complete)	<u><i>Cornus stolonifera</i></u>	Red-Osier Dogwood	4 canes, 30-40cm height, container class 3 (3 gallon)	Planted at 4ft (~1.2m) centres	Minimum 25% of any new shrubs planted, by area
	<u><i>Symphoricarpos albus</i></u>	Snowberry	Multistem, 20cm height, container class 1 (1 gallon)	Planted at 3ft (~1m) centres	Minimum 25% of any new shrubs planted, by area
	<u><i>Rubus spectabilis</i></u>	Salmonberry	3 canes, 30-40cm height, container class 3 (3gallon)	Planted at 4ft (~1.2m) centres	Minimum 25% of any new shrubs planted, by area
Proposed planting for the Southern lot, along ditch (Spire to complete)	<u><i>Gaultheria shallon</i></u>	Salal	20cm height, Container class 2 (2 gallon)		Minimum 25% of new shrubs planted, by area
	<u><i>Symphoricarpos albus</i></u>	Snowberry	Multistem Specimen 50cm height, container class 7 (7 gallon)	7	Minimum 25% of new shrubs planted, by area
	<u><i>Salix lasiandra</i></u>	Pacific Willow	1.75m height, 70cm root ball diameter. Can be balled and burlapped or container grown	Minimum of three trees (total) chosen from this list	Centre to be planted within 1.5m of top of ditch (northern edge of southern lot), to provide shade and organic matter (leaf litter).
	<u><i>Alnus rubra</i></u>	Red Alder			
<u><i>Acer macrophyllum</i></u>	Bigleaf Maple				

5.5 ONGOING VEGETATION MANAGEMENT

The Vegetation Management plan will be implemented on site for a minimum period of 5 years.

Invasive species will be removed every 6 months as a minimum, and planting will be maintained in good condition by a qualified contractor, in accordance with Landscape Architect’s specifications.

Vegetation removal and control will be mechanical (not chemical) wherever possible. This may not be the most effective approach in all cases (e.g. if knotweed species are found on site, chemical application may be necessary) where there is any doubt a qualified professional will be retained for advice.

All personnel who apply pesticides will have adequate and current training.

5.6 ADAPTIVE VEGETATION MANAGEMENT

The Vegetation Management approach will be iterative and adaptive. The planting will be reviewed annually to assess how well it is meeting the vegetation management objective, and can be adjusted where required.

The effectiveness of the management approach will be assessed with three main questions, shown in **Table 4**. The management plan will be adjusted where required following each annual review.

Table 4: Adaptive Vegetation Management - Annual Question Matrix

Question (ask all three annually)	Action if the answer is “Yes”	Action if the answer is “No”
Is the new planting that was specified in the vegetation plan still in place?	No action required	Replace as required, review management plan if required
Are invasive species absent?	No action required	Remove as required, review management plan if required
Is the watercourse (ditch) impaired by vegetation?	Remove as required, review management plan if required	No action required

5.7 OUTLINE SCHEDULE

5.7.1 Site clearing

Site clearing activities will begin once the project permit is approved; this is anticipated to be January to March 2017. Where the permit is approved earlier the vegetation removal can begin immediately.

Vegetation removal will take place outside of the general bird breeding season (April 1st to July 31st).

Where possible, vegetation will be removed prior to April 1st. After this time, if possible, construction activities will be managed to ensure that no vegetation is removed until August 1st.

Where this approach is incompatible with the project program, a bird survey will be conducted by a qualified professional (e.g. RPBio) and a report with recommendations will be submitted to the Port of Vancouver for specific approval.

5.7.2 Construction

Construction will take approximately 8 months from approval of the project permit. Depending on the date of this approval, construction is anticipated to be completed between July and September 2017.

5.7.3 New Planting

To ensure no accidental damage resulting from construction activities, planting will be completed following construction, ideally within 3 months (tree planting may be postponed under the direction of the landscape architect). All planting will be in place within 6 months of the completion of construction.

5.8 MONITORING AND CONTROL

Site clearing activities in the south lot will not require third party monitoring, and the construction manager will be responsible for ensuring that the northern lot is not disturbed, or used for parking or storage of materials. Spire will facilitate any clearing out of understory planting in the northern lot by others, as required.

The new planting scheme will be implemented in accordance with the landscape architect's plans and specifications, which will include control of weeds and invasive species.

For 5 years following the completion of construction, the condition of all vegetation on site will be reviewed every 6 months by the landscape maintenance contractor, in accordance with the adaptive vegetation management section of this plan.

6.0 CLOSURE

Sincerely,

Envirochem Services Inc.



Edward Haythornthwaite, M.Sc., D.I.C., P.Ag.
Environmental Scientist



Don Larson, B.Sc., R.P.Bio
Senior Environmental Biologist

7.0 REFERENCES

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- [13] City of Richmond, "The Protection of Environmentally Sensitive Areas," City of Richmond, Urban Development Division, Richmond, BC, 2001.

8.0 LIMITATIONS

This Report is intended for the use of Spire Construction Inc. and the Port of Vancouver to support a development permit with the Port of Vancouver. This report is not for the benefit of any third party and may not be distributed to, disclosed in any form to, used by, or relied upon by, any third party without the prior written consent of Envirochem Services Inc. (Envirochem). Any other third party recipient of this report or user of any content contained herein uses this report and its contents at its sole risk, and by acceptance or use releases Envirochem, its affiliates, officers, employees and subcontractors from any liability for direct, indirect, incidental, consequential or special loss or damage or other liability of any nature arising from its use of the report or reliance upon any of its content.

This is a technical report and is not a legal representation or interpretation of environmental laws, rules, regulations, or policies of government agencies. With respect to regulatory compliance issues, please note that regulatory statutes and the interpretation of regulatory statutes are subject to change over time.

The investigation program followed the standard of care expected of professionals undertaking similar work in British Columbia under similar conditions. Classification and identification have been based on investigations performed in accordance with this standard. Classification and identification of these factors are judgemental in nature and even comprehensive sampling and testing programs, implemented with the appropriate equipment by experienced personnel, may fail to locate some vegetation or relevant conditions.

All investigations utilizing this standard of care will involve an inherent risk that some conditions will not be detected, and all documents or records summarizing such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and all persons making use of such documents or records should be aware of, and accept, this risk. Some conditions are subject to change over time and those making use of this report should be aware of this possibility and understand that the Report only presents the conditions of the area surveyed, at the time of surveying.

In evaluating the subject property, Envirochem has relied in good faith on information provided by individuals and third parties noted in this report. Envirochem accepts no responsibility for any deficiency, misstatements or inaccuracy contained in this report as a result of omissions, misstatements or fraudulent acts of persons interviewed. If new information is discovered during studies or activities in the future, or if additional work is conducted by others, Envirochem should be requested to re-evaluate the conclusions of this report, and to provide amendments as required prior to any reliance upon the information presented herein.

Appendix A

Proposed Development – Outline Site Plan
(Reference: Christopher Bozyk Architects Ltd.)



River Road - Industrial

1 Storey Light Industrial

PROJECT STATS

Building Character
PROJECT ADDRESS: 13201 River Road, Richmond, BC
LEGAL DESCRIPTION: LOT 8 SECTION 17, 20 BLOCK 5 NRG 5W NWD PLAN 24177 EXCEPT: PART ON PLAN 47297 DL 5917 GROUP 1
ZONING: IL - Light Industrial

SITE STATS

PARCEL AREA (sq.ft.)
DEDICATIONS (sq.ft.)
NET PARCEL AREA (sq.ft.)

SITE COVERAGE

Permitted	60%	81.181
Provided	50.6%	68,416
<i>Difference</i>	<i>9.4%</i>	<i>12,765</i>

PROPERTY LINE SETBACKS (ft.)

Front	9.84
Rear	0.00
Exterior Side	9.84
Interior Side	0.00

FSR

Permitted	1.00
Provided	0.51
<i>Difference</i>	<i>0.49</i>

BUILDING AREA SUMMARY

TOTAL GROSS BLDG AREA (sq.ft.)

Permitted	135.302
Provided	65,846
Provided	7,140
Total:	72,986
<i>Difference</i>	<i>62,316</i>

Industrial Office

BUILDING HEIGHT SUMMARY

BUILDING HEIGHT (ft.)

Permitted	39.4
Provided	37.7
<i>Difference</i>	<i>1.7</i>

PARKING/LOADING SUMMARY

PARKING STALLS

Required Warehouse	1 Stalls / 1076sq.ft. of Floor Area	62 (61.2)
Provided Warehouse		62
<i>Difference</i>		<i>0</i>

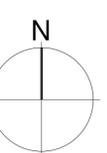
Required Office	3 Stalls / 1076sq.ft. of Floor Area	20 (19.9)
Provided Office		21
<i>Difference</i>		<i>1</i>

Total Required	82
Total Provided	83
<i>Difference</i>	<i>1</i>

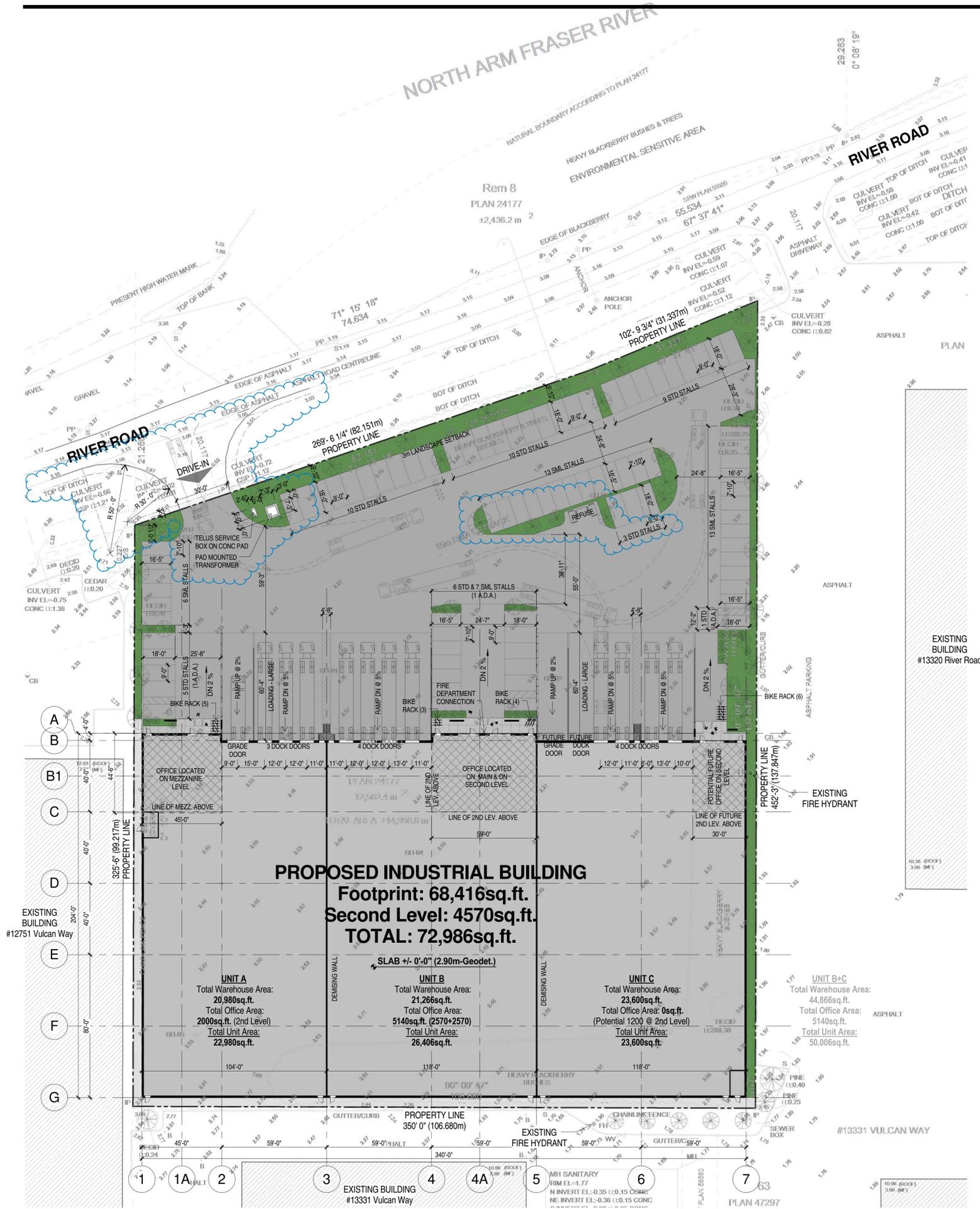
Required Large	2
Provided Large	14
<i>Difference</i>	<i>12</i>

Required Medium	3
Provided Medium	0
<i>Difference</i>	<i>3</i>

LOADING



1 Site Plan
1" = 30'-0"



Parking Provided	
Description	Count
Parking Space - ADA: HC 3700 x 5500	3
Parking Space: 7-10x16-5 (2400x5000)	39
Parking Space: 9x18 (2650x5500)	41
	83

REVISION	DATE	DESCRIPTION
	OCT 21, 16	ISSUED FOR BUILDING PERMIT
	OCT 21, 16	ISSUED FOR PROJECT PERMIT
	SEP 07, 16	ISSUE FOR COORDINATION

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Written dimensions shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on the job; shall request clarification of errors, discrepancies, or doubtful information contained in contract drawings and documents. Failure to obtain such clarification renders the Contractor responsible for any resulting improper work and the cost of rectification.

Spire Industrial Building

13201 River Road, Richmond, BC

Site Plan Project Stats

SCALE: As indicated DATE: Issue Date DRAWN: NK
PROJECT NUMBER: 216016

A0.10

Appendix B

VFPA Application Submission Requirements (PER 15-165)

Project & Environmental Review Application Submission Requirements

100 The Pointe, 999 Canada Place
Vancouver, British Columbia V6C 3T4

Project & Environmental Review - Application Submission Requirements

PER No:	15-165
Project:	Construction of Distribution Warehouse Facility
Project Location:	13201 River Road, Richmond
Land Use Designation:	Industrial
Category of Review:	C

The following Project Permit Application Submission Requirements are based on a preliminary review of the information provided by the Applicant during the preliminary review phase. Should changes be made by the Applicant to the project scope or proposed design, or new policies or legislation come into effect after receipt of this checklist, additional information may be required by Port Metro Vancouver. Upon submission and review of a complete application, Port Metro Vancouver may also request additional information and studies as necessary to support the review process.

Brief description of Preliminary Project Inquiry (Project):

- Spire Development proposes to construct a 73,268 sq. ft building for the purpose of a distribution warehouse facility with 81 parking stalls, 14 loading bays and associated landscaping.
- Prospective tenant has been identified as UNO Foods Inc- a distribution company which imports Asian food products for the Canadian market (company bio available on project lead library).

Section 1: General Submission Requirements

Required

Application Form	A signed and completed <input type="checkbox"/> Category A/B application form <input checked="" type="checkbox"/> Category C/D application form	
Application Fee	<input type="checkbox"/> Category B (if no consultation)* : \$525 includes GST <input type="checkbox"/> Category B (if consultation required): \$2,625 includes GST <input checked="" type="checkbox"/> Category C & D: \$2,625 includes GST <small>* For Projects that were previously subject only to an Environmental Assessment Procedure Review (EAP), this fee will be January 1, 2016.</small>	
Documentation Deposit	<ul style="list-style-type: none"> • Deposit must be submitted at time of submission and is calculated based on 1% of construction value, or the portion of works within Port Metro Vancouver' jurisdiction (\$1,500 minimum to \$10,000 maximum). 	<input checked="" type="checkbox"/>
Building Permit	<ul style="list-style-type: none"> • A Port Metro Vancouver Building Permit is required prior to construction of the proposed works and must be submitted before construction. • Information regarding PMV's Building Permit process is available at: http://www.portmetrovancouver.com/development-and-permits/building-permits/ 	<input checked="" type="checkbox"/>
Contact List	<ul style="list-style-type: none"> • Provide one central contact list for all project team members, including name, 	<input checked="" type="checkbox"/>

Project & Environmental Review Application Submission Requirements

100 The Pointe, 999 Canada Place
Vancouver, British Columbia V6C 3T4

	title, address, and contact numbers.		
Section 2: Project Description Requirements		Req.	Comments
Include with Application Form or attach additional pages as required			
General Scope	<ul style="list-style-type: none"> Brief background of the applicant's company and business operations in the Vancouver Gateway. Description of the Project, including the purpose, use, and project rationale. Description of the Project setting, including proximity to sensitive receptors such as schools or parks. Description of potential impacts to land, water, air, land and adjacent community and businesses, as a result of the project. List all studies that have been completed in support of the application. 	<input checked="" type="checkbox"/>	
Operations	<ul style="list-style-type: none"> Description of existing and proposed capacities and throughput including vehicular, truck, train and marine vessel traffic, hours of operations, peak hours, parking requirements. Description of the hours of operation of the terminal, both current and proposed, and any changes to employment expected. Description of the proposed increase in capacity of the terminal in tonnes per week, month, or year. Description of any potential environmental and community impacts and proposed mitigation strategies. 	<input checked="" type="checkbox"/>	
Construction and/or Demolition	<ul style="list-style-type: none"> Proposed construction period (start and finish), hours, and method of construction 	<input checked="" type="checkbox"/>	
Section 3: Drawing Requirements		Req.	Comments
Please provide one digital set of the following drawings in metric unless otherwise noted. The drawings shall be prepared by qualified professionals and delivered in PDF and AutoCAD format.			
Location Plan	<ul style="list-style-type: none"> Plan showing the relationship of the proposed Project to surrounding area at a 1:5000 scale 	<input checked="" type="checkbox"/>	
Site Plan	<ul style="list-style-type: none"> Lease and property boundaries, easements and right-of-ways. Legal high water mark where applicable. Location and dimensions of all existing and proposed buildings, structures, equipment, and marine structures. Access points including roadways, driveways, parking areas, walkways, berths, gangways, docks. Area of demolition or construction staging/laydown area. 	<input checked="" type="checkbox"/>	
Buildings, Structures & Equipment	<ul style="list-style-type: none"> Elevations of front, rear, and two sides with dimensions. Floor levels and height above and below finished grades. Building floor plans of all storeys including door, window and skylight locations. Roof plans with dimensions and elevations of roof parapet, 	<input checked="" type="checkbox"/>	

Project & Environmental Review Application Submission Requirements

100 The Pointe, 999 Canada Place
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	<p>mechanical and elevator/stair housing.</p> <ul style="list-style-type: none"> • Finishing details and materials. • Excavation depths anticipated (receiving pits, foundations, trenches for utilities, etc.), including depth of excavation required to construct any below-ground infrastructure. • Signage (location, dimensions and lighting details). • Information on site loading for foundation design criteria and any other anticipated loads. 		
Lot Grading and Utilities	<ul style="list-style-type: none"> • Separate plans showing existing and proposed utilities. • Lot grading plan showing existing/proposed paving and drainage. Separate to two plans if required for clarity. • Note that oil/grit/water separators are required to be included as part of site storm water collection. • Discrete site plan showing existing/proposed fire hydrants and emergency vehicle access routes. • Proposed service connections to utilities or systems (water, sewer, storm water, power, gas), both above and below ground. • Provide written confirmation of which other authorities or jurisdictions will need to provide consent or conduct works to establish connections to utilities, and confirmation that capacity exists within those 3rd party networks. • The Applicant is responsible for location of all existing utilities. There is no known utility information on the site. The Applicant must confirm the location of buried utilities, if any. 	<input checked="" type="checkbox"/>	No existing PMV utilities service the site. Any connections made to the site will be done so through surrounding BC Hydro, FortisBC (if applicable) and/or City of Richmond utility networks. Applicant should work directly with the surrounding jurisdiction and obtain all necessary permits and servicing agreements to bring utilities to the site.
Lighting Plan	<ul style="list-style-type: none"> • Lighting shown on the site plan for all proposed exterior lighting including the location, type of bulbs, orientation, and level of illuminance. • For further information, please review Port Metro Vancouver's Lighting Guideline, available at: http://www.portmetrovancover.com/development-and-permits/project-and-environmental-reviews/technical-guidelines/ 	<input checked="" type="checkbox"/>	
Parking & Access	<ul style="list-style-type: none"> • Widths of proposed roadways and driveways. • Dimensions of maneuvering areas including turning radii. • Proposed employee and/truck parking area with dimensioned and numbered parking stalls. • Typical cross sections and proposed grades of all streets, and details of curbs, gutters, sidewalks, and other improvements. • Fire access routes or lanes to be shown on a site plan. 	<input checked="" type="checkbox"/>	
Vegetation Plan	<ul style="list-style-type: none"> • Existing trees and vegetation types (including listed plant species, biodiversity/species richness, invasive species types and relative abundance) landscaping, fencing, and location, 	<input checked="" type="checkbox"/>	Please note that there are documented

Project & Environmental Review Application Submission Requirements

100 The Pointe, 999 Canada Place
Vancouver, British Columbia V6C 3T4

	<p>quantity, and type of proposed vegetation removal (including number of trees to be removed, if applicable).</p> <ul style="list-style-type: none"> Proposed vegetation mitigation plan, including a plan showing the location of replanting, the species of plants proposed (native species are strongly preferred, and may be required), fencing, invasive species monitoring and management areas and other landscape elements. 		occurrences of purple loosestrife and Japanese knotweed on site.
Section 4: Required Studies and Reports		Req.	Comments
Must be prepared by qualified professionals in their respective fields			
Geotechnical Report	<ul style="list-style-type: none"> Description of site seismic and geologic hazards. Description of construction measures, precautions and corrective actions recommended for preventing structural damage and reducing the risk of terrestrial, marine and riparian geotechnical hazards to acceptable levels. 	<input checked="" type="checkbox"/>	
Stormwater Pollution Prevention Plan	<ul style="list-style-type: none"> Description of daily operations as they relate to storm water management, given the local climate and water capture and treatment systems. For further information, please review Port Metro Vancouver's Stormwater Pollution Prevention Plan Guideline, available at: http://www.portmetrovancover.com/development-and-permits/project-and-environmental-reviews/technical-guidelines/ 	<input checked="" type="checkbox"/>	
Traffic Impact Study	<ul style="list-style-type: none"> An assessment of current site traffic as well as truck and/ rail traffic volumes anticipated, on site circulation, traffic distribution throughout the day and impacts to adjacent and nearby roads, access/egress and storage analysis for vehicles and/rail cars accessing site as well as parking requirements. Include proposed hours of operation and staffing number and dimensioned site plan, showing circulation, buildings, new line painting, proposed rail tracks and any other proposed features. 	<input checked="" type="checkbox"/>	
Energy Efficiency Study	<ul style="list-style-type: none"> An assessment of how the proposed development (buildings, motorized equipment, and lights) will affect electrical energy consumption levels. Include energy modeling, demonstrate selection of BATNEC (Best Availability Technology Not Entailing Excessive Cost) energy efficient equipment. 	<input checked="" type="checkbox"/>	
Mitigation Summary	<ul style="list-style-type: none"> A document outlining all potential impacts from the proposed project on the environment, public, stakeholders and Aboriginal groups during construction, operations, decommissioning and reclamation, and proposed mitigation strategies (avoidance, minimization of impacts, on-site restoration, offset). 	<input type="checkbox"/>	This may be required to be submitted at a later date, at the discretion of PMV
Archaeological Potential - Preliminary	<ul style="list-style-type: none"> Footprint and depth of ground alteration works, if proposed. Identify if the proposed project is situated on fill or native soil, and what the anticipated impacts to native soil may be. 	<input checked="" type="checkbox"/>	

Project & Environmental Review Application Submission Requirements

100 The Pointe, 999 Canada Place
Vancouver, British Columbia V6C 3T4

<p>Assessment</p>	<ul style="list-style-type: none"> Identify if the proposed project is within 100m of potable water (historically present or currently present). Location of proposed project in relation to the original shoreline or river/stream bank. Determine if the proposed project is situated on relatively level ground. 		
<p>Construction Environmental Management Plan</p>	<ul style="list-style-type: none"> Description of how the site will be managed during construction that does not result in adverse impacts to the environment, heritage resources, public (municipal, stakeholders, community), Aboriginal groups and including potential effects from limiting noise, vibration, light, dust emissions, and odour. For further information, please review Port Metro Vancouver's Construction Environmental Management Plan Guideline, available online at: http://www.portmetrovancover.com/development-and-permits/project-and-environmental-reviews/technical-guidelines/ 	<input checked="" type="checkbox"/>	
<p>Vegetation Plan</p>	<ul style="list-style-type: none"> Description of topography, hydrology, soil cover and quality. Description of current vegetation types, characteristics and relative abundance, including native, listed and invasive species. Description of riparian vegetation removal and details as to proposed location, species and ratio of replacement planting and include an adaptive vegetation management, monitoring and control plan. Locations and ratios will be confirmed by Port Metro Vancouver upon review of a complete application. 	<input checked="" type="checkbox"/>	<p>Please note if there are any nesting birds on site.</p>
<p>Nesting Bird Survey</p>	<ul style="list-style-type: none"> An assessment of nesting birds using non-intrusive methods (i.e. determine the presence of birds in habitat through observation of singing birds, alarm calls, distraction displays, nest). Include a description of existing conditions, potential impacts, and proposed mitigation strategies. 	<input type="checkbox"/>	<p>This will be required only if construction is proposed during bird nesting season, as it applies to tree removal and may be included as part of the mitigations outlined in the CEMP.</p> <p>Not required for application, but will be required prior to construction (as a condition of approval). Applicant may want to consider including this information in vegetation assessment at time</p>

Project & Environmental Review Application Submission Requirements

100 The Pointe, 999 Canada Place
Vancouver, British Columbia V6C 3T4

			of application submission.
Fire Safety Plan	<ul style="list-style-type: none"> Describe as required – this is more of an operational plan however, a draft Plan may be useful during the review process 	<input checked="" type="checkbox"/>	
Flood Protection	<ul style="list-style-type: none"> Conduct a vulnerability assessment of any areas of the site which may be at risk of flooding in light of the value and vulnerability of the commodities, contamination risk, as well as day-to-day operations. 	<input checked="" type="checkbox"/>	
Section 5: Consultation Requirements		Req.	Comments
Aboriginal Groups	<ul style="list-style-type: none"> The proposed Project will be assessed to determine whether any part of the proposed work has the potential to impact Aboriginal rights. Confirmation of the requirement for Aboriginal consultation will be provided upon acceptance and review of your completed Project Application. Provide all records of previous information sharing activities, agreements, or other interactions with Aboriginal groups with respect to the proposed Project. Provide information on any known Aboriginal interests in the Project area. For further information, please review Port Metro Vancouver's Aboriginal Consultation – Information for Applicants, available online at: http://www.portmetrovancover.com/development-and-permits/project-and-environmental-reviews/technical-guidelines/ 	<input checked="" type="checkbox"/>	
Stakeholders	<ul style="list-style-type: none"> The proposed Project may have an impact on stakeholder interests. The following stakeholder notification and/ consultation will be led by Port Metro Vancouver during application review phase with the involvement of the Applicant at the request of PMV (responding to stakeholders, attending meetings etc.). <ul style="list-style-type: none"> City of Richmond PMV may revise the list of stakeholders upon acceptance and review of a complete Project Application. For further information, please review Port Metro Vancouver's Stakeholder Consultation Guideline, available online at: http://www.portmetrovancover.com/development-and-permits/project-and-environmental-reviews/technical-guidelines/ 	<input checked="" type="checkbox"/>	

Project & Environmental Review Application Submission Requirements

100 The Pointe, 999 Canada Place
Vancouver, British Columbia V6C 3T4

<p>Community</p>	<ul style="list-style-type: none"> The proposed Project may have an impact on adjacent community interests. The type of consultation activities that are required to be led by the Applicant for this project includes: <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Notification of adjacent property owners. Area of notification to be confirmed upon review of complete application. <input type="checkbox"/> Public Consultation <input type="checkbox"/> Final Comment Period Port Metro Vancouver may require additional consultation activities with the community during the application review phase as required. For a checklist of items required to be submitted as part of required consultation activities, please review Port Metro Vancouver's Public Consultation Guideline, available online at: http://www.portmetrovancover.com/development-and-permits/project-and-environmental-reviews/technical-guidelines/ 	<p><input checked="" type="checkbox"/></p>	<p>Submit a draft notification letter for review. Should include a brief description of the project, construction activities, potential impacts and contact info.</p>
<p>Draft Construction Communications Plan</p>	<ul style="list-style-type: none"> The proposed Project may have an impact on the adjacent community during the construction period, and therefore the applicant is required to notify area residents and the municipality prior to construction. Brief description of the proposed Project, background, construction considerations and challenges, engagement objectives, key audiences and stakeholders, key messages, contact information and notification activities prior to construction and/or demolition. Submission of a final plan will be required at a later date determined by PMV. For further information, please review Port Metro Vancouver's Public Consultation Guideline, available online at: http://www.portmetrovancover.com/development-and-permits/project-and-environmental-reviews/technical-guidelines/ 	<p><input checked="" type="checkbox"/></p>	<p>Construction notification may be required depending on potential impacts from construction activities. To be determined upon review of complete application.</p>
<p>Section 6: Other Requirements/ Considerations</p>			
<p>Preloading of the site</p>	<ul style="list-style-type: none"> Will be subject to a separate project permit – likely Category A review 		

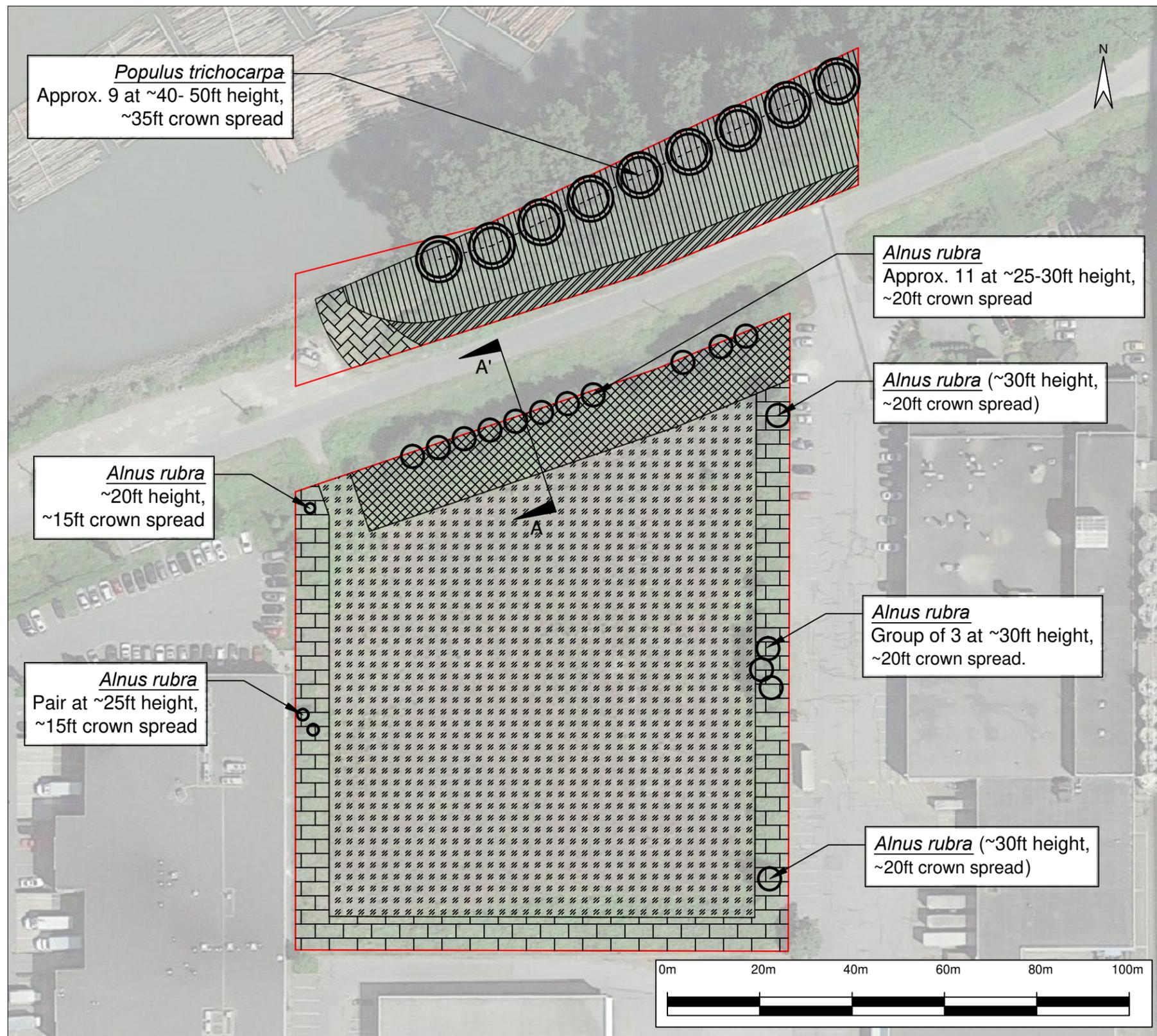
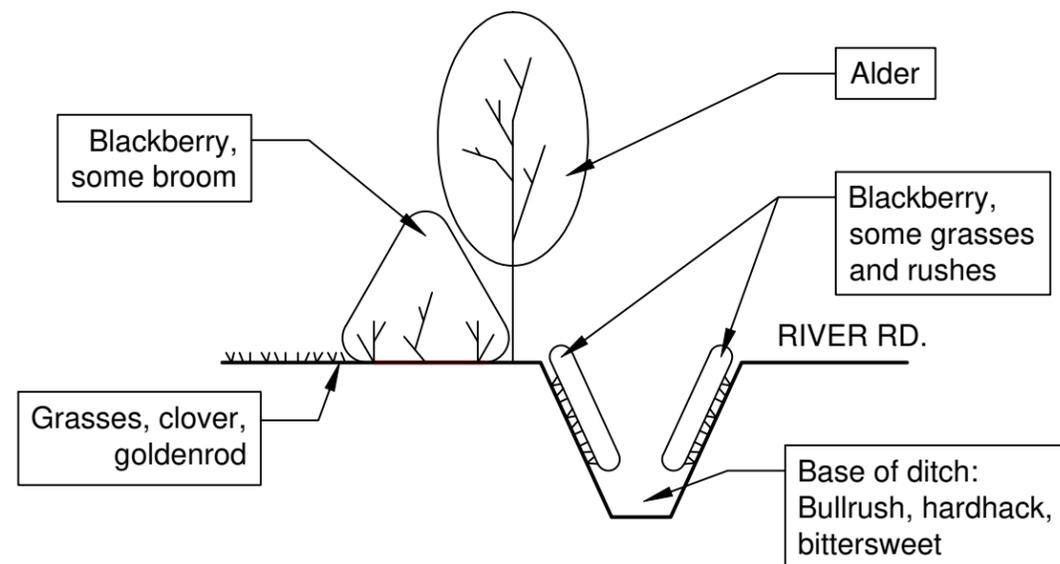
Appendix C

Drawings

PLAN LEGEND:

- | | |
|---|--|
|  <i>Rubus spp.</i> (blackberry), Small ~6ft <i>Alnus spp.</i> (Alder), & <i>Fallopia japonica</i> (Japanese Knotweed). |  Mixed wildflower containing: mixed grasses, clovers, <i>rosa spp.</i> (wild rose), <i>Solidago canadensis</i> (Canada goldenrod), <i>Cirsium arvense</i> (Canada thistle) low growing alder, some reeds. |
|  <i>Rubus spp.</i> (blackberry) & occasional <i>Fallopia japonica</i> (Japanese Knotweed). |  <i>Alnus rubra</i> , Red Alder, sizes as shown. |
|  Mixture of grasses and <i>Fallopia japonica</i> (Japanese Knotweed) |  <i>Populus trichocarpa</i> , Black cottonwood, sizes as shown. |
|  Predominantly <i>Rubus spp.</i> (blackberry) | |
|  <i>Rubus spp.</i> (blackberry) with <i>Cytisus sciparius</i> (scotch broom) | |

SKETCH TYPICAL SECTION A-A' THROUGH DITCH (Not to Scale):



ENVIROCHEM
SERVICES INC.
206-267 Esplanade W,
North Vancouver, BC V7M1A5
T: 604-986-0233
E: response@envirochem.com

NOTE:
Aerial image taken from Google Earth, Imagery date 14th July 2014. Download date 11th October 2016.
Original drawing is ANSI expand B (11.00 x 17.00 Inches) and in colour.

Drawing filepath: P:\Projects\Spire Development\13201 River Rd, Richmond\11-Figures-CAD\16113_Vegetation Plan.dwg

Title: Vegetation Survey Plan	Figure No: C-1	Rev No:
Client: Spire Development Corporation	Date: October 2016	
Project: PER15-165 Vegetation Plan	Project No: 16113	
Site Location: 13201 River Road, Richmond, BC	Drawn: EH	Checked: DL
	Scale: 1:1000	

PLAN LEGEND:



Application of pesticides will likely be required to control *Fallopia spp.* and is only to be completed by qualified personnel. This work is to be completed by others, and Spire will facilitate as required.

If replacement planting is undertaken, suggested species include:

LATIN NAME	COMMON NAME	MINIMUM SPECIFICATION	MINIMUM NUMBER	NOTES
Cornus stolonifera	Red-Osier Dogwood	4 canes, 30-40cm height, container class 3 (3 gallon) or above	Planted at 4ft (~1.2m) centres	Minimum 25% of new shrubs planted, by area
Symphoricarpos albus	Snowberry	Multistem, 20cm height, container class 1 (1 gallon)	Planted at 3ft (~1m) centres	Minimum 25% of new shrubs planted, by area
Rubus spectabilis	Salmonberry	3 canes, 30-40cm height, container class 3 (3gallon) or above	Planted at 4ft (~1.2m) centres	Minimum 25% of new shrubs planted, by area



All existing vegetation (including *Alnus rubra*) to be removed, by mechanical means only, where possible. Where pesticide application is required, this is to be completed by qualified personnel only.

Replacement planting to include:

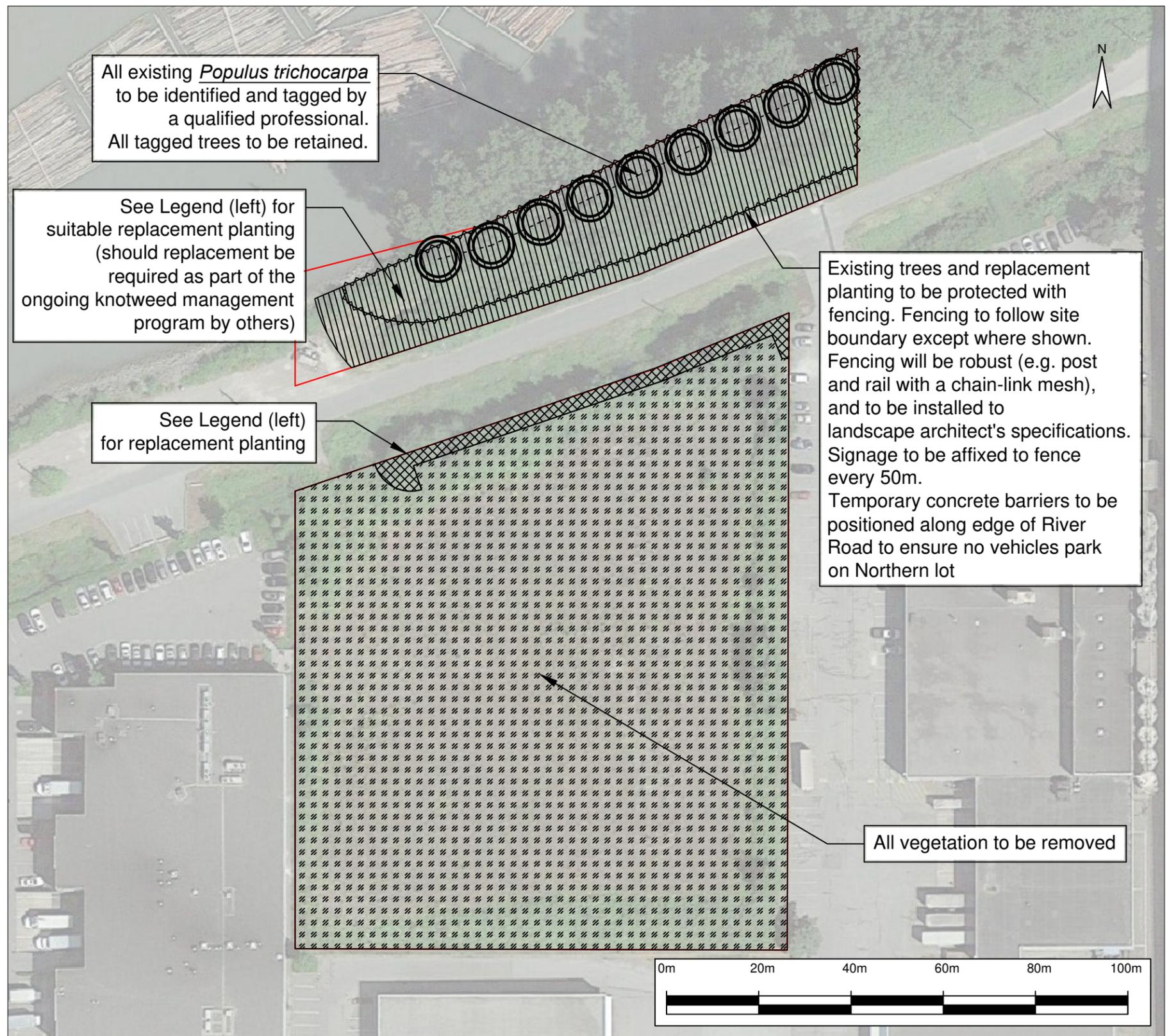
LATIN NAME	COMMON NAME	MINIMUM SPECIFICATION	MINIMUM NUMBER	NOTES
Gaultheria shallon	Salal	20cm height, container class 2 (2 gallon)	As required to cover min 25% of area	Per landscape architect's specifications
Symphoricarpos albus	Snowberry	Multistem, specimen 50cm height, container class 7 (7 gallon)	7	Minimum 25% of new shrubs planted, by area
Salix lasiandra (1)	Pacific Willow	1.75m height, 70cm root ball diameter. Can be balled and burlapped or container grown	Minimum 3 chosen from (1), (2), and (3).	Centre to be planted within 1.5m of top of ditch (northern edge of southern lot), to provide shade and organic matter (leaf litter).
Alnus rubra (2)	Red Alder	1.75m height, 70cm root ball diameter. Can be balled and burlapped or container grown		
Acer macrophyllum (3)	Bigleaf Maple	1.75m height, 70cm root ball diameter. Can be balled and burlapped or container grown		



All vegetation to be removed during site clearing.



Populus trichocarpa, Black cottonwood to be retained.



206-267 Esplanade W,
North Vancouver, BC V7M1A5
T: 604-986-0233
E: response@envirochem.com

NOTE:
Aerial image taken from Google Earth, Imagery date 14th July 2014. Download date 11th October 2016.
Original drawing is ANSI expand B (11.00 x 17.00 Inches) and in colour.

Drawing filepath: P:\Projects\Spire Development\13201 River Rd, Richmond\11-Figures-CAD\16113_Vegetation Plan.dwg

Title: Vegetation Management Plan	Figure No: C-2	Rev No:
Client: Spire Development Corporation	Date: October 2016	
Project: PER15-165 Vegetation Plan	Project No: 16113	Drawn: EH
Site Location: 13201 River Road, Richmond, BC	Checked: DL	Scale: 1:1000

Appendix D

BC Species and Ecosystems Explorer Search Results

Scientific Name	English Name	Prov Status	BC List	General Status Canada	CITES	Name Category	Class (English)	Species Level	Origin	Presence	Endemic
<i>Acorus americanus</i>	American sweet-flag	S2	Red	4 - Secure (2010)		Vascular Plant	monocots	Species	Native	Regularly occurring	N
<i>Alopecurus carolinianus</i>	Carolina meadow-foxtail	S2	Red	4 - Secure (2010)		Vascular Plant	monocots	Species	Native	Regularly occurring	N
<i>Anagallis minima</i>	chaffweed	S3	Blue	3 - Sensitive (2010)		Vascular Plant	dicots	Species	Native	Regularly occurring	N
<i>Bidens amplissima</i>	Vancouver Island beggarticks	S3	Blue	3 - Sensitive (2010)		Vascular Plant	dicots	Species	Native	Regularly occurring	N
<i>Carex comosa</i>	bearded sedge	S3	Blue	4 - Secure (2010)		Vascular Plant	monocots	Species	Native	Regularly occurring	N
<i>Carex feta</i>	green-sheathed sedge	S3	Blue	2 - May be at risk (2010)		Vascular Plant	monocots	Species	Native	Regularly occurring	N
<i>Carex interrupta</i>	green-fruited sedge	S2S3	Blue	2 - May be at risk (2010)		Vascular Plant	monocots	Species	Native	Regularly occurring	N
<i>Elatine rubella</i>	three-flowered waterwort	S3	Blue	3 - Sensitive (2010)		Vascular Plant	dicots	Species	Native	Regularly occurring	N
<i>Eleocharis ovata</i>	ovate spike-rush	S2S3	Blue	4 - Secure (2010)		Vascular Plant	monocots	Species	Native	Regularly occurring	N
<i>Eleocharis parvula</i>	small spike-rush	S3	Blue	4 - Secure (2010)		Vascular Plant	monocots	Species	Native	Regularly occurring	N
<i>Eleocharis rostellata</i>	beaked spike-rush	S3	Blue	3 - Sensitive (2010)		Vascular Plant	monocots	Species	Native	Regularly occurring	N
<i>Elodea nuttallii</i>	Nuttall's waterweed	S3	Blue	3 - Sensitive (2010)		Vascular Plant	monocots	Species	Native	Regularly occurring	N
<i>Erythranthe breviflora</i>	short-flowered monkey-flower	S2S3	Blue	2 - May be at risk (2010)		Vascular Plant	dicots	Species	Native	Regularly occurring	N
<i>Eutrochium maculatum</i> var. <i>bruneri</i>	Joe-pye weed	S2	Red			Vascular Plant	dicots	Variety	Native	Regularly occurring	N
<i>Glyceria leptostachya</i>	slender-spiked mannagrass	S3	Blue	3 - Sensitive (2010)		Vascular Plant	monocots	Species	Native	Regularly occurring	N
<i>Isoetes nuttallii</i>	Nuttall's quillwort	S3	Blue	3 - Sensitive (2010)		Vascular Plant	quillworts	Species	Native	Regularly occurring	N
<i>Juncus oxymersis</i>	pointed rush	S3?	Blue	3 - Sensitive (2010)		Vascular Plant	monocots	Species	Native	Regularly occurring	N
<i>Lilaea scilloides</i>	flowering quillwort	S2S3	Blue	3 - Sensitive (2010)		Vascular Plant	monocots	Species	Native	Regularly occurring	N
<i>Lindernia dubia</i> var. <i>anagallidea</i>	false-pimpernel	S2S3	Blue			Vascular Plant	dicots	Variety	Native	Regularly occurring	N
<i>Lindernia dubia</i> var. <i>dubia</i>	yellowseed false pimpernel	S1	Red			Vascular Plant	dicots	Variety	Native	Regularly occurring	N
<i>Lupinus rivularis</i>	streambank lupine	S1	Red	1 - At Risk (2010)		Vascular Plant	dicots	Species	Native	Regularly occurring	N
<i>Navarretia intertexta</i>	needle-leaved navarretia	S2	Red	2 - May be at risk (2010)		Vascular Plant	dicots	Species	Native	Regularly occurring	N
<i>Sidalcea hendersonii</i>	Henderson's checker-mallow	S3	Blue	3 - Sensitive (2010)		Vascular Plant	dicots	Species	Native	Regularly occurring	N
<i>Veronica catenata</i>	pink water speedwell	S2S3	Blue			Vascular Plant	dicots	Species	Native	Regularly occurring	N

Search Criteria

Search Type: Plant
AND Regional Districts: Metro Vancouver
(MVRD) (Restricted to Red, Blue, and
AND Habitat Types: Other Unique
Habitats,Riparian,Springs,Stream/River (

Sort Order:Scientific Name Ascending

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Appendix E

Site Photographs

Vegetation Plan
13201 River Road, Richmond, BC



Photo 1: Northern Lot, showing black cottonwood and invasive understory



Photo 2: View of ditch, looking east from northwest corner of southern lot

Vegetation Plan
13201 River Road, Richmond, BC

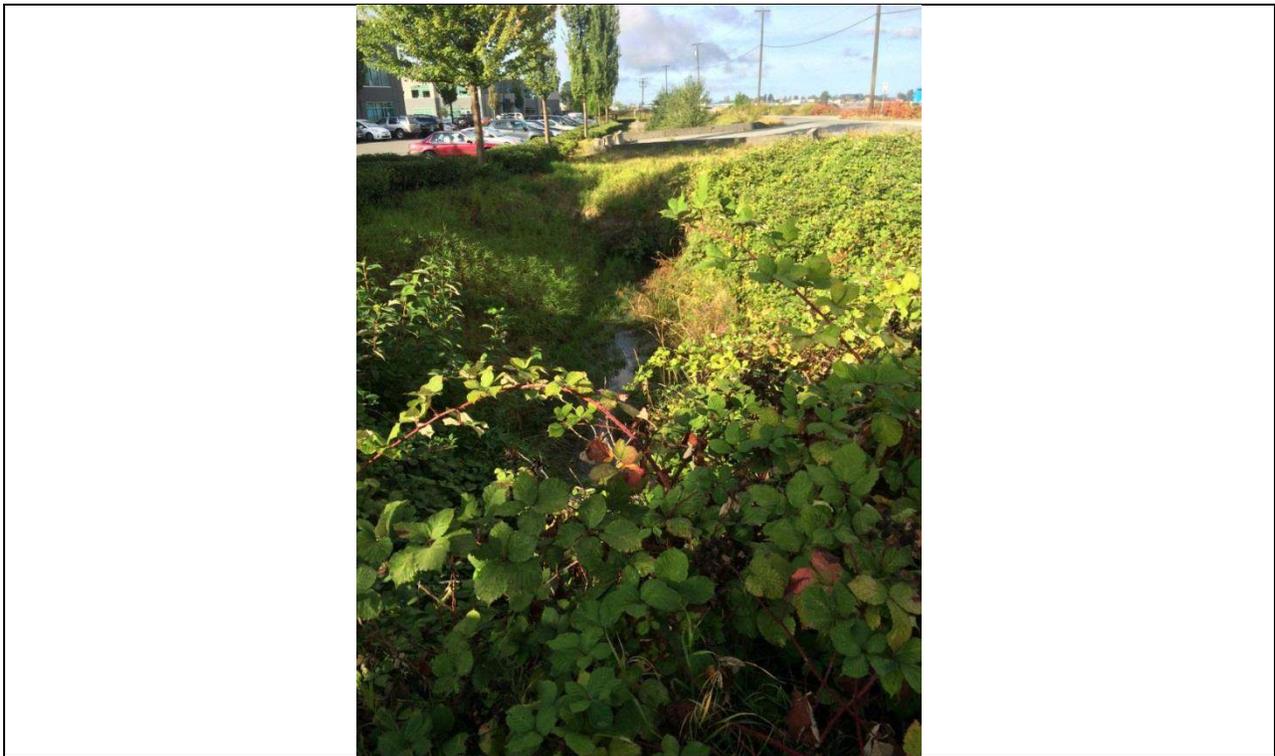


Photo 3: Ditch treatment of adjoining property to the west, looking west from southern lot



Photo 4: Western boundary of southern lot, looking south from northwest corner

Vegetation Plan
13201 River Road, Richmond, BC

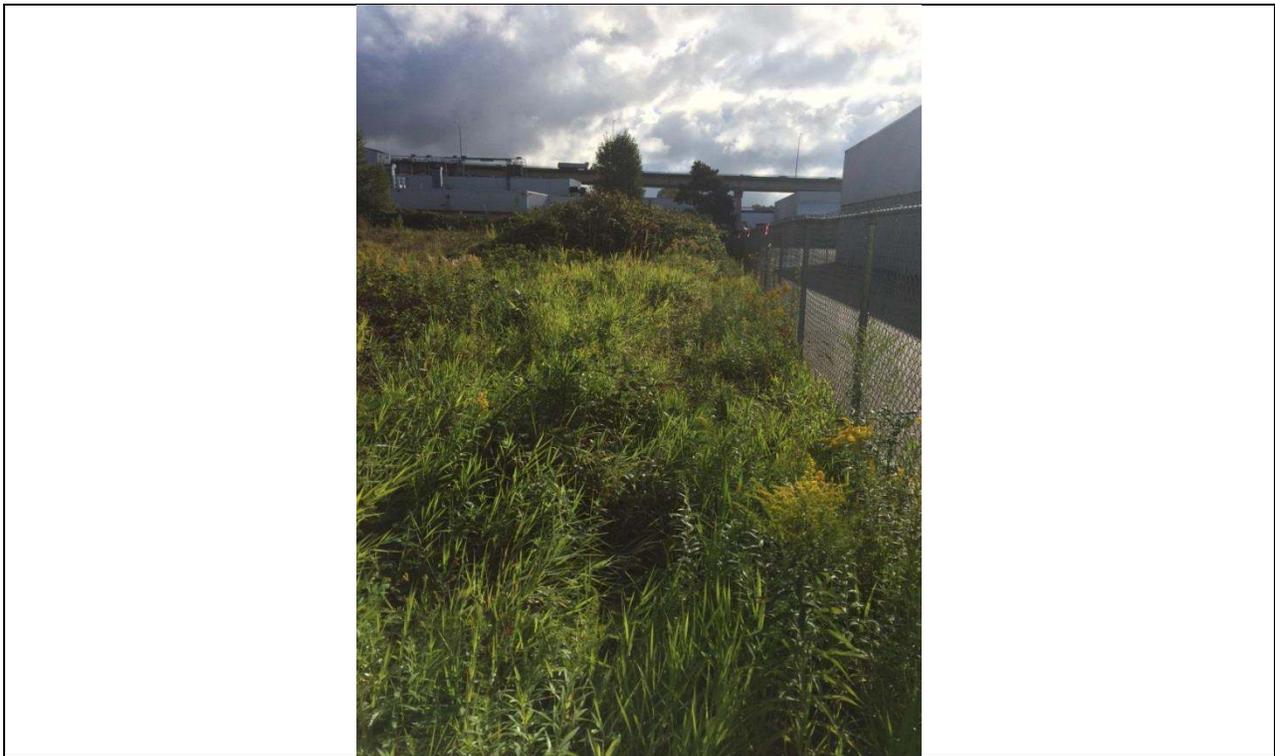


Photo 5: Southern boundary of southern lot, looking east from southwest corner



Photo 6: Eastern boundary of southern lot, looking north from southeast corner

Vegetation Plan
13201 River Road, Richmond, BC



Photo 7: To show condition of southern lot, looking west from middle of eastern boundary



Photo 8: Showing knotweed species present on northern lot

Vegetation Plan
13201 River Road, Richmond, BC



Photo 9: Foreshore of northern lot with Fraser River, looking east from northwest corner of northern lot