



To: Planning Committee
From: Wayne Craig
Director of Development

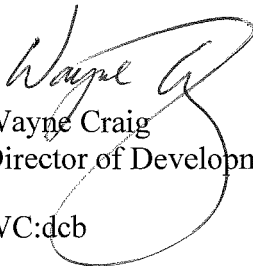
Date: June 26, 2014
File: RZ 13-649641

Re: **Application by Polygon Development 296 Ltd. for Rezoning at 9700 and 9740 Alexandra Road from “Two-Unit Dwellings (RD1)” and “Single Detached (RS1/F)” to “Town Housing (ZT71) – Alexandra Neighbourhood (West Cambie)”**

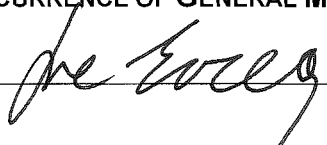
Staff Recommendation

1. That Richmond Zoning Bylaw 8500, Amendment Bylaw No. 9159:
 - a) to create “Town Housing (ZT71) – Alexandra Neighbourhood (West Cambie)”; and
 - b) to rezone 9700 and 9740 Alexandra Road from “Two-Unit Dwellings (RD1)” and “Single Detached (RS1/F)” to “Town Housing (ZT71) – Alexandra Neighbourhood (West Cambie)”;

be introduced and given first reading; and
2. That the affordable housing contribution for the rezoning of 9700 and 9740 Alexandra Road (RZ 13-649641) be allocated entirely (100%) to the capital Affordable Housing Reserve Fund established by Reserve Fund Establishment Bylaw No. 7812.


Wayne Craig
Director of Development

WC:dcb

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Affordable Housing Law	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	

Staff Report

Origin

Polygon Jayden Mews Homes Ltd., (formerly, Polygon Development 296 Ltd.) (“Polygon”) has applied to Rezone 9700 and 9740 Alexandra Road from “Two-Unit Dwellings (RD1)” and “Single Detached (RS1/F)” to a Site Specific Zone, “Town Housing (ZT71) – Alexandra Neighbourhood (West Cambie)”, in order to develop approximately 64 three-storey townhomes on the assembled site. A location map is provided in Attachment 1.

Project Overview

The proposed development site is located in the Alexandra Neighbourhood on a consolidation of two large lots between Alexandra Road and Alderbridge Way in an area that was re-designated for residential use by Council in 2012.

Constrained by an irregular shaped lot, the developer proposes 13 buildings fronting onto an internal drive aisle accessing Alexandra Road. The proposed site layout includes a 213.9 m² (2,302 ft²) two-storey amenity building with an adjacent children’s play area and a meandering landscaped path which will incorporate original, visible artworks that will also function as habitat for barn owls. The site plan also shows a common green space for outdoor recreation and informal gathering and a landscaped outdoor seating area around an existing large conifer tree to be retained on site.

As proposed, individual townhouse units will range in size from 126.2 m² (1,358.5 ft²) to 152.0 m² (1,636.3 ft²) and approximately 40% of the townhouses will have direct walkway connections to the meandering landscaped pathway that runs through the site.

An emergency vehicle access to Alderbridge Way will be incorporated into the site plan off one of the two drive aisle ends adjacent to Alderbridge Way. The final location and configuration will be determined during the Development Permit review.

A 337.9 m² (3,637 ft²) land dedication will be required along Alderbridge Way to accommodate the installation of a new public sidewalk and a treed boulevard that will ultimately run between Garden City Road and No. 4 Road along Alderbridge Way.

Frontage improvements are also proposed along Alexandra Road including raising the Alexandra Road surface, the installation of concrete sidewalks, and provision for parking and new light standards along the south side of Alexandra Road. In addition, upgrading and/or replacement of existing sanitary lines, storm lines, watermain lines, additional fire hydrants and the undergrounding of hydro lines, will be required as part of development’s off-site works and addressed through a separate Servicing Agreement.

Findings of Fact

The proposed development site is approximately 1.215 ha (3.00 ac. before land dedications) in size. The developer has submitted an application to demolish the residential buildings on the two lots and the lots have extensive tree and understorey vegetation coverage especially in the southern two-thirds of the site.

Both properties are currently owned by Polygon Development 296 Ltd.

A covenant is currently registered on title over 9700 Alexandra Road restricting use of the property to a two-family dwelling. The removal of this covenant is necessary in order to permit townhouses on the lot and is included in the Rezoning considerations.

The developer's conceptual development plans are provided in Attachment 2 and a Development Application Data Sheet is provided in Attachment 3.

Surrounding Development

To the North: At 9566 Tomicki Avenue, is an existing 26 building three-storey townhouse development containing (known as Wishing Tree) 141 units [zoned "Town Housing (ZT67) – Alexandra Neighbourhood (West Cambie)" (DP 08-432203)].

To the East: Six large residential lots (9800 and 9820 Alexandra Road and 4711–4771 No. 4 Road) all zoned "Single Detached (RS1/F)". The West Cambie Area Plan identifies the area containing these Single Detached lots as "Residential Area 2" permitting two- and three-storey Townhomes. Redevelopment of these lots in the future is likely.

To the South: Alderbridge Way and the Garden City lands (5555 No. 4 Road) to the south of that. The 55 ha (136.5 ac.) Garden City lands are zoned "Agriculture (AG1)".

To the West: Five large residential lots (9580–9680 Alexandra Road) currently zoned "Single Detached (RS1/F)" and/or "Two-Unit Dwellings (RD1)". All five lots are included in a Rezoning application (RZ 13-649999) by Am-Pri Developments (2012) Ltd. which proposes to develop approximately 96 three-storey townhouse units on the consolidated property.

Further west, between May Drive and Garden City Road is the proposed First Richmond North Shopping Centre (Smart Centres) (RZ 10-528877 – pending final).

Related Policies & Studies

Official Community Plan – West Cambie Area Plan

On October 15, 2012, Council adopted an Official Community Plan (OCP) amendment to re-designate 9540–9820 Alexandra Road and 4711–4771 No. 4 Road from "Public and Open Space Use" and "Park" to "Neighbourhood Residential" with the exception of a greenway strip over 9540 Alexandra Road and portions of 9560–9600 Alexandra Road (see Attachment 4). An amendment to the West Cambie Area Plan was also adopted to re-designate the same properties from "Park" to "Townhouses". Although the "Park" designations were removed from the West Cambie Area Plan, the ESA designations within the former park were retained with the intent

that these areas would be reassessed for possible retention on a case-by-case basis as a requirement of any redevelopment proposals involving these properties.

Current Use and Density

The Alexandra Neighbourhood Land Use Map (Attachment 4) within the West Cambie Area Plan identifies the subject properties as being within “Residential Area 2” which supports two and three-story townhouses at a base Floor Area Ratio (FAR) of 0.65 with density bonusing to 0.75 FAR for affordable housing. The developer is proposing a project density of 0.72 FAR with an affordable housing contribution (see the “Affordable Housing Policy” section below for further discussion), consistent with the Area Plan.

Affordable Housing and the West Cambie-Alexandra Interim Amenity Guidelines Policy 5044

The development site is located within the West Cambie Planning Area and is subject to the “West Cambie-Alexandra Interim Amenity Guidelines Policy 5044”. This Policy establishes guidelines for voluntary developer contributions toward affordable housing, community and engineering planning costs, child care and City beautification for new developments in the Alexandra area.

As outlined in the report from the General Manager, Community Services dated May 20, 2014, Polygon (the Developer) has requested that this development be considered as a special development circumstance “donor site” for which the developer proposes to make a \$678,107.00 voluntary contribution to the City’s Affordable Housing Reserve (capital fund) in lieu of building affordable housing units on site. Staff recommends that the entire contribution amount be placed into the Reserve’s capital fund per the report from the General Manager, Community Services.

The proposed contribution amount is based on the Affordable Housing Value Transfer (AHVT) rate of \$160/ft² (established in a report from the General Manager, Community Services dated May 30, 2012) applied to one-third of the density bonus from 0.65 base FAR to 0.75 FAR (although Polygon has opted for a lower density of 0.72 FAR). Specifically, the affordable housing contribution is derived from:

- A net site area of 11,812.16 m² (127,145 ft²);
- One-third of the Affordable Housing density 0.1 FAR bonus per the West Cambie Area Plan;
- An AHVT rate of \$160/ft² ;
- The AHVT rate assumes wood construction and the affordable housing floor area not being retained on site; and
- Formula: $(127,145 \text{ ft}^2 \times 0.1 \text{ FAR bonus}) / 3 \times (\$160/\text{ft}^2) = \$678,107.00$.

The Affordable Housing contribution for the subject site would be secured prior to adoption of the Rezoning Bylaw. The proposed “Town Housing (ZT71) – Alexandra Neighbourhood (West Cambie)” Zoning for the site incorporates both the density bonus and the affordable housing contribution amount.

The Developer will also be required to make additional contributions pursuant to the West Cambie-Alexandra Interim Amenity Policy 5044. Preliminary estimates of these contributions are:

- Community and engineering planning costs at \$0.07/ft² (estimated at \$6,230.11);
- Child care at \$0.60/ft² (estimated at \$53,400.90); and
- City beautification at \$0.60/ft² (estimated at \$53,400.90).

These contributions will be finalized through the Development Permit review and collected at the prior to final adoption of the Rezoning Bylaw. The actual City beautification contribution may be reduced from the \$0.60/ft² rate established by Policy 5044 by the equivalent value of frontage improvements identified and bonded for through the Servicing Agreement. The offsite works which may qualify for this reduction include works along a portion of the north side of Alexandra Road (i.e. conversion of the existing ditch to a swale, sidewalk installation, resetting of existing pedestrian bridges to address grade changes, etc).

Environmentally Sensitive Area Designations

Richmond's ESA designations were most recently updated as part of the 2041 Official Community Plan (OCP) (Bylaw 9000) review using 2012 aerial photogrammetry, GIS mapping and limited ground truthing. Staff notes that a detailed on-site assessment was not undertaken for the subject properties during the 2012 ESA Management Strategy update and OCP review.

The designated ESAs in the Alexandra Neighbourhood are classified in the City's ESA inventory as "Upland Forest" areas. Upland Forests are typically treed areas (woody vegetation > 5 m (16.4 ft.) tall not including forested wetlands (swamps and bog forests) or forested riparian zones, adjacent to streams, rivers, and other watercourses.

Depending upon the type of development or activity proposed and the degree of anticipated impact upon the designated ESA, environmental assessment requirements vary from "no review" being required to a "detailed inventory and assessment" being required by qualified environmental professionals (QEPs). The intent of an environmental assessment is to verify the nature, extent and quality of any valued environmental features present and to provide recommendations for their preservation where possible, impact mitigation and/or compensation measures where impacts are determined to be unavoidable. A detailed review and assessment of the ESA is discussed later in this report.

Flood Construction Elevation and Road Elevation Requirements

The West Cambie Area Plan establishes a minimum Flood Construction Level within the Alexandra Neighbourhood of 2.6 m GSC and a minimum elevation of 2.0 m GSC for all new roads within the neighbourhood. The development proposes to meet these requirements by raising the grade for most of the lot and raising the elevation of the north frontage road (i.e. a portion of Alexandra Road) by approximately 0.6 m to bring it up to the required 2.0 m elevation. Registration of a Flood Covenant with a minimum Flood Construction Level of 2.6 m GSC is included in the Rezoning considerations.

Aircraft Noise Policy

The subject property is located within "Area 2" of the Aircraft Noise Sensitive Development (ANSD) Policy Areas. All aircraft noise sensitive land uses except new single family may be considered within Area 2. The proposed townhouse development conforms to this policy. The Rezoning Adoption requirements include **ONCL-247** restrictive covenants, submission of an

acoustic report, incorporation of noise mitigation in construction such as mechanical ventilation and central air conditioning.

District Energy Utility and Sustainability Features

The development site is not within the area where connection to the West Cambie District Energy Utility (DEU) is required.

The Developer is exploring a range of sustainability features to incorporate into the development. To time of writing, the Developer is proposing to incorporate the following sustainability features into the buildings:

- Achieving Ener-Guide ratings of at least 82 for all the homes;
- Pre-ducting for solar hot water heating;
- Double glazed Low-E glazing on all windows;
- Energy Star appliances;
- Low VOC paints in all homes;
- Dual flush toilets and low flow faucets;
- Drywall with recycled gypsum and paper content; and
- Recycling bin storage in all kitchens.

The Rezoning considerations include requirements for achieving an Ener-Guide rating of 82 or better and pre-ducting for solar hot water heating, and entering into a legal agreement to secure this.

Additional sustainability initiatives for this development will be further reviewed and confirmed as part of the Development Permit design review submission.

Public Art

The applicant has submitted a Public Art Plan checklist and is working with the Public Art Planner to address the City's Public Art Program Policy 8703. The developer's preliminary concept is to work with a wildlife biologist and an artist to develop a public art project that will also provide a Barn owl roost (e.g. nesting box) on the development site.

A voluntary contribution of \$70,162.85 to the City's public art fund is included in the rezoning considerations.

Consultation

Impacts to an Existing Ditch Along Alexandra Road

The City's requirement for raising the full width of Alexandra Road to 2.0 m GSC will result in changes being made to an existing open ditch that lies adjacent to the Wishing Tree Strata complex (9566 Tomicki Avenue), converting it to a swale. The Wishing Tree Strata Council has advised, through Polygon, that they accept the changes to the pedestrian bridge elevations provided that there is no reduction in function or accessibility, to which Polygon has agreed.

The Wishing Tree Strata has also requested that the City investigate the possibility of installing traffic calming measures on Alexandra Road to address "cut-through" traffic caused by the proposed new retail centre on Alexandra Road (Smart Centres) and that street parking be reintroduced on No. 4 Road adjacent to Wishing Tree as a means to slow down traffic speed.

Staff investigations into traffic calming measures on Alexandra Road to address “cut-through” traffic as a result of the proposed new retail centre were undertaken and reported to Planning Committee (report dated September 7, 2012, from the General Manager, Planning & Development re: West Cambie Natural Park Re-designation). Specific measures recommended through that report will be incorporated with development in the area. Notably:

- A right-in-right-out diverter will be constructed as part of Polygon’s development (Jaden Mews) on the east leg of Alexandra at May Drive; and
- A future traffic-calming measure on No. 4 Road at Alexandra Road will be implemented when the parcels fronting No.4 Road, between Alexandra Road and Alderbridge Way, redevelop.

Transportation Staff have also reviewed the possibility of on-street parking on No. 4 Road but found that it would not be feasible due to existing road configuration.

Public Input

To the time of writing, one letter has been received regarding the proposed Rezoning. The owner of 9800 Alexandra Road has written to the City (Attachment 8) with concerns about the impact on his property and its future redevelopment potential. In response to concerns about future redevelopment potential of 9800 Alexandra Road, staff note that this site must be developed with the adjacent lot to the immediate east and also include other lots fronting No. 4 Road. Redevelopment would generally consist of townhouses similar to existing townhouse projects along the west side of No. 4 Road north of Odlin Road.

He has also requested that a connection be installed to the sanitary line that would have to be built by Polygon that would allow his property to connect up to as his property is currently on a septic field system and he has concerns about the affect the neighbouring development will have on it. While no commitments have been made to this point, Engineering staff will review this when the detailed Servicing Agreement plans are submitted to the City.

Staff also responded to approximately four telephone enquiries from residents in the area on the status of both the Polygon application and the Am-Pri application for the adjacent lots (9580 to 9680 Alexandra Road).

Staff Comments

Environmentally Sensitive Area and Tree Retention

Approximately 77% of the net development site is designated in the Official Community Plan as an Environmentally Sensitive Area (ESA). Detailed assessments of the environmental features and the condition of the trees on site were undertaken by Keystone Environmental Ltd. (Biologist report dated April 17, 2014 and summary of findings report dated June 3, 2014 – see Attachment 5) and Pacific Sun Tree Services (Arborist report dated June 6, 2014 – see Attachment 6).

Biologist Review

The Biologist’s report and supplemental document:

- Provides comment on the extent of the City’s ESA designation on the site;
- Assesses the subject site for its Valued Ecosystem Components (VECs);

- Identifies the presence or likelihood of any federally or provincial species at risk;
- Provides a rating of the value of the existing habitat;
- Provides recommendations for mitigation and enhancement; and
- Includes a habitat balance sheet assessment of the pre and post development conditions.

Based on their review the Biologists prepared a Habitat Survey Map (shown on the next page) that identifies three distinct areas on the site:

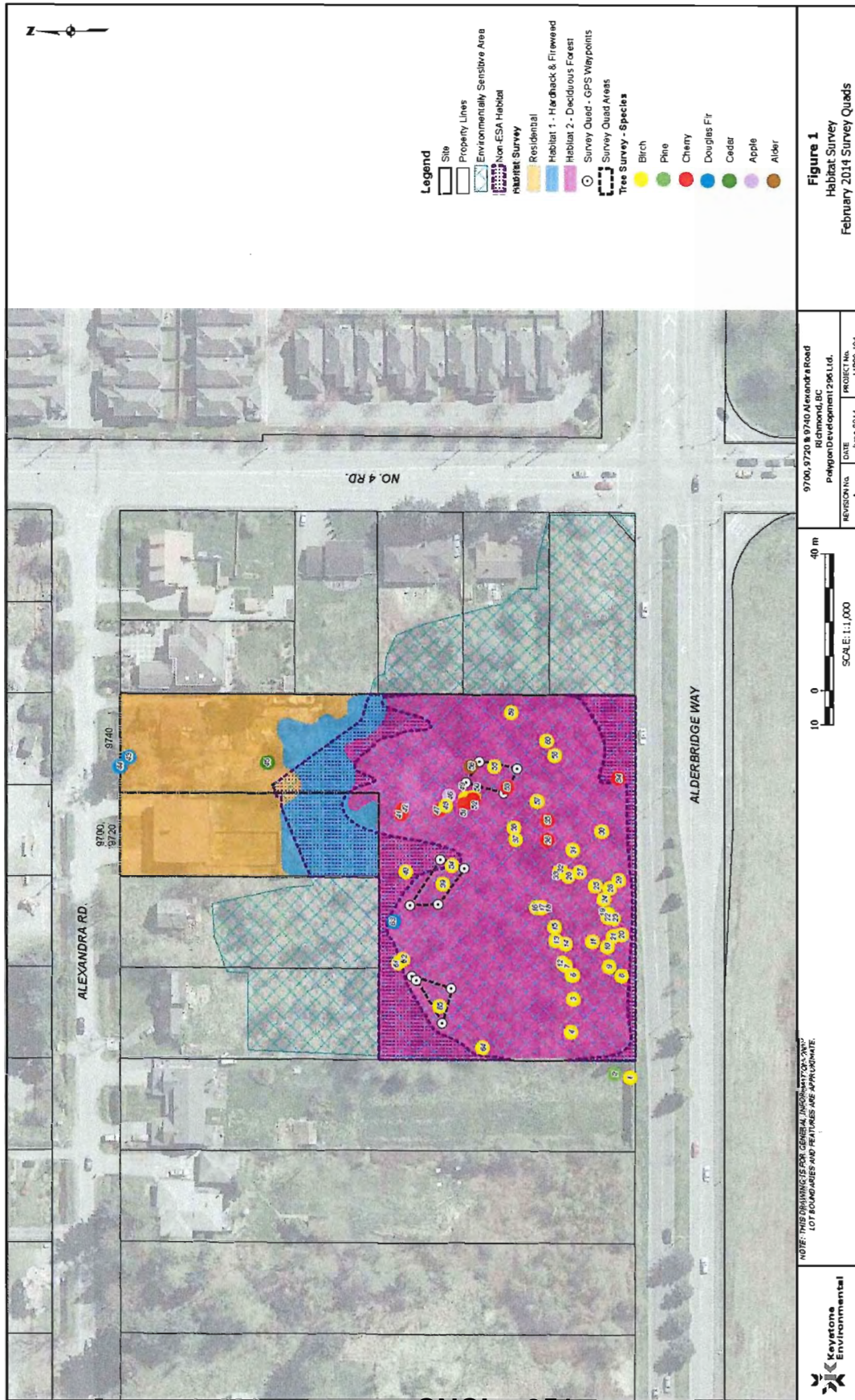
- “Residential” (located in the northern portion of the site),
- “Habitat 1 – Hardhack & Fireweed-Blackberry Open Habitat”; and
- “Habitat 2 – Deciduous Dominated Mixed Community” (located primarily in the southern portion of the site).

The Biologists note that the “Residential” area, the “Habitat 1” area and approximately 1,318.1 m² of the “Habitat 2” area are “*not meeting the criteria for Upland Forest within the ESA definition*”. The assessment indicates that the habitat value provided by these areas so low that the Biologists have recommended these areas (totalling 2,149 m²) be removed from the City’s ESA.

The Biologists further comment that “*the remaining 6,935 m² area in “Habitat 2” is considered low value habitat due to a high density of invasive Himalayan blackberries and die-back of paper birch (possibly due to birch borer infestation).*” While the Biologists have not explicitly recommended complete removal of the balance of the Habitat 2 area from the City’s ESA their supplemental assessment is that, from a habitat value perspective, full compensation for impacts arising from the development of the site is achieved by replacement planting at a ratio of 1 to 0.25 (i.e. 1 m² of replacement planting is worth 4 m² of existing habitat).

The “Habitat Survey Map” on the next page shows the extent of the City’s existing ESA designation over the subject site, the reductions to the ESA proposed by the Biologist’s site assessment and the extent of the three identified category areas. The map also shows the locations and species of 65 of the site’s 87 reported bylaw sized trees. (Tree counts on this map were based on field studies conducted July 29, 2013. Additional field studies were conducted on May 12 and 15, 2014 with the results provided in Attachment 5.)

Biologist's Habitat Survey Map



CNCL - 251

The table below summarizes the Biologist's assessment of the habitat values present in Habitat areas 1 and 2.

Habitat Valuation

Habitat Category Areas	Fish and Fish Habitat	Vegetation Diversity and Health	Wildlife Habitat Connectivity	Invasive Species Presence	Overall Rank
Habitat 1	N/A	Low	Low	High	Low
Habitat 2	N/A	Low	Low	High	Low

The impact of the invasive and diseased vegetation on the site's habitat is apparent in that the Biologist's assessment indicates that the development's proposed landscaping and enhancement plans indicating 1,750 m² will still result in a net benefit of habitat for wildlife.

Arborist Review

An Arborist's report has been prepared for the site (Attachment 6). The report identifies 87 bylaw sized trees on the property. These are almost entirely deciduous species with the majority of these being Birch trees. Other tree species found on the site include: Cherry, Douglas fir, Apple, Alder, Cedar, Hemlock, English Oak, Crab Apple, Shore Pine and Sycamore Maple.

The Arborist indicates that approximately 86% (i.e. 75) of the bylaw sized trees on site should be removed primarily due to deteriorating conditions, structural defects or impacts, by Bronze Birch Borer beetles.

Five are being considered for retention, while the remaining seven are being removed due to construction grade changes or site layout conflicts. Most of the development site is proposed to be raised to meet the 2.6m GSC Flood Construction Elevation requirements.

One of the five on-site trees proposed for retention one is a 30 cm dbh Douglas-fir located in the interior of the site. It's retention as a central feature for the proposed development. A second prominent tree proposed for retention is a larger Birch tree located along Alderbridge Way near the site's proposed green space area. The Arborist's report includes tree protection fencing zones around each of the trees proposed for retention.

The Tree Summary Table below shows the total number of bylaw sized trees on site and the number proposed for removal and retention. The tree retention and replacement plans will be refined through the Development Permit review.

Tree Summary Table

Total bylaw sized trees on site (over 8 " (200 mm) in diameter)	87	100%
Trees in suitable condition over 8 " (200 mm) in diameter	12	14%
Trees in unsuitable condition for retention over 8" (200 mm) in diameter	75	86%
Bylaw sized trees proposed for removal (87 including bylaw sized trees)	82	94%
Trees proposed for retention on-site	5	
Trees to be replaced per OCP at 2 for 1	164	

Proposed Landscaping Plan and Objectives

The preliminary landscape plan prepared for the site is intended to improve habitat for wildlife.

The strips along the eastern and western boundaries will be approximately 3 m wide with the western property boundary strip being designed to combine with a similar vegetation strip proposed on the adjacent property through its redevelopment (RZ 13-649999). This will result in a 6 m wide vegetation corridor between the projects creating songbird habitat and facilitating movement of small birds and mammals.

Along the new southern property boundary (post land dedication) two vegetated buffer strips are proposed that will merge into a central green space. The two vegetation strips will also be enhanced through plant species selections designed to create a year round visual screen between this development and the Garden City lands to the south.

The table below summarizes the proposed vegetation strips for the development site. To the extent possible, breaks in these vegetation strips will be kept to a minimum.

Proposed Vegetation Strips

West property boundary	6 m wide when combined with buffer strip on the adjacent development property (AmPri Development 9580-9680 Alexandra Road)
South property boundary	2.7 m to 6 m wide strip of native trees and shrubs except for the area adjacent to the interior green space – species selections to minimize agricultural issues for the Garden City Lands to the south. Taller trees and shrubs used.
East property boundary	3 m wide strip of native trees and shrubs that would be intended to combine with a landscaped buffer established on adjacent lands when they redevelop.

The Development Permit considerations will include a requirement for a long-term maintenance plan to ensure that invasive plant species are managed within the vegetation strips.

The Biologist's assessment, recommendations and species selections will be reviewed in greater detail through the forthcoming Development Permit application. Particular attention will be paid to species selections along Alderbridge Way across from the agricultural lands. Staff will also work with the applicant to refine the assessment, reduce the net loss of habitat area on site and determine compensation if required through the Development Permit.

Analysis

Land Use and Zoning

The proposed Zoning Bylaw amendment will create a new "Town Housing (ZT71) – Alexandra Neighbourhood (West Cambie)" zone for this development site. The new zone is based on an existing site specific zone "Town Housing (ZT67)" used at the Wishing Tree townhouse development north of Alexandra Road but is customized to address issues specific to this site. The new zone provides for the following elements:

- A minimum rear yard setback of 4 m to accommodate a dense "year round" natural vegetation strip adjacent to Alderbridge Way;
- A maximum base density of 0.65 FAR
- An increase in the maximum density to 0.72 FAR if the owner has paid or secured a monetary contribution of \$678,107.00 to the City's capital Affordable Housing Reserve Fund;
- A maximum building height of 12.2 m; and
- A minimum front yard setback along Alexandra Road of 3.0 m for the accessory amenity building and 4.0 m for all other buildings.

Affordable Housing Contribution

Polygon has requested a density in excess of the 0.65 FAR base and has offered to provide a voluntary contribution to the City's capital Affordable Housing Reserve Fund and proposed that this site be a potential "donor site" for the Kiwanis special development circumstance project. Their voluntary contribution of \$678,107.00 is based on one-third of the increased density of 0.1 FAR as permitted by the West Cambie Area Plan land use map even though Polygon has opted instead for a lower density of 0.72 FAR. Staff supports this voluntary contribution as it fully addresses the density bonusing provisions for affordable housing outlined in the West Cambie Area Plan. Subject to Council's approval, Polygon proposes to develop affordable housing units at its Alexandra East development at a comparable value of the cash contribution from the Jayden Mews project.

ESA Response – Preliminary Overview

The Biologist's review indicates that the future landscape planting will provide improved habitat value for the site by removing the extensive areas of invasive species and providing targeted enhancements create songbird habitat, and will provide north-south movement corridors.

Both the Arborist's and the Biologists' reports indicate the quality of the on-site trees is low. The initial proposal suggests that five bylaw sized trees are to be retained and 126 replacement trees will be provided through the development plan. The developer has committed to complying with the OCP 2 to 1 replacement ratio through the forthcoming Development Permit via a combination of tree planting and monetary compensation as necessary.

The Developer has been advised that clearing of the primary vegetation stands on the site will not be permitted until the Development Permit has been issued unless safety issues are evident. Additionally, retention of trees within land dedication areas will also need to be reviewed by Parks Arboriculture staff. The Rezoning Considerations include a requirement for submission of a pre-clearing bird nest survey summary of findings and recommendations prior to site clearing activities.

Alderbridge Way Median Enhancement

Additional infill tree planting will be installed along the centre median for the portion of Alderbridge Way fronting the subject site. The applicant will work with Parks staff on an appropriate planting plan for the median via a Servicing Agreement.

Engineering and Transportation Requirements

No significant concerns have been identified through the technical review related to the subject development proposal. As there are several developments occurring or proposed to occur within the vicinity of Alexandra Road some of the off-site works may be advanced by others. Engineering staff will determine how the frontage works along Alexandra Road will occur based on the sequence of Servicing Agreement submissions received and discussions with the individual developers.

Highlights of the off-site engineering requirements include:

- Construction of a 200 mm diameter gravity sanitary sewer along Alexandra Road from the east property line of the development site to future May Drive;
- Construction of a 375 mm diameter sanitary sewer along the future May Drive from Alexandra Road connecting to the existing system on Tomicki Avenue;
- If adequate water flow is not available, then upgrades beyond the development site frontage may be required, e.g. constructing a 200 mm diameter watermain along the future May Drive from Alexandra Road to Tomicki Avenue or from Alexandra Road to Alderbridge Way;
- Replacement of existing watermain from the west property line of the development site to No 4 Road;
- Installation of additional fire hydrants;
- Upgrading of the existing storm sewer line along the property frontage; and
- Undergrounding of existing private utility lines along Alexandra Road.

Key elements of the transportation related off-site requirements include:

- Design and construction of the Alexandra Road frontage including curbing, an 8.5 m wide travel road surface, treed boulevards and sidewalks;
- Design and construction of a 1.5 m wide treed boulevard and 3.3 m wide shared cyclist/pedestrian path along Alderbridge Way;
- Land dedication along Alderbridge Way for the sidewalk and treed boulevard;
- No vehicle access other than emergency access to Alderbridge Way;
- Parking at a ratio of 1.7 spaces for each dwelling unit (1.5 residents, 0.2 visitors);
- A minimum 20% of the parking stalls with a 120 volt receptacle for electric vehicles;
- An addition 25% of the parking stalls be pre-ducted for future wiring for the future installation of electric vehicle charging equipment;
- Provide SU-9 vehicle turning templates;
- Bicycle parking: 1.25 Class 1 spaces per dwelling, 0.2 Class 2 spaces per dwelling; and

- On-site drive aisles should be no less than 6.0 m wide.

Staff will ensure that the engineering and transportation related requirements are addressed in the forthcoming Development Permit and Servicing Agreements. Both the Development Permit and the Servicing Agreement(s) are included the Rezoning considerations.

Rezoning Considerations

Detailed Rezoning considerations are provided in Attachment 7.

Development Permit Issues

Issues that will be addressed through the forthcoming Development Permit include:

- Confirmation of the site plan in relation to the Zoning Schedule (ZT71), detailing building massing and design, provision of parking, loading, pedestrian access, amenity areas, surface permeability, incorporation of play areas, etc.;
- Details on the existing vegetation, ESA mitigation, compensation and long-term maintenance plan preparation and protection;
- Addressing drainage concerns in the corridor between this site and the site to the west;
- Registration of any legal agreements related to the protection and maintenance of the ESA vegetation areas;
- Confirmation of the Public Art response;
- Resolving on-site garbage collection and ensuring appropriate vehicle movement;
- Incorporation of appropriate Aircraft Noise Mitigation measures in the building plans;
- A variance will be required to accommodate the number of tandem stalls proposed;
- Addressing accessibility features within the units; and
- Greater definition of the sustainability measures that will be built into the units.

Financial Impact or Economic Impact

None.

Conclusion

The proposed development provides for ground oriented town housing consistent with the West Cambie Area Plan and the Alexandra Neighbourhood Land Use Map. Detailed Biologist and Arborist assessments of the existing vegetation on the subject site have revealed the limitations of the habitat currently found at that location and have been used to prepare appropriate plans for vegetation replacement and enhancement aimed at creating a higher quality of habitat on site.

Based on the information submitted, Staff recommend that:

- a) Bylaw 9159 to create “Town Housing (ZT71) – Alexandra Neighbourhood (West Cambie)” Zoning and to rezone the subject properties to “Town Housing (ZT71) – Alexandra Neighbourhood (West Cambie)” be introduced and given first reading; and
- b) The affordable housing contribution for the rezoning of 9700 and 9740 Alexandra Road be allocated entirely (100%) to the capital Affordable Housing Reserve Fund.



David Brownlee
Planner 2

Attachment 1: Location Map

Attachment 2: Conceptual Development Plans

Attachment 3: Development Application Data Sheet

Attachment 4: Alexandra Neighbourhood Land Use Map

Attachment 5: Biologist's Report – Keystone Environmental dated April 17, 2014, and supplemental findings summary report dated June 3, 2014

Attachment 6: Arborist's Report – Pacific Sun Tree Services dated June 6, 2014

Attachment 7: Rezoning Considerations Concurrence

Attachment 8: Letter from the owner of 9800 Alexandra Road



City of
Richmond



RZ 13-649641

Original Date: 11/13/13

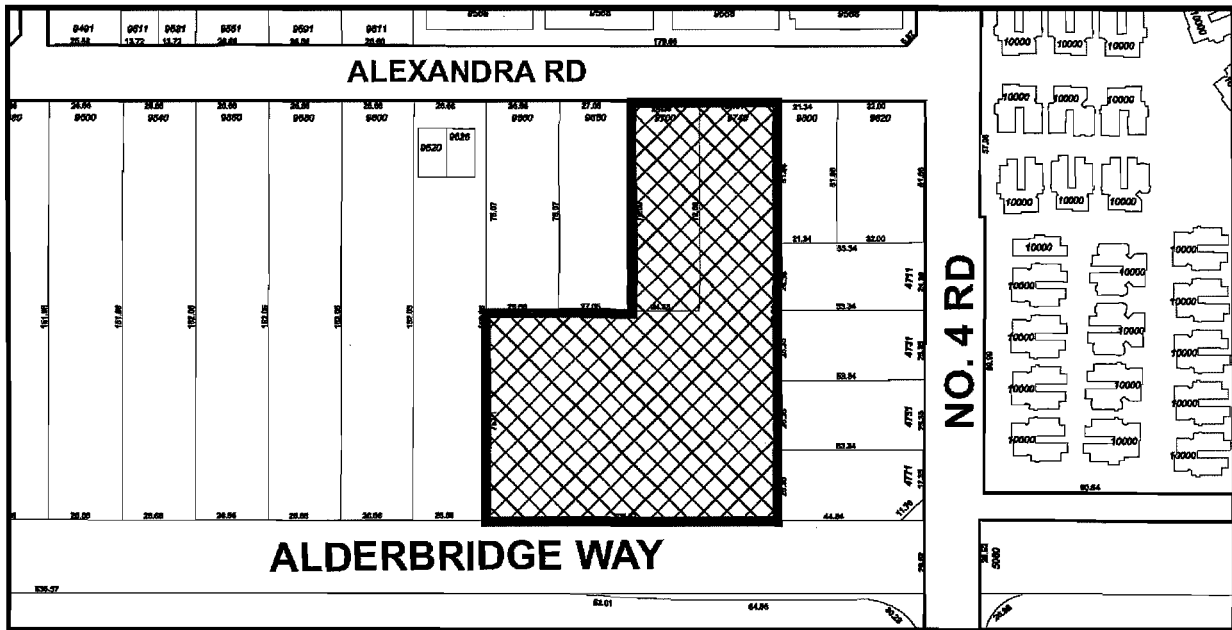
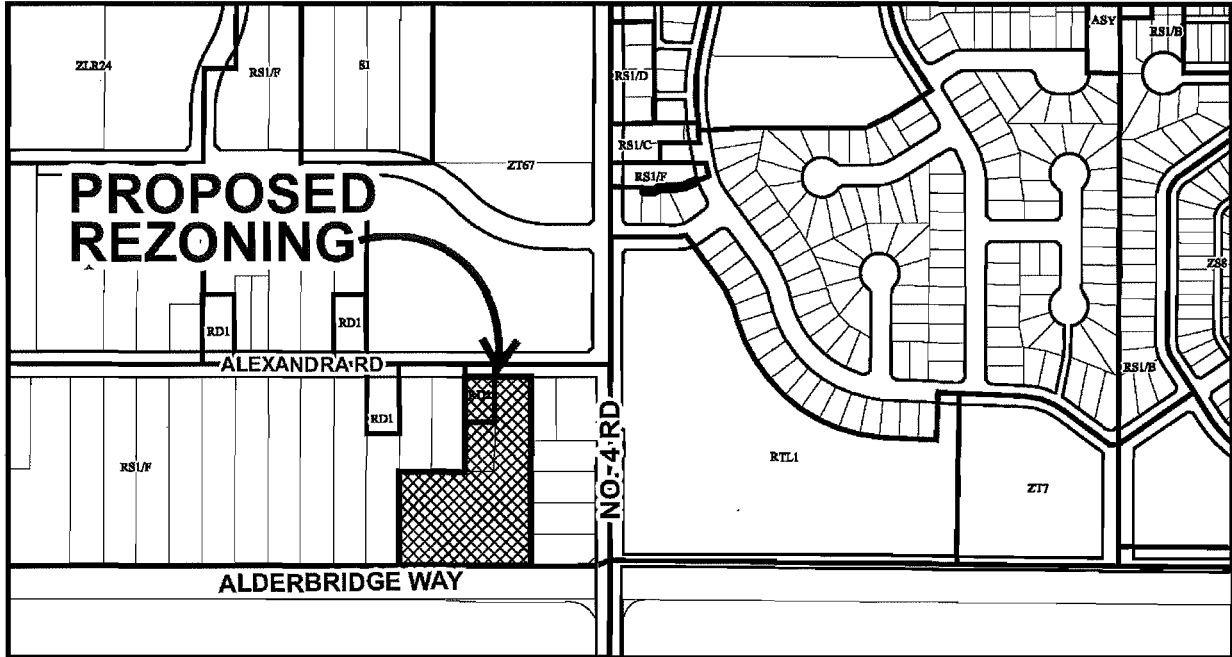
Revision Date: 11/26/13

Note: Dimensions are in METRES

CNCL - 258



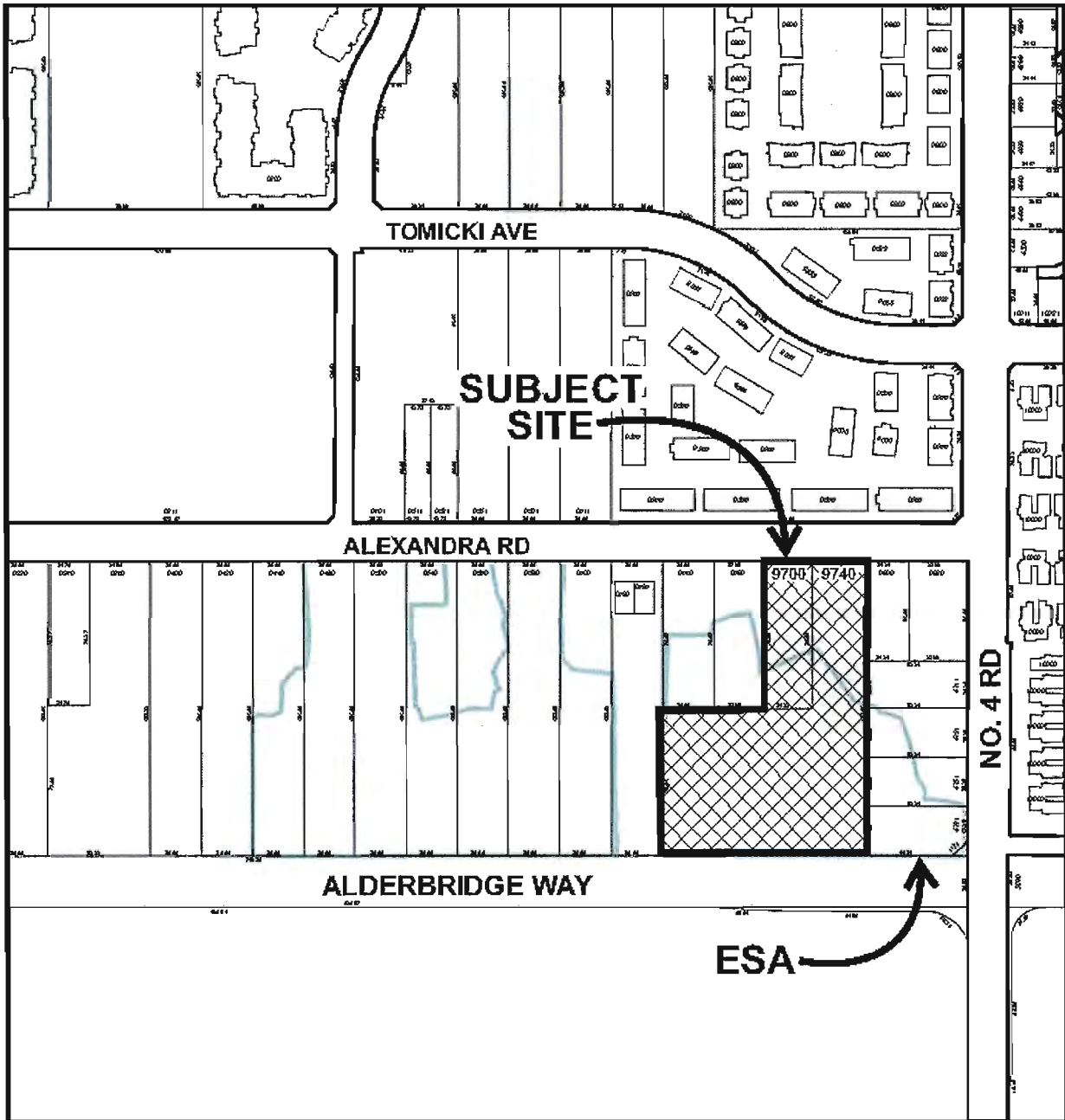
City of
Richmond



	<p>RZ 13-649641</p>	<p>Original Date: 03/05/14</p> <p>Revision Date:</p> <p>Note: Dimensions are in METRES</p>
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City of
Richmond



Environmentally Sensitive
Areas

Original Date: 05/26/14

Revision Date:

Note: Dimensions are in METRES

CONTRACTOR'S WARNING
 This plan and design are, and all lines thereon, are the property of the owner. They are to be used only for the purpose intended and are not to be reproduced without written consent by the architect. The contractor shall be responsible for obtaining all necessary permits and approvals and shall have prepared and secured dimensions. Contractors shall verify all dimensions and conditions on the job. Formworks Architecture Inc. shall be informed of any circumstances and conditions on the drawing.

REVISIONS
 ISSUED FOR ECONOMIC DEVELOPMENT PLAN NOV. 4, 2013
 ISSUED FOR ECONOMIC DEVELOPMENT PLAN MAR. 17, 2014
 ISSUED FOR ECONOMIC DEVELOPMENT PLAN APR. 7, 2014
 ISSUED FOR ECONOMIC DEVELOPMENT PLAN

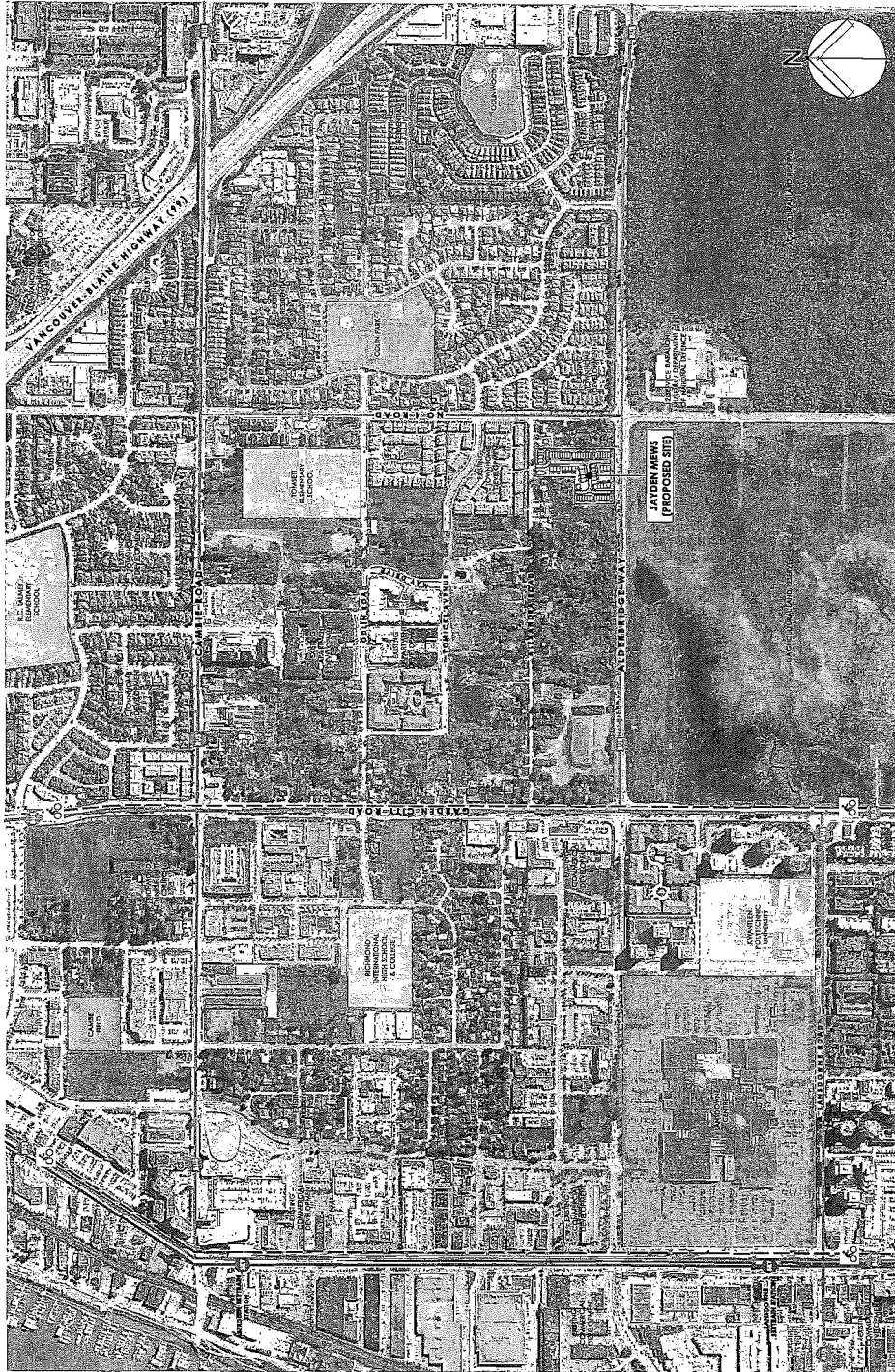
POLYGON
 POLYGON ARCHITECTURAL INC.
 1000 WEST 10TH AVENUE
 VANCOUVER, BC V6H 2T6
 TEL: 604.681.1474

FORMWORKS ARCHITECTURAL
 1922 West 58th Ave., Vancouver, BC V6J 1H3
 Phone: 604.681.6441

JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, BC

CONTEXT PLAN

SCALE: N1:1
 SHEET: A0.01
 DATE: JUNE 2013



LEGEND

	SITE ROUTE
	SIDEWALK
	BIKE ROUTE
	PUBLIC WALKWAY
	FENCE
	FENCING
	FENCING OBSTACLE
	FENCING

CONTRACT SERVICES

The firm and design are not of or from within the exclusive property of Formwerks Architectural Inc. and cannot be used by Formwerks Architectural Inc. without the prior written consent of the architect. The architect shall have precedence over the contractor in all matters of interpretation and shall be responsible for all dimensions and conditions of the project. Formwerks Architectural Inc. shall be deemed to have accepted the design and construction conditions on this drawing.

REVISIONS
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NOT FOR CONSTRUCTION



FORMWERKS ARCHITECTURAL
 1035 W. 15th Ave., Suite 200, Richmond, BC
 Phone: 604-273-8888

PROJECT
JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, BC

DRAWING
 DATA SHEET

SCALE: NTS
 SHEET: A1.01
 DATE: JUNE 2013

PROJECT DATA

DEVELOPMENT DATA
 MIN. REQUIRED / MAX. ALLOWED

CIVIC ADDRESS: 1035 W. 15th Ave., Suite 200, Richmond, BC
 PROJECT NO: 1035-15th-001

LEGAL DESCRIPTION: 1035 W. 15th Ave., Section 24, Block 1, Folio 1035-15th-001

LOT AREA: 1035 W. 15th Ave. (1035) 1035-15th-001

LOT COVERAGE: 20% (MAX) 20%

SETBACKS: 3.0M / 10.0M / 3.0M / 3.0M / 3.0M / 3.0M

BUILDING HEIGHT: 3.0M (MAX)

NUMBER OF RESIDENTIAL UNITS: 44

TOTAL BUILDING FLOOR AREA: 4200 SQ M

AMENITY SPACE: 100 SQ M

DENSITY: 44 UNITS PER LOT

PARKING: 44 SPACES

CONSULTANT LIST

OWNER: POLYGON DEVELOPMENT LTD.
 1035 W. 15th Ave., Suite 200, Richmond, BC
 CONTACT: JOHN CARL

ARCHITECT: FORMWERKS ARCHITECTURAL INC.
 1035 W. 15th Ave., Suite 200, Richmond, BC
 CONTACT: JOHN CARL

LANDSCAPE: ECOSYSTEMS & ASSOCIATES INC.
 1035 W. 15th Ave., Suite 200, Richmond, BC
 CONTACT: JOHN CARL

CIVIL: CIVIL GROUP CONSULTANTS LTD.
 1035 W. 15th Ave., Suite 200, Richmond, BC
 CONTACT: JOHN CARL

AREA CALCULATIONS

UNIT AREA TOTALS

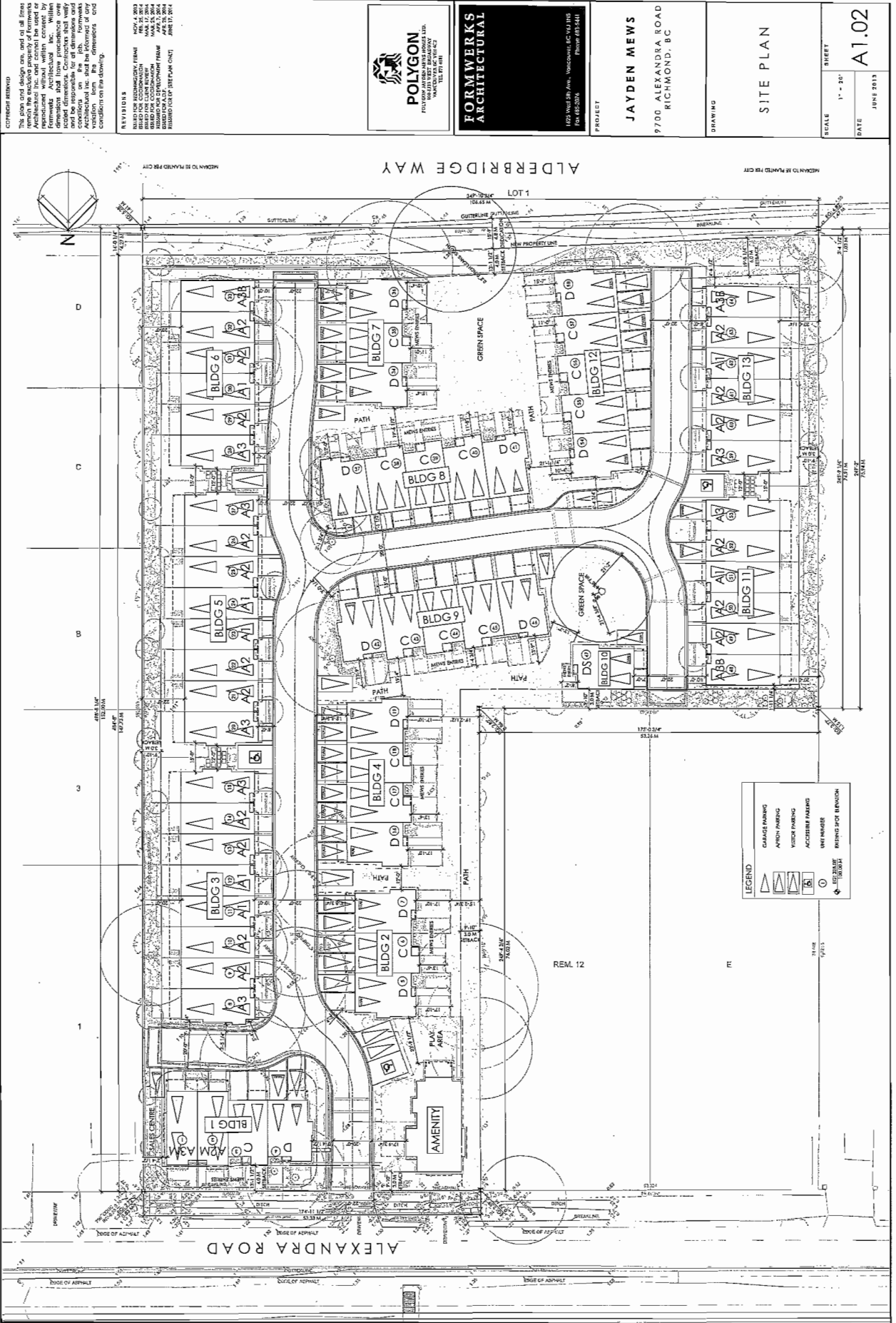
UNIT TYPE	TOTAL QUANTITY	UNIT FLOOR AREA (SQ M)	TOTAL FLOOR AREA (SQ M)	UNIT VOLUME (CU M)	TOTAL VOLUME (CU M)
RESIDENTIAL	44	100.00	4400.00	1000.00	4400.00
AMENITY	1	100.00	100.00	100.00	100.00
TOTAL	45	1100.00	4500.00	1100.00	4500.00

PERCENTAGE OF TOTAL FLOOR AREA

UNIT TYPE	TOTAL QUANTITY	UNIT FLOOR AREA (SQ M)	TOTAL FLOOR AREA (SQ M)	PERCENTAGE (%)
RESIDENTIAL	44	100.00	4400.00	95.56
AMENITY	1	100.00	100.00	4.44
TOTAL	45	1100.00	4500.00	100.00

PERCENTAGE OF TOTAL VOLUME

UNIT TYPE	TOTAL QUANTITY	UNIT FLOOR AREA (SQ M)	TOTAL FLOOR AREA (SQ M)	UNIT VOLUME (CU M)	TOTAL VOLUME (CU M)	PERCENTAGE (%)
RESIDENTIAL	44	100.00	4400.00	1000.00	4400.00	95.56
AMENITY	1	100.00	100.00	100.00	100.00	4.44
TOTAL	45	1100.00	4500.00	1100.00	4500.00	100.00



CONTRACTOR REMINDERS
 The owner and design team, and all firms remain the exclusive property of Formwerks Architectural, Inc. No part of this drawing shall be reproduced without written consent by Formwerks Architectural, Inc. The contractor shall be responsible for all dimensions and conditions on the drawing. All dimensions shall be in feet and inches unless otherwise indicated. All dimensions shall be in feet and inches unless otherwise indicated. All dimensions shall be in feet and inches unless otherwise indicated.

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 NO. 701 8/2071
 NO. 702 9/2071
 NO. 703 10/2071
 NO. 704 11/2071

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<p>ALEXANDRA ROAD STREETSCAPE N.T.S.</p>		<p>ALEXANDRA ROAD STREETSCAPE N.T.S.</p>	<p>FORMWERKS ARCHITECTURAL</p> <p>PROJECT JAYDEN MEWS 9700 ALEXANDRA ROAD RICHMOND, BC</p>	<p>SCALE _____ SHEET #13 DATE _____ A1.03 JUNE 2013</p>	
<p>ALEXANDRA ROAD STREETSCAPE N.T.S.</p>		<p>ALEXANDRA ROAD STREETSCAPE N.T.S.</p>	<p>FORMWERKS ARCHITECTURAL</p> <p>PROJECT JAYDEN MEWS 9700 ALEXANDRA ROAD RICHMOND, BC</p>	<p>SCALE _____ SHEET #13 DATE _____ A1.03 JUNE 2013</p>	
<p>ALEXANDRA ROAD STREETSCAPE N.T.S.</p>		<p>ALEXANDRA ROAD STREETSCAPE N.T.S.</p>	<p>FORMWERKS ARCHITECTURAL</p> <p>PROJECT JAYDEN MEWS 9700 ALEXANDRA ROAD RICHMOND, BC</p>	<p>SCALE _____ SHEET #13 DATE _____ A1.03 JUNE 2013</p>	

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REVISIONS

NOV. 4, 2013
 REVISED FOR CONSTRUCTION
 NOV. 17, 2014
 REVISED FOR CONSTRUCTION
 NOV. 17, 2014
 REVISED FOR CONSTRUCTION
 APR. 28, 2014
 REVISED FOR A.S.P.



JAYDEN MEWS

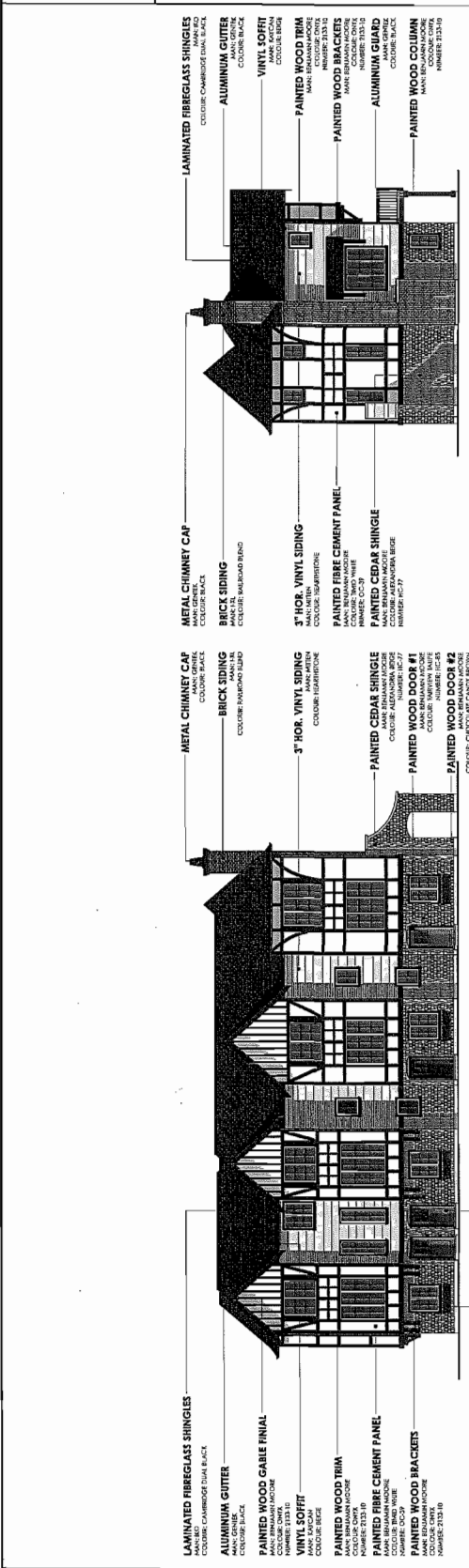
9700 ALEXANDRA ROAD
 RICHMOND, B.C.

COLOUR SCHEME A ELEVATIONS

A.1.05

SCALE: 1/8" = 1'-0"

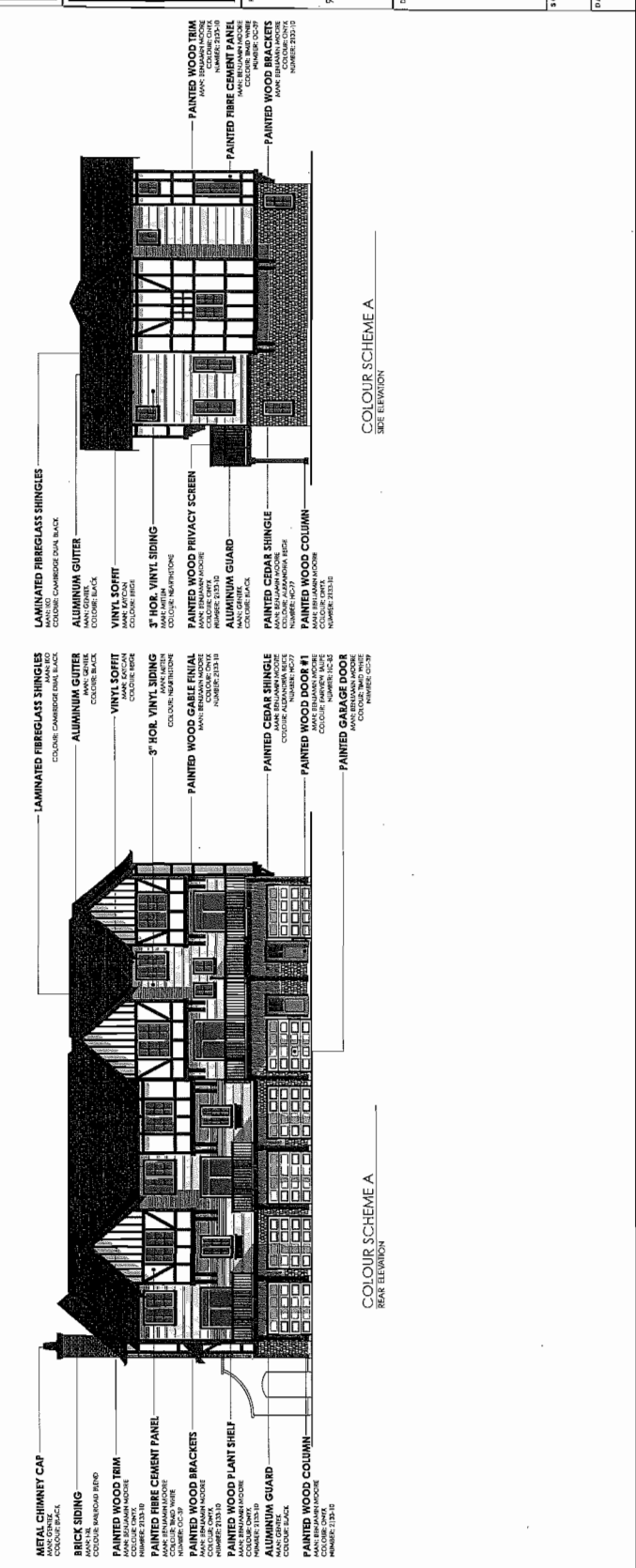
DATE: JUNE 2013



FRONT ELEVATION

COLOUR SCHEME A

REAR ELEVATION



REAR ELEVATION

COLOUR SCHEME A

- LAMINATED FIBREGLASS SHINGLES
 COLOUR: CAMBRIDGE DUAL BLACK
- ALUMINIUM GUTTER
 COLOUR: BLACK
- PAINTED WOOD GABLE FINIAL
 MAKE: BRIMAN MACHINE
 COLOUR: CHERRY
 NUMBER: 231210
- VINYL SOFFIT
 MAKE: BRIMAN MACHINE
 COLOUR: WHITE
- PAINTED WOOD TRIM
 MAKE: BRIMAN MACHINE
 COLOUR: CHERRY
 NUMBER: 231210
- PAINTED FIBRE CEMENT PANEL
 MAKE: BRIMAN MACHINE
 COLOUR: WHITE
 NUMBER: 231210
- PAINTED WOOD BRACKETS
 MAKE: BRIMAN MACHINE
 COLOUR: CHERRY
 NUMBER: 231210
- PAINTED WOOD PLANT SHELF
 MAKE: BRIMAN MACHINE
 COLOUR: CHERRY
 NUMBER: 231210
- METAL CHIMNEY CAP
 MAKE: BRIMAN MACHINE
 COLOUR: BLACK
- BRICK SIDING
 COLOUR: MANSARD BEND
- 3" HOR. VINYL SIDING
 MAKE: ARTECH
 COLOUR: NEPTUNE
- PAINTED CEDAR SHINGLE
 MAKE: BRIMAN MACHINE
 COLOUR: JAPONICUM BEST
 NUMBER: 231210
- PAINTED WOOD DOOR #1
 MAKE: BRIMAN MACHINE
 COLOUR: MERRY MAE
 NUMBER: 231210
- PAINTED WOOD DOOR #2
 MAKE: BRIMAN MACHINE
 COLOUR: CHERRY
 NUMBER: 231210
- PAINTED WOOD DOOR #3
 MAKE: BRIMAN MACHINE
 COLOUR: JAPONICUM BEST
 NUMBER: 231210
- LAMINATED FIBREGLASS SHINGLES
 COLOUR: CAMBRIDGE DUAL BLACK
- ALUMINIUM GUTTER
 COLOUR: BLACK
- VINYL SOFFIT
 MAKE: BRIMAN MACHINE
 COLOUR: WHITE
- 3" HOR. VINYL SIDING
 MAKE: ARTECH
 COLOUR: NEPTUNE
- PAINTED WOOD GABLE FINIAL
 MAKE: BRIMAN MACHINE
 COLOUR: CHERRY
 NUMBER: 231210
- PAINTED CEDAR SHINGLE
 MAKE: BRIMAN MACHINE
 COLOUR: JAPONICUM BEST
 NUMBER: 231210
- PAINTED WOOD DOOR #1
 MAKE: BRIMAN MACHINE
 COLOUR: MERRY MAE
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- PAINTED WOOD DOOR #2
 MAKE: BRIMAN MACHINE
 COLOUR: CHERRY
 NUMBER: 231210
- PAINTED WOOD DOOR #3
 MAKE: BRIMAN MACHINE
 COLOUR: JAPONICUM BEST
 NUMBER: 231210

- METAL CHIMNEY CAP
 MAKE: BRIMAN MACHINE
 COLOUR: BLACK
- BRICK SIDING
 COLOUR: MANSARD BEND
- 3" HOR. VINYL SIDING
 MAKE: ARTECH
 COLOUR: NEPTUNE
- PAINTED FIBRE CEMENT PANEL
 MAKE: BRIMAN MACHINE
 COLOUR: WHITE
 NUMBER: 231210
- PAINTED WOOD BRACKETS
 MAKE: BRIMAN MACHINE
 COLOUR: CHERRY
 NUMBER: 231210
- PAINTED WOOD PLANT SHELF
 MAKE: BRIMAN MACHINE
 COLOUR: CHERRY
 NUMBER: 231210
- ALUMINIUM GUARD
 MAKE: BRIMAN MACHINE
 COLOUR: BLACK
- PAINTED WOOD COLUMN
 MAKE: BRIMAN MACHINE
 COLOUR: CHERRY
 NUMBER: 231210
- LAMINATED FIBREGLASS SHINGLES
 COLOUR: CAMBRIDGE DUAL BLACK
- ALUMINIUM GUTTER
 COLOUR: BLACK
- VINYL SOFFIT
 MAKE: BRIMAN MACHINE
 COLOUR: WHITE
- 3" HOR. VINYL SIDING
 MAKE: ARTECH
 COLOUR: NEPTUNE
- PAINTED WOOD PRIVACY SCREEN
 MAKE: BRIMAN MACHINE
 COLOUR: CHERRY
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- ALUMINIUM GUARD
 MAKE: BRIMAN MACHINE
 COLOUR: BLACK
- PAINTED CEDAR SHINGLE
 MAKE: BRIMAN MACHINE
 COLOUR: JAPONICUM BEST
 NUMBER: 231210
- PAINTED WOOD COLUMN
 MAKE: BRIMAN MACHINE
 COLOUR: CHERRY
 NUMBER: 231210
- PAINTED GARAGE DOOR
 MAKE: BRIMAN MACHINE
 COLOUR: MERRY MAE
 NUMBER: 231210

CONTRACTOR REQUIRED

This plan and design are void of all lines and dimensions. It is the responsibility of the contractor to verify all dimensions and materials on the ground. The contractor shall be responsible for all dimensions and materials on the ground. The contractor shall be responsible for all dimensions and materials on the ground.

REVISIONS

NOV. 4, 2013
 ISSUED FOR APPROVAL
 NOV. 12, 2013
 ISSUED FOR APPROVAL
 MAR. 7, 2014
 ISSUED FOR APPROVAL
 APR. 2, 2014
 ISSUED FOR APPROVAL

LAMINATED FIBREGLOSS SHINGLES
 COLOUR: CAMBRIDGE DUAL BLUCE

ALUMINIUM GUTTER
 MARK: CENTRE
 COLOUR: BLACK

VINYL SOFFIT
 MARK: BENTHAM MOORE
 COLOUR: MARLBOROUGH
 NUMBER: CC-312

PAINTED WOOD TRIM
 MARK: BENTHAM MOORE
 COLOUR: MARLBOROUGH
 NUMBER: CC-312

PAINTED WOOD BRACKETS
 MARK: BENTHAM MOORE
 COLOUR: MARLBOROUGH
 NUMBER: CC-312

ALUMINIUM GUARD
 MARK: CENTRE
 COLOUR: BLACK

PAINTED WOOD COLUMN
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 COLOUR: MARLBOROUGH
 NUMBER: CC-312



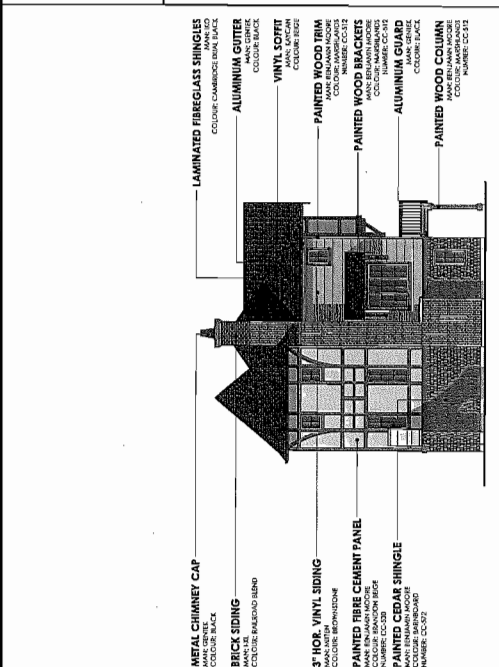
FORMWORKS ARCHITECTURAL

125 West 5th Ave., Richmond, BC V6Y 1H9
 Phone: 604-278-1111

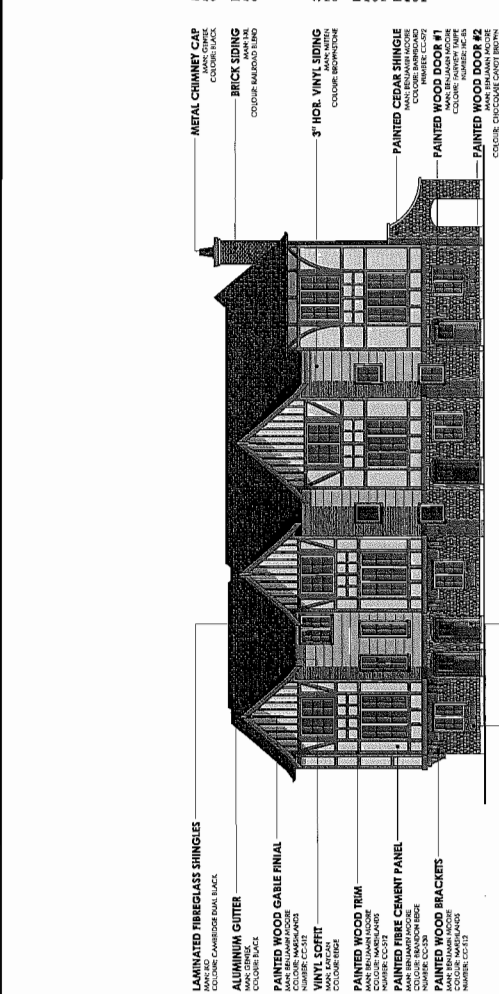
JAYDEN MEWS

9700 ALEXANDRA ROAD
 RICHMOND, BC

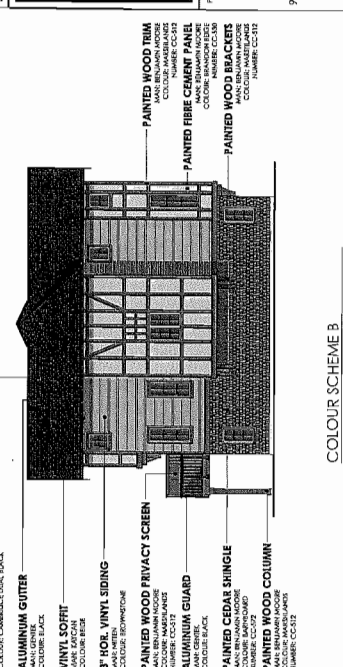
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DATE	JUNE 2013
SHEET	A1.06



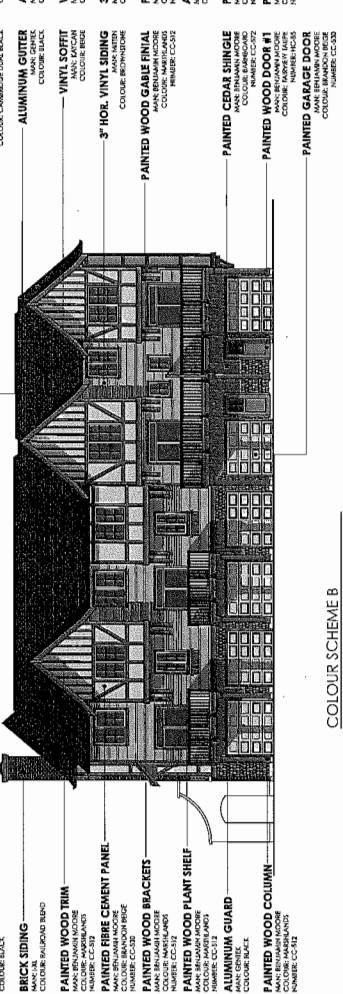
COLOUR SCHEME B
 SIDE ELEVATION



COLOUR SCHEME B
 SIDE ELEVATION



COLOUR SCHEME B
 SIDE ELEVATION



COLOUR SCHEME B
 REAR ELEVATION

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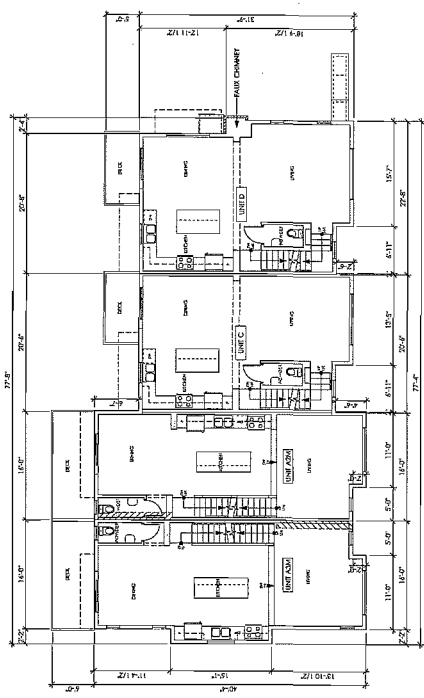
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 ISSUED FOR PERMITS
 NO. 3 2013
 ISSUED FOR PERMITS
 NO. 2 2013
 ISSUED FOR PERMITS
 NO. 1 2013
 ISSUED FOR PERMITS



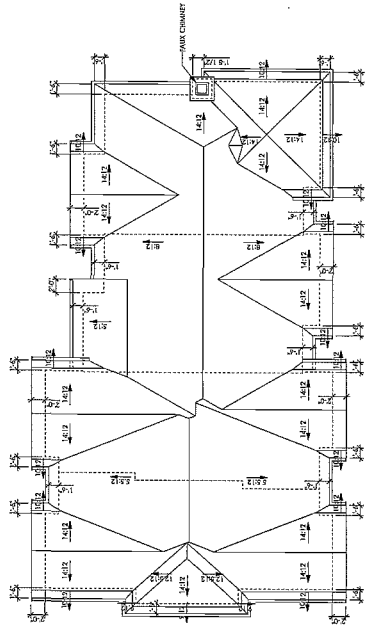
FORMWORKS ARCHITECTURAL
 1025 West 5th Ave., Vancouver, BC V6J 1H5
 Phone: 604-681-3388

JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, B.C.

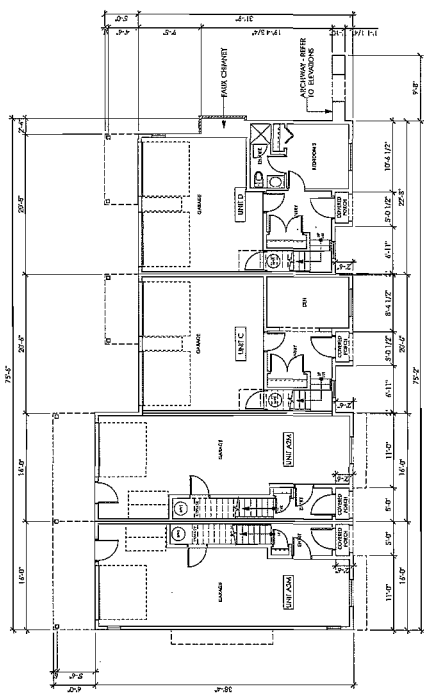
BUILDING 1 PLANS
 SCALE 1/8" = 1'-0"
 DATE JUNE 2013
 SHEET A2.00



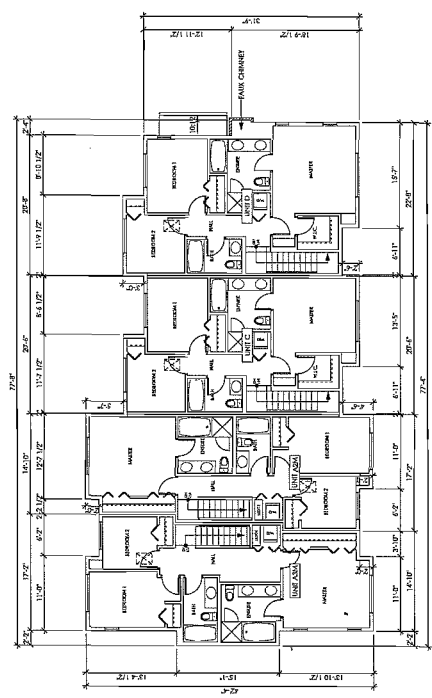
LEVEL 2 PLAN
BUILDING 1



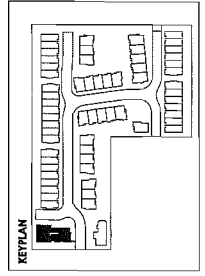
ROOF LEVEL PLAN
BUILDING 1



LEVEL 1 PLAN
BUILDING 1



LEVEL 3 PLAN
BUILDING 1



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REVISIONS
 NO. 1 FOR ARCHITECTURE FROM NOV. 4, 2013
 NO. 2 FOR ARCHITECTURE FROM NOV. 4, 2013
 NO. 3 FOR ARCHITECTURE FROM NOV. 4, 2013
 NO. 4 FOR ARCHITECTURE FROM NOV. 4, 2013
 NO. 5 FOR ARCHITECTURE FROM NOV. 4, 2013
 NO. 6 FOR ARCHITECTURE FROM NOV. 4, 2013
 NO. 7 FOR ARCHITECTURE FROM NOV. 4, 2013
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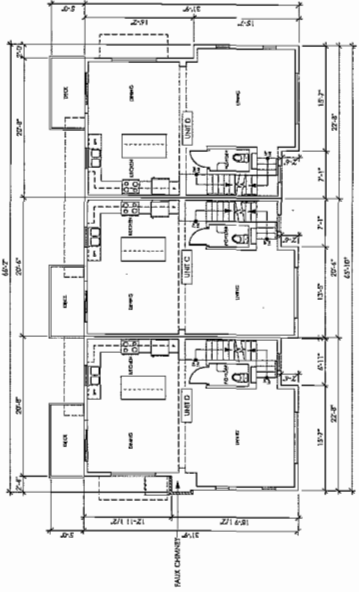


FORMWERKS ARCHITECTURAL
 1025 South 31st Ave., Wakefield, NC 27185
 Phone: (813) 540-1101
 Fax: (813) 540-1102
 Website: www.formwerks.com

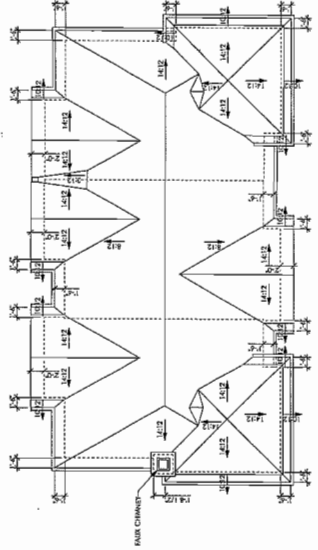
PROJECT
JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, BC

DRAWING
BUILDING 2
PLANS

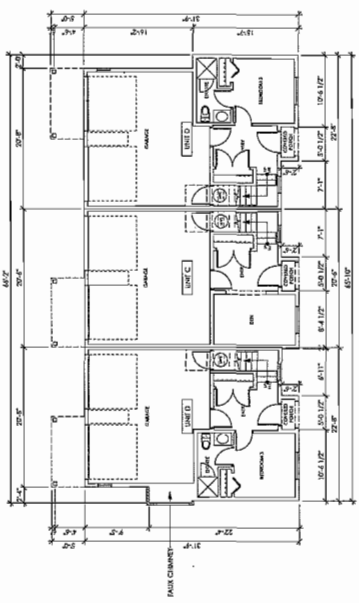
SHEET
A2.02
SCALE
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DATE
 JUNE 2013



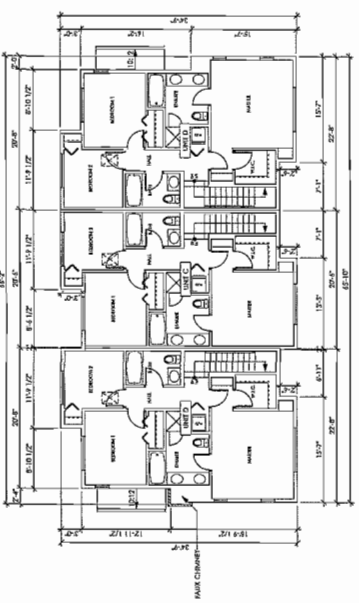
LEVEL 2 PLAN
BUILDING 2



ROOF LEVEL PLAN
BUILDING 2



LEVEL 1 PLAN
BUILDING 2



LEVEL 3 PLAN
BUILDING 2



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REVISIONS
 NO. 4 2013
 NO. 3 2013
 NO. 2 2014
 NO. 1 2014
 DATE FOR CONSTRUCTION
 DATE FOR CONSTRUCTION PERMIT
 DATE FOR CONSTRUCTION PERMIT

POLYGON
 PROFESSIONAL ARCHITECTURAL FIRM
 1000 WEST BROADWAY AVE.
 VANCOUVER, BC V6J 1A1
 TEL: 604 681 1111

FORMWERKS ARCHITECTURAL
 1025 WEST 5TH AVE., VANCOUVER, BC V6J 1V5
 PHONE: 604 681 3441

JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, BC

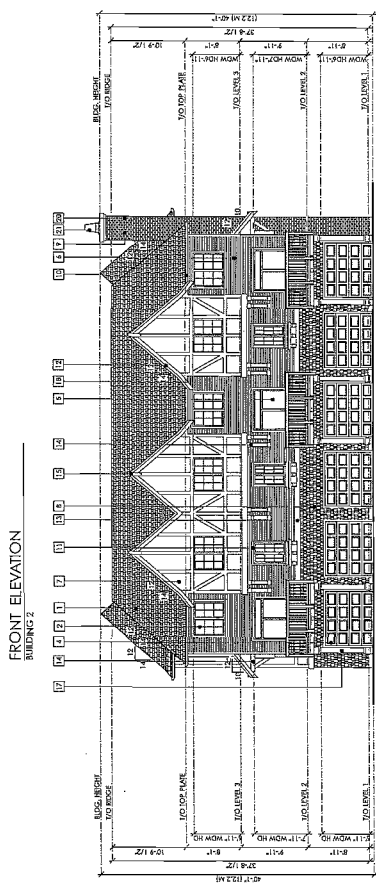
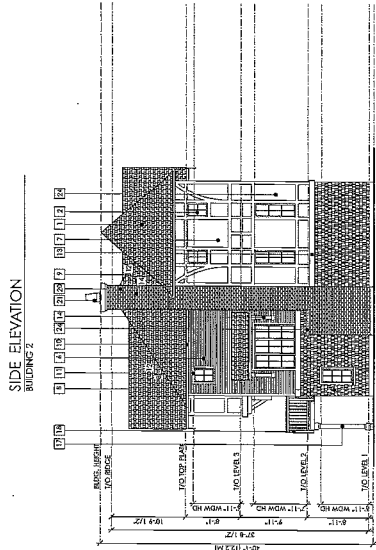
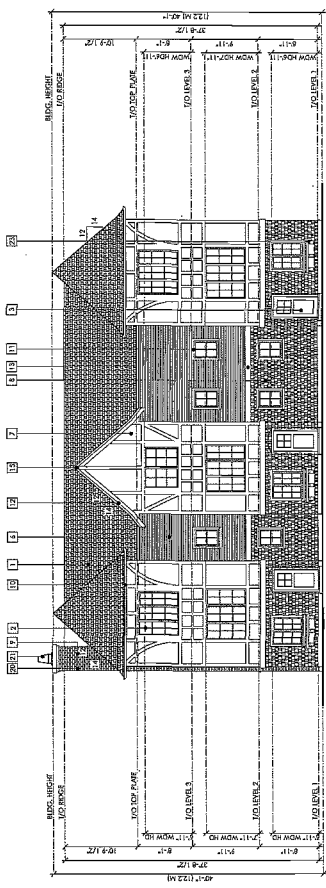
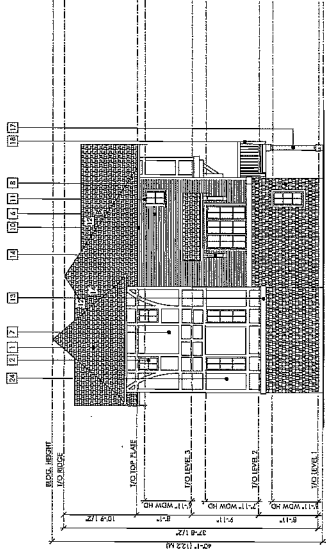
PROJECT

DRAWING

BUILDING 2 ELEVATIONS

SCALE: 1/8" = 1'-0"
 DATE: JUNE 2013

SHEET: A2.03



KEYPLAN

FINISH SCHEDULE

1	PAINTED BRICK CHIMNEY BOND	17	PAINTED PART BRICK BOND	33	VERTICAL WOOD
2	PAINTED BRICK CHIMNEY BOND	18	PAINTED PART BRICK BOND	34	SLAT FINISH SCREEN
3	PAINTED BRICK CHIMNEY BOND	19	PAINTED PART BRICK BOND	35	PAINTED PART BRICK BOND
4	PAINTED BRICK CHIMNEY BOND	20	PAINTED PART BRICK BOND	36	PAINTED PART BRICK BOND
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16	PAINTED BRICK CHIMNEY BOND	32	PAINTED PART BRICK BOND	48	PAINTED PART BRICK BOND

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REVISIONS

NOV. 4, 2013
 100% PERMITS/FRAME
 100% PERMITS/FRAME
 100% PERMITS/FRAME
 100% PERMITS/FRAME
 100% PERMITS/FRAME



FORMWERKS ARCHITECTURAL

1023 West 5th Ave., Norfolk, VA 23510
 Phone: (834) 5481

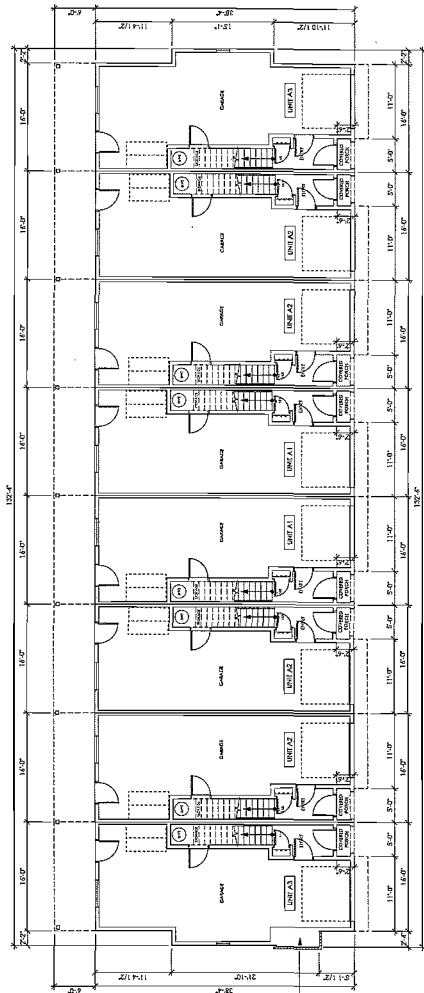
JAYDEN MEWS

9700 ALEXANDRA ROAD
 RICHMOND, BC

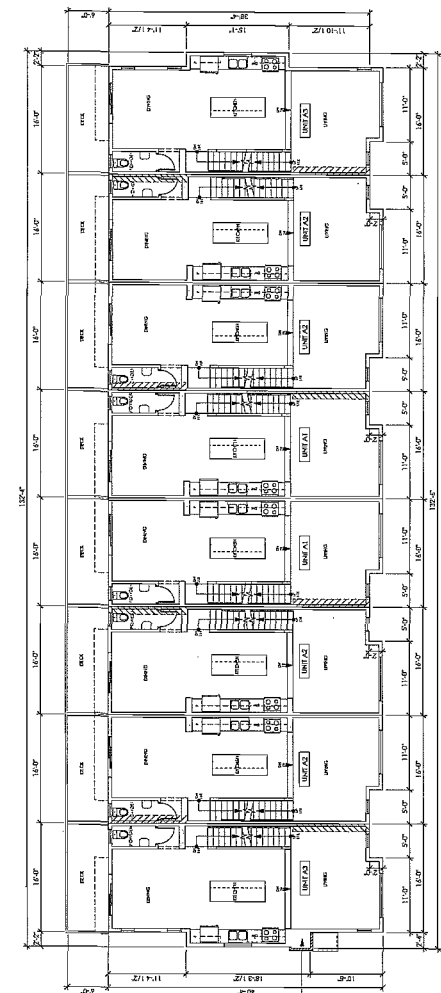
**BUILDING 3
 PLANS
 (LEVEL 1 & 2)**

A2.04

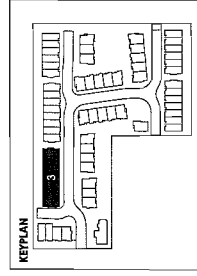
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 DATE: JUNE 2013



LEVEL 1 PLAN
 BUILDING 3



LEVEL 2 PLAN
 BUILDING 3



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REVISED

NOV. 4, 2013
 ISSUED FOR RECONSTRUCTION PERMIT
 MAY 17, 2014
 REVISED FOR CONSTRUCTION
 APR. 7, 2014
 REVISION FOR LEVEL OVERLAY PERMIT



FORMWORKS ARCHITECTURAL

1025 West 54th Ave., Vancouver, BC V6J 1H5
 Phone: 603-941-1111

PROJECT

JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, BC

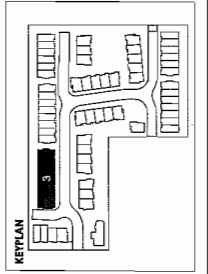
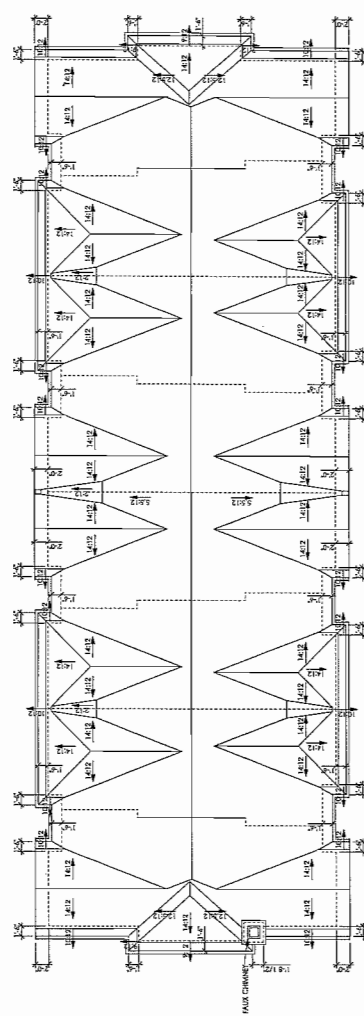
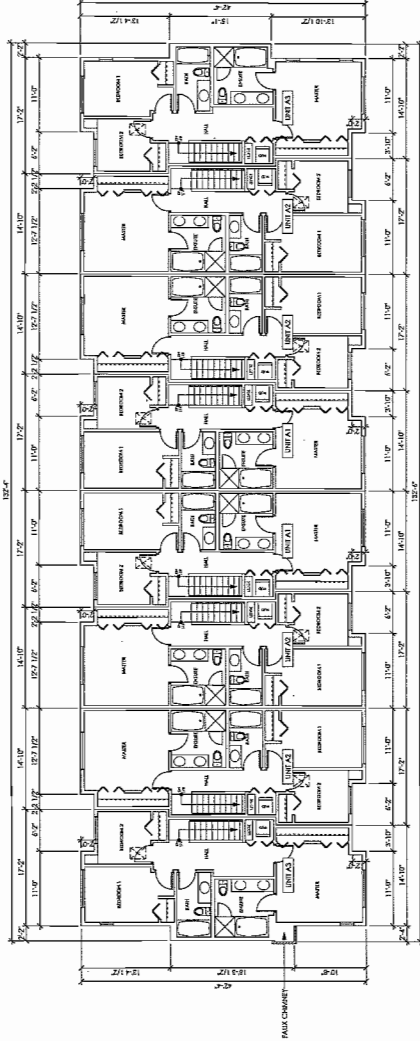
DRAWING

**BUILDING 3
 PLANS
 (LEVEL 3 &
 ROOF)**

SHEET

A2.05

SCALE: 1/8" = 1'-0"
 DATE: JUNE 2013



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REVISIONS
 03/01/12 CORRECTIONS / REVISIONS NOV. 4, 2013
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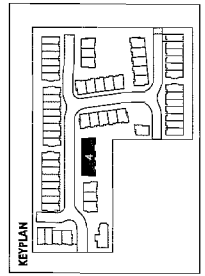
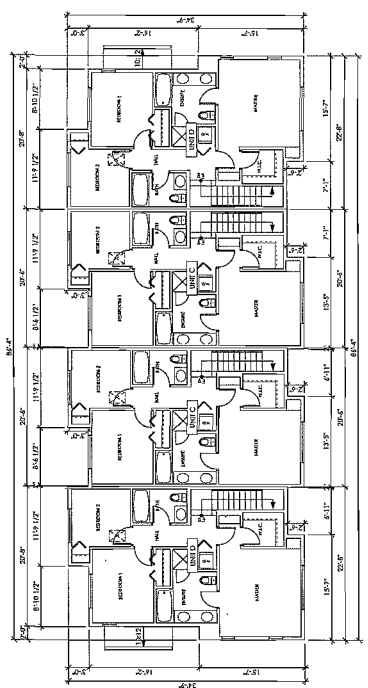
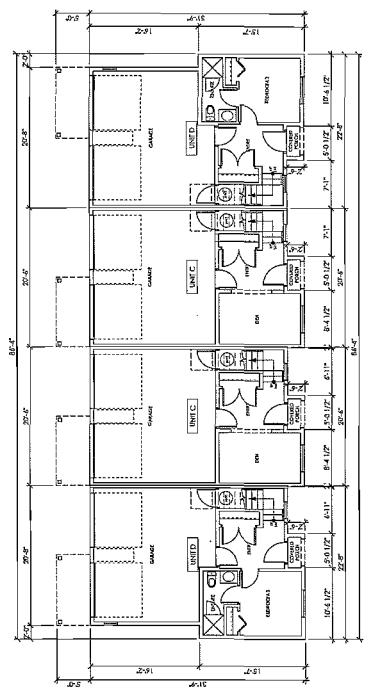
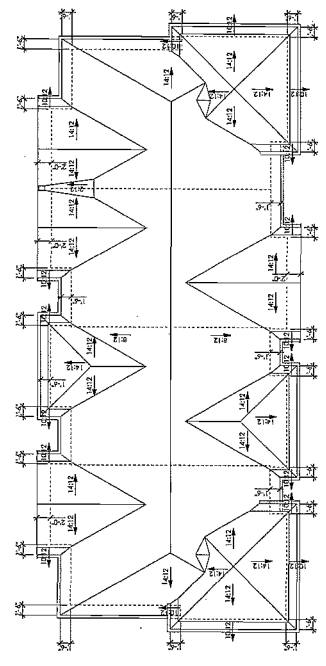
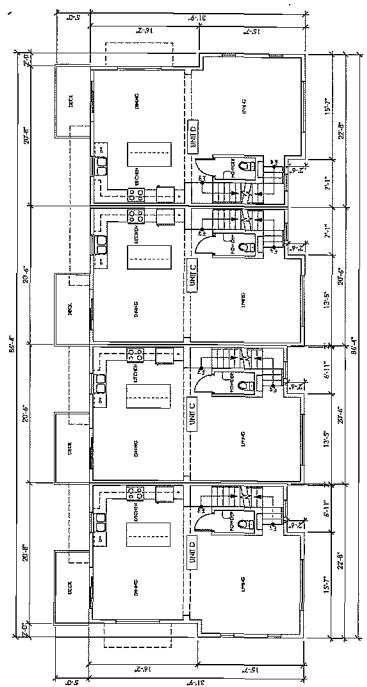
POLYGON
 POLYGON ARCHITECTURAL
 1225 WEST 130th Ave., Suite 100, Richmond, BC V6V 1H9
 Phone: 604-273-1111

FORMWERKS ARCHITECTURAL
 1225 West 130th Ave., Richmond, BC V6V 1H9
 Phone: 604-273-1111

PROJECT
JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, BC

DRAWING
BUILDING 4 PLANS

SCALE 1/4" = 1'-0"
DATE JUNE 2013
SHEET A2.07



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REVISED FOR RECORDS/ISSUE
 NOV. 4, 2019
 ISSUED FOR CONSTRUCTION
 MAY 21, 2014
 ISSUED FOR CONSTRUCTION
 MAY 21, 2014
 ISSUED FOR CONSTRUCTION
 MAY 21, 2014

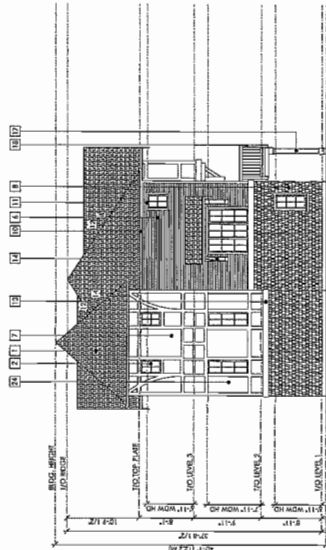


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 1823 West 5th Ave., Richmond, BC, V6V 1S9
 Phone: 604-271-5441

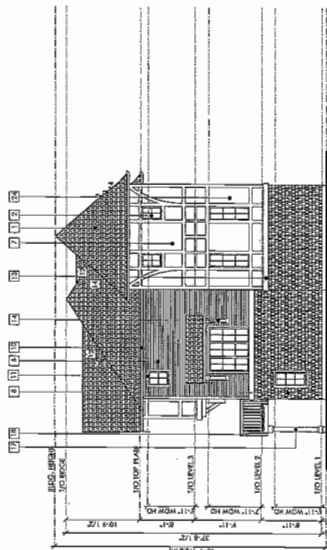
PROJECT
JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, BC

DRAWING
BUILDING 4 ELEVATIONS

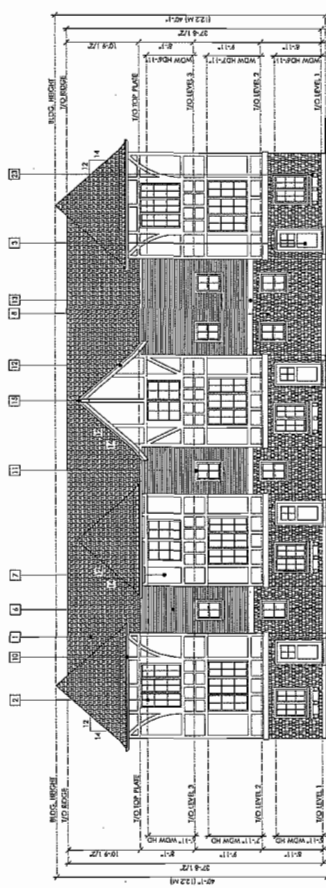
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A2.08
 SCALE 1/8" = 1'-0"
 DATE JUNE 2013



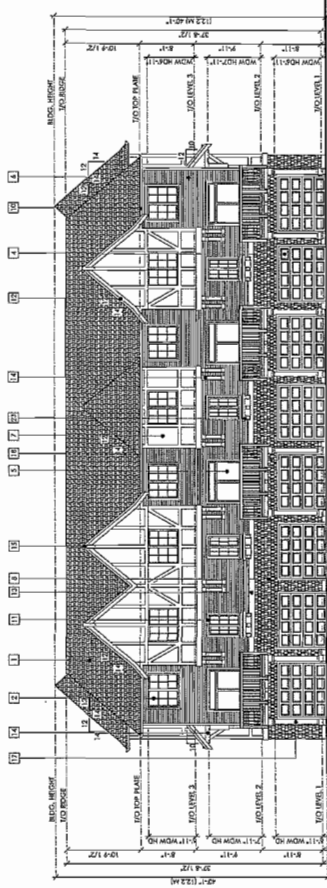
FRONT ELEVATION
 BUILDING 4



SIDE ELEVATION
 BUILDING 4



REAR ELEVATION
 BUILDING 4



SIDE ELEVATION
 BUILDING 4



KEY PLAN

FINISH SCHEDULE	
1	INTERIEST BRICK
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REVISIONS

ISSUED FOR PERMITS/REVISED PERMIT
NOV. 4, 2013
ISSUED FOR PERMITS/REVISED PERMIT
MAY 17, 2014
ISSUED FOR PERMITS/REVISED PERMIT
APR. 7, 2014



POLYGON
POLYGON ARCHITECTURAL CONSULTANTS
1403 WEST 58th AVENUE
RICHMOND, BC V6V 1Y1
TEL: 604-271-1111

FORMWORKS ARCHITECTURAL

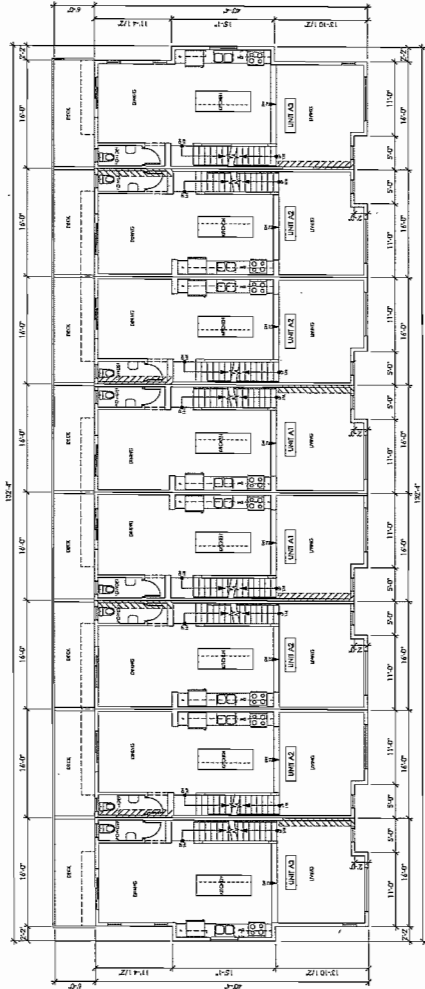
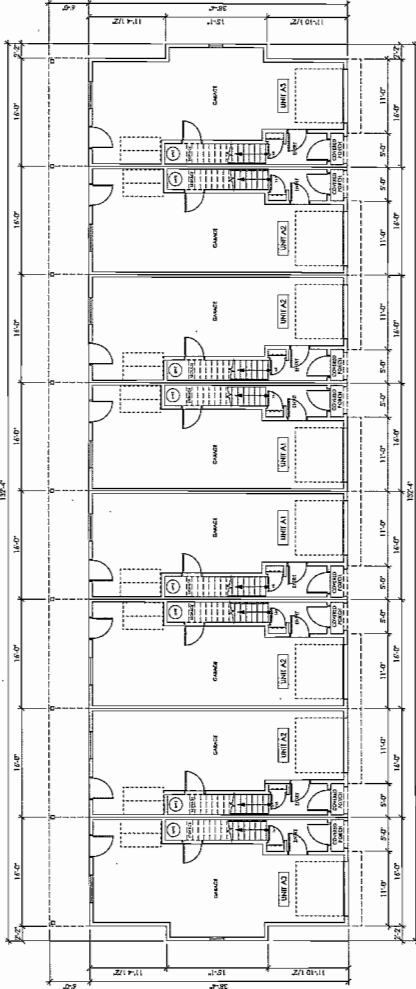
1403 West 58th Ave., Vancouver, BC V6V 1Y1
Phone: 604-271-1111

PROJECT
JAYDEN MEWS
9700 ALEXANDRA ROAD
RICHMOND, BC

DRAWING

**BUILDING 5
PLANS
(LEVEL 1 & 2)**

SCALE 1/8" = 1'-0"
DATE
SHEET
JUNE 2013
A2.09



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 NO. 8 2013
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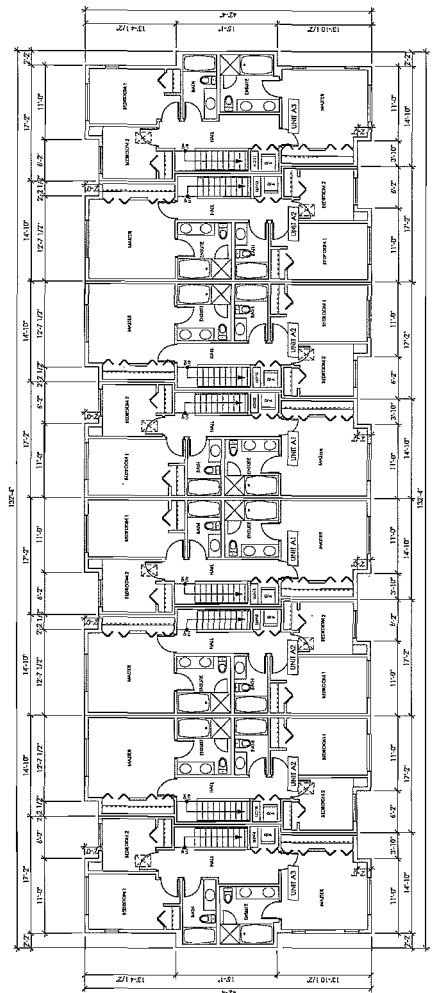


FORMWERKS ARCHITECTURAL
 100 West 5th Ave., Richmond, BC V6V 1W6
 Tel: 604.273.4444
 Fax: 604.273.4444

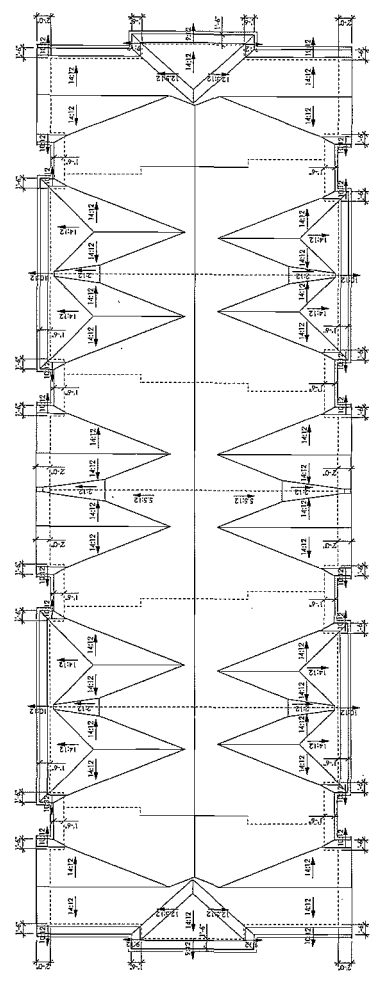
JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, BC

**BUILDING 5
 PLANS
 (LEVEL 3 &
 ROOF)**

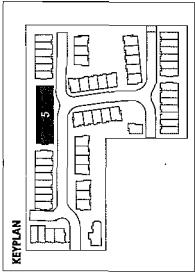
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 DATE JUNE 2013
A2.10



LEVEL 3 PLAN
 BUILDING 5



ROOF PLAN
 BUILDING 5



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REVISIONS
 NO. 4 2013
 NO. 3 2013
 NO. 2 2013
 NO. 1 2013

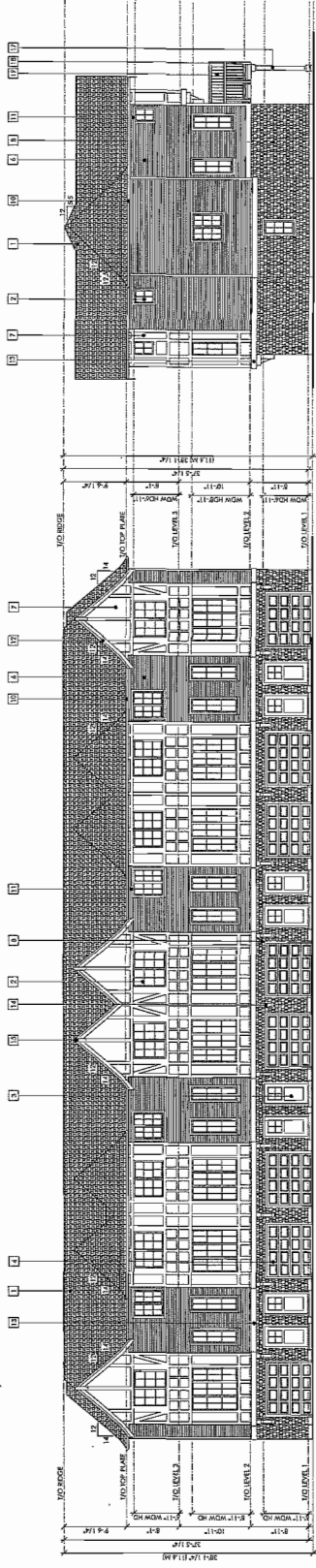


FORMWERKS ARCHITECTURAL
 103 West 15th Ave., Nashville, TN 37203
 Phone: (615) 241-1111

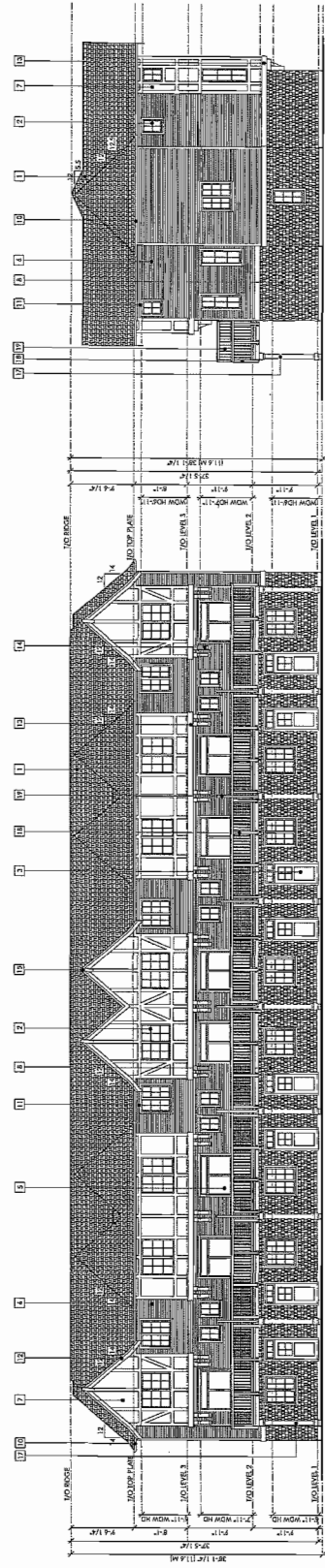
JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, BC

BUILDING 5 ELEVATIONS

SCALE: 1/8" = 1'-0"
 DATE: JUNE 2013
 SHEET: A2.11



FRONT ELEVATION
BUILDING 5



SIDE ELEVATION
BUILDING 5

REAR ELEVATION
BUILDING 5



FINISH SCHEDULE

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<input type="checkbox"/> MESSIAH PAINTED BRICK	<input type="checkbox"/> PAINTED CEDAR SHINGLE	<input type="checkbox"/> PAINTED WOOD BRACKETS	<input type="checkbox"/> 2" X 4" WOOD TRIM
<input type="checkbox"/> PAINTED METAL	<input type="checkbox"/> BRICK FINISH	<input type="checkbox"/> GABLE FINISH	<input type="checkbox"/> PAINT CORNER
<input type="checkbox"/> PAINTED WOOD TRIM	<input type="checkbox"/> PAINTED WOOD TRIM	<input type="checkbox"/> PAINTED WOOD TRIM	<input type="checkbox"/> METAL CORNER CAP
<input type="checkbox"/> PAINTED WOOD TRIM	<input type="checkbox"/> PAINTED WOOD TRIM	<input type="checkbox"/> PAINTED WOOD TRIM	<input type="checkbox"/> METAL SECURITY GATE
<input type="checkbox"/> PAINTED WOOD TRIM	<input type="checkbox"/> PAINTED WOOD TRIM	<input type="checkbox"/> PAINTED WOOD TRIM	<input type="checkbox"/> WOOD PLANT SHIP
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<input type="checkbox"/> PAINTED WOOD TRIM	<input type="checkbox"/> PAINTED WOOD TRIM	<input type="checkbox"/> PAINTED WOOD TRIM	<input type="checkbox"/> CONCRETE CAP

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REVISED FOR PERMITS/ISSUE: NOV. 4, 2013
ISSUED FOR PERMITS/ISSUE: NOV. 13, 2014
ISSUED FOR PERMITS/ISSUE: MAR. 25, 2014
ISSUED FOR PERMITS/ISSUE: APR. 11, 2014

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 ARCHITECTURAL
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 WASHINGTON, DC 20004
 TEL: 202 331 1111

FORMWERKS ARCHITECTURAL
 1608 West 5th Ave., Washington, DC, VA 20018
 Tel: 482-2204 Phone: 482-5441

PROJECT
JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, BC

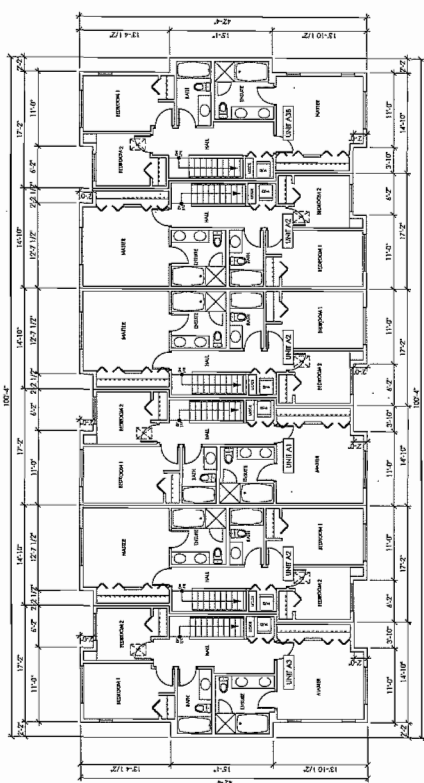
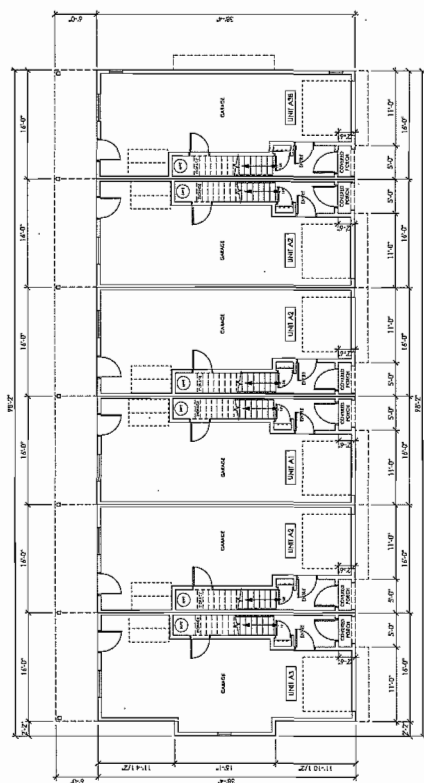
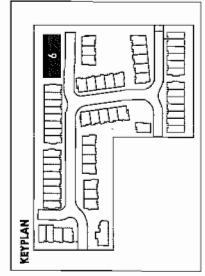
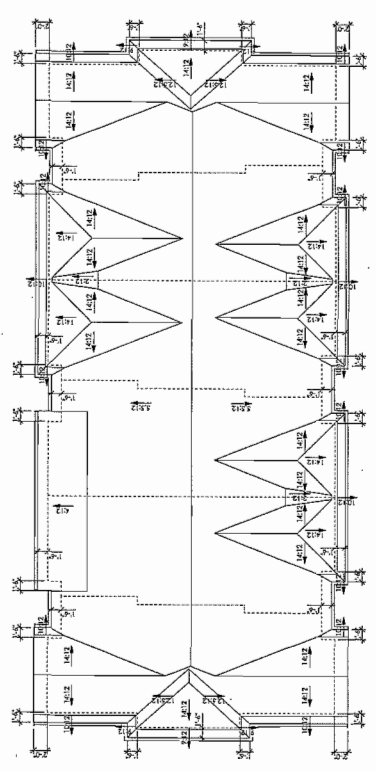
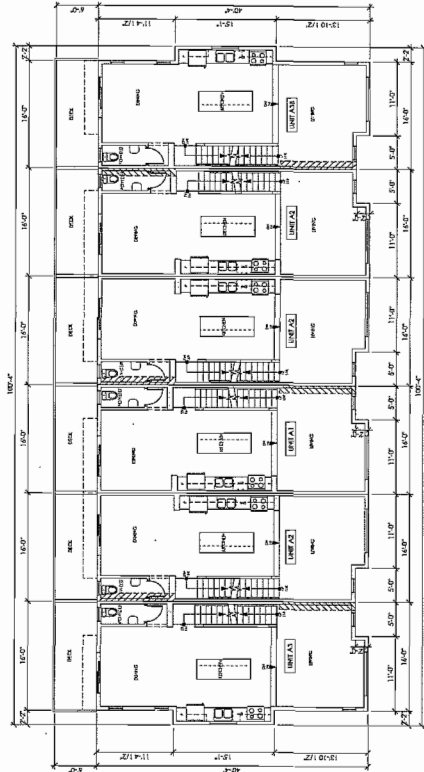
DRAWING

BUILDING 6 PLANS

SCALE 1/8" = 1'-0"

SHEET **A2.12**

DATE JUNE 2013



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REVISIONS
 13582 P22 REVISIONS/REVISED NOV 4, 2013
 13582 P22 REVISIONS/REVISED NOV 4, 2013
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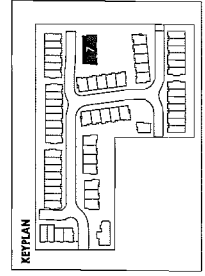
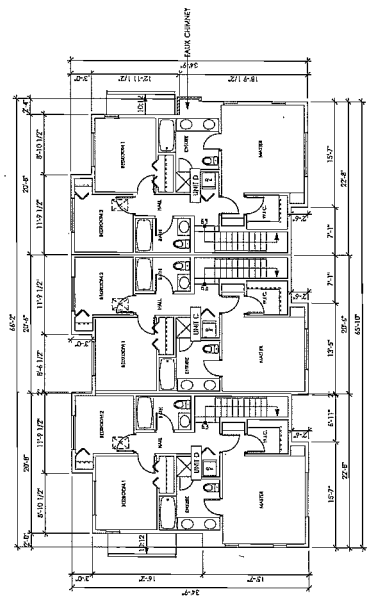
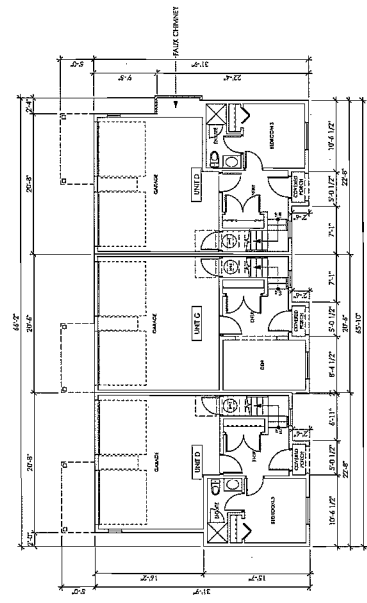
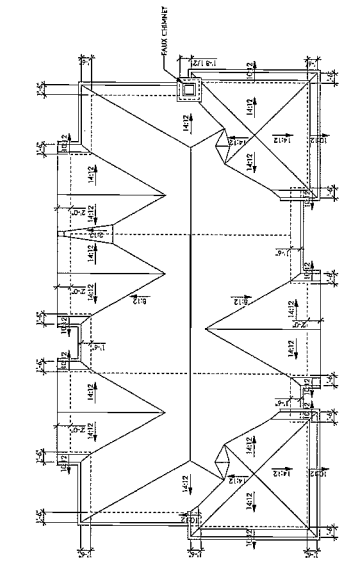
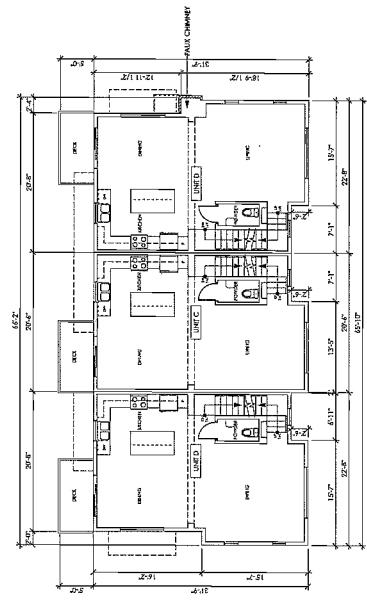


FORMWERKS ARCHITECTURAL
 105 West 5th Ave., Vancouver, BC V6J 1N5
 Phone: 604-683-8440

JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, BC

BUILDING 7 PLANS

SCALE 1/8" = 1'-0"
 SHEET A2.14
 DATE JUNE 2013



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REVISIONS

NOV. 4, 2013
 REVISED FOR PERMITS/REVISED
 NO. 17, 2014
 REVISED FOR CLIENT REVIEW
 MAY 22, 2014
 REVISED FOR PERMITS/REVISED
 NO. 23, 2014
 REVISED FOR PERMITS/REVISED
 NO. 24, 2014



FORMWERKS ARCHITECTURAL

1025 West 25th Ave., Washington, DC 20018
 Phone: 433-5441

JAYDEN MEWS

9700 ALEXANDRA ROAD
 RICHMOND, BC

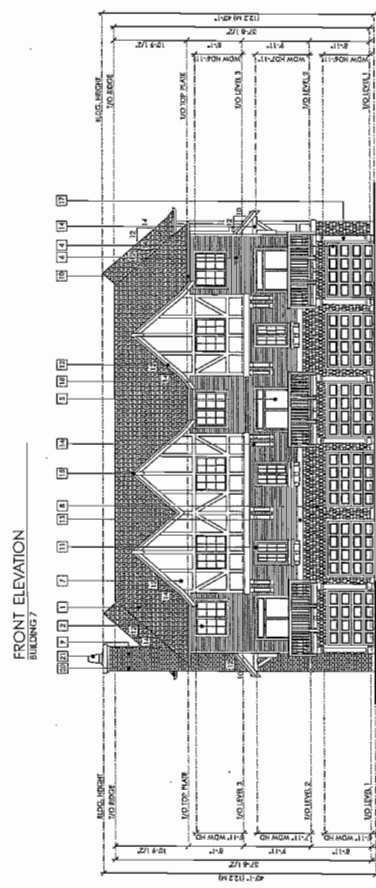
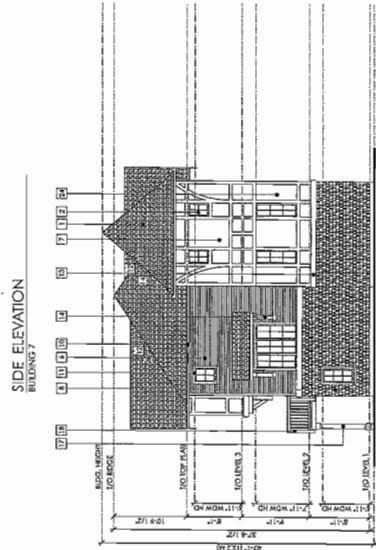
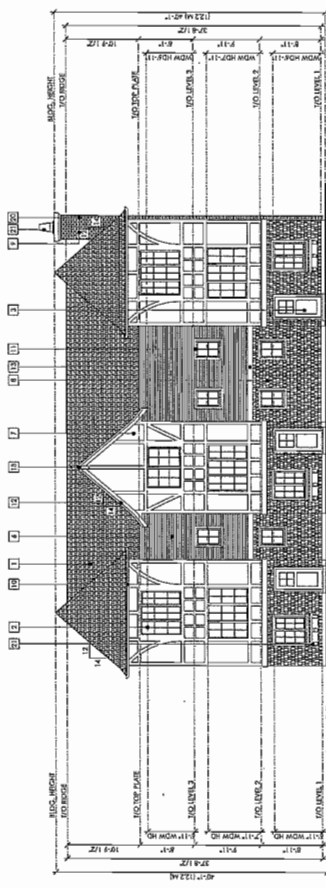
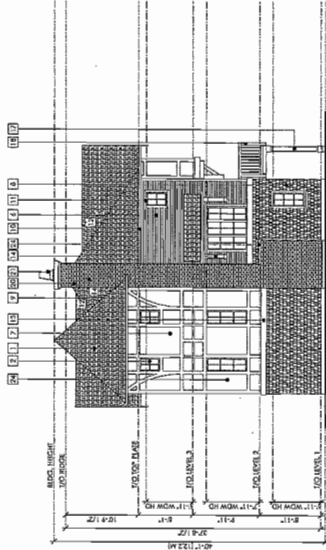
BUILDING 7 ELEVATIONS

A2.15

DATE: JUNE 2013

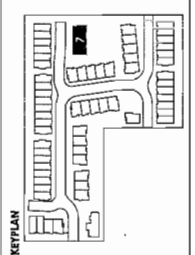
SCALE: 1/4" = 1'-0"

SHEET



FINISH SCHEDULE

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 REVISED FOR CONSTRUCTION PERMIT NOV. 12, 2014
 REVISED FOR CONSTRUCTION PERMIT NOV. 12, 2014
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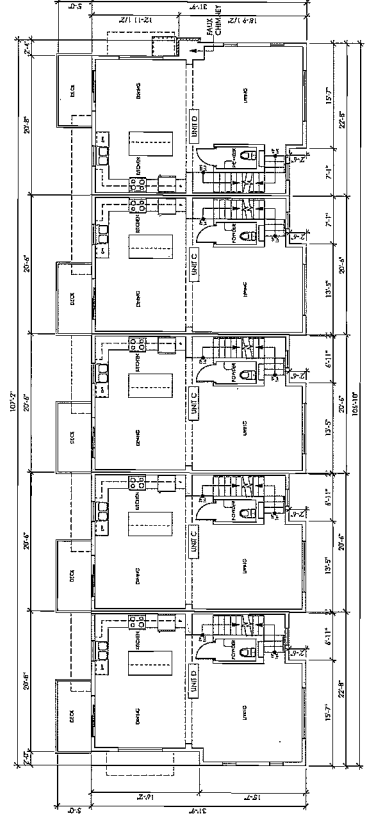


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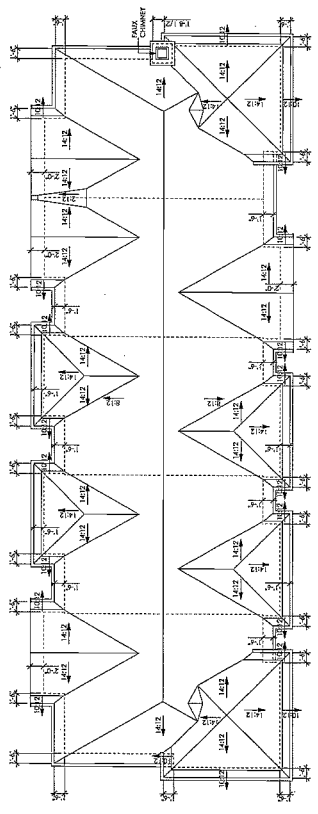
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 9700 ALEXANDRA ROAD
 RICHMOND, B.C.

DRAWINGS
BUILDING 8 PLANS

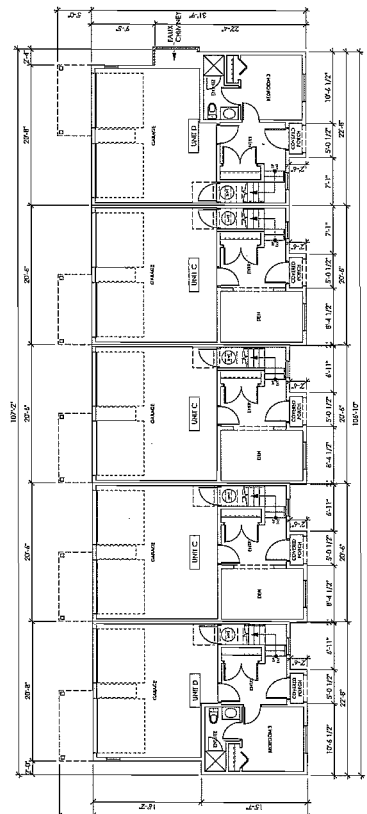
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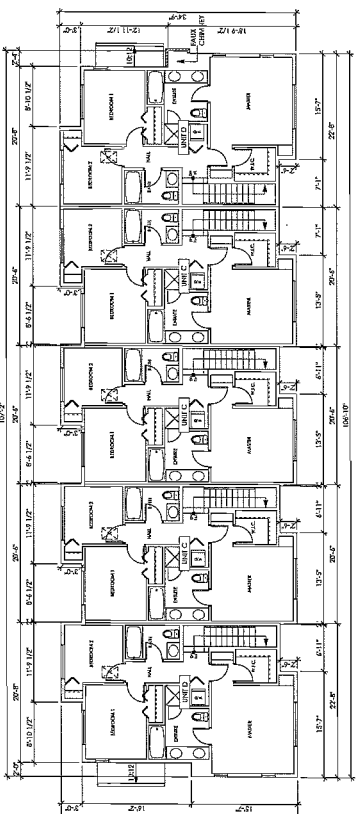
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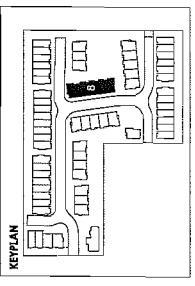
ROOF LEVEL PLAN
BUILDING 8



LEVEL 1 PLAN
BUILDING 8



LEVEL 3 PLAN
BUILDING 8



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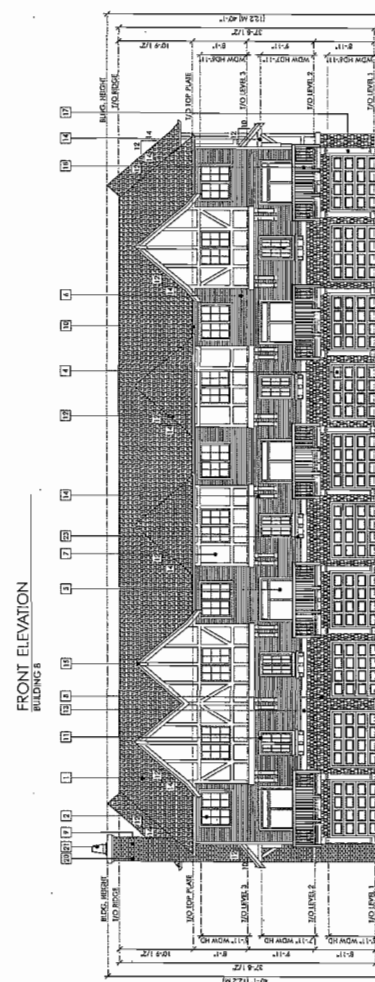
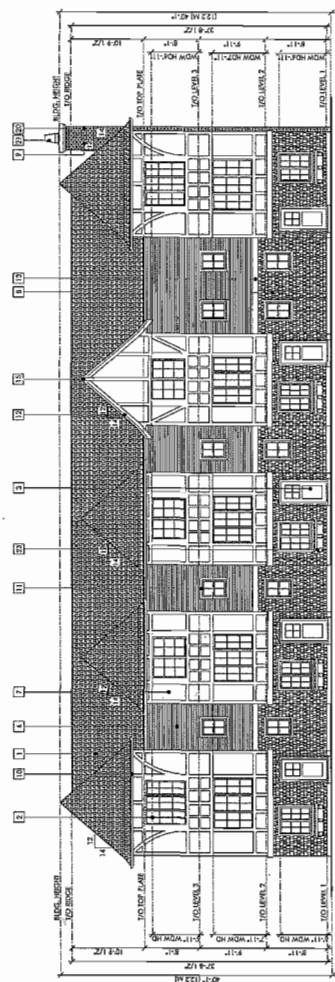
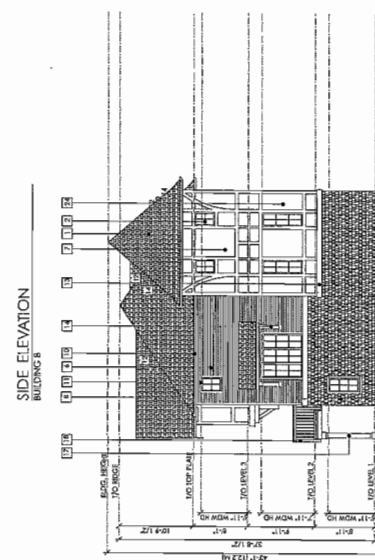
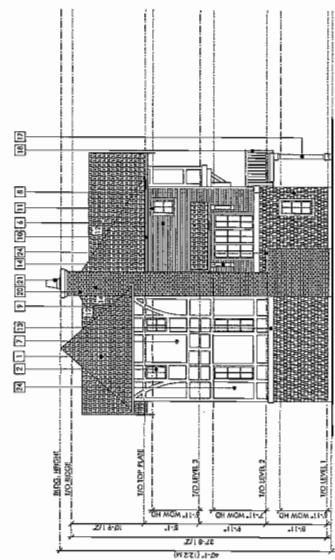
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JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, BC

BUILDING 8 ELEVATIONS
 SHEET
 SCALE 1/4" = 1'-0"
 DATE JUNE 2013
 A2.17



KEYPLAN

FINISH SCHEDULE

1	PERGOLA FINISH	11	PAINTED WOOD BRACKET	21	VERTICAL WOOD
2	PAINTED WOOD BRACKET	12	PAINTED WOOD BRACKET	22	SLAT FINISH SCREEN
3	PAINTED WOOD BRACKET	13	PAINTED WOOD BRACKET	23	PAINTED WOOD BRACKET
4	PAINTED WOOD BRACKET	14	PAINTED WOOD BRACKET	24	PAINTED WOOD BRACKET
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8	PAINTED WOOD BRACKET	18	PAINTED WOOD BRACKET	28	PAINTED WOOD BRACKET
9	PAINTED WOOD BRACKET	19	PAINTED WOOD BRACKET	29	PAINTED WOOD BRACKET
10	PAINTED WOOD BRACKET	20	PAINTED WOOD BRACKET	30	PAINTED WOOD BRACKET

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REVISIONS
 NOV. 4, 2010
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 NOV. 12, 2010
 REVISED FOR CONSTRUCTION
 NOV. 15, 2010
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 NOV. 17, 2010
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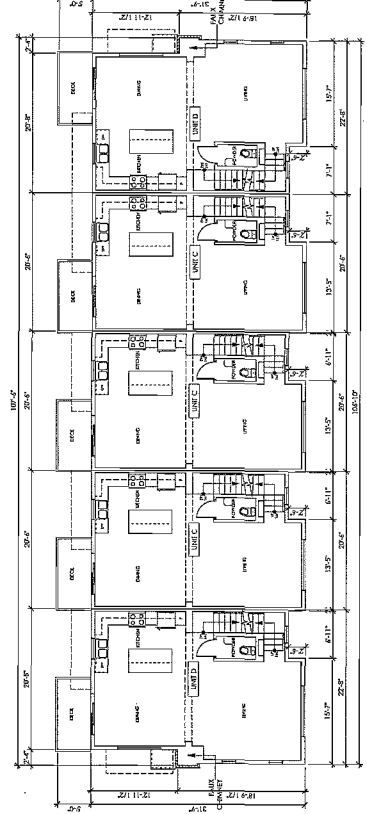


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 125 South 18th Ave., Virginia, BC VAJ1H5
 Phone: 403-3411
 Fax: 403-5276

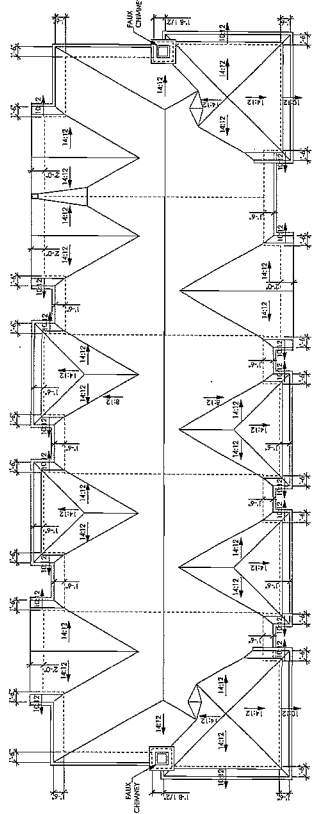
JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, BC

**BUILDING 9
 PLANS**

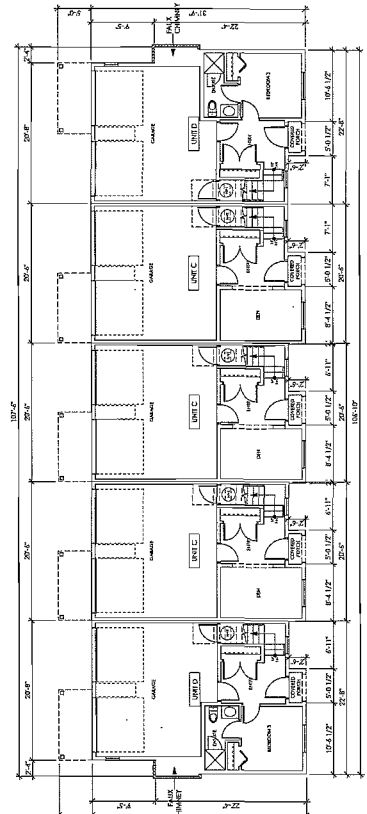
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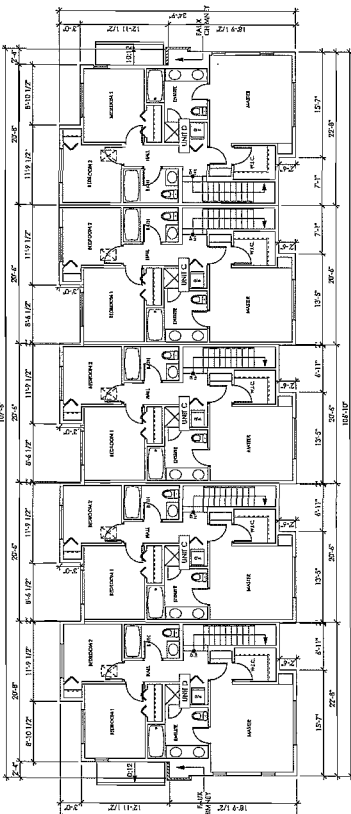
LEVEL 2 PLAN
BUILDING 9



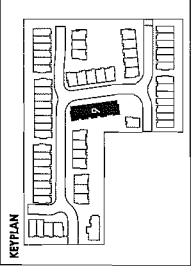
ROOF LEVEL PLAN
BUILDING 9



LEVEL 1 PLAN
BUILDING 9



LEVEL 3 PLAN
BUILDING 9



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REVISIONS

ISSUED FOR REVISION/PERMIT NOV. 4, 2015
 ISSUED FOR CONTRACT/PERMIT MAR. 17, 2016
 ISSUED FOR CONTRACT/PERMIT MAR. 17, 2016
 ISSUED FOR CONTRACT/PERMIT MAR. 17, 2016



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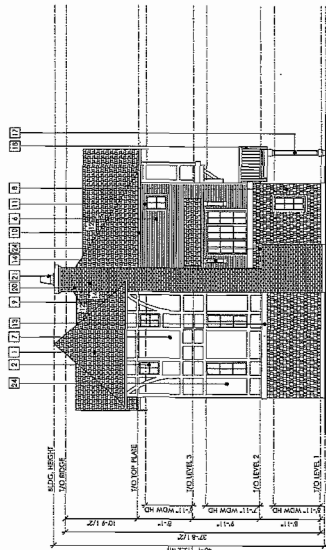
1423 Third St. Ave., WILSON, NC 27157
 Phone: 919.544.4444

JAYDEN MEWS

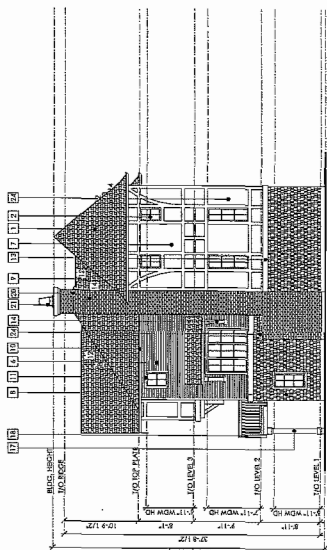
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BUILDING 9 ELEVATIONS

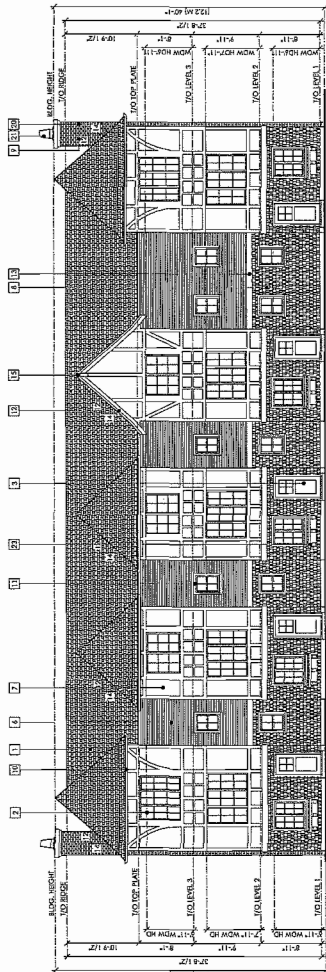
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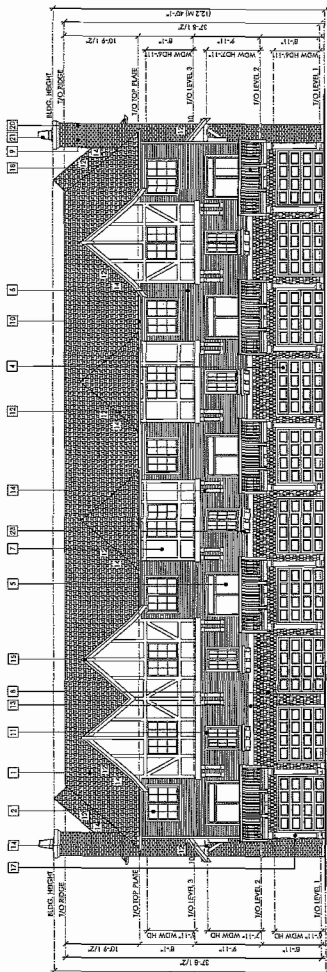
SIDE ELEVATION
BUILDING 7



SIDE ELEVATION
BUILDING 7



FRONT ELEVATION
BUILDING 7



REAR ELEVATION
BUILDING 7



FINISH SCHEDULE

1	BRICK/ASPH/FLT	11	PAINTED 2X6R REPLY BOARD	21	PAINTED 2X6R REPLY BOARD
2	DOUBLE PANELED GLAZED	12	PAINTED CEDAR SHINGLE	22	PAINTED WOOD BRACKES
3	INSULATED ASPHL	13	BRICK SING	23	CHARSTAINAL
4	PANEL DOOR	14	PAINTED WOOD BRACKES	24	PAINTED WOOD BRACKES
5	DOUBLE PANELED GLAZED	15	PAINTED WOOD BRACKES	25	PAINTED WOOD BRACKES
6	DOUBLE PANELED GLAZED	16	PAINTED WOOD BRACKES	26	PAINTED WOOD BRACKES
7	DOUBLE PANELED GLAZED	17	PAINTED WOOD BRACKES	27	PAINTED WOOD BRACKES
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WOOD FINISHES

31	PAINTED WOOD BRACKES	41	PAINTED WOOD BRACKES
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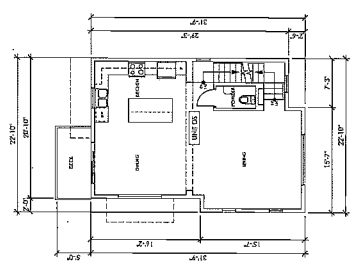
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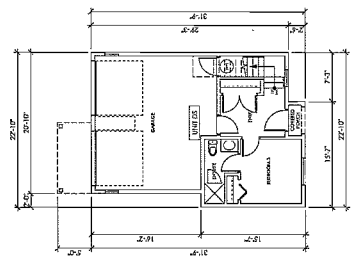
PROJECT
JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, BC

DRAWING
BUILDING 10 PLANS

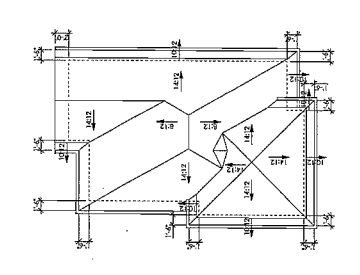
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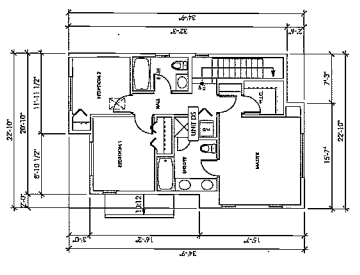
LEVEL 1 PLAN
 BUILDING 10



LEVEL 2 PLAN
 BUILDING 10



ROOF LEVEL PLAN
 BUILDING 10



LEVEL 3 PLAN
 BUILDING 10



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 PRELIMINARY CONTRACT PERMIT APRIL 7, 2014

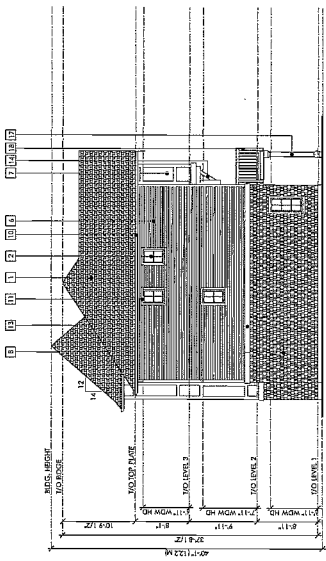


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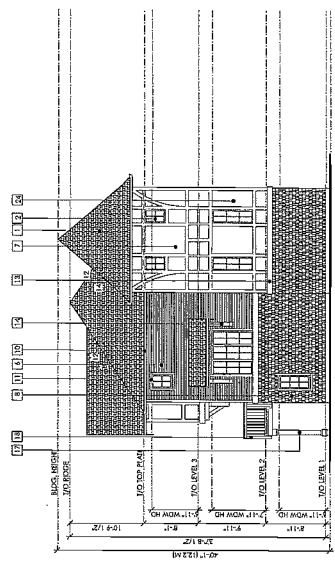
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 RICHMOND, NC

BUILDING 10 ELEVATIONS

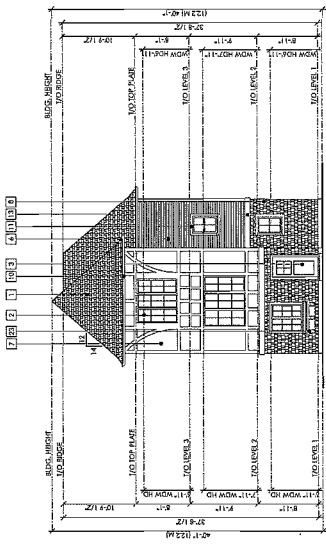
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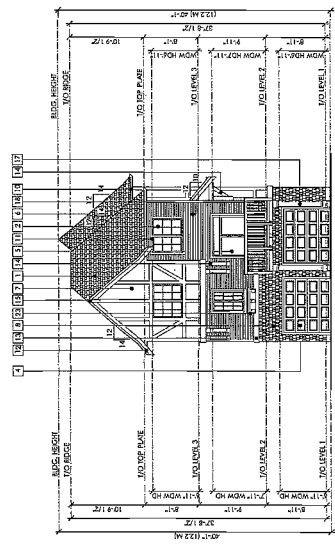
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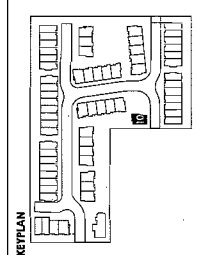
SIDE ELEVATION BUILDING 10



FRONT ELEVATION BUILDING 10



REAR ELEVATION BUILDING 10



FINISH SCHEDULE

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2	PAINTED OAK TRIM BOARD	12	PAINTED OAK TRIM BOARD	22	PAINTED OAK TRIM BOARD
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 NO. 2 2013
 NO. 1 2013
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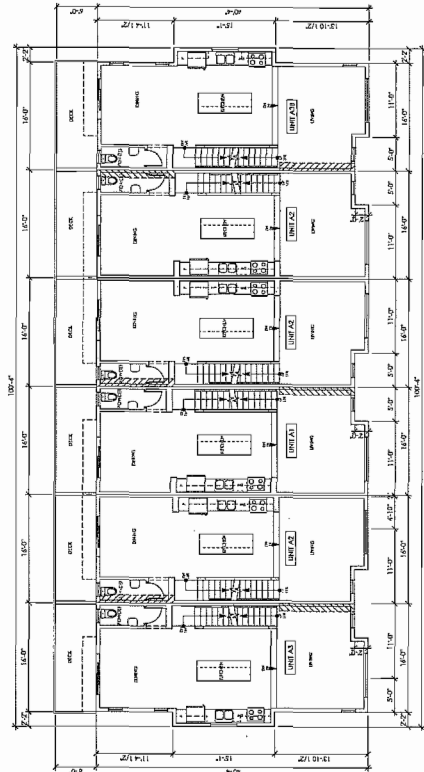


FORMWERKS ARCHITECTURAL
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JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, BC

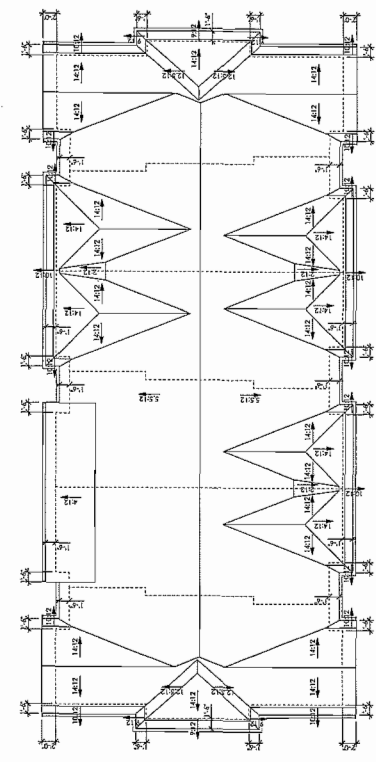
FORMWERKS ARCHITECTURAL
 PROJECT
JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, BC

BUILDING 11 PLANS

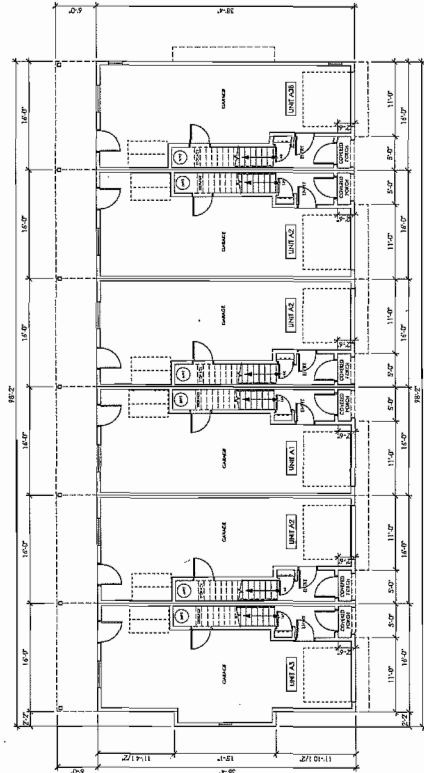
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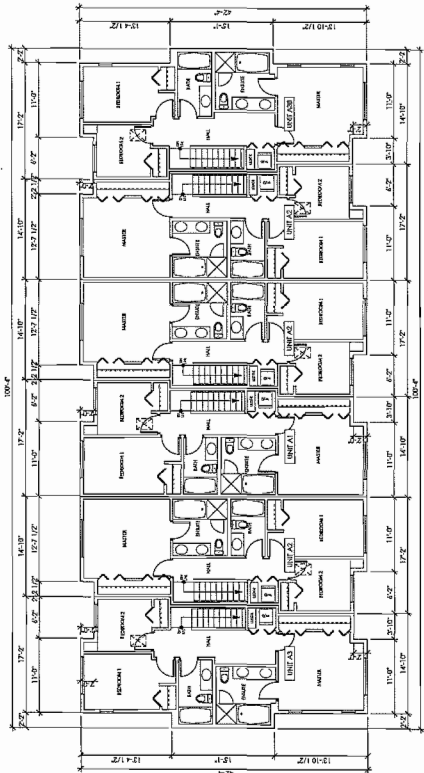
LEVEL 2 PLAN
BUILDING 11



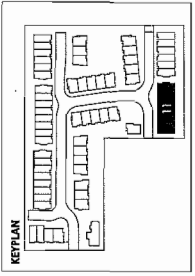
ROOF LEVEL PLAN
BUILDING 11



LEVEL 1 PLAN
BUILDING 11



LEVEL 3 PLAN
BUILDING 11



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 TEL: 971-381-1111

FORMWORKS ARCHITECTURAL
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 TEL: 202-462-2021
 FAX: 202-462-2022
 PHONE: 483-8341

JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, BC

BUILDING 11 ELEVATIONS

SCALE
 1/8" = 1'-0"

DATE
 JUNE 2013

SHEET
 A2.23

FRONT ELEVATION
 BUILDING 11

FRONT ELEVATION
 BUILDING 11

FRONT ELEVATION
 BUILDING 11

FRONT ELEVATION
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FRONT ELEVATION
 BUILDING 11

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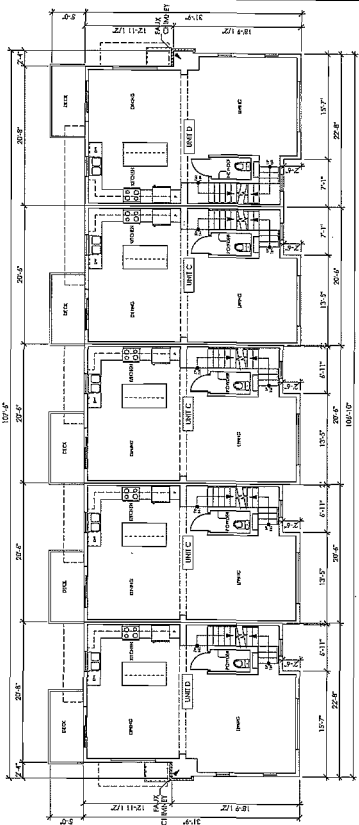
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 REVISION FOR SUBMITTAL PERMIT NOV. 20, 2014
 REVISION FOR SUBMITTAL PERMIT MAR. 20, 2014
 REVISION FOR SUBMITTAL PERMIT APR. 21, 2014



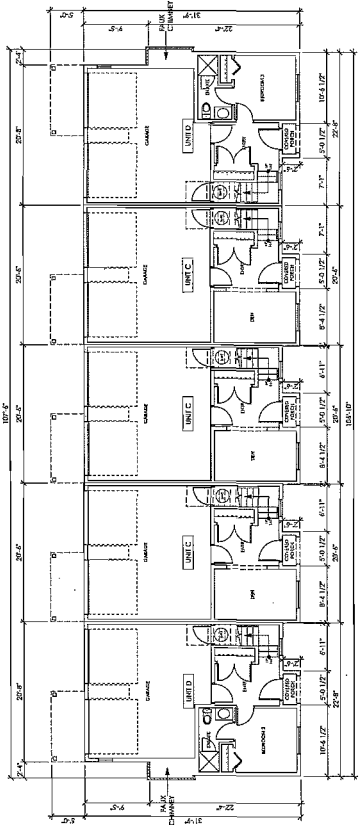
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 1035 West 5th Ave., Washington, DC 20015
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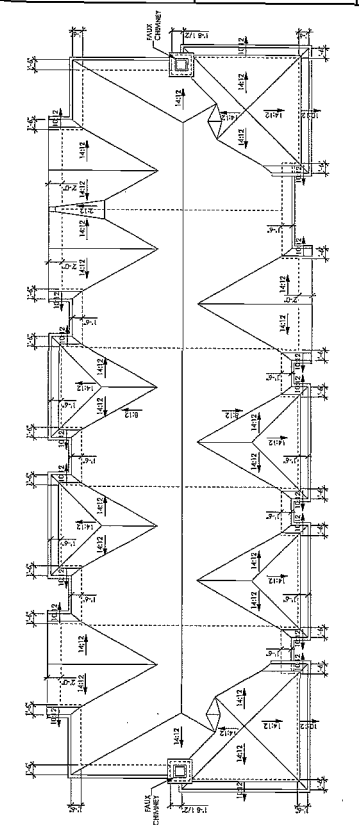
DRAWING
BUILDING 12
PLANS
 SCALE 1/8" = 1'-0"
 SHEET **A2.24**
 DATE JUNE 2013



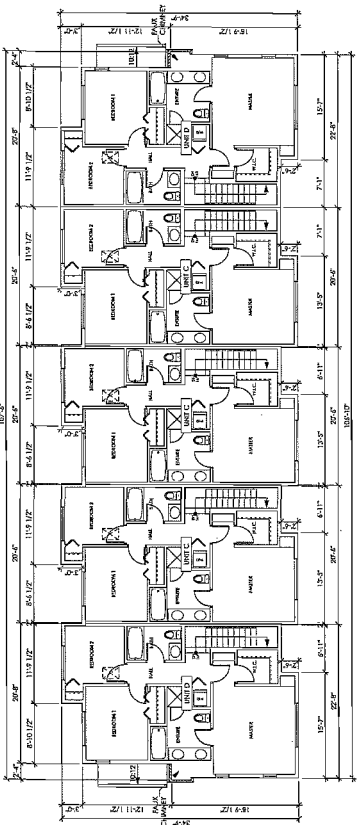
LEVEL 2 PLAN
 BUILDING 12



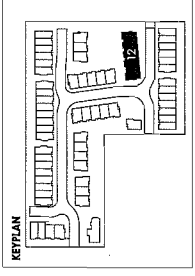
LEVEL 1 PLAN
 BUILDING 12



ROOF LEVEL PLAN
 BUILDING 12



LEVEL 3 PLAN
 BUILDING 12



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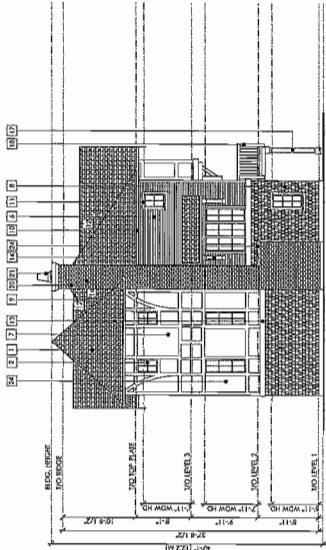
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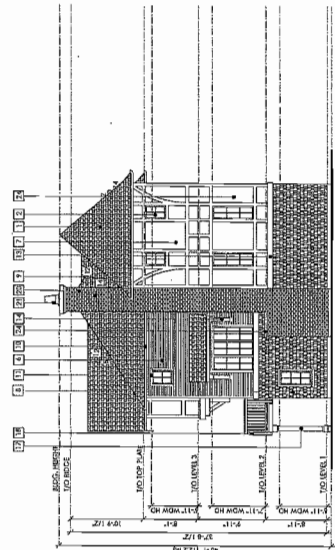
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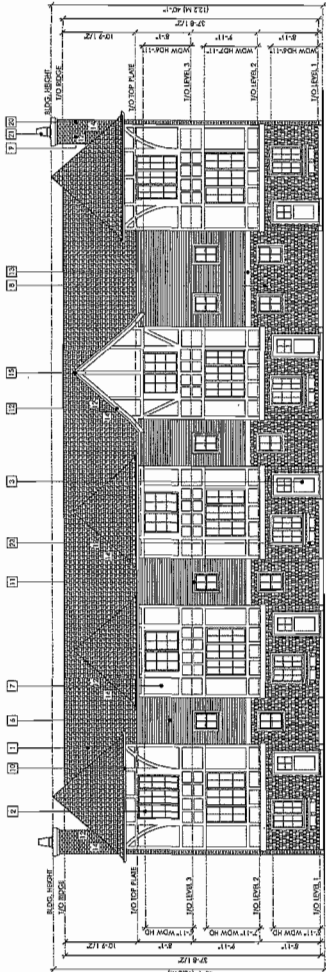
BUILDING 12 ELEVATIONS
 SHEET
 SCALE 1/8" = 1'-0"
 DATE JUNE 2013
A2.25



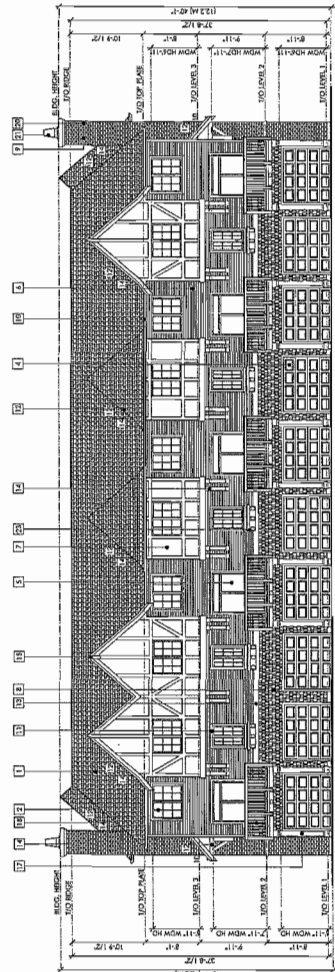
SIDE ELEVATION
BUILDING 12



SIDE ELEVATION
BUILDING 12



FRONT ELEVATION
BUILDING 12



REAR ELEVATION
BUILDING 12



FINISH SCHEDULE

1. FINISHED BASE CONCRETE BOARD	11. FINISHED WOOD BALUSTRADE	21. METAL WOOD
2. 1/2" W/ 1/4" WOOD TRIMS	12. PAINTED WOOD BALUSTRADE	22. 3/4" FINISH LINEN
3. FINISHED CEILING FINISH	13. PAINTED WOOD BALUSTRADE	23. BASE CABINET
4. FINISHED CEILING FINISH	14. PAINTED WOOD BALUSTRADE	24. METAL CABINET CAP
5. FINISHED CEILING FINISH	15. PAINTED WOOD BALUSTRADE	25. METAL CABINET CAP
6. FINISHED CEILING FINISH	16. PAINTED WOOD BALUSTRADE	26. METAL CABINET CAP
7. FINISHED CEILING FINISH	17. PAINTED WOOD BALUSTRADE	27. METAL CABINET CAP
8. FINISHED CEILING FINISH	18. PAINTED WOOD BALUSTRADE	28. METAL CABINET CAP
9. FINISHED CEILING FINISH	19. PAINTED WOOD BALUSTRADE	29. METAL CABINET CAP
10. FINISHED CEILING FINISH	20. PAINTED WOOD BALUSTRADE	30. METAL CABINET CAP

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 REVISION FOR REVISIONS / RMR
 NO. 2 2013
 REVISION FOR REVISIONS / RMR
 NO. 1 2013
 REVISION FOR REVISIONS / RMR

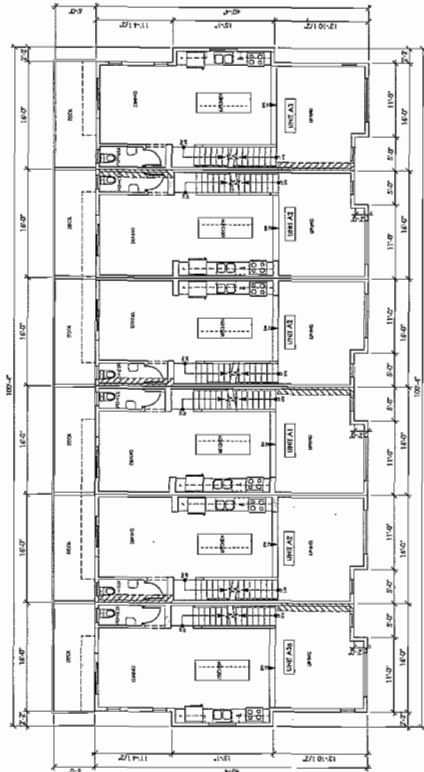


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 Phone: 433-5441

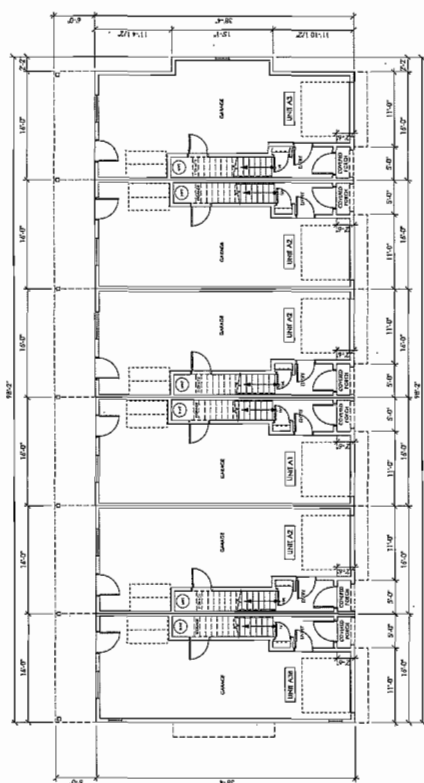
JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, BC

BUILDING 13 PLANS

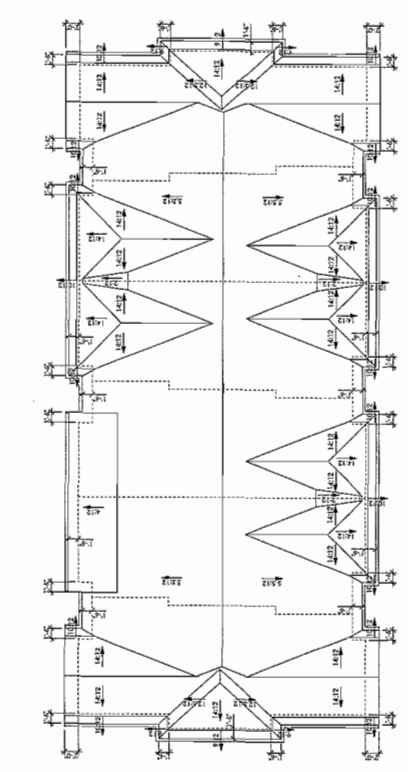
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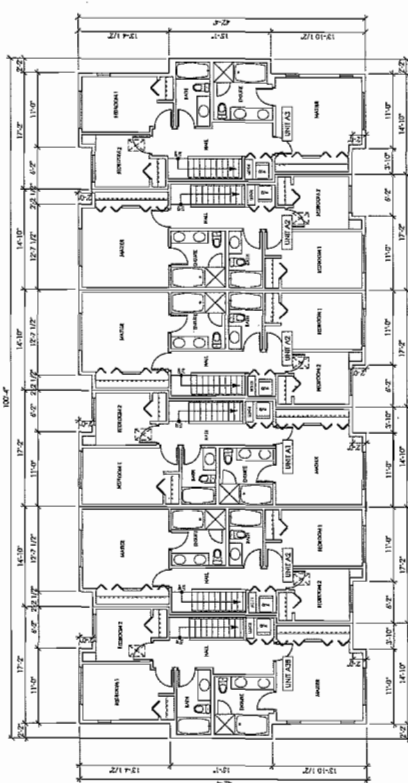
LEVEL 1 PLAN
BUILDING 13



LEVEL 2 PLAN
BUILDING 13



ROOF PLAN
BUILDING 13



LEVEL 3 PLAN
BUILDING 13



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REVISIONS
 REVISED FOR REVISIONS/ISSUE NO. 1
 ISSUED FOR CONSTRUCTION
 DATE: 06/27/2014
 DRAWN BY: JAYDEN MEWS
 PROJECT NO: 14000000000000000000
 PROJECT NAME: 14000000000000000000



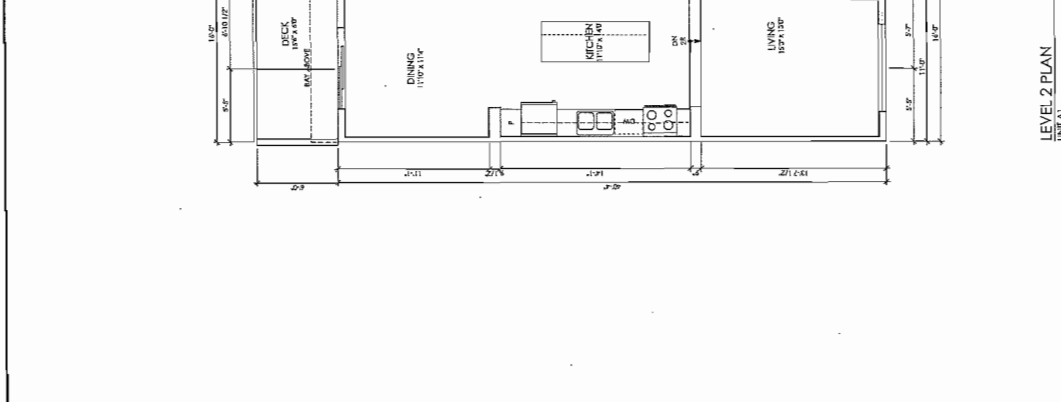
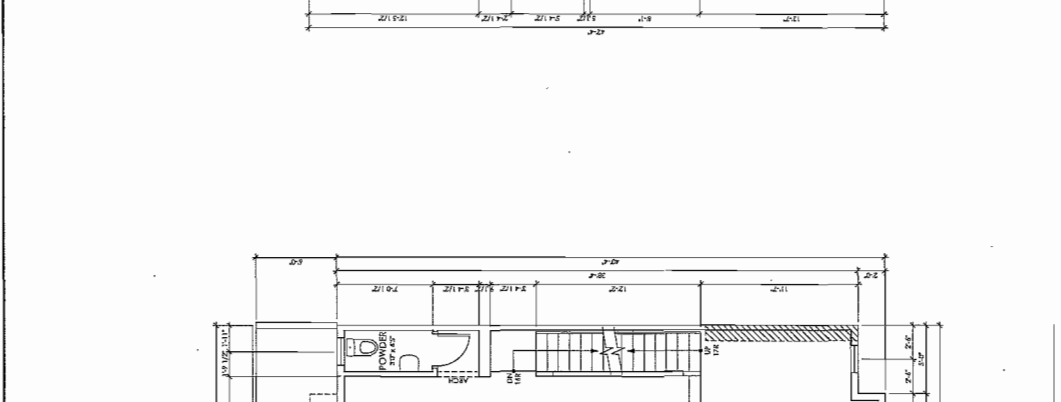
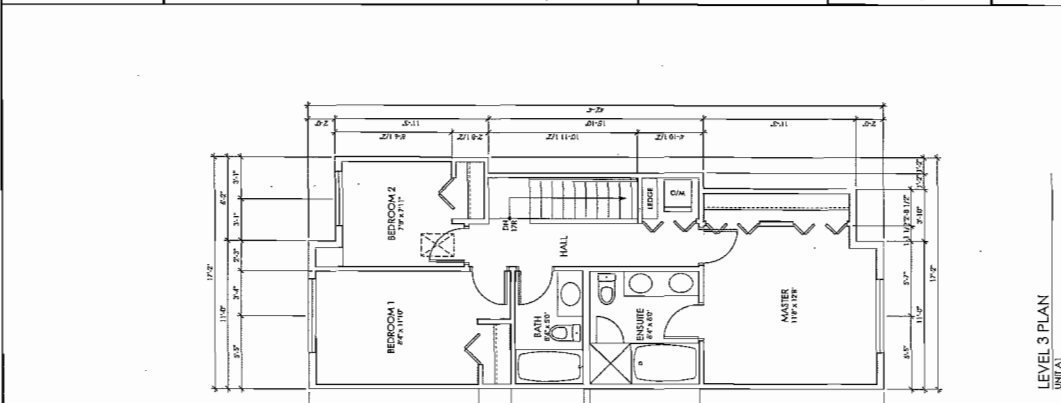
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 PROJECT
JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, B.C.

UNIT TYPE A1 PLANS

DRAWING

SCALE: 1/4" = 1'-0"
 DATE: JUNE 2013

SCALE	DATE	PRICE
1/4" = 1'-0"	JUNE 2013	A3.00



UNIT TYPE A1 FLOOR AREAS

LEVEL	AREA (SQ FT)	TOTAL
LEVEL 1	603.31	1833.91
LEVEL 2	603.31	1833.91
LEVEL 3	603.31	1833.91
TOTAL	1809.93	5470.73

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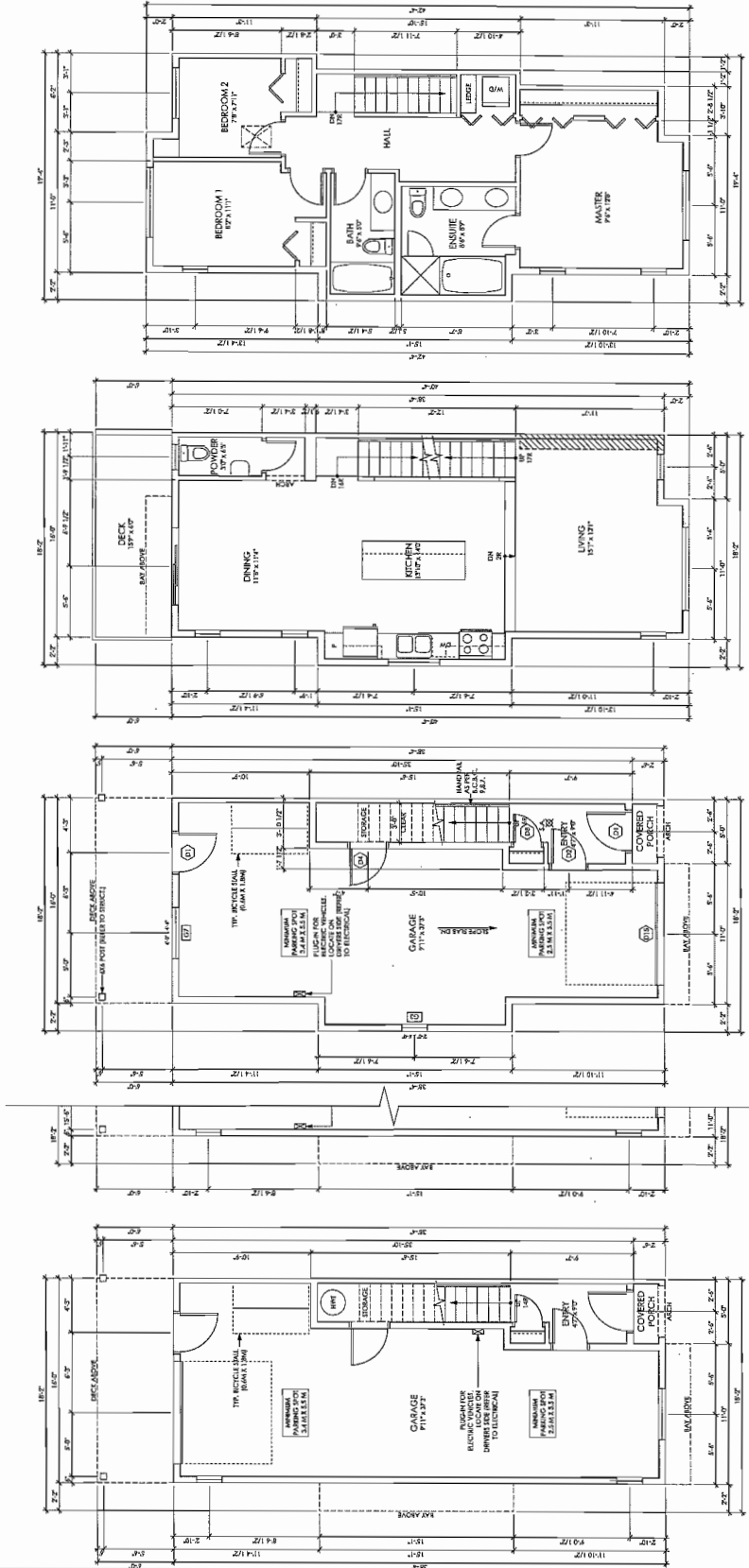


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 1225 West 29th Ave., Suite 200, Richmond, VA 23220
 Phone: (834) 481-1111

JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, B.C

UNIT TYPE A3/A3B/A3M PLANS

A3.02
 SHEET
 SCALE 1/4" = 1'-0"
 DATE JUNE 2013



LEVEL 3 PLAN
 UNIT A3/A3B/A3M

LEVEL 2 PLAN
 UNIT A3/A3B/A3M

LEVEL 1 PLAN
 UNIT A3

PARTIAL LEVEL 1 PLAN
 UNIT A3B

LEVEL 1 PLAN
 UNIT A3M

UNIT TYPE A3/A3B/A3M FLOOR AREAS				
LEVEL	UNIT 1	UNIT 2	UNIT 3	TOTAL
GROSS	602.5 SF	602.5 SF	602.5 SF	1807.5 SF
COMMON	15.5 SF	15.5 SF	15.5 SF	46.5 SF
NET	587.0 SF	587.0 SF	587.0 SF	1760.5 SF

UNIT TYPE A3 FLOOR AREAS				
LEVEL	UNIT 1	UNIT 2	UNIT 3	TOTAL
GROSS	602.5 SF	602.5 SF	602.5 SF	1807.5 SF
COMMON	15.5 SF	15.5 SF	15.5 SF	46.5 SF
NET	587.0 SF	587.0 SF	587.0 SF	1760.5 SF

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 DEC. 10, 2012 REVISIONS FOR COMMENTS
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 MAY 17, 2013 REVISIONS FOR DEVELOPMENT PERMIT

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 1103 WEST 28th AVE., SUITE 100
 RICHMOND, VA 23224
 TEL: 804.341.1811

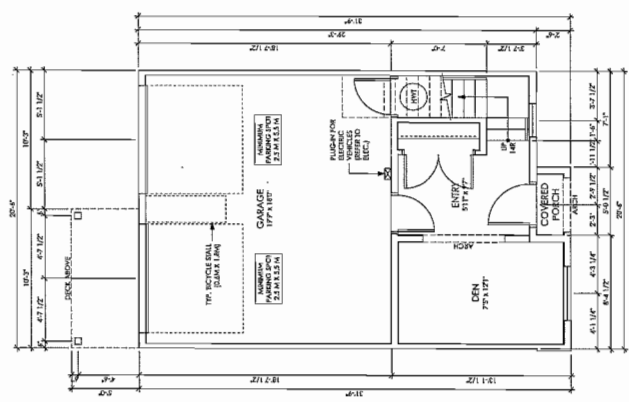
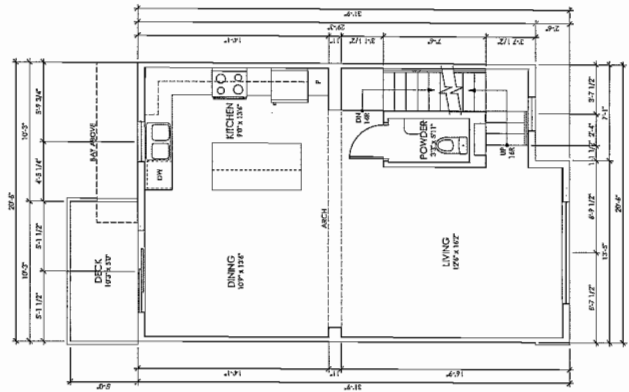
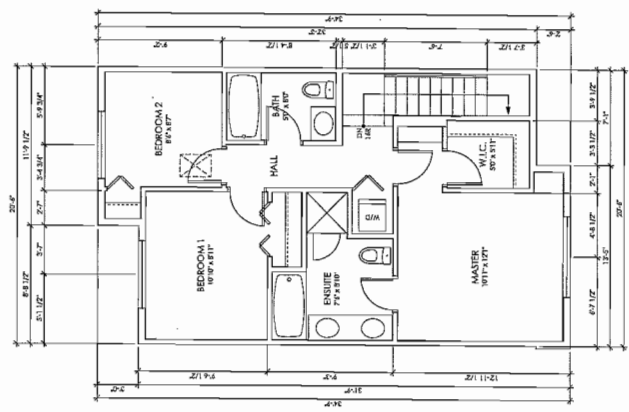
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 1103 West 28th Ave., Richmond, VA 23224
 Phone: 482-2004
 Fax: 482-3441

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 9700 ALEXANDRA ROAD
 RICHMOND, VA

PROJECT

UNIT TYPE C
PLANS

SCALE 1/4" = 1'-0"
SHEET A3.03
DATE JUNE 2013



UNIT TYPE C FLOOR AREAS

LEVEL	LEVEL 1	LEVEL 2	LEVEL 3	TOTAL
GROSS FLOOR AREA	195.1 SF	433.3 SF	463.9 SF	1092.3 SF
COMMON AREAS	195.1 SF	0 SF	0 SF	195.1 SF
NET	195.1 SF	433.3 SF	463.9 SF	1092.3 SF

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 SUBMITTED FOR APPROVAL: NOV. 4, 2013
 APPROVED FOR CONSTRUCTION: NOV. 12, 2014
 SUBMITTED FOR APPROVAL: MAR. 21, 2014
 APPROVED FOR CONSTRUCTION: APR. 11, 2014
 NUMBER OF CONSTRUCTION PERMITS: 1

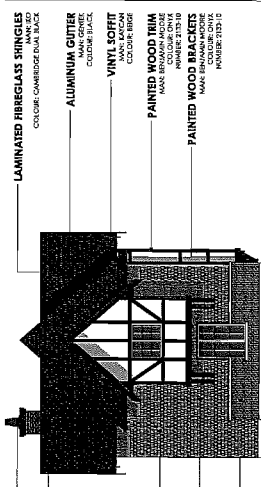
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 FORMWERKS ARCHITECTURAL LTD.
 100 JAY WEST BRIDLEWAY LTD.
 VANCOUVER, BC V6J 1Y1
 TEL: 604-271-1111

FORMWERKS ARCHITECTURAL
 1005 West 25th Ave., Vancouver, BC V6J 1H0
 Phone: 604-509-1009

PROJECT
JAYDEN MEWS
 9700 ALEXANDRA ROAD
 RICHMOND, B.C.

DRAWING
 AMENITY COLOUR SCHEME

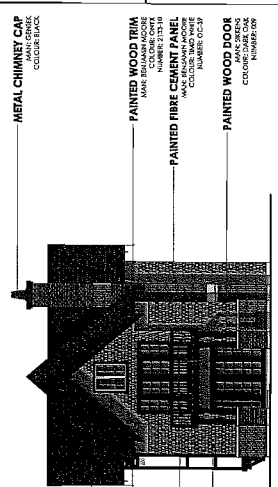
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DATE JUNE 2013
SHEET AB1.00



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COLOUR: [blank]
- LAMINATED FIBREGLASS SHINGLES
COLOUR: CAMBRIDGE DUAL BRICK
- PAINTED WOOD GABLE FINIAL
MANUFACTURER: [blank]
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NUMBER: 312110
- PAINTED FIBRE CEMENT PANEL
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- STAINED CEDAR SHINGLE
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COLOUR: [blank]
- BRICK SIDING
COLOUR: [blank]

- LAMINATED FIBREGLASS SHINGLES
COLOUR: CAMBRIDGE DUAL BRICK
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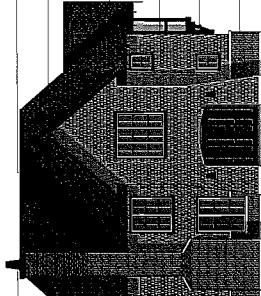
COLOUR SCHEME C
RIGHT SIDE ELEVATION



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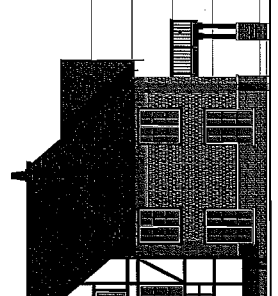
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COLOUR: [blank]
NUMBER: 312110

COLOUR SCHEME C
LEFT SIDE ELEVATION



- METAL CHIMNEY CAP
COLOUR: [blank]
- BRICK SIDING
COLOUR: [blank]
- STAINED CEDAR SHINGLE
COLOUR: [blank]
- ALUMINIUM GUARD
COLOUR: [blank]
- PAINTED WOOD TRIM
MANUFACTURER: [blank]
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NUMBER: 312110

COLOUR SCHEME C
FRONT ELEVATION



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COLOUR: CAMBRIDGE DUAL BRICK
- ALUMINIUM GUTTER
COLOUR: [blank]
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COLOUR: [blank]
NUMBER: 312110
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MANUFACTURER: [blank]
COLOUR: [blank]

COLOUR SCHEME C
REAR ELEVATION



City of
Richmond

Development Application Data Sheet
Development Applications Division

RZ 13-649641

Attachment 3

Address: 9700 and 9740 Alexandra Road

Applicant: Polygon Development 296 Ltd.

Planning Area(s): West Cambie

	Existing	Proposed
Owner:	Polygon Development 296 Ltd.	Same
Site Size (m²):	12,150.05 m ² gross area (130,782 ft ²)	11812.16 m ² (127,145 ft ²) net of dedications Road dedication = 337.89 m ²
Land Uses:	Single-Family Residential	Multi-Family Residential
OCP Designation:	Neighbourhood Residential	Same
Area Plan Designation: (West Cambie Area Plan)	Residential Area 2; 0.65 base FAR (Max. 0.75 FAR with density bonusing for affordable housing). Two- and three-storey Townhouses.	Same
Zoning:	Two-Unit Dwellings (RD1) and Single Detached (RS1/F)	"Town Housing (ZT71) – Alexandra Neighbourhood (West Cambie)"
Number of Units:	2 single family dwellings	Approximately 64
Other Designations:	75% of the site is designated Environmentally Sensitive Area	Portions of the site will be retained and enhanced as natural areas. It is proposed that the ESA designation be adjusted through a subsequent OCP amendment.

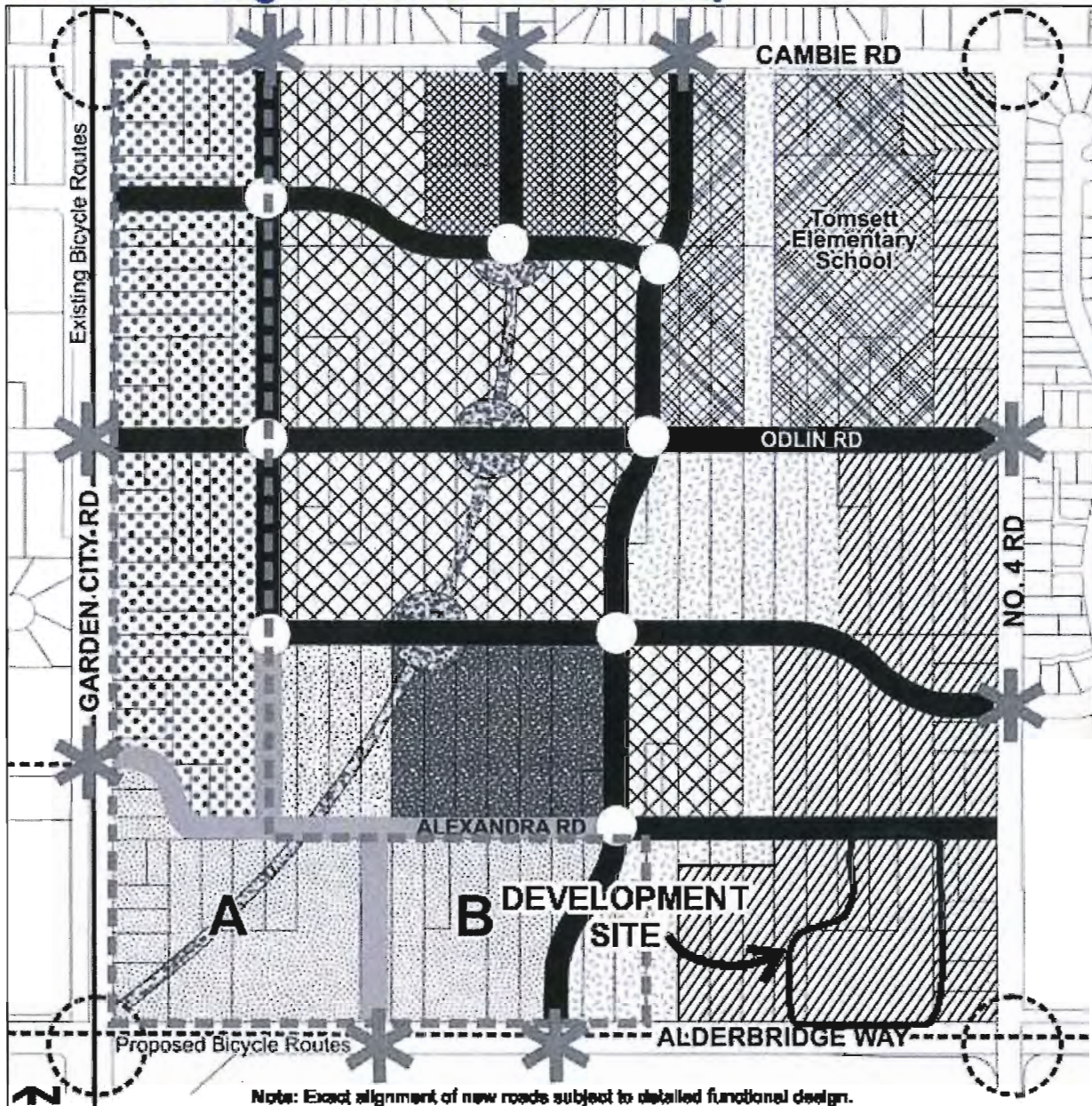
On Future Subdivided Lots	Bylaw Requirement	Proposed	Variance
Density (units/acre):	N/A	64/3.00 = 21.93 upa	None permitted
Floor Area Ratio:	Max. 0.65 or 0.75 with affordable housing contribution per West Cambie Area Plan	0.72 with a voluntary cash contribution of \$678,107.00 based on a net buildable of 91,120.59 ft ²	None permitted
Lot Coverage – Building:	Max. 40%	33%	None
Lot Size (min. area):	10,000 m ²	11812.16 m ² net (127,145 ft ²)	None

CNCL - 303

On Future Subdivided Lots	Bylaw Requirement	Proposed	Variance
Setback – Front Yard (m):	Min. 3.0 m for amenity building; 4.0 m for all other buildings	Min. 3.0 m for amenity building; 4.0m for all other buildings m Min.	None
Setback – Side Yards (m):	Min. 3.0 m	Min. 3.0 m	None
Setback – Rear Yard (m):	Min. 4.0 m	Min. 4.0 m to 6.0 m	None
Height (m):	12.2 m	12.2 m	None
Off-street Parking Spaces – Regular (R) / Visitor (V):	98 (R) and 13 (V) per unit (1.5 R / 0.2 V)	152 (R) and 13 (V) per unit	None
Off-street Parking Spaces – Total:	111	165	None
Stalls with Electrical Plug-ins	25% = 32 stalls	64 stalls	None
Enclosed Tandem Parking Spaces:	Permitted	72 tandem spaces within 36 units (56.25%)	Variance 8 stalls over
Bicycle Stalls	Class 1: 1.25/unit (80) Class 2: 0.20/unit (13)	Class 1: 87 Class 2: 13	None
Amenity Space – Indoor:	Min. 100 m ² (1,076 ft ²)	213.86 m ² (2,302 ft ²)	None
Amenity Space – Outdoor:	6.0 m ² (64.59 ft ²) per unit 384 m ² total	1,411.01 m ² (15,188 ft ²)	None

Other: Tree replacement compensation required for loss of significant trees.

Alexandra Neighbourhood Land Use Map



Note: Exact alignment of new roads subject to detailed functional design.

Area of No Housing Affected by Aircraft Noise	Residential Area 2 0.65 base FAR (Max. 8.75 FAR with density bonusing for affordable housing) 2 & 3-storey Townhouses	Park: North Park Way, Central Park, South Park Way
Business/Office - office over retail FAR up 1.25	Mixed Use: Hotel, office and streetfront retail commercial Area A: Min. 1.25 FAR up to 2.0 Area B: Large and small floor plate up to 1.0 FAR	Alexandra Way (Public Rights of Passage Right-of-way)
Convenience Commercial	Mixed Use: • abutting the High Street, medium density residential over retail, • not abutting the High Street, medium density residential 1.25 base FAR. Building heights low to mid-rise. (Max. 1.50 FAR with density bonusing for affordable housing)	Proposed Roadways
Residential Area 1 1.50 base FAR (Max. 1.70 FAR with density bonusing for affordable housing). Townhouse, low-rise Apts. (4-storey typical)	Community Institutional	High Street
Residential Area 1A 1.50 base FAR (Max. 1.75 FAR with density bonusing for affordable housing). Townhouse, low-rise Apts. (6-storey maximum)		New Traffic Signals
Residential Area 1B 1.66 base FAR (Max. 1.88 FAR with density bonusing for affordable housing) (8-storey maximum)		Feature Intersections - details to be developed
		Feature Landmarks in Combination with Traffic Calming Measures



April 17, 2014

Mr. Chris Ho
Polygon Development 296 Ltd.
Suite 900 - 1333 West Broadway
Vancouver, BC
V6H 4C2

Dear Mr. Ho:

**Re: DRAFT Report of Findings – Biophysical Assessment
9700 and 9740 Alexandra Road, Richmond, BC
Project No. 11800 (v2.0)**

We have enclosed one copy of the report titled *DRAFT Report of Findings – Biophysical Assessment – 9700 and 9740 Alexandra Road, Richmond, BC* (version 2.0). We are pleased to submit this report to the Polygon Construction. If you have any questions, please do not hesitate to contact us.

Sincerely,

Keystone Environmental Ltd.

DRAFT

Craig S. Patterson, B.Sc.
Project Manager

11800 140417 DRAFT Biophysical Assessment updated.docx

Encl.

**DRAFT REPORT OF FINDINGS
BIOPHYSICAL ASSESSMENT**

**9700 and 9740 Alexandra Road
Richmond, BC**

Prepared for:

**POLYGON DEVELOPMENT 296 LTD.
Suite 900 – 1333 West Broadway
Vancouver, BC
V6H 4C2**

Prepared by:

**KEYSTONE ENVIRONMENTAL LTD.
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Project No. 11800

April 2014

CNCL - 307

EXECUTIVE SUMMARY

Keystone Environmental Ltd. (Keystone Environmental) was contracted by Polygon Developments to conduct a Biophysical Assessment on a proposed development located at 9700 and 9740 Alexandra Road in Richmond, BC.

The objectives of this study were as follows:

- Conduct an environmentally-based literature and database search on the property and surrounding areas, including applicable fisheries, wildlife and habitat databases.
- Perform a Site reconnaissance to assess flora, fauna and habitat features, and the collection of applicable biophysical information and photographic documentation.
- Complete a report, which contains study findings, identifies potential habitat sensitivities, and provided recommendations.
- Develop and present an Environmental Balance Sheet, detailing and quantifying habitat currently present and comparing to future landscaping plans.
- Present within this report, advisement and recommendations on developing within an Environmentally Sensitive Area (ESA), as per City of Richmond bylaws.

An assessment of the Site was conducted on July 29, 2013 and on February 5, 2014, according to the City of Richmond's *Criteria for the Protection of Environmentally Sensitive Areas, 2001*. Tree species noted in the assessment included birch, pine, cherry, Douglas fir, cedar, apple and alder; in total, 65 trees were surveyed. Throughout the Site, a dense understory of shrubs and herbs were noted. Fauna observed on-Site included a variety of songbirds and other passerines; no mammals, amphibians or reptiles were noted on-Site. Barn owls and barred owls had been previously documented as roosting on-Site, however no evidence of owls was visible during the field surveys. In the comparison between vegetation currently present on-Site and the proposed landscaping (designed by ETA landscape architecture), the environmental balance sheet shows an improvement in habitat quality in the future development. Based on City bylaws and Site observations, a number of recommendations were made, with the general theme of retaining the trees on-Site habitat values and/or incorporating habitat values, such as songbird habitat into the proposed development.

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LIST OF ACRONYMS

ASL	ABOVE SEA LEVEL
BC	BRITISH COLUMBIA
BEC	BIOGEOCLIMATIC ECOSYSTEM CLASSIFICATION SYSTEM
BMPs	BEST MANAGEMENT PRACTICES
CDC	BRITISH COLUMBIA CONSERVATION DATA CENTRE
CMN	COMMUNITY MAPPING NETWORK
COSEWIC	COMMITTEE ON THE STATUS OF ENDANGERED WILDLIFE IN CANADA
CWHxm	COASTAL WESTERN HEMLOCK VERY DRY MARITIME
DFO	FISHERIES AND OCEANS CANADA
EA	ENVIRONMENTAL ASSESSMENT
EOR	ELEMENT OCCURRENCE RECORD
ESA	ENVIRONMENTALLY SENSITIVE AREA
FISS	FISHERIES INFORMATION SUMMARY SYSTEM
MFLNRO	BRITISH COLUMBIA MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS
MOE	BRITISH COLUMBIA MINISTRY OF ENVIRONMENT
OCP	OFFICIAL COMMUNITY PLAN
RISC	RESOURCE INVENTORY STANDARDS COMMITTEE
ROW	RIGHT-OF-WAY
SARA	<i>SPECIES AT RISK ACT</i>
SHIM	SENSITIVE HABITAT AND INVENTORY MAPPING
VEC	VALUED ECOSYSTEM COMPONENTS

1. INTRODUCTION

Keystone Environmental Ltd. (Keystone Environmental) was contracted by Polygon Development 296 Ltd., to conduct a Biophysical Assessment at 9700 and 9740 Alexandra Road, located in Richmond, BC (the Site). On these properties, the southern portion (approximately 9000 m²) is designated as an Environmentally Sensitive Area (ESA) (City of Richmond, 1999). These ESAs are identified as areas with ecological value, forming links between conservation areas/parks (in this case, between the ESA at Shell Road and the Nature Park), or are lands that are part of the Agricultural Land Reserve. The City has adopted the *Environmentally Sensitive Areas Guidelines, 1999* (and its companion document *Criteria for the Protection of Environmentally Sensitive Areas, 2001*) to conserve and protect ESAs. This report was prepared in response to the City of Richmond's requirement that an assessment be conducted prior to issuing a development permit approval, to address potential impacts to the Environmentally Sensitive Area (ESA). As required by these guidelines, with the aim of assessing the habitat values of these properties, an assessment of the vegetation and wildlife present was conducted.

1.1 Site Description

The Site is located on the south side of Alexandra Road between Garden City Road and No. 4 Road in the City of Richmond, BC. The Site is currently occupied by two residences, a duplex residence and a single residence. The Site is bordered to the north by Alexandra Road and by residential properties to the west, south and east, as shown on Figure 1 (Appendix A).

The stratigraphy of the Site consists of bog, swamp, and shallow lake deposits of postglacial age. This unit consists of lowland peat up to 8 m thick, in part overlying overbank sandy to silt loam over deltaic and distributary channel fill (Geological Survey of Canada Map 1486A, 1979).

The local groundwater flow direction may vary as a result of local conditions, such as topography, geology and the presence of drainage channels and buried utilities, and is subject to confirmation with field measurements. Based on the relatively flat local topography, the local groundwater flow direction is inferred to be variable and indeterminate. With the exception of drainage ditches (located adjacent to the north of the Site) the closest waterbody is the Middle Arm of the Fraser River, located approximately 1.8 km northwest of the Site.

1.2 Scope of Assessment

The scope of work for this study included the following tasks:

- Conduct an environmentally-based literature and database search on the property and surrounding areas including applicable fisheries, wildlife and habitat databases.
- Perform a Site reconnaissance to assess flora, fauna and habitat features, and the collection of applicable biophysical information and photographic documentation.
- Complete a report, identifying study findings, potential habitat sensitivities, and recommendations.

Spatial boundaries for this assessment included the proposed Site's footprint (approximately 1.2 ha) and surrounding habitats. The surrounding habitats were bordered by Alexandra Road to the north, Alderbridge Way to the south, housing and No. 4 Road to the east, and the open grass area of 9620/ 9626 Alexandra Road to the west. Temporal boundaries encompass the existing land use of the study area and the construction and post-construction phases of the project.

1.3 Regulatory Framework

Regulatory framework applicable to the project includes:

- City of Richmond Official Community Plan – Bylaw 7100, Environmentally Sensitive Area Guidelines, Section 9.6 – March 15, 1999
- Government of Canada *Species at Risk Act 2002* - Schedule 1
- Government of British Columbia *Wildlife Act 1996* – Sections 5, 6
- Government of Canada *Wildlife Act 1985*
- Government of Canada *Fisheries Act 2012*
- Government of Canada *Migratory Bird Convention Act 1994*

2. DESCRIPTION OF THE EXISTING ENVIRONMENT

The biophysical attributes of 9700 and 9740 Alexandra Road are described by major type: terrestrial flora and fauna and their habitats, including adjacent agricultural lands habitats with potential influence on terrestrial ecosystem composition.

Field investigations were used to confirm environmental information collected during the background literature review and to identify and record other potential Valued Ecosystem Components (VECs) that could be impacted by the proposed project. The likely presence of wildlife, birds, aquatic life and habitat at risk in the project area was also assessed during field surveys. Photographs, representing and describing the biophysical elements in the study area, are provided in Appendix B.

2.1 Terrestrial Flora and Fauna Background Information

Database, reference manual, and map searches were conducted to identify recorded ESAs or threatened and endangered species on-Site or in the vicinity using the following provincial and federal on-line databases:

- BC Ministry of Forests, Lands and Natural Resource Operations Conservation Data Centre (CDC) species lists and Element Occurrence Reports (EOR)
- Committee on the Status of Endangered Wildlife in Canada (COSEWIC)
- Community Mapping Network (CMN) Sensitive Habitat and Inventory Mapping (SHIM)
- Environment Canada Species at Risk
- BC Biogeoclimatic Ecosystem Classification Map

The on-line search of the CDC database for known occurrences of rare wildlife, plants, and ecological communities within 5 km of the Site was conducted and revealed two records of an animal observation and two records of plant observations. Details of these four CDC EORs and a list of the BC Species and Ecosystems Explorer search results for species at risk with potential to occur in the study area are provided in Appendix C:

-
- An occurrence record for the northern water-meal (*Wolffia borealis*) was identified approximately 2 km south-east of the Site. This species is identified as Red Listed and was last observed in 1980. The plant is found in lakes, ponds, and open water habitats (MoE CDC, 2011a).
 - An occurrence record for the Northern Red-legged Frog (*Rana aurora*) was identified approximately 2.2 km south of the Site. This species is identified as Blue-Listed and was last observed in 2004, when one adult, four juveniles and six unclassified frogs were observed in a backyard pond.
 - Occurrence records (three) for the Vancouver Island beggarticks (*Bidens amplissima*) were identified approximately 2.5 km northeast, 1.8 km southeast and 1.7 km south of the Site. This species is identified as Blue-Listed and was last observed in 2012.
 - An occurrence record for the white sturgeon (*Acipenser transmontanus*) was identified in the Fraser River, approximately 1.8 km east of the Site. This species is identified as Red-listed and was last observed in 2004. This species prefers broad, shallow side channels with cobble/gravel bars and islands (MoE CDC, 2013).

Vegetation and wildlife habitat units were identified using aerial photographic interpretation. Fieldwork conducted on July 29, 2013 and on February 5, 2014 involved further defining and confirming the unit's vegetation and wildlife characteristics. Vegetation was identified and described using Plants of Coastal British Columbia (Pojar and MacKinnon, 2004).

Wildlife surveys followed the British Columbia Resource Inventory Standards Committee (RISC) protocols and methodologies (RISC 1999, 1998). The focus of the wildlife assessment was to identify presence and/or potential breeding habitat for rare or threatened (i.e., Red- or Blue-listed) vertebrate and invertebrate animal species of management concern as listed by:

- The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (October, 2011)
- Schedule 1 of the *Species at Risk Act* (Government of Canada, 2002)
- the British Columbia Conservation Data Centre's Animal Tracking List for the Chilliwack Forest District (October, 2011)

Bird surveys focused on identifying the presence/not-detected status of rare birds listed in the CDC and COSEWIC lists. Habitat usage was evaluated by direct nest identification, faecal wash, prey remains, feathers or any other signs indicating that birds may inhabit the area. The searches were completed in order to verify active use within the Site's habitat units, primarily by raptors (i.e., hawks and owls), and/or by songbirds, herons or other bird species. Based on these visual observations, the occurrences of nests were classified as "present" or "not detected." Significant cavity trees and/or wildlife trees with the potential to serve as roosting sites were also investigated for diurnal and nocturnal bird presence and/or use.

Large (>500 grams) and small (<500 grams) mammal presence was recorded based on signs of presence: scat, tracks, forage/browse indicators, scrapings, and direct field observation/reported sightings. The terrestrial invertebrate and herpetofauna assessments involved identification of habitats (i.e., ponded/pooled water areas) typically used by species of management concern. Habitat units defined during the vegetation survey were cross-referenced with the life requisites of species of management concern (Red- or Blue-listed) to evaluate potential occurrence and habitat usage in the study area.

2.2 Vegetation Assemblages

The project area lies within the dry maritime subzone of the Coastal Western Hemlock (CWHxm) biogeoclimatic zone as indicated by the BC Biogeoclimatic Ecosystem Classification Map. The elevation limits range from sea level to approximately 900 m a.s.l. (Pojar *et al.*, 1991). The CWH zone is characterized by cool summers and mild winters. The forests are dominated primarily by western hemlock (*Tsuga heterophylla*) with frequent occurrences of western red cedar (*Thuja plicata*) throughout the zone south of 56°N latitude and Douglas-fir (*Pseudotsuga menziesii*) south of Dean Channel. Common deciduous trees include black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), red alder (*Alnus rubra*), and bigleaf maple (*Acer macrophyllum*). In the natural understorey of the CWH dry maritime subzone, the shrub layer is dominated by salal (*Gaultheria shallon*), dull Oregon-grape (*Mahonia nervosa*), and red huckleberry (*Vaccinium parvifolium*). Various species of moss and fern are also common throughout the zone.

Table 2-1 lists the provincial Red- and Blue-Listed species that could potentially occur in the study area. Table 2-2 lists the ecological communities at risk that could potentially occur in the study area. The potential for occurrence within the study area was based on database searches for species at risk occurring within the Chilliwack Forest District; Richmond is located within this district.

Table 2-1 Provincial Red- and Blue Listed Plant Species Potentially Occurring in the Study Area

Scientific Name	Common Name	Provincial Status	SARA Status	COSEWIC Status	Potential for Occurrence	Comments ¹
<i>Bidens amplissima</i>	Vancouver Island beggaricks	Blue	Special Concern	Special Concern	Yes	Previously observed 1.7km from the site. Frequently found in wetlands in the lower Fraser Delta and on Vancouver Island. It occupies a variety of wetland habitats including ditches, willow wetlands, old riverbeds, pond margins, streambanks, and tidal or non-tidal river edges.
<i>Fissidens pauperculus</i>	poor pocket moss	Red	Endangered	Endangered	No	There are no detailed published accounts of habitat for the species in BC. A description of habitat in Lynn Canyon as was a silty outcrop within a stream and a silt cliff.
<i>Lupinus rivularis</i>	streambank lupine	Red	Endangered	Endangered	No	Wet to moist meadows and riverbanks in the lowland zone.

¹ Habitat requisites were extracted from the BC Ministry of the Environment, Species and Ecosystem Explorer and Conservation Data Centre website, BC Conservation Data Centre: Species Summary Reports unless otherwise cited (CDC-2011a).

Table 2-2 Provincially Red- and Blue-listed Ecological Plant Communities Potentially Occurring in the Study Area

Scientific Name	Common Name	Provincial Status	Potential Occurrence in Study Area
<i>Carex lasiocarpa</i> - <i>Rhynchospora alba</i>	slender sedge - white beak-rush	Red	No
<i>Carex sitchensis</i> - <i>Oenanthe sarmentosa</i>	Sitka sedge - Pacific water-parsley	Blue	No
<i>Distichlis spicata</i> var. <i>spicata</i> Herbaceous Vegetation	seashore saltgrass Herbaceous Vegetation	Red	No
<i>Leymus mollis</i> ssp. <i>mollis</i> - <i>Lathyrus japonicus</i>	dune wildrye - beach pea	Red	No
<i>Myrica gale</i> / <i>Carex sitchensis</i>	sweet gale / Sitka sedge	Red	No
<i>Picea sitchensis</i> / <i>Rubus spectabilis</i> Very Dry Maritime	Sitka spruce / salmonberry Very Dry Maritime	Red	No
<i>Pinus contorta</i> / <i>Sphagnum</i> spp. Very Dry Maritime	lodgepole pine / peat-mosses Very Dry Maritime	Blue	No
<i>Populus trichocarpa</i> - <i>Alnus rubra</i> / <i>Rubus spectabilis</i>	black cottonwood - red alder / salmonberry	Blue	Yes
<i>Populus trichocarpa</i> / <i>Salix sitchensis</i>	black cottonwood / Sitka willow	Blue	No
<i>Pseudotsuga menziesii</i> / <i>Mahonia nervosa</i>	Douglas-fir / dull Oregon-grape	Red	No
<i>Pseudotsuga menziesii</i> - <i>Pinus contorta</i> / <i>Racomitrium canescens</i>	Douglas-fir - lodgepole pine / grey rock-moss	Red	No
<i>Pseudotsuga menziesii</i> / <i>Polystichum munitum</i>	Douglas-fir / sword fern	Blue	Yes
<i>Pseudotsuga menziesii</i> - <i>Tsuga heterophylla</i> / <i>Gaultheria shallon</i> Dry Maritime	Douglas-fir - western hemlock / salal Dry Maritime	Blue	Yes
<i>Rhododendron groenlandicum</i> / <i>Kalmia microphylla</i> / <i>Sphagnum</i> spp.	Labrador tea / western bog-laurel / peat-mosses	Blue	No
<i>Schoenoplectus acutus</i> Deep Marsh	hard-stemmed bulrush Deep Marsh	Blue	No
<i>Selaginella wallacei</i> / <i>Cladina</i> spp.	Wallace's selaginella / reindeer lichens	Blue	Yes
<i>Sidalcea hendersonii</i> Tidal Marsh	Henderson's checker-mallow Tidal Marsh	Red	No
<i>Thuja plicata</i> / <i>Carex obnupta</i>	western redcedar / slough sedge	Blue	No
<i>Thuja plicata</i> / <i>Lonicera involucrata</i>	western redcedar / black twinberry	Red	Yes

Scientific Name	Common Name	Provincial Status	Potential Occurrence in Study Area
<i>Thuja plicata</i> - <i>Picea sitchensis</i> / <i>Lysichiton americanus</i>	western redcedar - Sitka spruce / skunk cabbage	Blue	Yes
<i>Thuja plicata</i> / <i>Polystichum munitum</i> Very Dry Maritime	western redcedar / sword fern Very Dry Maritime	Blue	Yes
<i>Thuja plicata</i> / <i>Rubus spectabilis</i>	western redcedar / salmonberry	Red	Yes
<i>Thuja plicata</i> / <i>Tiarella trifoliata</i> Very Dry Maritime	western redcedar / three-leaved foamflower Very Dry Maritime	Blue	No
<i>Tsuga heterophylla</i> - <i>Pseudotsuga menziesii</i> / <i>Eurhynchium oregonum</i>	western hemlock - Douglas-fir / Oregon beaked-moss	Red	No
<i>Tsuga heterophylla</i> - <i>Thuja plicata</i> / <i>Blechnum spicant</i>	western hemlock - western redcedar / deer fern	Red	No
<i>Typha latifolia</i> Marsh	common cattail Marsh	Blue	No

2.3 Wildlife Habitat Units

Wildlife habitat was identified and defined during the fieldwork on July 29, 2013. Table 2-3 lists the plant species observed in the wildlife habitat.

Table 2-3 Plant Species Observed in the Study Area

Scientific Name	Common Name
Tree species	
<i>Alnus rubra</i>	red alder
<i>Betula papyrifera</i>	paper birch
<i>Thuja plicata</i>	western redcedar
<i>Pinus spp.</i>	pine
<i>Prunus spp.</i>	cherry
<i>Malus spp.</i>	apple
<i>Pseudotsuga menziesii</i>	Douglas fir
<i>Acer spp.</i>	Maple (small)
Shrub species	
<i>Rubus discolor</i>	Himalayan blackberry
<i>Sorbus sitchensis</i>	Sitka mountain-ash
<i>Rubus ursinus</i>	trailing blackberry
<i>Oemeleria cerasiformis</i>	Indian-plum
<i>Vaccinium alaskense</i>	Alaskan blueberry
<i>Vaccinium ovalifolium</i>	Oval-leaved blueberry
<i>Gaultheria shallon</i>	Salal
<i>Ilex aquifolium</i>	European holly
Herb species	
<i>Pteridium aquilinum</i>	bracken fern
<i>Ranunculus occidentalis</i>	Western buttercup
<i>Equisetum arvense</i>	common horsetail
<i>Hedera spp.</i>	Ivy
<i>Lonicera hispidula</i>	Hairy honeysuckle
<i>Lonicera ciliosa</i>	Western trumpet honeysuckle
Convolvulaceae	Morning glory
<i>Spiraea douglasii</i>	Hardhack
<i>Chamerion angustifolium</i>	Fireweed
Moss species	
<i>Homalothecium fulgescens</i>	yellow moss
Lichens	
n/a	Unidentified hair lichen
Fungus	
<i>Ganoderma applanatum</i>	Bracket fungus

The City of Richmond requirements (*Environmentally Sensitive Areas Guidelines* (1999)) for a biophysical study include a survey of all trees present on the site. This survey requires the measurement of the diameter of the tree trunk at breast height (dbh), determining the height, marking the coordinates of each tree and noting the elevation. Figure 1 (Appendix A) and Table 2-4 identifies the results of the tree survey conducted on July 29, 2013.

Table 2-4 Trees Present in Study Area – July 29, 2013

Tree Species		Diameter (dbh, cm)	Height (m)	Latitude (°)	Longitude (°)	Elevation* (masl)
1	<i>Betula papyrifera</i> Birch (Dead)	23 & 27	9.5	49.1774	123.1164	13.584
2	<i>Pinus spp.</i> Pine	28	10.1	49.1774	123.1164	11.662
3	<i>Betula papyrifera</i> Birch	50	8.7	49.1776	123.1161	4.932
4	<i>Betula papyrifera</i> Birch	21 & 38	11.4	49.1776	123.1162	7.336
5	<i>Betula papyrifera</i> Birch	32 & 30	13.9	49.1776	123.1160	5.173
6	<i>Betula papyrifera</i> Birch	36	10.7	49.1776	123.1160	5.173
7	<i>Betula papyrifera</i> Birch	37	12.9	49.1776	123.1160	3.971
8	<i>Betula papyrifera</i> Birch	38	6.0	49.1774	123.1160	2.289
9	<i>Betula papyrifera</i> Birch	5 x 26	2.2	49.1775	123.1160	4.211
10	<i>Betula papyrifera</i> Birch	36 & 30	19.3	49.1775	123.1159	3.25
11	<i>Betula papyrifera</i> Birch	23	19.3	49.1775	123.1159	3.01
12	<i>Betula papyrifera</i> Birch	28	6.2	49.1776	123.1160	9.739
13	<i>Betula papyrifera</i> Birch	24 & 18	10.7	49.1776	123.1159	8.297
14	<i>Betula papyrifera</i> Birch	36	13.0	49.1776	123.1159	3.25
15	<i>Betula papyrifera</i> Birch	24	7.7	49.1776	123.1158	6.615
16	<i>Betula papyrifera</i> Birch	36	9.6	49.1777	123.1157	6.615
17	<i>Betula papyrifera</i> Birch	17	7.7	49.1776	123.1157	4.211
18	<i>Betula papyrifera</i> Birch	21	4	49.1776	123.1157	4.692
19	<i>Betula papyrifera</i> Birch	27	16.8	49.1775	123.1158	-0.114
20	<i>Betula papyrifera</i> Birch	40	18.4	49.1774	123.1158	4.211
21	<i>Betula papyrifera</i> Birch	32	28.6	49.1775	123.1159	-0.595
22	<i>Betula papyrifera</i> Birch	46 & 2 x 19	12.3	49.1775	123.1158	4.211
23	<i>Betula papyrifera</i> Birch	36	16.1	49.1775	123.1158	2.529
24	<i>Betula papyrifera</i> Birch	21	3.6	49.1775	123.1157	0.607
25	<i>Betula papyrifera</i> Birch	28	10.5	49.1775	123.1156	3.731
26	<i>Betula papyrifera</i> Birch	33 & 30	23.1	49.1776	123.1156	10.22
27	<i>Betula papyrifera</i> Birch	35	33.2	49.1775	123.1156	10.7
28	<i>Betula papyrifera</i> Birch	26	13.0	49.1775	123.1157	1.808
29	<i>Betula papyrifera</i> Birch	23	9.5	49.1774	123.1156	1.087

	Tree Species		Diameter (dbh, cm)	Height (m)	Latitude (°)	Longitude (°)	Elevation* (masl)
30	<i>Betula papyrifera</i>	Birch	48 & 24	12.8	49.1775	123.1154	2.049
31	<i>Betula papyrifera</i>	Birch	36	18.6	49.1776	123.1155	3.49
32	<i>Betula papyrifera</i>	Birch	30	5.3	49.1776	123.1156	2.77
33	<i>Betula papyrifera</i>	Birch	22	16.3	49.1776	123.1156	2.289
34	<i>Prunus spp.</i>	Cherry	27	10.5	49.1774	123.1152	2.529
35	<i>Prunus spp.</i>	Cherry	48	17.3	49.1776	123.1154	2.049
36	<i>Prunus spp.</i>	Cherry	26	12.5	49.1776	123.1155	4.932
37	<i>Betula papyrifera</i>	Birch	43	13.2	49.1777	123.1155	3.971
38	<i>Betula papyrifera</i>	Birch	25	13.3	49.1777	123.1154	7.095
39	<i>Betula papyrifera</i>	Birch	2 x 25	14.5	49.1779	123.1156	5.413
40	<i>Betula papyrifera</i>	Birch	30	15.5	49.1780	123.1156	-3.479
41	<i>Prunus spp.</i>	Cherry	29	16.3	49.1780	123.1154	-2.037
42	<i>Prunus spp.</i>	Cherry	46	17.0	49.1780	123.1153	n/a
43	<i>Pseudotsuga menziesii</i>	Douglas Fir	90	29.0	49.1787	123.1151	2.529
44	<i>Pseudotsuga menziesii</i>	Douglas Fir	80	11.7	49.1788	123.1152	-1.316
45	<i>Thuja plicata</i>	Cedar	60	21.6	49.1784	123.1152	0.126
46	<i>Malus spp.</i>	Apple	2 x 26, 3 x 14	11.0	49.1779	123.1153	3.731
47	<i>Prunus spp.</i>	Cherry	17 & 15 & 12	11.0	49.1779	123.1153	2.289
48	<i>Betula papyrifera</i>	Birch	30 & 14	9.5	49.1779	123.1153	3.731
49	<i>Betula papyrifera</i>	Birch	17	7.8	49.1778	123.1153	n/a
50	<i>Betula papyrifera</i>	Birch	22 & 13	10.6	49.1778	123.1153	10.22
51	<i>Prunus spp.</i>	Cherry	23	14.7	49.1778	123.1153	9.979
52	<i>Prunus spp.</i>	Cherry	22	19.1	49.1778	123.1153	10.22
53	<i>Prunus spp.</i>	Cherry	17 & 10	12.8	49.1777	123.1153	n/a
54	<i>Betula papyrifera</i>	Birch	29	13.0	49.1779	123.1156	n/a
55	<i>Betula papyrifera</i>	Birch	40	25.0	49.1778	123.1152	1.087
56	<i>Alnus rubra</i>	Alder	16	8.2	49.1778	123.1152	13.104
57	<i>Betula papyrifera</i>	Birch	28	12.9	49.1777	123.1153	13.344
58	<i>Betula papyrifera</i>	Birch	31	22.6	49.1776	123.1151	9.979
59	<i>Betula papyrifera</i>	Birch	24	9.4	49.1777	123.1150	12.623
60	<i>Betula papyrifera</i>	Birch	33	10.4	49.1776	123.1151	11.662
61	<i>Betula papyrifera</i>	Birch	21	12.3	49.1780	123.1160	8.778
62	<i>Betula papyrifera</i>	Birch	20	10.0	49.1780	123.1159	6.374
63	<i>Pseudotsuga menziesii</i>	Douglas Fir	34	18.8	49.1780	123.1158	2.049
64	<i>Betula papyrifera</i>	Birch	17	7.1	49.1778	123.1163	14.305
65	<i>Betula papyrifera</i>	Birch	21	10.2	49.1779	123.1161	13.104

*masl = metres above sea level

Note: For some trees, more than one trunk was assessed if the sum was greater than 15 cm.

2.3.1 Habitat Area 1 – Hardhack-Fireweed-Blackberry Open Habitat

The Hardhack-Fireweed-Blackberry vegetative area encompassed about one-sixth of the site, situated north of the deciduous forest, south of the edge of the residential area (lawn) as indicated on the Habitat Survey (Figure 1, Appendix A). Hardhack (*Spiraea douglasii*) and fireweed (*Chamerion angustifolium*) composed the dominant shrub layer in the central part of this area, with thick brambles of blackberries (*Rubus discolor*) on the edges. The absence of overstorey tree vegetation limits songbird nesting habitat, but the hardhack thickets may be used for cover and feeding by species such as flycatchers (Tyrannidae), bushtits (*Psaltriparus minimus*), and black-capped chickadees (*Poecile atricapillus*). Where the over-storey opens and plant species diversity is higher under the tall shrubs, small mammals may find forage and cover habitat, however none were observed.

2.3.2 Habitat Area 2 – Deciduous-Dominated Mixed Community

This vegetative area encompassed about two-thirds of the site as indicated on the Habitat Survey (Figure 1, Appendix A). Vegetation was dominated by a mature tree canopy composed of paper birch (*Betula papyrifera*), with minor components of ornamentals such as cherry (*Prunus spp.*) and apple trees (*Malus spp.*). Coniferous trees were rare, including western red cedar (*Thuja plicata*), pine (*Pinus spp.*) and Douglas fir (*Pseudotsuga menziesii*) that were intentionally planted by homeowners. Epiphytes (mosses and lichens) were prominent on trunks and branches. Epiphytic growth on wildlife trees may also provide songbird shelter and thermal protection.

Numerous wildlife trees, including snags or dead stands, were scattered throughout the study area. Wildlife trees may provide nesting and perching locations for foraging raptors (including owls), while the cavities may provide roosting and nesting opportunities for secondary cavity nesters. The abundance of fruited vegetation in the understorey provided potential food for song birds and small mammal species.

The dominant shrub layer consisted of Himalayan blackberry (*Rubus discolor*) and Sitka mountain-ash (*Sorbus sitchensis*) throughout the forested area. The Himalayan blackberry, an invasive species, had formed thickets which precluded other native species from establishing. Also present in the shrub layer, Indian-plum (*Oemleria cerasiformis*) and salal (*Gaultheria shallon*) provide food for song-birds and small mammals. The herbaceous layer in the forested area (where breaks in the canopy allowed for sunlight penetration) was dominated by bracken fern (*Pteridium aquilinum*).

2.4 February 2014 Vegetation Survey

In order to augment our July 2013 Habitat Survey, detailed vegetation survey was conducted on February 5, 2014. Three quadrats (approximately 10m by 10m square) in Habitat 2 were randomly selected in the field (Figure 1, Appendix A). Once the quadrats were marked out, the quadrat was traversed in a systematic fashion, by walking parallel transects, roughly east to west, equally spaced across the quadrat. Plants on the south side of the transect line were identified and counted, and the quadrat was traversed in this manner until the north side of the quadrat was reached. Three quadrats, one generally in the center of Habitat 2 (102 m²), one in the west portion (85 m²) and one in the east portion (61 m²) were surveyed to represent the variations in vegetation in Habitat 2.

In order to generalize the vegetation present across Habitat 2, the results of the vegetation survey were extrapolated. Plant species counts were totaled across the three quadrats, then multiplied by a ratio of the total area of Habitat 2 (8,254 m²) over the total area surveyed (248 m²) to extrapolate the counts and represent the entire area of Habitat 2. Figure 1 (Appendix A) shows the location of the three quadrats sampled.

It is understood that February is not the preferred time of year to be conducting a vegetation survey. However, using bark, branching patterns, and leaf buds to identify plants, the results show that generally those plants that were present during the July 2013 survey were still present during the February 2014 survey.

The results of this vegetation survey are presented below in Table 2-5. These counts were then extrapolated to reflect the entire Habitat 2 (Deciduous-Dominated Mixed Community); see section 3.2 for further details.

Since Habitat 1 was generally impenetrable due to the dense growth of blackberries, a smaller area (1m by 1m) of hardhack and fireweed was counted, and the blackberry density was extrapolated assuming a maximum density of 525 canes/m² (California Invasive Plant Council, 2014) was present in nine-tenths of Habitat 1. It is understood that the blackberry is an invasive species, and is undesirable as vegetation cover and wildlife habitat.

Table 2-5 Vegetation Present in Study Quadrats – February 5, 2014

Common Name	Scientific Name	Species Counts		
		Quadrat 1 (centre) Area = 101.65 m	Quadrat 2 (East) Area = 85 m ²	Quadrat 2 (West) Area = 61 m ²
Trees				
Birch	<i>Betula papyrifera</i>	17	10	12
Western White Pine	<i>Pinus monticola</i>	1	-	-
Red Alder	<i>Alnus rubra</i>	1	-	-
Bitter Cherry	<i>Prunus emarginata</i>	1	2	10
Shrubs				
Himalayan blackberry	<i>Rubus discolor</i>	40025*	10	25620*
Oval-leaved blueberry	<i>Vaccinium ovalifolium</i>	98	-	-
Mountain Ash	<i>Sorbus sitchensis</i>	8	23	2
Alaskan Blueberry	<i>Vaccinium alaskanse</i>	31	-	-
Indian Plum	<i>Oemeleria cerasiformis</i>	5	10	-
Raspberry	<i>(Rubus idaeus / Rubus strigosus)</i>	4	31	11
Pacific yew	<i>Taxus brevifolia</i>	-	1	1
Un-identified Blueberry	<i>Vaccinium spp</i>	-	1	7
Holly	<i>Ilex aquifolium</i>	-	19	19
Groundcover				
Bracken Fern	<i>Pteridium aquilinum</i>	1	-	1
Ivy	<i>Hedera spp.</i>	1	319*	-

Note: Counts indicated with an asterisk are estimated from percent cover.

A secondary goal of the February 2014 Site visit was to investigate any current evidence of owls (barn owls (*Tyto alba*) and barred owls (*Strix varia*)) using the Site for roosting and hunting. Trees of a suitable size (>51 cm dbh [Allen, 1987]) required for owls to roost were not present on Site. Any evidence of habitat use by owls (“white-wash” i.e., feathers at the base of the tree, owl regurgitate i.e. pellets) was not noted on Site, nor were any small mammal burrows noted. Conversations with the resident indicated that they had seen owls flying between the residences on-Site in a north-south direction in the early mornings and evenings recently and frequently within the past year.

2.5 Wildlife

Wildlife utilization of a specific habitat area may be determined by a combination of field surveys (July 29, 2013 and February 5, 2014) and a review of the capability and suitability of habitat to support wildlife (RISC 1999). The BC Wildlife Habitat Rating Standards define “Habitat **Capability**” as the ability of a habitat, under the optimal natural (seral) conditions, to provide life requisites for a species irrespective of the current condition of the habitat. “Habitat **Suitability**” is defined as the ability of a habitat in its current condition to provide the life requisites of a species.

Two classification systems are used in conjunction to describe wildlife utilization within BC, the Ecoregion Classification System (ESC) and the Biogeoclimatic Ecosystem Classification (BEC) system (RISC 1999). The ESC is used to differentiate wildlife utilization within physiographically distinct units sustaining similar BEC components to complement the BEC system (Meidinger and Pojar, 1991).

Significant sampling effort would be required to ensure that all wildlife species within a study area are identified, therefore the assessment was limited to review of the habitat suitability to sustain wildlife based on an evaluation of habitat units (Meidinger and Pojar 1991). Site assessment used the known requirements of specific species of interest (RISC 1999) to evaluate suitability. The assessment of wildlife habitat values was undertaken primarily during transect sampling. Wildlife habitat attributes, direct observations, and incidental observations were recorded at the time of the field survey.

The application of direct and incidental observations to the assessment of wildlife suitability of the area was limited by the time of year during which the observations were made, providing only a qualitative “snap-shot” measure of wildlife species and diversity. The observations also enabled identification of habitats for critical life requirements (i.e., breeding) for various wildlife species. Other habitat attributes located within and adjacent to the Site were considered as they pertain to species of concern life requisites for breeding, such as canopy structure, percent cover, coarse woody debris and standing snags using methodology outlined in the MoF Handbook No. 25 (2010).

Habitat/vegetation units for the study area were defined and each unit was cross-referenced and rated for its value to potentially present wildlife species of concern using methodologies outlined in RISC 1999. Wildlife species were chosen based on each species’ life requirements

and the habitat available on or immediately surrounding the Site relative to the species of focus (i.e., plot-in-context). Species-specific surveys (i.e., trapping, electrofishing, or other population study methods or RISC sampling protocols) were not conducted at the time of the field survey.

Table 2-6 presents the wildlife species at risk that have the potential to occur in the study area. Potential breeding and/or forage habitat was found to be present for 6 of the 25 species on-Site.

2.5.1 Birds

Black-capped chickadee (*Poecile atricapillus*), flickers (*Colaptes auratus*), cedar waxwings (*Bombycilla cedrorum*), robins (*Turdus migratorius*), red-tailed hawk (*Buteo jamaicensis*) and goldfinches (*Carduelis spp.*) were sighted in the deciduous forest. During the July 29, 2013 field survey, two nests were sighted in birch trees in the central portion of the deciduous forest. They were observed for approximately 20 minutes with no birds observed using the nest, and no evidence nest being active was observed (i.e., white wash, feathers, etc.). An active flicker nest was observed within a dead birch hollow along the Alexandra Rd. right-of-way and adjacent to the west of the Site. No raptors, or evidence of, were observed during the field survey.

The presence of barn owls (*Tyto alba*) and barred owls (*Strix varia*) has been documented by owl specialist Sofi Hindmarch in 2010 on the Site utilizing the trees as roosts. While evidence of the presence of owls was not noted during the July 29, 2013 or the February 5, 2014, residents have spotted owls flying through the area recently.

2.5.2 Herpetofauna (Amphibians and Reptiles)

No amphibian or reptilian species were observed during the field surveys.

2.5.3 Small Mammals

Adult and juvenile muskrats (*Ondatra zibethicus*) were noted in the ditch immediately adjacent to 9740 Alexandra Rd. (Figure 1, North side), just beyond the property line, during the July 29, 2013 field survey. No small mammals were sighted on-Site during either field survey.

Table 2-6 Provincial Red- and Blue-listed Animal Species Potentially Occurring in the Study Area

Scientific Name	Common Name	Provincial Status	SARA Status	COSEWIC Status	Habitat Features Present	Comments ¹
<i>Accipiter gentilis laingi</i>	northern goshawk, laingi subsp.	Red	Threatened	Threatened	No	Occupies coastal western hemlock and coastal Douglas-fir forests with large stands of mature trees and dense canopies, but with open understoreys.
<i>Brachyramphus marmoratus</i>	marbled murrelet	Blue	Threatened	Threatened	No	Found in coastal areas, mainly in salt water within 2 km of shore, including bays and sounds; not uncommon up to 5 km offshore.
<i>Contopus cooperi</i>	olive-sided flycatcher	Blue	Threatened	Threatened	Yes	Most nesting sites contain dead standing trees. During the northern winter, this species occurs in a variety of forest, woodland, and open situations with scattered trees, especially where tall dead snags are present.
<i>Falco peregrinus anatum</i>	peregrine falcon, anatum subsp.	Red	Threatened	Special Concern	No	Typically nest on rock cliffs above lakes or river valleys where abundant prey is nearby.
<i>Megascops kennicottii kennicottii</i>	western screech-owl, kennicottii subsp.	Blue	Special Concern	Special Concern	Yes	Found in varied habitats including semi-open woodlands, treed suburban areas, and cactus desert. Generally found at lower elevation forested areas close to water.
<i>Patagioenas fasciata</i>	band-tailed pigeon	Blue	Special Concern	Special Concern	Yes	North American Coastal populations usually found below 1000 m in a variety of forest types, especially pine-oak, spruce, fir, Douglas-fir, redwood, cedar, hemlock and alder.
<i>Strix occidentalis</i>	spotted owl	Red	Endangered	Endangered	No	Dense forest and deep wooded canyons; generally in mature stands or old growth. Nests on broken tree tops, cliff ledges, and natural tree cavities/platforms.

Scientific Name	Common Name	Provincial Status	SARA Status	COSEWIC Status	Habitat Features Present	Comments ¹
<i>Tyto alba</i>	barn owl	Blue	Special Concern	Threatened	Yes	Prefers low elevation open country; especially agricultural areas, such as open fields, grasslands, farmsteads and orchards. Sometimes along edges of open woodlands and grassy estuaries and occasionally spotted in suburban areas. Use of suitable foraging habitat is limited by nest cavity requirements. Most often nests are located in human-made structures such as in wooden barns, concrete silos, church spires, airport hangers, water towers, bridges and nest boxes.
<i>Catostomus spp. 4</i>	Salish sucker	Red	Endangered	Endangered	No	Found in lakes, reservoirs, or small, lowland streams.
<i>Rhinichthys cataractae</i>	nooksack dace	Red	Endangered	Endangered	No	Riverine species. Adult habitat is riffles, typically with a loose coarse-gravel Substrate.
<i>Apłodontia rufa rufa</i>	mountain beaver, rufa subsp.	Blue	Special Concern	Special Concern	No	Associated with coniferous, mixed, and red alder forests on moist slopes or hillsides. It is commonly found near small streams or seeps.
<i>Sorex bendirii</i>	pacific water shrew	Red	Endangered	Endangered	No	Generally found in riparian and wetland habitats associated with skunk cabbage marshes, red alder riparian habitat, and dense wet forests of western red cedar.
<i>Danaus plexippus</i>	monarch	Blue	Special Concern	Special Concern	Yes	Utilises patches of milkweed for breeding in North America.
<i>Euphyes vestries</i>	dun skipper	Blue	Threatened	Threatened	No	Generally found in wetlands riparian zones, and grassland.
<i>Allogona townsendiana</i>	Oregon forestsnail	Red	Endangered	Endangered	Yes	Occupies mixed wood and deciduous forests, typically dominated by bigleaf maple.
<i>Chrysemys picta pop. 1</i>	western painted turtle - Pacific Coast pop. 1	Red	Endangered	Endangered	No	Aquatic species found in the shallow waters of ponds, lakes, marshes, and slow-moving stream reaches. Suitable wetlands have muddy substrates, an abundance of emergent vegetation, and numerous basking sites, such as logs and accessible banks.

Scientific Name	Common Name	Provincial Status	SARA Status	COSEWIC Status	Habitat Features Present	Comments ¹
<i>Rana pretiosa</i>	Oregon spotted frog	Red	Endangered	Endangered	No	Highly aquatic frog generally avoids dry uplands. It is rarely found far from permanent quiet water. Usually it occurs in vegetated shallows or grassy margins of streams, lakes, and ponds.
<i>Anaxyrus boreas</i>	Western Toad	Blue	Special Concern	Special Concern	No	Observed in a variety of aquatic and terrestrial habitats. They breed in shallow, littoral zones of lakes, temporary and permanent pools and wetlands, bogs and fens, and roadside ditches (i.e., toads may be found in all lacustrine and palustrine habitats).
<i>Ascaphus truei</i>	Coastal Tailed Frog	Blue	Special Concern	Special Concern	No	Clear, cold swift-moving mountain streams with coarse substrates. Primarily in older forest sites.
<i>Rana aurora</i>	Northern Red-legged Frog	Blue	Special Concern	Special Concern	No	Previously observed 2.2km from the site. Observed in a variety of aquatic and terrestrial habitats. They breed in shallow, littoral zones of lakes, temporary and permanent pools and wetlands, and bogs and fens regardless of size but in close proximity to forest.
<i>Aplodontia rufa rainieri</i>	mountain beaver, rainieri subsp.	Blue	Special Concern	Special Concern	No	Only common beavers have been observed in the surrounding wetlands and are trapped and removed where they create dams that may impinge stormwater flow.
<i>Ardea herodias fannini</i>	great blue heron, fannini subsp.	Blue	Special Concern	Special Concern	No	Observed in area foraging. The species is known to nest up to five kilometres from foraging grounds.
<i>Asio flammeus</i>	short eared owl	Blue	Special Concern	Special Concern	No	Broad expanses of open land with low vegetation for nesting and foraging are required.

¹ Habitat requisites were extracted from the BC Ministry of the Environment, Species and Ecosystem Explorer and Conservation Data Centre website, BC Conservation Data Centre: Species Summary Reports unless otherwise cited (CDC 2011a).

2.5.4 Large Mammals

No direct observations of large mammals occurred during the field surveys. Connectivity between the ESA on Site and the surrounding areas is limited to the south (Alderbridge Way is a busy, four-lane thoroughfare), the north (dense housing complex) and east (No. 4 Road is also a busy, multi-lane street); to the west, contiguous forest is broken by the open grass field on the next property. Due to the discontinuity of forest, the habitat range required by large mammals is not present on-Site.

2.5.5 Invertebrates

Flying insects such as dragonflies (Odonata) and butterflies (Lepidoptera) were observed in the study area during the July 29, 2013 field survey. One of the butterfly sightings was tentatively identified as a monarch butterfly (*Danaus plexippus*) or a viceroy butterfly (*Limenitis archippus*). Based on the area's habitat attributes, the Site has the potential to be butterfly habitat (open meadow), although it is not ideal monarch butterfly habitat (no milkweed present). Given that foraging opportunities for either the monarch or the viceroy butterfly are very limited in the area, this invertebrate species at risk are unlikely to be resident within the project footprint.

Table 2-7 lists all animal species observed during the field survey or on previous occasions in the study area.

Table 2-7 Animal Species Observed/Reported in the Study Area

Scientific Name	Common Name	Sign Observed
Mammals		
<i>Ondatra zibethicus</i>	Muskrat	Sighted in ditch in front of property
Birds		
<i>Parus atricapillus</i>	Black capped chickadee	Call /Sighted
<i>Colaptes auratus</i>	Flicker	Sighted
<i>Bombycilla cedrorum</i>	Cedar waxwing	Sighted
<i>Turdus migratorius</i>	Robin	Sighted
<i>Carduelis spp.</i>	Goldfinch	Sighted
Trochilidae	Hummingbird	Sighted
<i>Buteo jamaicensis</i>	Red-tailed hawk	Sighted

3. ENVIRONMENTAL BALANCE SHEET

3.1 Introduction

At the City of Richmond's request, an environmental balance sheet to parameterized the current habitat on Site, and compare it to the future habitat as designed by ETA landscape architecture (Figure 2, Appendix A), was conducted. While the City of Richmond does not have a structured environmental balance sheet in place with which to evaluate habitats, suggestions (pers. comm. Kaitlin Kazmierowski, January 22, 2014) included:

- area extent of habitat present, removed, replaced
- number trees present, removed, replaced
- area extent of enhancement
- comments on the intent of the enhancement (e.g. species selected to enhance use by birds for example)

In order to collect the data required for the environmental balance sheet, a vegetation survey was conducted on February 5, 2014 (Section 2.4).

3.2 Development of Environmental Balance Work Sheet

Based on the guidance provided by the City of Richmond, 20 parameters were selected for use in the Environmental Balance Sheet.

1. Percentage planted area/ total area
 - For the current scenario, this was the sum of the areas of Habitat 1 and 2 (9,419 m²) over the total area (12,136 m²)
 - For the future scenario, this was the sum of the Habitat buffer and Planted area throughout the Site (1,960 m²) over the total area (12,136 m²)
 - For this parameter, if the future scenario was greater than the current scenario it scores a "+1"; if the future scenario is less than the current scenario, it scores a "-1"
2. Density of planting (plants/ total area)
 - Either the extrapolated number of plants currently present on-Site or the total number of plants planned in the landscapers drawing, over the total area of the Site

- If the future scenario was greater than the current scenario it scores a “+1”; if the future scenario is less than the current scenario, it scores a “-1”
3. Density of planting (plants/ planted area)
- The extrapolated number of plants currently present or the total number of plants planned in the landscapers drawing, over the total planted area of the Site (9,419 m² currently, 1,960 m² in the future)
 - If the future scenario was greater than the current scenario it scores a “+1”; if the future scenario is less than the current scenario, it scores a “-1”.
4. Number of habitats present
- Currently on-Site, two distinct habitats are present (Hardhack-Fireweed-Blackberry Open Habitat and Deciduous-Dominated Mixed Community)
 - In the landscaper’s drawing, planned habitats include natural habitat buffers on the east, south and west sides of the Site, flowering gardens, and a rock garden/bioswale
 - Lawns are not included as habitats
 - If the future scenario was greater than the current scenario it scores a “+1”; if the future scenario is less than the current scenario, it scores a “-1”.
5. Number of desirable trees
- The total number of trees either present or planned that were not paper birch¹.
 - If the future scenario was less than the current scenario it scores a “+1”; if the future scenario is greater than the current scenario, it scores a “-1”
6. Percentage of invasive species
- The total number of invasive plants (blackberry species, holly, ivy) over the total number of plants (current and future)
 - If the future scenario was less than the current scenario it scores a “+1”; if the future scenario is greater than the current scenario, it scores a “-1”

¹ The paper birch is not considered to be a desirable tree due to its propensity to become infested with bronze birch borer beetle (*Agrilus anxius*), resulting in reduced health of the trees and possibly death.

7. Plant species diversity

- A count of the number of species present/planned
- If the future scenario was greater than the current scenario it scores a "+1"; if the future scenario is less than the current scenario, it scores a "-1"

8. Percentage of plants on City of Richmond's 'recommended' list

- As part of City of Richmond's *Criteria for the Protection of Environmentally Sensitive Areas* (2001) and the current guideline for assessing developments, 50% of the plants should be those listed under 'Native Plants Recommended for Planting'
- Current and future species lists scored "+1" for having greater than 50% of the listed plants, a score of "0" was rated if 50% to 20% of the plants present/listed were on the list, and "-1" if less than 20% of the plants were on recommended list

9. Percentage of native plants/total plants

- Native plants are important to sustaining BC's ecosystems, and hence are advantageous/recommended
- Current and future species lists scored "+1" for having greater than 50% native plants, a score of "0" was rated if 50% to 20% of the plants present/listed were native, and "-1" if less than 20% of the plants were native

10. Percentage of fruit bearing plants/total plants

- Fruit-bearing plants provide a food source for songbirds and other desirable wildlife
- Current and future species lists scored "+1" for having greater than 50% fruit-bearing plants, a score of "0" was rated if 50% to 20% of the plants present/listed were fruit-bearing, and "-1" if less than 20% of the plants were fruit-bearing

11. Percentage of flowering plants/total plants

- Flowering plants provide a food source for pollinators such as butterflies and bees
- Current and future species lists scored "+1" for having greater than 50% flowering plants, a score of "0" was rated if 50% to 20% of the plants present/listed were flowering, and "-1" if less than 20% of the plants were flowering

12. Average tree height

- The average height of all the trees was calculated (survey conducted July 2013)
- Tree height is an important component of suitable habitat for songbirds; an average tree height of 15 m or greater is required for the habitat to be suitable for black-capped chickadees (Schroeder, 1983)
- If the tree height average is 15 m or greater it scores a “+1”; if it’s less than 15 m, it scores a “0”

13. Number of trees

- A count of the number of trees was tallied (conducted July 2013)
- If the future scenario was greater than the current scenario it scores a “+1”; if the future scenario is less than the current scenario, the “-1”

14. Number of trees >51cm (diameter at breast height [dbh])/ planted area (ha)

- The diameter of all the trees was measured (survey conducted July 2013)
- Tree diameter is an important component of suitable habitat for owls; a tree diameter of 51 cm or greater is required for barred owls to roost in, and five or more tree of this size are required for the area to contain suitable habitat (Allen, 1987)
- If five or more trees have diameters of 51 cm or greater, the scenario scores a “+1”; if it’s less than the required criteria, it scores a “0”

15. Number of snags >51cm (at dbh)/ planted area (ha)

- Dead trees (snags) with a tree diameter of 51 cm or greater can also serve as habitat for barred owls (Allen, 1987). Note: barred owls were assumed to be a good surrogate species for barn owls
- If five or more trees have diameters of 51 cm or greater, the scenario scores a “+1”; if it’s less than the required criteria, it scores a “0”

16. Number of snags between 10 - 25cm (at dbh)/ planted area (ha)

- Tree diameter is an important component of suitable habitat for chickadee reproduction; an average tree diameter of 10 to 25 cm is required, and five or more trees of this size are required for the area to contain suitable habitat (Schroeder, 1983)

- If five or more trees have diameters of 10 to 25 cm, the scenario scores a “+1”; if it’s less than the required criteria, it scores a “0”

17. Percentage of canopy closure (area/total area)

- Canopy cover was estimated from aerial photographs and landscapers drawings
- Adequate canopy cover provides for suitable feeding and refuge habitat for chickadees (Schroeder, 1983)
- If canopy cover was 50 to 75% it scored a “+1”; if it’s less than 50%, it scores a “0”

18. Planted area vs robin home range

- The minimum home range of the American robin is 70 m² (Environment Canada, 2012)
- If the planted area was 70 m² or greater it scored a “+1”; if it’s less than 70 m², it scores a “0”

19. Planted area vs chickadee home range

- The average home range of the chickadees is 20,000 m² (Schroeder, 1983)
- If the planted area was 20,000 m² or greater it scored a “+1”; if it’s less than 20,000 m², it scores a “0”

20. Planted area vs barred owl home range (barred owls were assumed to be a good surrogate species for barn owls)

- The average home range of the barred owl is 2.3 km² (Allen, 1987)
- If the planted area was 2.3 km² or greater it scored a “+1”; if it’s less than 2.3 km², it scores a “0”

Within each parameter, the scores were evaluated (“+/-”), and then (if applicable) the score from the future scenario was subtracted from the current scenario for all parameters. All parameters were weighted evenly.

3.3 Results and Recommendations

The comparison of the current vegetation and the future planned landscape is presented in Table 3-1.

Table 3-1 Environmental Balance Sheet

	Positive +1	Neutral 0	Negative -1	Current		Future		'+/-
				value	score	value	score	
1	Future> Current	-	Future< Current	78%	-	16%	-	-1
2	Future> Current	-	Future< Current	230	-	0.98	-	-1
3	Future> Current	-	Future< Current	296	-	6.0	-	-1
4	Future> Current	-	Future< Current	2	-	3	-	+1
5	Future< Current	-	Future> Current	49	-	0	-	+1
6	Future< Current	-	Future> Current	99%	-	0%	-	+1
7	Future> Current	-	Future< Current	27	-	51	-	+1
8	> or = 50%		<50%	0.4%	-1	29%	-1	0
9	>50%	50-20	<20	0.7%	-1	54%	+1	+2
10	>50%	50-20	<20	99%	+1	31%	0	-1
11	>50%	50-20	<20	99%	+1	76%	+1	0
12	15m	<15m	0	13.4	0	44.5	+1	+1
13	Future> Current	Future< Current	-	65	-	118	-	+1
14	> or = 5	<5	-	3	0	0	0	0
15	> or = 5	<5	-	0	0	0	0	0
16	> or = 5	<5	-	14	+1	0	0	-1
17	50-75%	1 - 49%	0%	~60%	+1	5%	0	-1
18	> 70m ²	< 70m ²	-	>	+1	>	+1	0
19	> 20,000m ²	< 20,000m ²	-	<	0	<	0	0
20	> 2.3km ²	< 2.3m ²	-	<	0	<	0	0
SUM					3		5	
+/-								2

It is understood the proposed development will have a reduced vegetated area. Currently, 9,149 m² is vegetated, while future landscaping plans estimate 1,960 m² will be vegetated (these area totals do not include maintained lawn). Vegetated areas are currently dominated by Himalayan blackberry, an invasive species that prevents native species from spreading and flourishing, and birch trees that are prone to birch borer infestation. Replacement of these problematic plant species with native plants is considered a benefit to wildlife habitat on-Site and on surrounding areas.

Additional habitat benefits of the proposed landscape plan include:

- More diverse habitat types and vegetation species present.
- Vegetated buffers around Site provide wildlife habitat and maintain connectivity to adjacent properties.
- Invasive plant (i.e., Himalayan blackberries, ivy and holly) removal and management plan to prevent re-establishment of invasive plants.
- Increased number and variety of both fruiting and flowering plants in the area, and improved habitat values present.
- Planned stormwater management system to direct stormwater to dedicated areas on-Site, providing wetted areas and habitat diversity.

4. RECOMMENDATIONS

Based on the biophysical assessment conducted, the following are recommendations for future Site development planning to mitigate the effects associated with vegetation clearing:

- Fruit-bearing shrubs such as trailing blackberry (*Rubus ursinus*) provide songbird food source and habitat. Retention of these shrubs during development, or designing planting designs to include native species, such as thimbleberry/salmonberry (*Rubus spp.*) and red-osier dogwood (*Comus sericea*), rather than ornamentals would improve the likelihood of songbirds continuing to reside in this habitat.
- Since songbirds have been identified on-Site, it is recommended that the future planting plan focus on the enhancement of the landscaping as habitat for songbird and other pollinators (such as bees, butterflies and dragonflies). Increasing the size of the vegetation strip between this Site and the adjacent property to the west, 9580-9680 Alexandra Road (also currently planned for development), and at the southern edge of the properties (bordering Alderbridge Way), would increase the both the square area of habitat, as well as a habitat refuge corridor, where songbirds would be less likely to be disturbed by predators such as domestic cats. Pollinators such as mason bees (*Osmia spp.*) could also be encouraged to frequent the property and pollinate the flowers with the placement of mason bee homes.
- The Migratory Birds Convention Act (1994) protects songbirds, such as waxwings and flickers, from harm. Consideration for these species during construction must be given, including abstaining from removing trees during nesting period (so as not to kill nestlings) and not depositing substances that are harmful to migratory birds on-Site.
- Incorporating replacement wildlife tree snags amongst vegetated areas in the final development plan can replace the many birch trees and snags present on-Site that provide wildlife habitat.
- Recommendations for planting to provide food sources (seeds, insects, fruits) and roosting habitat for songbirds include the following vegetation species:

Scientific Name	Common Name
Deciduous Trees	
<i>Acer circinatum</i>	vine maple
<i>Acer macrophyllum</i>	big leaf maple
<i>Alnus rubra</i>	red alder
<i>Amelanchier canadensis</i>	serviceberry
<i>Betula papyrfera</i>	Paper birch
<i>Crataegus douglasii</i>	black hawthorn
<i>Malus fusca</i>	Pacific crabapple
Coniferous Trees	
<i>Picea sitchensis</i>	Sitka spruce
<i>Pseudotsuga menziesii</i>	Douglas fir
<i>Thuja plicata</i>	Western red cedar
Shrubs	
<i>Cornus sericea</i>	red-osier dogwood
<i>Cornus stolonifera</i>	red-twig dogwood
<i>Myrica pensylvanica</i>	bayberry
<i>Oemleria cerasiformis</i>	Indian plum
<i>Ribes sanguinuem</i>	red flowering currant
<i>Rosa rugosa</i>	rose
<i>Rubus parviflorus</i>	thimbleberry
<i>Rubus spectabilis</i>	salmonberry
<i>Sambucus racemosa</i>	red elderberry
<i>Sorbus sitchensis</i>	Sitka mountain-ash
<i>Symphoricarpus albus</i>	snowberry
Herbaceous Cover	
<i>Epilobium angustifolium</i>	fireweed
<i>Mainanthemum dilatam</i>	false-lily -of the-valley
<i>Fritillaria camschatcensis</i>	black lily
<i>Fritillaria lanceolata</i>	chocolate lily
<i>Cornus canadensis</i>	bunchberry
<i>Fragaria chiloensis</i>	coastal strawberry
<i>Arctostaphylos uva-ursi</i>	kinnikinnick

-
- Plantings should be in accordance with the City of Richmond's *Criteria for the Protection of Environmentally Sensitive Areas* (2000). While this guidance is now out-dated, the City of Richmond still evaluates planning plans against the plant species listed in 'Native Plants Recommended for Planting', and requires that at least 50% of the proposed plant species be from that list.
 - Retention of the mountain-ash/birch setback from Alderbridge Way as required by the City of Richmond. The City's *Criteria for the Protection of Environmentally Sensitive Areas* indicates that "All development across the road from sites designated as an agricultural land reserves must provide a minimum of 5 m (16.4 feet) landscaped strip as measured from the back of curb, or, in the case of an unopened road, from the property line abutting the road right of way."
 - Retention or development of green space, particularly as corridors between adjacent green spaces, is recommended in order to improve connectivity of habitats. In addition, ideally plantings in these green spaces would include native plant species and be representative of the forest successional stages and current habitats present on Site (i.e., plantings of fireweed and hardhack for butterfly habitat, forested areas with understory for songbird and small mammal habitat). All planting is required to conform to "BCSLA/BCNTA planting standards," as per the City of Richmond (1999).
 - Connectivity of vegetation corridors to allow for migration of birds and mammals, which in turn improves biodiversity, should be considered as part of the proposed landscaping plans. Since the Site and the neighbouring Site (9580-9680 Alexandra Road, adjacent to the west) are undergoing development at the same time, green space is planned to be maximized by abutting the vegetation perimeters of the two properties, doubling the vegetated square area and exponentially improving the wildlife habitat potential.
 - In order to develop the Site into multi-family residences, the Site will require pre-load fill in order for the soil present to support the new development and elevate the grade. As such, much of the current vegetation on-Site will require removal; one Douglas fir in the centre of the Site will be retained (as per landscapers design) and is should be protected by establishing a perimeter about the trunk, preventing pre-load from damaging the roots. Prior to Site clearing, liaison with Richmond's Tree Preservation Coordinator should occur, with the aim of identifying other significant trees (especially healthy trees and those important for wildlife) for their preservation or future replacement.

-
- As barn owls and barred owls were previously documented as on-Site, and still use the corridor between residents as part of their flight path, considerations to create owl habitat during construction would improve the future habitat. These considerations could include the construction of one or more free standing barn owl nest boxes, (i.e. on top of telephone-type poles, 4 metres above the ground), preferably towards the south end of the Site, situated near an open area, and with a 15m buffer of rough vegetation to provide some minimal cover for the owl (and to help prevent vandalism). These nest boxes should be cleaned out every few years, in order to maintain the nesting area within the nest box. Also, the addition of more wild features in the landscaping, particularly in the vicinity of the nest box, such as undergrowth, rough grass and dead trees/brush, was also recommended to improve the habitat for owls in the area. If building nest boxes on the property are not possible, the possibility of constructing nest boxes off-Site in suitable habitat should be explored.
 - A project invasive plant species management plan should be created to mitigate potential adverse effects to the park following Site clearing activities, with these areas re-seeded with native seed mixes and planted with native shrubs, as soon as possible after disturbance to discourage the re-establishment of invasive species. The Himalayan blackberry should be cleared from the Site, and prevented from re-establishing. Dense plantings of native species are another possible means of preventing re-introduction of invasive species. A management/ maintenance and monitoring plan should be implemented that covers the first three years after installation. The plan should incorporate sufficient instructions for the future land owners to continue appropriate monitoring and maintenance (trimming, removal of invasive species) of the landscaped areas.
 - On-Site stormwater management is recommended, including bioswales, permeable sidewalks and water features that incorporate stormwater flow into water features. Current plans present a “natural element” that will have rain leaders that lead to a rock bed and provide habitat for animal species, as well as a bioswales in the border between this development and the proposed development adjacent (to the west). Incorporating bioswales and wetlands provide multiple benefits to the Site: (a) stormwater runoff is managed, which minimizes erosion and diminishes the “flash” of water influx into the stormwater system (as well as minimizing the total volume of water that enters the stormwater system), (b) the demand for irrigation is reduced, and (c) the diversity of the habitats present on the property increases, resulting in an increase in wildlife diversity.

5. PROFESSIONAL STATEMENT

This report has been prepared and reviewed by Keystone Environmental Ltd.² 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 and discussions with available personnel and regulatory representatives, (ii) review of available records and the terms and conditions for the planned construction, and (iii) observations of the Site and surrounding lands. Consequently, while 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 and engineering profession, practising under similar circumstances in the area at the time of the performance of the work, this report is intended to provide information and to suggest mitigative strategies to reduce, but not necessarily eliminate, the potential for environmental impacts to occur as a result of planned construction activities at the Site. This report is meant to be a living and flexible document that can be used to provide guidance in the environmental assessment process.

This report has been prepared solely for the internal use of Polygon Development pursuant to the agreement between Keystone Environmental Ltd. and the Polygon Development as its submittal to the City of Richmond for the use by its Environmental Review Committee. By using this report, Polygon Development and the City of Richmond agree 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.

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We certify that the work described herein fulfills standards acceptable of a Professional Biologist.

April 17, 2014
Date

DRAFT

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Department Head, Risk Assessment & Biological Services

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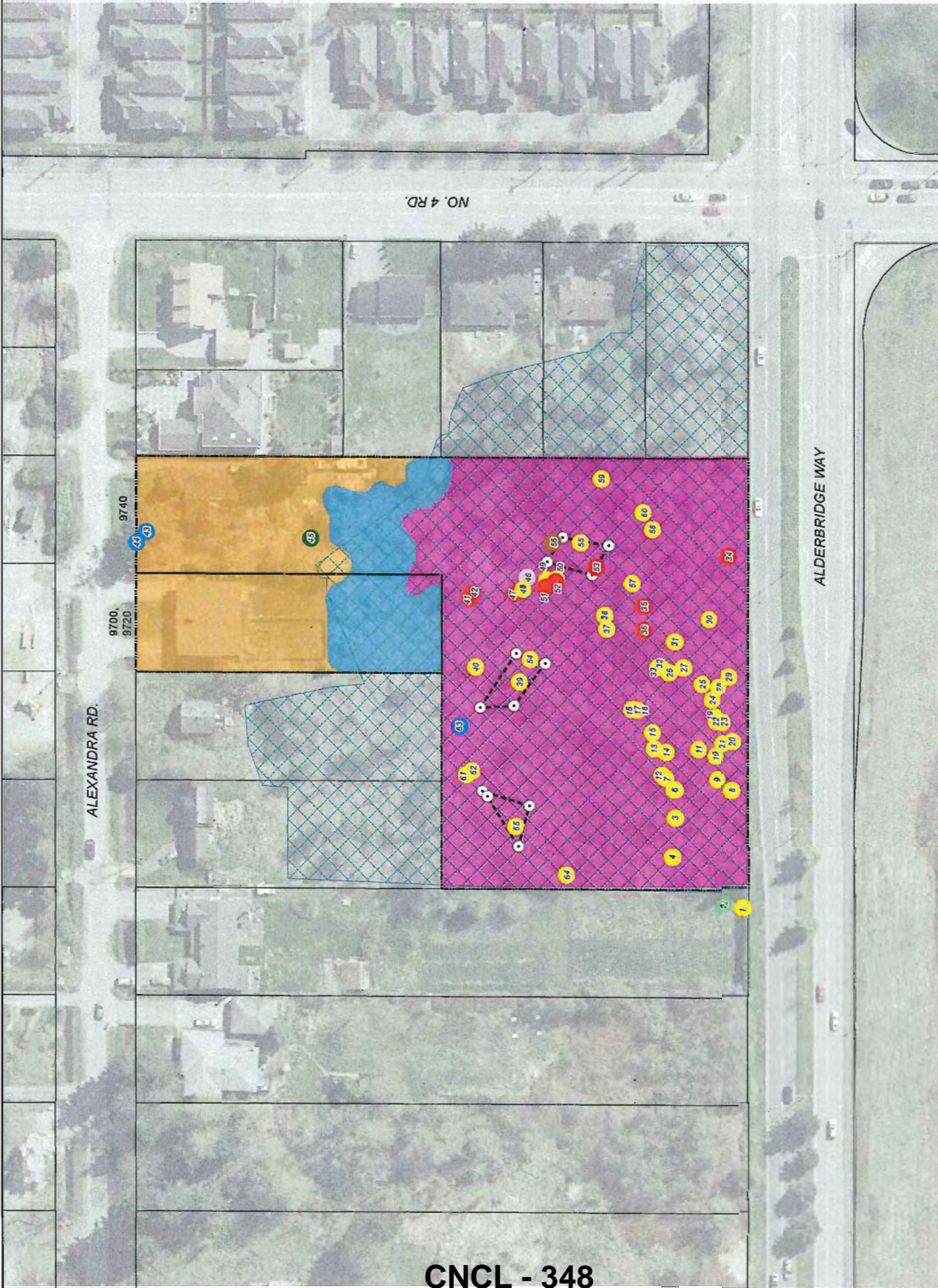
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APPENDIX A

FIGURES

DRAFT



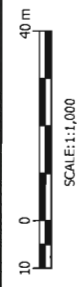
CNCL - 348

- Legend**
- Site
 - Property Lines
 - Environmentally Sensitive Area
 - Habitat Survey
 - Residential
 - Habitat 1 - Hardhack & Fireweed
 - Habitat 2 - Deciduous Forest
 - Survey Quad - GPS Waypoints
 - Survey Quad Areas
 - Tree Survey - Species
 - Birch
 - Pine
 - Cherry
 - Douglas Fir
 - Cedar
 - Apple
 - Alder



DRAWN BY: JM Document Path: I:\11800-1189011800\Phase 000104 - Biophys Assmt\Figs\Jan. 2014\11800-104-Fig1-Habitat Survey Feb 2014 Update-RA.mxd

NOTES: THIS DRAWING IS FOR GENERAL INFORMATION ONLY. LOT BOUNDARIES AND FEATURES ARE APPROXIMATE.



REVISION No.	A	DATE	Feb. 2014	PROJECT No.	11800-104
9700, 9720 & 9740 Alexandra Road			Richmond, BC		
Polygon Development 296 Ltd.					

Figure 1
Habitat Survey
February 2014 Survey Quads

APPENDIX B
PHOTOGRAPHIC PLATES



Photograph 1: Mixed deciduous-dominant forest habitat composed predominately of birch. A dense understorey of blackberries and mountain-ash is evident.



Photograph 2: Dense understory of Himalayan and Oval-leaved Blackberries present throughout Habitat 2.



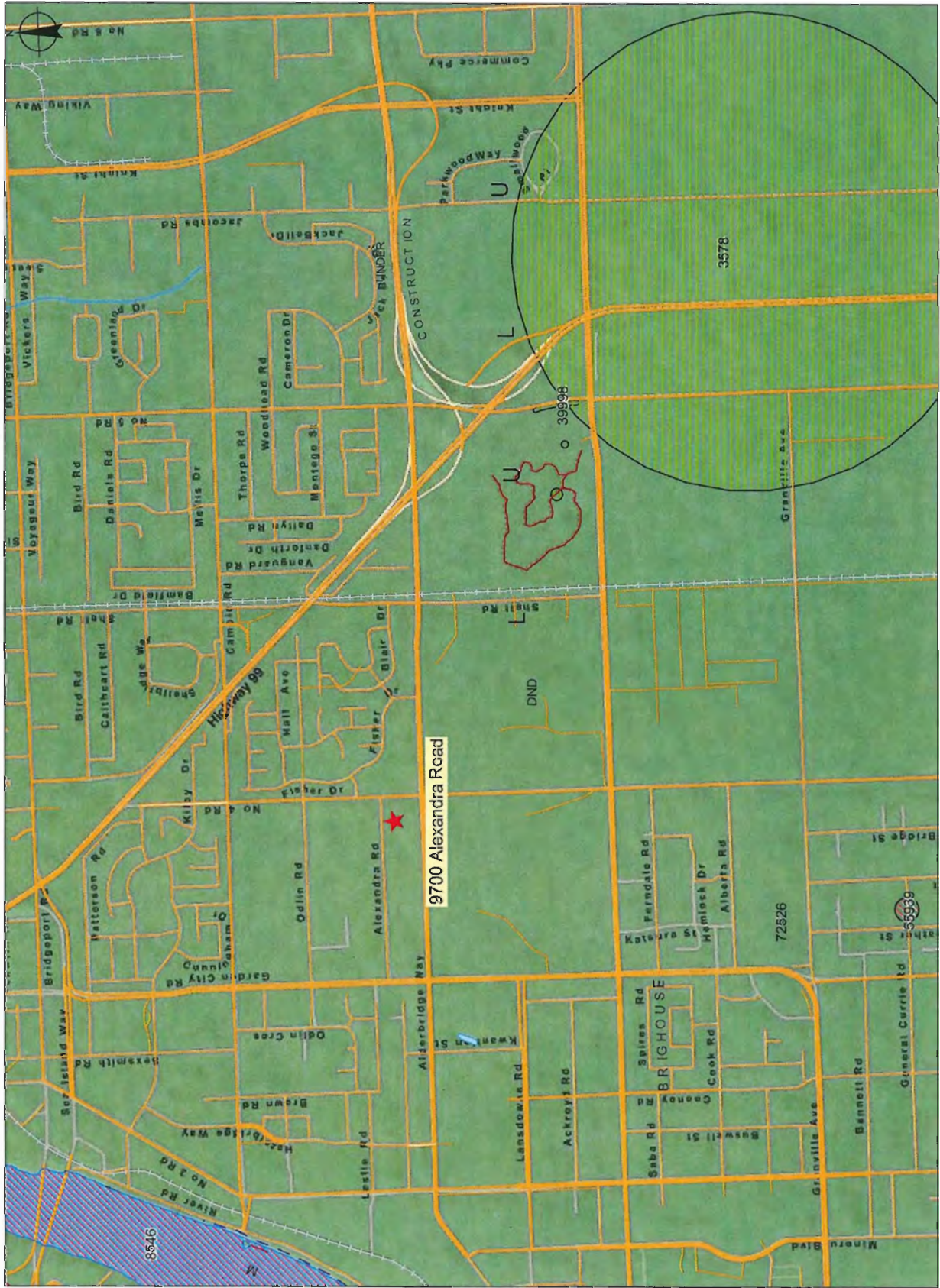
Photograph 3: Looking south from the Residential area (lawn) to Habitat 1 – fireweed/hardhack/blackberries (foreground) and Habitat 2 – Deciduous forest (background). Snags were present throughout Habitat 2, and nests were sighted in two trees.



Photograph 4: Snag along the adjacent property and road right of way to the west had two nesting cavities. A brood of flicker fledglings were sighted here during the field survey.

APPENDIX C

CONSERVATION DATA CENTRE SEARCH RESULTS



BC Species and Ecosystems Explorer Search Results

								Status	
Scientific Name	English Name	Provincial	BC List	COSEWIC	SARA	Global	CF	Priority	
<i>Accipiter gentilis laingi</i>	Northern Goshawk, <i>laingi</i> subspecies	S2B (2010)	Red	T (2013)	1-T (2003)	G5T2 (2008)		1	
<i>Acipenser medirostris</i>	Green Sturgeon	S1N (2004)	Red	SC (1987)	1-SC (2006)	G3 (2004)		2	
<i>Allogona townsendiana</i>	Oregon Forestsnail	S1S2 (2008)	Red	E (2013)	1-E (2005)	G3G4 (2010)		1	
<i>Anaxyrus boreas</i>	Western Toad	S3S4 (2010)	Blue	SC (2012)	1-SC (2005)	G4 (2008)		2	
<i>Aplodontia rufa rainieri</i>	Mountain Beaver, <i>rainieri</i> subspecies	S3 (2006)	Blue	SC (2012)	1-SC (2003)	G5T4 (1996)		1	
<i>Aplodontia rufa rufa</i>	Mountain Beaver, <i>rufa</i> subspecies	S3 (2006)	Blue	SC (2012)	1-SC (2003)	G5T4? (1996)		2	
<i>Ardea herodias fannini</i>	Great Blue Heron, <i>fannini</i> subspecies	S2S3B,S4N (2009)	Blue	SC (2008)	1-SC (2010)	G5T4 (1997)		1	
<i>Ascaphus truei</i>	Coastal Tailed Frog	S3S4 (2010)	Blue	SC (2011)	1-SC (2003)	G4 (2004)		1	
<i>Asio flammeus</i>	Short-eared Owl	S3B,S2N (2009)	Blue	SC (2008)	1-SC (2012)	G5 (2008)		2	
<i>Bidens amplissima</i>	Vancouver Island beggarticks	S3 (2008)	Blue	SC (2001)	1-SC (2003)	G3 (1988)		1	
<i>Brachyramphus marmoratus</i>	Marbled Murrelet	S3B,S3N (2010)	Blue	T (2012)	1-T (2003)	G3 (2013)		1	
<i>Catostomus</i> sp. 4	Salish Sucker	S1 (2010)	Red	T (2012)	1-E (2005)	G1 (2011)		1	
<i>Chrysemys picta</i> pop. 1.	Painted Turtle - Pacific Coast Population	S2 (2012)	Red	E (2006)	1-E (2007)	G5T2 (2007)		2	
<i>Contopus cooperi</i>	Olive-sided Flycatcher	S3S4B (2009)	Blue	T (2007)	1-T (2010)	G4 (2008)		2	
<i>Danaus plexippus</i>	Monarch	S3B (2013)	Blue	SC (2010)	1-SC (2003)	G5 (2011)		2	
<i>Euphyes vestris</i>	Dun Skipper	S2 (2013)	Red	T (2013)	1-T (2003)	G5 (2006)		2	
<i>Falco peregrinus anatum</i>	Peregrine Falcon, <i>anatum</i> subspecies	S2?B (2010)	Red	SC (2007)	1-SC (2012)	G4T4 (2006)		2	
<i>Fissidens pauperculus</i>	poor pocket moss	S1 (2011)	Red	E (2011)	1-E (2003)	G3? (2012)		2	
<i>Haliotis kamtschatkana</i>	Northern Abalone	S2 (2002)	Red	T (2000)	1-T (2003)	G3G4 (2010)		2	
<i>Lupinus rivularis</i>	streambank lupine	S1 (2009)	Red	E (2002)	1-E (2005)	G2G4 (2009)		1	
<i>Megascops kennicottii</i>	Western Screech-Owl,	S3 (2009)	Blue	T (2012)	1-SC	G5T4		1	

<i>kennicottii</i>	<i>kennicottii</i> subspecies					(2005)	(2003)	
<i>Patagioenas fasciata</i>	Band-tailed Pigeon	S3S4B (2009)	Blue	SC (2008)	1-SC (2011)	G4 (2000)		2
<i>Rana aurora</i>	Northern Red-legged Frog	S3S4 (2010)	Blue	SC (2004)	1-SC (2005)	G4 (2008)		1
<i>Rana pretiosa</i>	Oregon Spotted Frog	S1 (2010)	Red	E (2011)	1-E (2003)	G2 (2011)		1
<i>Rhinichthys cataractae</i> - <i>Chehalis lineage</i>	Nooksack Dace	S1 (2010)	Red	E (2007)	1-E (2003)	G3 (1996)		1
<i>Sorex bendirii</i>	Pacific Water Shrew	S1S2 (2010)	Red	E (2006)	1-E (2003)	G4 (2011)		1
<i>Strix occidentalis</i>	Spotted Owl	S1 (2009)	Red	E (2008)	1-E (2003)	G3 (2007)		2
<i>Tyto alba</i>	Barn Owl	S3 (2009)	Blue	T (2010)	1-SC (2003)	G5 (1996)		2

Search Summary

Time Performed Thu Jul 25 12:58:35 PDT 2013

Results 28 records.

Search Criteria Search Type: Plants & Animals
AND BC Conservation Status:Red (Extirpated, Endangered, or Threatened) OR Blue (Special Concern)
AND SARA Schedule 1 Status:True OR Provincial Wildlife Act Status:True
AND COSEWIC Status:Endangered OR Threatened OR Special Concern
AND Forest Districts:Chilliwack Forest District (DCK) (Restricted to Red, Blue, and Legally designated species)
AND MOE Regions:2- Lower Mainland (Restricted to Red, Blue, and Legally designated species)
AND Regional Districts: Metro Vancouver (MVRD) (Restricted to Red, Blue, and Legally designated species)
AND BGC Zone:CWH
Sort Order:Scientific Name Ascending

Notes 1. Citation: B.C. Conservation Data Centre. 2013. BC Species and Ecosystems Explorer. B.C. Minist. of Environ. Victoria, B.C. Available: <http://a100.gov.bc.ca/pub/eswp/> (accessed Jul 25, 2013).
2. Forest District, MoE Region, Regional District and habitat lists are restricted to species that breed in the Forest District, MoE Region, Regional District or habitat (i.e., species will not be placed on lists where they occur only as migrants).

BC Species and Ecosystems Explorer Search Results

Scientific Name	English Name	Biogeoclimatic Units	Status			Identified Wildlife	Land Use Objectives	CF Priority
			Provincial	BC List	Global			
<i>Carex lasiocarpa</i> - <i>Rhynchospora alba</i>	slender sedge - white beak-rush	CDFmm/Wf53 CWHmm1/Wf53 CWHmm2/Wf53 CWHxm1/Wf53 CWHxm2/Wf53	S2 (2004)	Red	G2			1
<i>Carex sitchensis</i> - <i>Oenanthe sarmentosa</i>	Sitka sedge - Pacific water-parsley	CWHvh2/Wm50 CWHwm/Wm50 CWHxm1/Wm50	S3 (2004)	Blue	G3		Haida Gwaii LUO	2
<i>Distichlis spicata</i> var. <i>spicata</i> Herbaceous Vegetation	seashore saltgrass Herbaceous Vegetation	CDFmm/Em03 CWHxm1/Em03	S2S3 (2008)	Red	GNR (2008)			2
<i>Leymus mollis</i> ssp. <i>mollis</i> - <i>Lathyrus japonicus</i>	dune wildrye - beach pea	CDFmm CWHdm CWHds1 CWHms2 CWHvh1 CWHvh2 CWHvm CWHvm1 CWHwh1 CWHwm CWHws1 CWHxm1 CWHxm2	S1S2 (2008)	Red	GNR			1
<i>Myrica gale</i> / <i>Carex sitchensis</i>	sweet gale / Sitka sedge	CDFmm/Wf52 CWHmm1/Wf52 CWHmm2/Wf52 CWHvh2/Wf52 CWHwm/Wf52 CWHxm1/Wf52 CWHxm2/Wf52	S2 (2004)	Red	G3		Haida Gwaii LUO	3
<i>Picea sitchensis</i> / <i>Rubus spectabilis</i> Very Dry Maritime	Sitka spruce / salmonberry Very Dry Maritime	CWHxm1/08 CWHxm2/08	S2 (2004)	Red	G3		Central and North Coast LUO South Central Coast LUO	2
<i>Pinus contorta</i> / <i>Sphagnum</i> spp. Very Dry Maritime	lodgepole pine / peat-mosses Very Dry Maritime	CWHxm1/11 CWHxm2/11	S3 (2004)	Blue	GNR			3
<i>Populus trichocarpa</i> - <i>Alnus rubra</i> / <i>Rubus spectabilis</i>	black cottonwood - red alder / salmonberry	CDFmm/08 CWHdm/09 CWHds1/09 CWHds2/09 CWHmm1/09 CWHms1/08 CWHms2/08 CWHvm1/10 CWHvm/06 CWHws1/08 CWHws2/08 CWHxm1/09 CWHxm2/09	S3 (2010)	Blue	GNR		Central and North Coast LUO South Central Coast LUO	2
<i>Populus trichocarpa</i> / <i>Salix sitchensis</i>	black cottonwood / Sitka willow	CWHdm/10 CWHxm1/10 CWHxm2/10	S2S3 (2004)	Blue	GNR		Central and North Coast LUO South Central Coast LUO	2

<i>Pseudotsuga menziesii</i> / <i>Mahonia nervosa</i>	Douglas-fir / dull Oregon-grape	CDFmm/01 CWHxm1	S2 (2010)	Red	G2	Y	1
<i>Pseudotsuga menziesii</i> - <i>Pinus contorta</i> / <i>Racomitrium canescens</i>	Douglas-fir - lodgepole pine / grey rock-moss	CWHxm1/02	S2 (2004)	Red	GNR		2
<i>Pseudotsuga menziesii</i> / <i>Polystichum munitum</i>	Douglas-fir / sword fern	CWHdm/04 CWHxm1/04 CWHxm2/04	S2S3 (2013)	Blue	G2G4	Central and North Coast LUO South Central Coast LUO	2
<i>Pseudotsuga menziesii</i> - <i>Tsuga heterophylla</i> / <i>Gaultheria shallon</i> Dry Maritime	Douglas-fir - western hemlock / salal Dry Maritime	CWHdm/03 CWHxm1/03 CWHxm2/03	S2S3 (2013)	Blue	G3G4	Central and North Coast LUO South Central Coast LUO	2
<i>Rhododendron groenlandicum</i> / <i>Kalmia microphylla</i> / <i>Sphagnum</i> spp.	Labrador tea / western bog-laurel / peat-mosses	CDFmm/Wb50 CWHdm/Wb50 CWHxm1/Wb50 CWHxm2/Wb50	S3 (2004)	Blue	G4		4
<i>Schoenoplectus acutus</i> Deep Marsh	hard-stemmed bulrush Deep Marsh	BGxh1/Wm06 BGxh2/Wm06 BGxw1/Wm06 BGxw2/Wm06 CDFmm/Wm06 CWHxm1/Wm06 ICHwk1/Wm06 IDFdk1/Wm06 IDFdk3/Wm06 IDFdk4/Wm06 IDFdk5/Wm06 IDFdm2/Wm06 IDFmw1/Wm06 IDFxm1/Wm06 IDFxm2/Wm06 IDFxm/Wm06 IDFxm/Wm06 MSdk/Wm06 MSdm2/Wm06 PPxh1/Wm06 PPxh2/Wm06 PPxh3/Wm06 SBPSmk/Wm06 SBPSxc/Wm06 SBSmk2/Wm06	S3 (2004)	Blue	G5		4
<i>Selaginella wallacei</i> / <i>Cladina</i> spp.	Wallace's selaginella / reindeer lichens	CDF CWHxm1 CWHxm2	S3	Blue	GNR		
<i>Sidalcea hendersonii</i> Tidal Marsh	Henderson's checker-mallow Tidal Marsh	CWHxm1/00	S1 (2004)	Red	G1		1
<i>Thuja plicata</i> / <i>Carex obnupta</i>	western redcedar / slough sedge	CWHdm/15 CWHxm1/15 CWHxm2/15	S2S3 (2013)	Blue	GNR		2
<i>Thuja plicata</i> / <i>Lonicera involucrata</i>	western redcedar / black twinberry	CWHdm/14 CWHxm1/14 CWHxm2/14	S1 (2010)	Red	GNR	Central and North Coast LUO South Central Coast LUO	1

<i>Thuja plicata</i> - <i>Picea sitchensis</i> / <i>Lysichiton americanus</i>	western redcedar - Sitka spruce / skunk cabbage	CWHdm/12 CWHds1/12 CWHds2/12 CWHmm1/12 CWHms1/11 CWHms2/11 CWHvh1/13 CWHvh2/13 CWHvm1/14 CWHwh1/12 CWHwh2/06 CWHws1/11 CWHxm1/12 CWHxm2/12	S3? (2004)	Blue	G3?	Central and North Coast LUO South Central Coast LUO	3
<i>Thuja plicata</i> / <i>Polystichum munitum</i>	western redcedar / sword fern Very Dry Maritime	CWHxm1/05 CWHxm2/05	S2S3 (2009)	Blue	GNR	Central and North Coast LUO South Central Coast LUO	2
<i>Thuja plicata</i> / <i>Rubus spectabilis</i>	western redcedar / salmonberry	CWHdm/13 CWHxm1/13 CWHxm2/13	S1S2 (2009)	Red	GNR	Central and North Coast LUO South Central Coast LUO	1
<i>Thuja plicata</i> / <i>Tiarella trifoliata</i>	western redcedar / three-leaved foamflower Very Dry Maritime	CWHxm1/07 CWHxm2/07	S2S3 (2013)	Blue	G3	Central and North Coast LUO South Central Coast LUO	2
<i>Tsuga heterophylla</i> - <i>Pseudotsuga menziesii</i> / <i>Eurhynchium oreganum</i>	western hemlock - Douglas-fir / Oregon beaked-moss	CWHxm1/01 CWHxm2/01	S2 (2013)	Red	G3G4	Central and North Coast LUO South Central Coast LUO	2
<i>Tsuga heterophylla</i> - <i>Thuja plicata</i> / <i>Blechnum spicant</i>	western hemlock - western redcedar / deer fern	CWHdm/06 CWHxm1/06 CWHxm2/06	S2 (2013)	Red	G2G3	Central and North Coast LUO South Central Coast LUO	2
<i>Typha latifolia</i> Marsh	common cattail Marsh	BGxh1/Wm05 BGxh2/Wm05 BGxw1/Wm05 BWBSmw/Wm05 CDFmm/Wm05 CWHdm/Wm05 CWHxm1/Wm05 CWHxm2/Wm05 IDFdk1/Wm05 IDFdk2/Wm05 IDFdk3/Wm05 IDFdk5/Wm05 IDFdm1/Wm05 IDFdm2/Wm05 IDFmw1/Wm05 IDFmw2/Wm05 IDFxh1/Wm05 IDFxh2/Wm05 IDFxm/Wm05 PPdh2/Wm05 PPxh1/Wm05 PPxh2/Wm05	S3 (2004)	Blue	G5		1

Search Summary

Time Performed Fri Jul 26 09:38:52 PDT 2013

Results 26 records.

Search Criteria Search Type: Ecological Communities
AND BC Conservation Status:Red (Extirpated, Endangered, or Threatened) OR Blue (Special Concern)
AND Forest Districts:Chilliwack Forest District (DCK)
AND MOE Regions:2- Lower Mainland
AND Municipalities: Richmond
AND BGC Zone, Subzone, Variant, Phase:CWHxm1
Sort Order:Scientific Name Ascending

Notes 1. Citation: B.C. Conservation Data Centre. 2013. BC Species and Ecosystems Explorer. B.C. Minist. of Environ. Victoria, B.C. Available: <http://a100.gov.bc.ca/pub/eswp/> (accessed Jul 26, 2013).

2. Biogeoclimatic Site Unit(s): This column indicates the BGC unit(s) on which each ecological community is known to occur (future inventories may indicate range extensions). The two digit number following the slash (01 and up) indicates that the ecological community occurs on a site series that is part of the B.C. Ministry of Forests (MOF) site series classification (see [MOF Regional Field Guides to Site Identification and Interpretation](#) for more information). A two digit number of '00' indicates that the ecological community occurs on a site unit that is not part of the MOF site series classification but is recognized from other vegetation and site classifications, and ecosystem mapping projects.

[Modify Search](#) | [New Search](#) | [Results](#)

APPENDIX D

KEYSTONE ENVIRONMENTAL LTD. GENERAL TERMS AND CONDITIONS FOR SERVICES

KEYSTONE ENVIRONMENTAL LTD.
GENERAL TERMS AND CONDITIONS FOR SERVICES

The terms and conditions set forth below govern all work or services requested by CLIENT as described and set forth in the Proposal of Keystone Environmental Ltd. ("Keystone") attached hereto, any Purchase Order issued by CLIENT or Agreement between Keystone and CLIENT. The provisions of said Proposal or Agreement govern the scope of services to be performed, including the time schedule, compensation, and any other special terms. The terms and conditions contained herein shall otherwise apply expressly stated to the contract or inconsistent with said Proposal or Agreement.

1. COMPENSATION

Unless otherwise stated in Keystone's Proposal, CLIENT agrees to compensate Keystone in accordance with Keystone's published rate schedules in effect on the date when the services are performed. Copies of the schedules currently in effect are attached hereto. Keystone's rate schedules are revised periodically; and Keystone will notify CLIENT of any such revisions and the effective date thereof which shall not be less than thirty (30) days after receipt of such notice. As to those services for which no schedule exists, Keystone shall be compensated on a time and materials basis as set forth in any change order executed pursuant to this Agreement.

2. PAYMENT

Unless otherwise agreed to in writing, invoices will be submitted monthly. Payment of invoices is due within thirty (30) days of receipt of the invoice. Invoices not paid within (30) days after date of receipt shall be deemed delinquent.

3. INDEPENDENT CONTRACTOR

Keystone shall be an independent contractor and shall be fully independent in performing the services of work and shall not act or hold themselves out as an agent, servant or employee of CLIENT.

4. KEYSTONE'S LIMITED WARRANTY

The sole and exclusive warranty which Keystone makes with respect to the services to be provided in the performance of the work is that they shall be performed in accordance with generally accepted professional practices and CLIENT's standards and specifications to the extent accepted by Keystone and shall be performed in a skillful manner.

In the event Keystone's performance of work, or any portion thereof, fails to conform with the above stated limited warranty, Keystone shall, at its discretion and its expense, proceed expeditiously to reperform the nonconforming, or upon the mutual agreement of the parties, refund the amount of compensation paid to Keystone for such nonconforming work. In no event shall Keystone be required to bear the cost of gaining access in order to perform its warranty obligations.

5. CLIENT WARRANTY

CLIENT warrants that: it will provide to Keystone all available information regarding the site, structures, facilities, buildings, and land involved with the work and that such information shall be true and correct; it will provide all licences and permits required for the work; that all work which it performs shall be in accordance with generally accepted professional practices; and it has title to or will provide right of entry or access to all property necessary to perform the work.

6. INDEMNITY

a. Subject to the limitations of Section 7 below, Keystone agrees to indemnify, defend and hold harmless CLIENT (including its officers, directors, employees and agents) from and against any and all losses, damages, liabilities, claims, suits, and the costs and expenses incident thereto (including legal fees and reasonable costs of investigation) which any or all of them may hereafter incur, become responsible for or pay out as a result of death or bodily injuries to any person, destruction or damage to any property, private or public, contamination or adverse effects on the environment or any violation or alleged violation of governmental laws, regulations, or orders, to the extent caused by or arising out of: (i) Keystone's errors or omissions or (ii) negligence on the part of Keystone in performing services hereunder.

b. CLIENT agrees to indemnify and hold harmless Keystone (including its officers, directors, employees and agents) from and against any and all losses, damages, liabilities, claims, suits and the costs and expenses incident thereto (including legal fees and reasonable costs of investigation) which any or all of them may hereafter incur, become responsible for or pay out as a result of death or bodily injuries to any person, destruction or damage to any property, private or public, contamination or adverse effects on the environment or any violation or alleged violation of governmental laws, regulations, or orders,



caused by, or arising out of in whole or in part: (i) any negligence or willful misconduct of CLIENT, (ii) any breach of CLIENT of any warranties or other provisions hereunder, (iii) any condition including, but not limited to, contamination existing at the site, or (iv) contamination of other property arising or alleged to arise from or be related to the site provided, however, that such indemnification shall not apply to the extent any losses, damages, liabilities or expenses result from or arise out of: (i) any negligence or willful misconduct of Keystone; or (ii) any breach of Keystone of any warranties hereunder.

7. **LIMITATION OF LIABILITY**

Keystone's total liability, whether arising from or based upon breach of warranty, breach of contract, tort, including Keystone's negligence, strict liability, indemnity or any other cause of basis whatsoever, is expressly limited to the limits of Keystone's insurance coverage. This provision limiting Keystone's liability shall survive the termination, cancellation or expiration of any contract resulting from this Proposal and the completion of services thereunder. After three (3) years of completion of Keystone's services, any legal costs arising to defend third party claims made against Keystone in connection with the project defined in the Proposal or Agreement will be paid in full by the CLIENT.

8. **INSURANCE**

Keystone, during performance of this Agreement, will at its own expense carry Worker's Compensation Insurance within limits required by law; Comprehensive General Liability Insurance for bodily injury and for property damage; Professional Liability Insurance for errors omissions and negligence; and Comprehensive Automobile Liability Insurance for bodily injury and property damage. At CLIENT'S request, Keystone shall provide a Certificate of Insurance demonstrating Keystone's compliance with this section. Such Certificate of Insurance shall provide that said insurance shall not be cancelled or materially altered until at least ten (10) days after written notice to CLIENT.

9. **CONFIDENTIALITY**

Each party shall retain as confidential all information and data furnished to it by the other party which relate to the other party's technologies, formulae, procedures, processes, methods, trade secrets, ideas, improvements, inventions and/or computer programs, which are designated in writing by such other party as confidential at the time of transmission and are obtained or acquired by the receiving party in connection with work or services performed subject to this Proposal or Agreement, and shall not disclose such information to any third party.

However, nothing herein is meant to prevent nor shall it be interpreted as preventing either Keystone or CLIENT from disclosing and/or using said information or data; (i) when the information or data is actually known to the receiving party before being obtained or derived from the transmitting party; or (ii) when the information or data is generally available to the public without the receiving party's fault; or (iii) where the information or data is obtained or acquired in good faith at any time by the receiving party from a third party who has the right to disclose such information or data; or (iv) where a written release is obtained by the receiving party from the transmitting party; or (v) as required by law.

10. **PROTECTION OF INFORMATION**

Keystone specifically disclaims any warranties expressed or implied and does not make any representations regarding whether any information associated with conducting the work, including the report, can be protected from disclosure in responses to a request by a federal, provincial or local government agency, or in response to discovery or other legal process during the course of any litigation involving Keystone or CLIENT. Should Keystone receive such request from a third party, it will immediately advise CLIENT.

11. **FORCE MAJEURE**

Neither party shall be responsible or liable to the other for default or delay in the performance of any of its obligations hereunder (other than the payment of money for services already rendered) caused in whole or in part by strikes or other labour difficulties or disputes; governmental orders or regulations; war, riot, fire, explosion; acts of God; acts of omissions of the other party; any other like causes; or any other unlike causes which are beyond the reasonable control of the respective party.

In the event of delay in performance due to any such cause, the time for completion will be extended by a period of time reasonably necessary to overcome the effect of the delay. The party so prevented from complying shall within a reasonable time of its knowledge of the disability advise the other party of the effective cause, the performance suspended or affected and the anticipated length of time during which performance will be prevented or delayed and shall make all reasonable efforts to remove such disability as soon as possible, except for labour disputes, which shall be solely within said party's discretion. The party prevented from complying shall advise the other party when the cause of the delay or default has ended, the number of days which will be reasonably required to compensate for the period of suspension and the date when performance will be resumed. Any additional costs or expense accruing or arising from the delaying event shall be solely for the account of the CLIENT.

12. **NOTICE**
Any notice, communication, or statement required or permitted to be given hereunder shall be in writing and deemed to have been sufficiently given when delivered in person or sent by facsimile, wire, or certified mail, return receipt requested, postage prepaid, to the address of the party set forth below, or to such address for either party as the party may be written notice designate.
13. **ASSIGNMENT/SUBCONTRACT**
Neither party hereto shall assign this Agreement or any part thereof or any interest therein without the prior written approval of the other party hereto except as herein otherwise provided. Keystone shall not subcontract the performance of any work hereunder without the written approval of CLIENT. Subject to the foregoing limitation, the Agreement shall inure to the benefit of and be binding upon the successors and permitted assigns of the parties hereto.
14. **ESTIMATES**
To the extent the work requires Keystone to prepare opinions of probable cost, for example, opinions of probable cost for the cost of construction, such opinions shall be prepared in accordance with generally accepted engineering practice and procedure. However, Keystone has no control over construction costs, competitive bidding and market conditions, costs of financing, acquisition of land or rights-of-way and Keystone does not guarantee the accuracy of such opinion of probable cost as compared to actual costs or contractor's bid.
15. **DELAYED AGREEMENTS AND OBLIGATIONS**
The performance by Keystone of its obligations under this Agreement depends upon the CLIENT performing its obligations in a timely manner and cooperating with Keystone to the extent reasonably required for completion of the Work. Delays by CLIENT in providing information or approvals or performing its obligations set forth in this Agreement may result in an appropriate adjustment of contract price and schedule.
16. **CONSTRUCTION PHASE**
To the extent the work is related to or shall be followed by construction work not performed by Keystone, Keystone shall not be responsible during the construction phase for the construction means, methods, techniques, sequences or procedures of construction contractors, or the safety precautions and programs incident thereto, and shall not be responsible for the construction contractor's failure to perform the work in accordance with the contract documents. Keystone will not direct, supervise or control the work of the CLIENT'S contractors or the CLIENT'S subcontractors.
17. **DOCUMENTATION, RECORDS, AUDIT**
Keystone when requested by CLIENT, shall provide CLIENT with copies of all documents relating to the service(s) of work performed. Keystone shall retain true and correct records in connection with each service and/or work performed and all transactions related thereto and shall retain all such records for twelve (12) months after the end of the calendar year in which the last service pursuant to this Agreement was performed. CLIENT, at its expense and upon reasonable notice, may from time to time during the term of this Agreement, and at any time after the date the service(s) were performed up to twelve (12) months after the end of the calendar year in which the last service(s) were performed, audit all records of Keystone in connection with all costs and expenses which it was invoiced.
18. **REPORTS, DOCUMENTS AND INFORMATION**
All field data, field notes, laboratory test data, calculations, estimates and other documents prepared by Keystone in performance of the work shall remain the property of Keystone. If required as part of the work, Keystone shall prepare a written report addressing the items in the work plan including the test results. Such report shall be the property of CLIENT, Keystone shall be entitled to retain three (3) copies of such report for its internal use and reference.

All drawings and documents produced under the terms of this Agreement are the property of Keystone, and cannot be used for any reason other than to bid and construct the project as described in the Proposal or Agreement.
19. **LIMITED USE OF REPORT**
Any report prepared as part of the work will be prepared solely for the internal use of CLIENT. Unless otherwise agreed by Keystone and CLIENT, parties agree that third parties are not to rely upon the report.
20. **SAMPLE MANAGEMENT**
Ownership of all samples obtained by Keystone from the project site is maintained by the CLIENT. Keystone will store such samples in a professional manner in a secure area for the period of time necessary to complete the project. Upon completion of the project, Keystone will return any unused samples or

portions thereof to the CLIENT or at Keystone's option dispose of the samples in a lawful manner and bill the CLIENT for all costs related thereto. Keystone will normally store samples for thirty (30) days. Written notice will be given to the CLIENT before finally disposing of samples.

21. **ACKNOWLEDGMENT AND RECOGNITION OF RISK**

CLIENT recognizes and accepts the work to be undertaken by Keystone may involve unknown undersurface conditions and hazards. CLIENT further recognizes that environmental, geologic, hydrological, and geotechnical conditions can and may vary from those encountered by Keystone at the times and locations where it obtained data and information and that limitations on available data may result in some uncertainty with respect to the interpretation of these conditions. CLIENT recognizes that the performance of services hereunder or the implementation of recommendations made by Keystone in completing the work required may alter the existing site conditions and affect the environment in the site area.

Unknown undersurface conditions, including underground utility services, tanks, pipes, cables and other works (Underground Works) may be present at the site. Keystone will conduct utility locates to obtain available information regarding the location of Underground Works in accordance with industry practice. Utility locates are not a guarantee of the location of, or existence of, Underground Works and as a result damage to Underground Works may occur. Keystone relies on utility locates and Client provided "as-built" and record drawings to determine the location and existence of Underground Works. CLIENT recognizes that the use of utility locates is not a guarantee or warranty that Underground Works may not be damaged and acknowledges that Keystone is not responsible for any damage caused to Underground Works or the repair of such damage or any resulting or related damage and any costs related to such damage.

22. **DISPOSAL OF CONTAMINATED MATERIAL**

It is understood and agreed that Keystone is not, and has no responsibility as, a generator, operator or storer of pre-existing hazardous substances or wastes found or identified at work sites. Keystone shall not directly or indirectly assume title to such hazardous or toxic substances and shall not be liable to third parties.

CLIENT will indemnify and hold harmless Keystone from and against all incurred losses, damages, costs and expenses, including but not limited to attorneys' fees, arising or resulting from actions brought by third parties alleging or identifying Keystone as a generator, operator, storer or owner of pre-existing hazardous substances or wastes found or identified at work sites.

23. **SUSPENSION OR TERMINATION**

In the event the work is terminated or suspended by CLIENT prior to the completion of the services contemplated hereunder, Keystone shall be paid for: (i) the services rendered to the date of termination or suspension, (ii) the demobilization costs, and (iii) the costs incurred with respect to noncancelable commitments.

24. **GOVERNING LAW**

This Agreement shall be governed by and interpreted pursuant to the laws of the Province of British Columbia.

25. **HEADINGS AND SEVERABILITY**

Any heading preceding the text of sections hereof is inserted solely for convenience or reference and shall not constitute a part of the Agreement and shall not effect the meanings, context, effect or construction of the Agreement. Every part, term or provision of this Agreement is severable from others. Notwithstanding any possible future finding by duly constituted authority that a particular part, term or provision is invalid, void or unenforceable, this Agreement has been made with the clear intention that the validity and enforceability of the remaining parts, terms and provision shall not be affected thereby.

26. **ENTIRE AGREEMENT**

The terms and conditions set forth herein constitute the entire Agreement and understanding of the parties relating to the provision of work or services by Keystone to CLIENT, and merges and supersedes all prior agreements, commitments, representation, writings, and discussions between them and shall be incorporated in all work orders, purchase orders and authorization unless otherwise so stated therein. The terms and conditions may be amended only by written instrument signed by both parties.



**Keystone
Environmental**

Knowledge-Driven Results

June 3, 2014

Mr. David Brownlee
City of Richmond
6911 No. 3 Road
Richmond, BC
V6Y 2C1

Dear Mr. Brownlee:

**Re: Habitat Assessment in Environmentally Sensitive Area
9700 & 9740 Alexandra Road, Richmond, BC
Project No. 11800**

This letter summarizes *DRAFT Report of Findings – Biophysical Assessment*, Keystone Environmental, April 15, 2014, and provides details regarding our assessment of the site (9700 & 9740 Alexandra Road, Richmond).

Based on mapping layers provided by the City of Richmond Interactive Map¹ and the biophysical assessment conducted by Keystone Environmental in July 2013², the Environmentally Sensitive Area (ESA) present on site was split into two distinct Habitats. Habitat 1 consisted of 831 m² of ‘Hardhack-Fireweed-Blackberry Open Habitat’ contained within the ESA, while Habitat 2 consisted of 8,253m² of ‘Deciduous-Dominated Mixed Community’, also within the ESA (Table 1). It is our opinion that Habitat 1 and a 1,318 m² portion of Habitat 2 (Figure 1) do not meet the criteria for ESA Upland Forest as defined by the City of Richmond. Table 1 summarizes the habitat values present in both areas.

	Fish and Fish Habitat	Vegetation Diversity and Health	Wildlife Habitat Connectivity	Invasive Species Presence	Overall Rank
Habitat 1	N/A	Low	Low	High	Low
Habitat 2	N/A	Moderate	Low	High	Low

Table 1: Summary of Habitat Values - 9700 & 9740 Alexandra Road.

The remaining 6,935 m² area in Habitat 2 is considered low value habitat due to a high density of invasive Himalayan blackberries and die-back of paper birch (possibly due to birch borer infestation). This area has ornamental fruit trees interspersed throughout, and does not have significant representation of other tree species listed in the ESA definition of Upland Forest (i.e. western red cedar, western hemlock, black cottonwood, etc.). Based on the City of Richmond requirement to provide an

¹ <http://rim.richmond.ca/rim/Viewer.aspx?Site=RIM&ReloadKey=True>, accessed July 2013

² Keystone Environmental (2014) *DRAFT Report of Findings – Biophysical Assessment*. 9700 & 9740 Alexandra Road, Richmond, BC. Project No. 11800 (v2.0). April 15, 2014.

aerial based assessment and overall habitat balance for proposed development within an ESA, we are recommending a replacement habitat ratio of 1:0.25 (impact habitat to replacement habitat) to represent the low ESA habitat values or components present on-site. Using this calculation, 1,733 m² of habitat will be present at the completion of the proposed development.

The landscape plans, developed by ETA landscape architecture, are presented in Figure 2. Based on this figure, the total retained habitat, habitat buffer area and planted areas throughout the development is approximately 1,750 m². The planned landscaping includes enhanced habitat values (including a stormwater collection area for wetland species), including native species and fruiting species, and orients green spaces north and south to serve as potential wildlife corridors, allowing for connectivity with green spaces located to the northwest of the site across Alexandra Road and south of the site across Alderbridge Way.

Sincerely,

Keystone Environmental Ltd.

Original signed by

Original signed by

Craig S. Patterson, B.Sc.
Project Manager

Jennifer Trowell, M.ET.
Risk Assessment and Biology Department

cc. Chris Ho, Polygon Development 296 Ltd.

I:\11800-11899\11800\Phase 000104 - Biophys Assmt\City Correspondence\11800 140603 Revised ESA Habitat Balance.docx

DRAFT



- Legend**
- Site
 - Property Lines
 - Environmentally Sensitive Area
 - Non-ESA Habitat
 - Habitat Survey
 - Residential
 - Habitat 1 - Hardhack & Fireweed
 - Habitat 2 - Deciduous Forest
 - Survey Quad - GPS Waypoints
 - Survey Quad Areas
 - Tree Survey - Species
 - Birch
 - Pine
 - Cherry
 - Douglas Fir
 - Cedar
 - Apple
 - Alder



CNCL - 369

NOTE: THIS DRAWING IS FOR GENERAL INFORMATION ONLY.
LOT BOUNDARIES AND FEATURES ARE APPROXIMATE.



DRAWN BY: JM Document Path: I:\11800-11895\11800\Phase 000104 - Biophys Assem\Fig\plan_201411800-104-Fig1-Habitat Survey June 2014-FA.mxd



9700, 9720 & 9740 Alexandra Road
Richmond, BC
Polygon Development 296 Ltd.
REVISION No. DATE PROJECT No.
A June 2014 11800-104

Figure 1
Habitat Survey
February 2014 Survey Quads

Arborist Report

Client: Att: Chris Ho
Polygon Homes Ltd.
900-1333 West Broadway
Vancouver, B.C.
V6H 4C2
Tel: 604-871-4181

Subject Property: Jayden Mews
9700 – 9740 Alexandra Rd.
Richmond, B.C.

Prepared by: Pacific Sun Tree Services
1126 Stevens Street
White Rock, B.C. V4B 4X8
604-323-4270
andermatt.forest@shaw.ca
www.pacificsuntree.com

Dave Andermatt
ISA Certification: PN6285A
Certified Tree Risk Assessor: No. 364



Project Overview

Pacific Sun Tree Services has been retained by Polygon Homes Ltd. to conduct an assessment of the tree inventory on the subject property. Trees identified in the previous report prepared by Pacific Sun Tree Services, Preliminary Assessment Arborist Report, dated January 10, 2014, have been surveyed and have been fully assessed for inclusion within this report. The majority of the trees on site are in the currently undeveloped portion of the property (essentially the southern half). As requested by the city of Richmond, given the poor condition and large number of these trees, a survey of these trees and individual details is not required. Instead, the trees required tallying and grouping for general description by the project arborist. These findings are provided in this report in conjunction with the detailed assessment of the surveyed trees.

Pacific Sun Tree Services was provided with a site plan of the property including tree locations. A site visit was conducted on May 12 & 15, 2014.

Findings

Details of tree condition and recommendations for retention or removal are provided in the following table. Note that the 'Health' rating for the trees is based on the tree's growth history and vigour, and accounts for any disease or abiotic factors afflicting the health of the tree. A tree's 'Form' refers to its structural condition and includes identifying natural deformities as well as man-made defects such as poor/damaging pruning practices. Trees that are significantly compromised due to health and/or form are not recommended for retention.

As outlined above in the Project Overview, the trees in the undeveloped portion of the Jayden Mews property have been tallied. These trees have also been delineated into four different groups based on geographic distribution. These findings are listed in the table 'Non Surveyed Trees'. Note that some of the trees shown on the survey are under permit size and are accordingly not included in this report. Also, some of the surveyed trees are poor condition and consistent with the non surveyed tree category and have been tallied under and addressed in this section of the report. Below is a summary of all permit trees on site:

Tree Tally Summary

Tree Category	Number of Permit Size Trees
Surveyed Trees	19
Non Surveyed Trees (4 Groups)	68
Total	87

Also one tree (#312) is on city property to the west. Therefore a total of 88 trees addressed.



Surveyed Tree Findings

Tree I.D.	Species	DBH (cm)	Crown Radius (m)	Health	Form	Observations & Recommendations
149	Shore Pine (<i>Pinus contorta</i> var. <i>contorta</i>)	30	3	Poor	Very Poor	Southward lean. Very poor basal stem formation, particularly on the north side where some compression failure has occurred and significant decay is present. Column of decay extends 2+ metres on the west side. Significant stem deformation also at 3.5m. Very Low quality tree not suitable for retention. Recommendation: Remove Tree.
150	English Oak (<i>Quercus robur</i>)	27	3.8	Moderate – Good	Good	Narrow crown due to adjacent tree competition. Natural thinning (shading) resulting in raised crown to about 5m. Overall narrow and raised crown as well as uncommon species contribute toward being a candidate for retention. Recommendation: Retain Tree.
151	Birch (<i>Betula</i>)	23 x2 +17+19 +25	5	Good	Moderate – Good	Four of the five stems are growing southward (phototropic lean) with essentially their entire canopy south of the tree base. The exception is a northward growing stem with extensive decay in the lower 1.5m as well as top dieback in the crown. Given the orientation of the tree crown, this tree could be retained. Recommendation: Retain Tree.
304	Douglas-fir (<i>Pseudotsuga menziesii</i>)	80	7.5	Moderate	Moderate – Poor	Fairly poor crown formation. Low aesthetics. Not a good candidate for long term retention. This large tree is adjacent to the planned Building 1 and will not be possible to retain. Recommendation: Remove Tree.
305	Western Hemlock (<i>Tsuga heterophylla</i>)	80	6.5	Poor	Very Poor	Historically topped/broken @ 8m. Secondary stem broken off @ 4m on west side beside small, dead stem. Also a dead/broken stem on south side. Very poor aesthetics. Not a good candidate for long term retention. This large tree is too close to the planned Building 1 for retention to be possible. Low quality tree not suitable for retention. Recommendation: Remove Tree.
312	Birch (<i>Betula</i>)	56	5.5	Good	Moderate	Growing at south edge of open ditch with slight lean northward in lower half of crown. Some historical topping cuts to reduce branch length but overall crown is in fairly good condition. <i>City Tree</i> Recommendation: Retain Tree.



Tree I.D.	Species	DBH (cm)	Crown Radius (m)	Health	Form	Observations & Recommendations
329	Western Redcedar (<i>Thuja plicata</i>)	130	7	Moderate – Good	Moderate – Poor	Large codominant stems with attachment @ 1.5m. Eastern stem historically topped or broken @ 7m resulting in 2 stems regrowth with one dominant. The smaller, but still fairly large stem has a poorly structured vertical attachment. Not suitable for long term retention given risk level for failure. Too close to planned Building 3 for feasible retention. Recommendation: Remove Tree.
330	Western Redcedar (<i>Thuja plicata</i>)	68	5.5.	Moderate – Poor	Poor	Historically topped @ 5.5m Main stem has regrown on north side, another large stem on east side has been cut in years past @ about 2m from point of origin. Secondary stems, signs of low vigour. Not suitable for long term retention. Located just inside envelope of planned Building 3. Recommendation: Remove Tree.
336	Sycamore Maple (<i>Acer pseudoplatanus</i>)	27+28	5.4	Good	Moderate	Base of tree is growing against the foundation of the existing house. Codominant stems attached @ 1m. Not possible to retain during demolition of existing house. Tree is located within the planned Jayden Mews roadway. Recommendation: Remove Tree.
337	Sycamore Maple (<i>Acer pseudoplatanus</i>)	30+37	6	Moderate	Moderate – Good	Codominant stems attached @ ½ m. Advanced decay at point of attachment on east side and down into root crown and to north side. Hazardous tree. Located at foundation of planned Building 3. Recommendation: Remove Tree.
340	Cherry (<i>Prunus</i>)	25+30	6	Moderate	Moderate	Secondary stem attached @ 1m. Lower half of crown has died back from shading due to adjacent tree competition. Tree is located midway within the planned Jayden Mews roadway. Recommendation: Remove Tree.
341	Cherry (<i>Prunus</i>)	40	6	Moderate – Good	Moderate – Good	Multi-stemmed structure with attachment @ 1.5+m. Some dieback in shaded lower crown, particularly on north and east sides, otherwise fairly full crown. Tree is located midway within the planned Jayden Mews roadway. Recommendation: Remove Tree.



Tree I.D.	Species	DBH (cm)	Crown Radius (m)	Health	Form	Observations & Recommendations
342	Cherry (<i>Prunus</i>)	20 x2 +15	5	Moderate – Good	Moderate	Basal stem attachment; codominant @ 1m. Some inner crown dieback , lower north side due to shading from competition. Tree is located at edge of planned Jayden Mews roadway and within planned parking space. Recommendation: Remove Tree.
365	Sycamore Maple (<i>Acer pseudoplatanus</i>)	18+19+ 21+22+ 12 x2	5.8	Good	Moderate	Multi-stemmed tree with basal attachments. Across from outdoor play area. <u>Shared tree with Neighbour.</u> Recommendation: Retain Tree.
366	Sycamore Maple (<i>Acer pseudoplatanus</i>)	25+30	4	Moderate – Good	Poor	Basal attachment with union around old decaying stump, not structurally sound. Confined crown development due to adjacent trees' competition. Recommendation: Remove Tree.
367	Sycamore Maple (<i>Acer pseudoplatanus</i>)	28+43+ 31 x2	7	Good	Moderate – Poor	Four stems with basal attachment along a well defined north-south alignment. Fairly good structure except northern stem - significant included bark between the northern two stems. North stem is codominant @ 1.5m, with significant included bark. Recommendation: Remove Tree.
376	Cherry (<i>Prunus</i>)	45	5.5	Moderate – Good	Moderate – Good	Slight lean to southeast. Some vine growing into crown. Fairly good condition. Located close to the planned Building 9, Jayden Mews roadway and a parking stall. Not possible to retain. Recommendation: Remove Tree.
380	Douglas-fir (<i>Pseudotsuga menziesii</i>)	36	4.6	Good	Moderate – Good	Slight lean southeast. Lower 4m of crown has largely died back from shading. Nice condition, healthy young tree. Recommendation: Retain Tree.
386	Birch (<i>Betula</i>)	20+26	4	Moderate – Good	Moderate – Poor	Very pronounced lean southward and weak stem structure. Poor quality tree for retention. Recommendation: Remove Tree.
387	Birch (<i>Betula</i>)	18	2.7	Moderate – Good	Moderate	Significant lean southward with correction only near top. Leans out over Alderbridge, but generally fair condition. Adjacent to planned green space. Recommendation: Retain Tree.



Non Surveyed Tree Findings

Group	Species			Total Permit Size Trees
	Birch	Cherry	Other	
East	12	5	4	21
Alderbridge	32	2	1	35
Open	3	0	0	3
Northwest	9	0	0	9
Total	56	8	5	68

* See attached 'Tree Location Overview Plan' for delineation of Group areas.

Non Surveyed Tree Groups – Description

East Group

Predominantly Birch trees, this area also has a significant portion of Cherry. The remaining trees are Maple and Crab-apple. The birch are in varying degrees of decline with top dieback found on all and in some some cases very extensive where the top half of the crown or more has died and often already broken apart. The Cherry trees are fairly numerous in the south central portion of this group, however, most are young, non-permit sized trees. The permit sized trees have poor crown development due to the high stand density.

Alderbridge Group

Slightly more than half the non-surveyed trees are found in this group. Almost entirely comprised of Birch trees, a number of which are of relatively large size (30 to 40 cm dbh). However, regardless of size, the Birch are again declining and in poor quality.

Open Group

It is expected that this area was previously occupied by predominantly Birch but the trees have already declined and failed leaving only dense underbrush that has prevented almost any new tree establishment – the one notable exception is the Douglas-fir (Tree #380) which has been selected for retention in the new development.

Northwest

Continuation of declining, poor quality Birch.



Tree Protection: Detailed Recommendations

The Tree Protection Zones (TPZ) are delineated by the location of the Tree Protection Barriers which are identified on the attached Tree Location & Protection Plan. No work is permitted within the TPZ as well as no access by machinery or storage of soil (including site loading), equipment or any other materials.

Any underground service installation must be done outside of the TPZ outlined by this report, or additional arborist assessment is required as directed by the city once utility service line locations are available. Retaining walls with continuous footings are prohibited within the TPZ. If a retaining wall is planned for installation within a TPZ, the specifications relating size and location of post footings is required for additional arborist assessment or as required by the city once this information is available.

Tree #150:

The Tree Protection Barrier is located 6m north and south of the tree. The east side of the Barrier is 4.2m from the property line. (See Tree Protection Plan #1)

Tree #151:

North stem removal

The north stem requires removal by the project arborist. This should be conducted concurrent with clearing activity on the site.

The Tree Protection Barrier begins 4m east of the tree and extends further east to 6.5m then turns south for 6.5m, then turns west for 13m. The Barrier then turns north 6.5m (directly west of the tree) and then angles to meet a point 4m north of the tree. The Barrier then turns at an angle to connect with the beginning point. (See Tree Protection Plan #1)

Tree #312:

The Tree Protection Barrier is located to protect roots within the area adjacent to the open ditch. The Barrier begins at the northwest corner of the property, extends north to the break-line (approximately 4.8m), then turns west parallel to the road then south alongside the end of the open ditch until just east of the tree. (See Tree Protection Plan #2)

Tree #365:

The Tree Protection Barrier is located at the property line both 6m north and south of the center of the tree, and extends at an angle to a point 7m east of the tree. (See Tree Protection Plan #2)



Tree #380:

The Tree Protection Barrier is located around the tree at a 5.5m radius. (See Tree Protection Plan #1)

Crown Pruning

The project arborist should conduct pruning to raise the crown to approximately 4m height to remove dead and poor quality branches due to natural shading dieback.

Tree #387:

The Tree Protection Barrier is located 3.5m west, north and east of the tree. The south side of the Barrier is 4m from the tree. (See Tree Protection Plan #1)

All Protected Trees**Tree #150, 151, 312, 365, 380 & 387:****Excavation Supervision**

Arborist supervision during the excavation in the area adjacent (within 10 feet) to the identified TPZ (Tree Protection Barriers) to reduce or eliminate fracturing along roots into the TPZ. Concurrently, the arborist will conduct an assessment of damaged roots near the TPZ boundary and implement root pruning as required to facilitate wound closure, and promote new root development. A summary of the impact on the tree, the mitigating treatments conducted and any further recommendations will be prepared and submitted to the client and/or city staff.

Root Zone Drainage

With the alteration of soil hydrology on the site surrounding the TPZ, and in particular the raised grades, it is critical for the tree's survival to ensure proper drainage. The tree well area, or at a minimum, the area identified as the TPZ, must have permanent installed drainage that maintains natural water table levels. If necessary, due to surrounding grade increases and location of available storm drain connections, the root zone area may require installation of a pump to remove excess water.

Ensure Adherence to Tree Protection Bylaw No. 8057.

Prior to undertaking any works on the site:

trees recommended for removal in this report must also be given approval and issued permitting for removal by the city;

all trees proposed for retention must be properly protected; and

protection measures must be inspected and approved by the City's Tree Protection Staff.



Attachments

Item	Pages
Tree Management Plan	1
Non-Surveyed Tree Groups	1
Tree Protection Plan #1	1
Tree Protection Plan #2	1
Total	4

Limitations

The arboricultural assessment of the trees discussed in this report has been conducted to determine their health and condition and consequently their viability for retention. The report and its recommendations are based on the field observations made on the date that they were assessed and on the plans received by Pacific Sun Tree Services. The inspection is limited to external signs and sounding within the lower portion of the trees.

All trees pose a risk and not all conditions can be accounted for. The recommendations and opinions outlined in this report are applicable to the conditions identified on the day of assessment only. Trees should be reassessed on a regular schedule. Pacific Sun Tree Services does not, unless specifically engaged to do so, have any inspection or supervisory responsibility for any trees discussed in this report. Inspections on the property are limited to those relevant to the proposed development described in this report, and are recorded, presented in this report, and submitted to the client.

If there are any questions regarding this report, please contact Pacific Sun Tree Services.

Dave Andermatt, RPF
ISA Certified Arborist


Signature

Tree Management

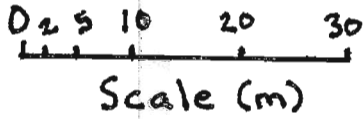
ALEXANDRA ROAD

Plan - Jarden Mews

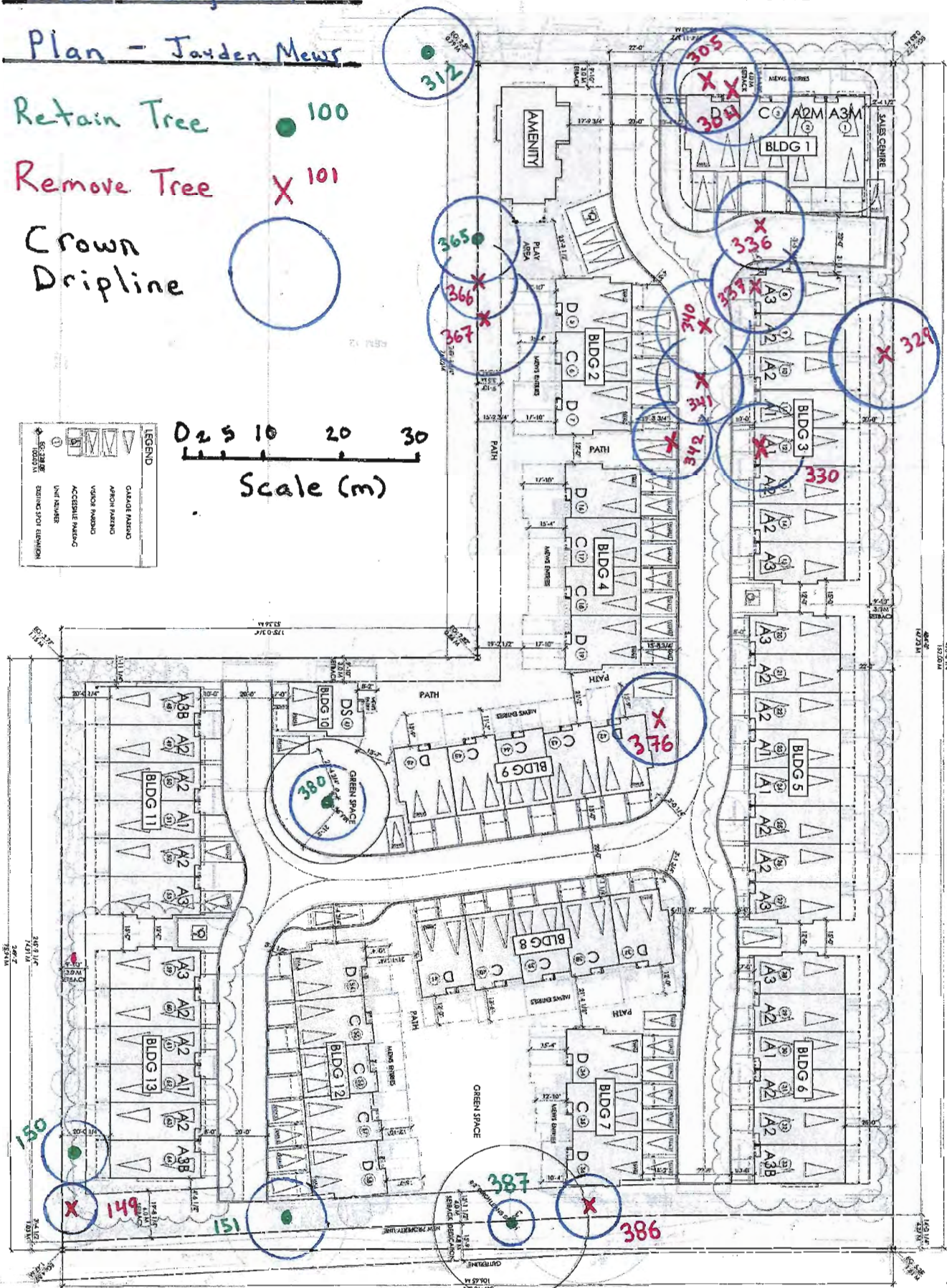
Retain Tree ● 100

Remove Tree X 101

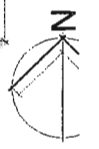
Crown Dripline



LEGEND	
	GRADE MARKED
	ACCESSIBLE PARKING
	UTILITY TRENCH
	STORMWATER DRAINAGE
	PATH
	GREEN SPACE
	AMENITIES
	PLAY AREA
	SALES CENTRE
	BLDG
	UNIT
	AMENITIES
	PATH
	GREEN SPACE
	AMENITIES
	PLAY AREA
	SALES CENTRE



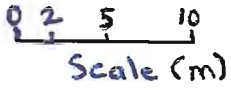
ALONGSIDE 379 WAY



MEDIAN TO BE PLANTED PER CITY

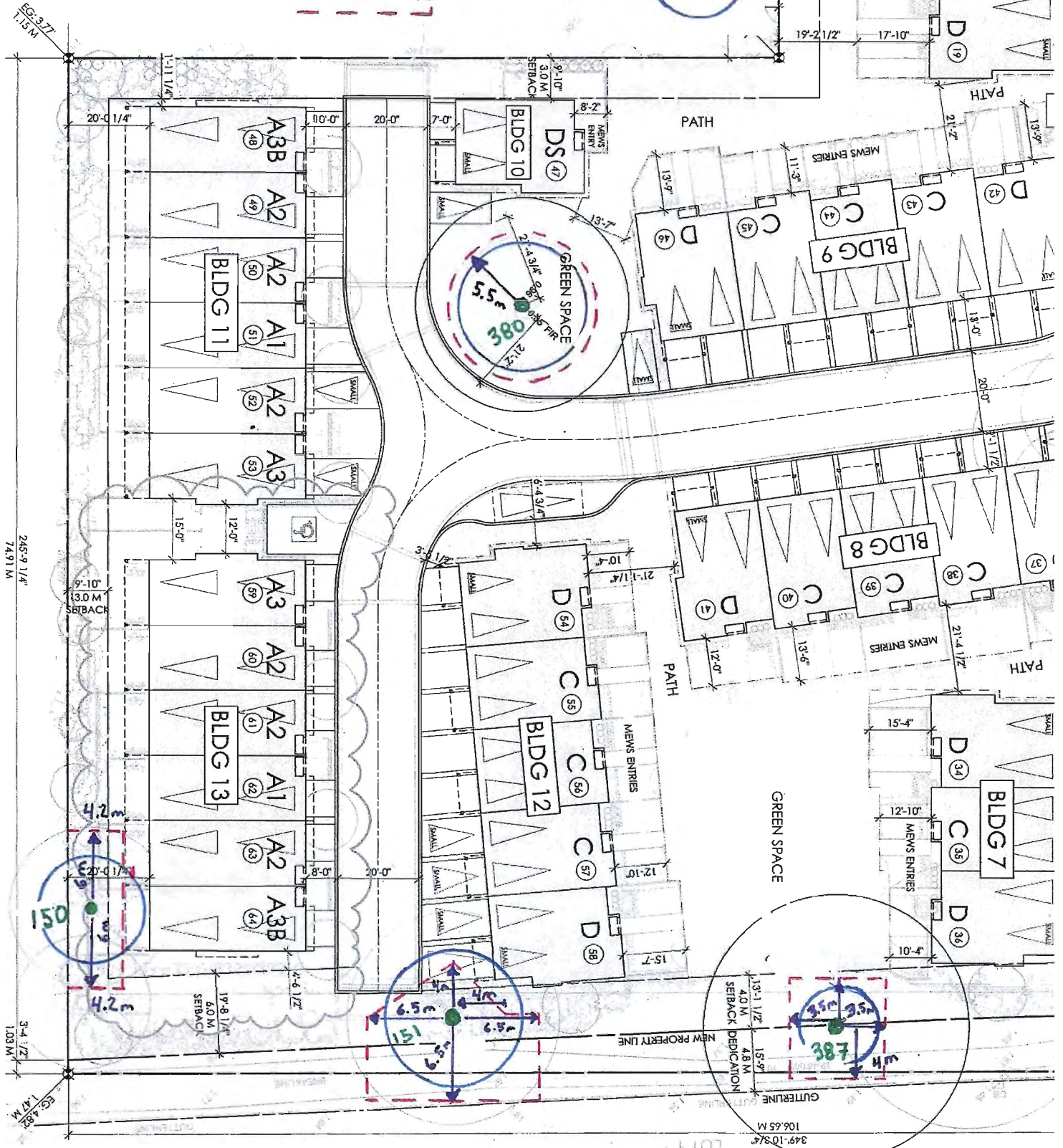
MEDIAN TO BE PLANTED PER CITY

Tree Protection Plan #1 Tarden Mews



Tree Protection Barrier

Crown Dripline



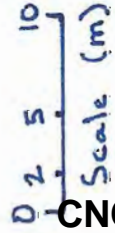
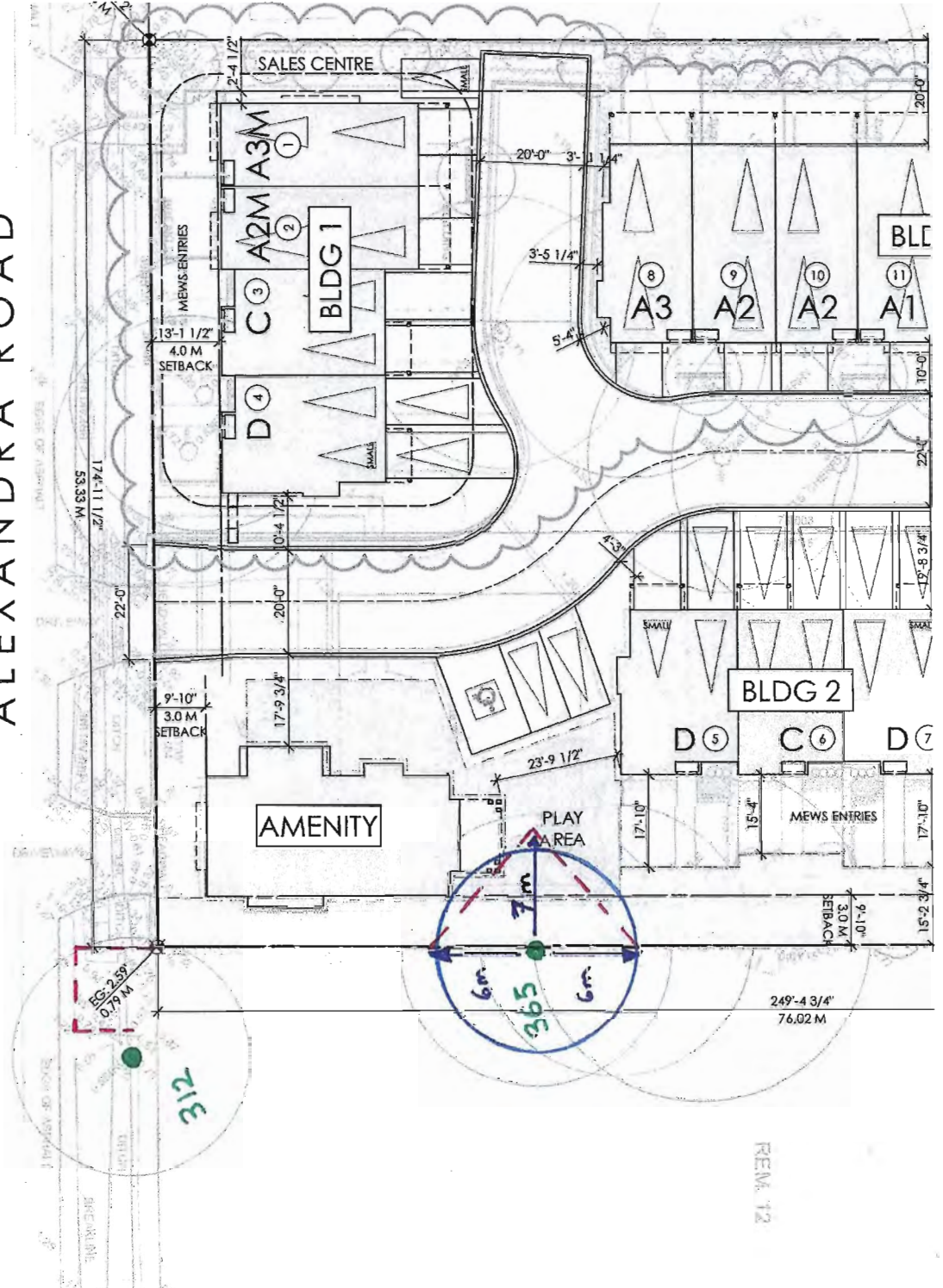
MEDIAN TO BE PLANTED PER CITY

ALDERBRIDGE WAY

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Tree Protection Plan #2 - Jordan Mews

ALEXANDRA ROAD



CNCL 381

Tree Protection Barrier



Crown Dripline



Rezoning Considerations

Development Applications Division
6911 No. 3 Road, Richmond, BC V6Y 2C1

Address: 9700 and 9740 Alexandra Road

File No.: RZ 13-649641

Prior to final adoption of Richmond Zoning Bylaw 8500, Amendment Bylaw 9159, the developer is required to complete the following:

1. Land dedication along the entire Alderbridge Way frontage (approximately 1.5 m wide at the eastern limit of the site and such width reduces to approximately to 1.2 m wide at the western limit) in order to accommodate the road cross section inclusive of a 1.5 m wide treed boulevard and a 3.3 m wide shared cyclist/pedestrian path.
2. Consolidation of all the lots into one development parcel (which will require the demolition of all the existing dwellings).
3. Installation of appropriate tree protection fencing around all trees to be retained as part of the development prior to any construction activities, including building demolition, occurring on-site.
4. Registration of an aircraft noise sensitive use covenant on title.
5. Registration of a legal agreement on title identifying that the proposed development must be designed and constructed to meet or exceed Ener-guide 82 criteria for energy efficiency and that the dwellings are pre-ducted for solar hot water heating. A report by a qualified professional prepared to the satisfaction of the Director of Development is to be submitted certifying that the units meet the Ener-guide 82 criteria and that the solar heating pre-ducting has been installed.
7. Registration of a flood plain covenant on title identifying a minimum habitable elevation of 2.6 m GSC.
8. Registration of a legal agreement on title ensuring that, with the exception of emergency vehicles, there will be no vehicle access to Alderbridge Way.
9. With the exception of specific hazard trees or trees preventing building demolitions, on-site trees within the designated ESA shall not be removed until a Development Permit has been issued.
10. City acceptance of the developer's offer to voluntarily contribute \$0.77 per buildable square foot (e.g. \$70,162.85) to the City's Public Art fund based on a buildable area of 91,120.59 ft².
11. City acceptance of the developer's offer to voluntarily contribute cash-in-lieu of built affordable housing units. The cash contribution in the amount of \$678,107.00 to be deposited entirely (100%) to the City's capital Affordable Housing Reserve.
12. City acceptance of the developer's offer to voluntarily contribute the following amounts for Community and Engineering Planning Costs of \$0.07 per buildable square foot (e.g. \$6,378.44 based on 91,120.59 ft².) (Account 3132-10-520-00000-0000). Contribution estimates will be recalculated through the Development Permit once the final buildable space has been refined.
13. City acceptance of the developer's offer to voluntarily contribute the following amounts for Child Care Contribution of \$0.60 per buildable square foot (e.g. \$54,672.35 based on 91,120.59 ft²) (Account 7600-80-060-90158-0000). Contribution estimates will be recalculated through the Development Permit once the final buildable space has been refined.
14. City acceptance of the developer's offer to voluntarily contribute the following amounts for City Beautification contribution of \$0.60 per buildable square foot (e.g. \$54,672.35 based on 91,120.59 ft²). Note that the amount of the City Beautification contribution may be reduced once the value of the frontage improvements have been determined through the Servicing Agreement (Account 2264-10-000-90582-000). Contribution estimates will be recalculated through the Development Permit once the final buildable space has been refined.
15. Registration of a legal agreement on title prohibiting the conversion of the tandem parking area into habitable space.

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16. Discharge of Covenant AD285974 from title (a covenant that restricts the use on 9700 Alexandra Road to Two Family Dwelling).
17. The submission and processing of a Development Permit* completed to a level deemed acceptable by the Director of Development.
18. Enter into a Servicing Agreement* for the design and construction of frontage improvements. Works include, but may not be limited to:

Sanitary

The developer is responsible for the following sanitary works:

1. Construct a 200 mm diameter gravity sanitary sewer at 0.40% (min) along Alexandra Road from the east property line of the development site to May Drive.
2. Construct a 375 mm diameter sanitary sewer along May Drive from Alexandra Road to Tomicki Avenue and connect to existing system on Tomicki Avenue.
 - a) Existing manhole SMH52070 will need to be shifted approximately 4 m to the south to accommodate the ultimate alignment of system on Tomicki Avenue.
 - b) A minimum 6.0 m wide Statutory Right of Way (SRW) for utility purposes is required for the proposed sanitary sewer within the future May Drive connecting Alexandra Road and Tomicki Avenue. The required SRW is located within 9451 and 9471 Alexandra Road and is to be measured 6.0 m from the east property lines of these two properties.

Water

1. Using the OCP Model, there is 212 L/s available at 20 psi residual on Alexandra Road and 522 L/s available at 20 psi residual on Alderbridge Way. Based on your proposed rezoning, your site requires a minimum fire flow of 220 L/s. Once you have confirmed your building design at the Building Permit stage, you must submit fire flow calculations signed and sealed by a professional engineer based on F.U.S or ISO to confirm that there is adequate available flow.
2. If adequate flow is not available, then upgrades beyond the development site frontage may be required, which could include constructing a 200 mm diameter watermain along May Drive from Alexandra Road to Tomicki Avenue or from Alexandra Road to Alderbridge Way.
3. Replacement of existing AC watermain is required from the west property line of the development site to No 4 Road; the replacement may need to extend west of the development site frontage due to the required off-site improvements.
4. Additional fire hydrants are required to achieve minimum spacing requirement for the mutli-family areas.

Additional Requirements

The developer is responsible for the under-grounding of the existing private utility pole line (subject to concurrence from the private utility companies) along Alexandra Road. Private utility companies will require rights-of-ways for their equipment (i.e. vistas, kiosks, transformers, etc.); the developer is required contact the private utility companies to learn of their requirements.

Developer responsible for the design and construction of the following:

- a) Alexandra Road frontage (from north to south):
 - Maintain the existing extruded curb on the north side;
 - Widen travel portion of the road to 8.5 m wide;
 - Construct a new 0.15 m wide curb/gutter;
 - Provide a minimum 1.2 m wide treed boulevard (Parks should be consulted on whether additional width is necessary, which would trigger a need for additional right-of-way to be secured from the subject development.);
 - Provide a 2.0 m wide sidewalk;

Note:

 - Above road cross-section is recommended based on maintaining the existing ditch on the north side of the road. Engineering should be consulted to confirm if alternate ditch treatment is required as part of this

development, which would change the location of the above road cross-section within the existing road right-of-way; and

- Outside the development frontage to No. 4 Road, 8.5 m wide pavement width and an interim 1.5m wide asphalt walkway should be provided.

b) Alderbridge Way frontage (from existing curb to north):

- Maintain the existing curb/gutter;
- Provide a 1.5 m wide treed boulevard; and
- Provide a 3.3 m wide shared cyclist/pedestrian path.

Required land dedication:

- a) Alderbridge Way: A strip of land required (approximately 4.8 m wide at eastern limit of the site and such width reduces towards west) in order to accommodate the road cross-section referenced in 1b) to the back of the 3.3 m wide shared cyclist/pedestrian path (applicant to confirm the exact size of land required); and
- b) Alexandra Road: None, based on the road cross-section noted above.

Prior to a Development Permit* being forwarded to the Development Permit Panel for consideration, the developer is required to:

1. Complete an acoustical and thermal report and recommendations prepared by an appropriate registered professional, which demonstrates that the interior noise levels and noise mitigation standards comply with the City’s Official Community Plan and Noise Bylaw requirements. The standard required for air conditioning systems and their alternatives (e.g. ground source heat pumps, heat exchangers and acoustic ducting) is the ASHRAE 55-2004 “Thermal Environmental Conditions for Human Occupancy” standard and subsequent updates as they may occur. Maximum interior noise levels (decibels) within the dwelling units must achieve CMHC standards follows:

Portions of Dwelling Units	Noise Levels (decibels)
Bedrooms	35 decibels
Living, dining, recreation rooms	40 decibels
Kitchen, bathrooms, hallways, and utility rooms	45 decibels

2. A Qualified Environmental Professional to undertake a pre-clearing bird nest survey and submit a summary of the findings and recommendations to the City prior to site clearing activities.
3. Developer to contact City Parks Arboriculture staff to assess tree #387 for either retention or removal and replacement.

Prior to Building Permit Issuance, the developer must complete the following requirements:

1. Submission of a Construction Parking and Traffic Management Plan to the Transportation Division. Management Plan shall include location for parking for services, deliveries, workers, loading, application for any lane closures, and proper construction traffic controls as per Traffic Control Manual for works on Roadways (by Ministry of Transportation) and MMCD Traffic Regulation Section 01570.
2. Incorporation of accessibility measures in Building Permit (BP) plans as determined via the Rezoning and/or Development Permit processes.
3. Payment of the Supplementary Local Area DCC for the Alexandra Neighbourhood.
4. Payment of the sanitary pump station latecomer fees, plus applicable interest, in accordance with the Alexandra Neighbourhood Development Agreement (i.e. multi-family rate \$3,307.47 per unit plus interest).
5. If applicable, payment of latecomer agreement charges associated with eligible latecomer works.
6. Obtain a Building Permit (BP) for any construction hoarding. If construction hoarding is required to temporarily occupy a public street, the air space above a public street, or any part thereof, additional City approvals and associated fees may be required as part of the Building Permit. For additional information, contact the Building Approvals Division at 604-276-4285.

Note:

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- * This requires a separate application.
- Where the Director of Development deems appropriate, the preceding agreements are to be drawn not only as personal covenants of the property owner but also as covenants pursuant to Section 219 of the Land Title Act.

All agreements to be registered in the Land Title Office shall have priority over all such liens, charges and encumbrances as is considered advisable by the Director of Development. All agreements to be registered in the Land Title Office shall, unless the Director of Development determines otherwise, be fully registered in the Land Title Office prior to enactment of the appropriate bylaw.

The preceding agreements shall provide security to the City including indemnities, warranties, equitable/rent charges, letters of credit and withholding permits, as deemed necessary or advisable by the Director of Development. All agreements shall be in a form and content satisfactory to the Director of Development.

- Additional legal agreements, as determined via the subject development's Servicing Agreement(s) and/or Development Permit(s), and/or Building Permit(s) to the satisfaction of the Director of Engineering may be required including, but not limited to, site investigation, testing, monitoring, site preparation, de-watering, drilling, underpinning, anchoring, shoring, piling, pre-loading, ground densification or other activities that may result in settlement, displacement, subsidence, damage or nuisance to City and private utility infrastructure.
- Applicants for all City Permits are required to comply at all times with the conditions of the Provincial *Wildlife Act* and Federal *Migratory Birds Convention Act*, which contain prohibitions on the removal or disturbance of both birds and their nests. Issuance of Municipal permits does not give an individual authority to contravene these legislations. The City of Richmond recommends that where significant trees or vegetation exists on site, the services of a Qualified Environmental Professional (QEP) be secured to perform a survey and ensure that development activities are in compliance with all relevant legislation.

Signed

Date

**ATTACHMENT 8
Letter from Mr. Sihota**

Dated: 5th February 2014

To

Barry Konkin

REZONING DEPARTMENT

City of Richmond,

6911 No. 3 road, Richmond, BC

SUBJECT : 9700 -9740 ALEXANDRA ROAD REZONING APPLICATION (RZ-13649641)

Respected Sir,

As you know Polygon applied for subject property, I have big concern about this development and I want a single information city requirement and amendment by staff and copy of this file. Reason for this is I have interest in almost 50% of neighbour property. What things are going to affect to my property and as well future development of my property is also very important for me.

So I would require the file copy which I could study. Second I would request to mail me a letter when there is a meeting about subject property which possibility to attend.

It is so simple to see when a sewer line is passing and putting a pot and T to future development could cost to developer even not more than \$500. When I will be ready to pay for the costs and will be a bigger job in future. But city requirement is not there to provide sewer services to those residents. But staff should look at the public request to city council 5-6 years ago and I am surprised how the staff or council will ignore those health issues, because surrounding development their water table will be away higher than this area. So you will be forcing those residents to evict or force to sell at lower value.

So I hope you will accept my request. I shall be very thankful for this kindness.

Yours Sincerely,

Jagtar Singh Sihota

9800 Alexandra Road,

Richmond, BC

V6x 1c5

Phone ; 604 244 8881 Fax 604 273 8801 Mobile; 604 783 5491

File: city counsels.doc

CC. Polygon Development

CNCL - 387



**Richmond Zoning Bylaw 8500
Amendment Bylaw 9159 (RZ13-649641)
9700 and 9740 Alexandra Road**

The Council of the City of Richmond, in open meeting assembled, enacts as follows:

1. Richmond Zoning Bylaw 8500 is amended by inserting Section 17.71 thereof the following:

“17.71 Town Housing (ZT71) – Alexandra Neighbourhood (West Cambie)

17.71.1 Purpose

The **zone** provides for **town housing** with a **density bonus** for a monetary contribution to the City’s capital Affordable Housing Reserve Fund.

17.71.2 Permitted Uses

- **child care**
- **housing, town**

17.71.3 Secondary Uses

- **boarding and lodging**
- **home business**
- **community care facility, minor**

17.71.4 Permitted Density

1. The maximum **floor area ratio** (FAR) is 0.65, together with an additional:
 - a) 0.10 **floor area ratio** provided that is entirely used to accommodate **amenity space**; and
 - b) 10% of the **floor area** total calculated for the **lot** in question, which must be used exclusively for:
 - i. covered areas of the **principal building** which are open on one or more sides; or
 - ii. enclosed **balconies** provided that the total area of such enclosed **balconies** does not exceed 50% of the total area permitted by Section 17.71.4.1.b. i.
2. Notwithstanding Section 17.71.4.1, the reference to “0.65” in relation to the maximum **floor area ratio** is increased to a higher **density** of “0.72” if the **owner** has paid or secured to the satisfaction of the **City** a monetary contribution of \$678,107.00 to the **City’s** capital Affordable Housing Reserve Fund established pursuant to Reserve Fund Establishment Bylaw No. 7812.

17.71.5 Permitted Lot Coverage

1. The maximum **lot coverage** is 40% for **buildings**.

17.71.6 Yards & Setbacks

1. The minimum **front yard** is 3.0 m for the accessory amenity **building** and 4.0 m for all other **buildings**.
2. Portions of the **principal building** which are less than 5.0 m in **height** and are open on those sides which face a **road** may project into the **front yard** for a distance of not more than 1.5 m.
3. **Bay windows** may project into the **front yard** for a distance of not more than 0.6 m.
4. The minimum **side yard** is 3.0 m.
5. The minimum **rear yard** is 4.0 m.
6. **Balconies, bay windows**, enclosed and unenclosed fireplaces and chimneys may project into the **side yard** and the **rear yard** for a distance of not more than 0.6 m.

17.71.7 Permitted Heights

1. The maximum **height** for **buildings** is 12.2 m, but containing no more than 3 **storeys**.
2. The maximum **height** for **accessory buildings** is 5.0 m.
3. The maximum **height** for **accessory structures** is 9.0 m.

17.71.8 Subdivision Provisions/Minimum Lot Size

1. There are no minimum **lot width** or **lot depth** requirements.
2. The minimum **lot area** is 10,000 m².

17.71.9 Landscaping & Screening

1. **Landscaping** and **screening** shall be provided in accordance with the provisions of Section 6.0.

17.71.10 On-Site Parking and Loading

1. On-site **vehicle** and bicycle parking and loading according to the standards set out in Section 7.0, except that the basic on-site parking requirement shall be 1.5 spaces per **dwelling unit** for residents, together with 0.2 spaces per **dwelling unit** for visitor, for a total of 1.7 spaces per **dwelling unit**.

17.71.11 Other Regulations

1. In addition to the regulations listed above, the General Development Regulations in Section 4.0 and the Specific Use Regulations in Section 5.0 apply.”

2. Richmond Zoning Bylaw 8500 is amended by repealing the existing zoning designation of the following area and by designating it **“TOWN HOUSING (ZT71) – ALEXANDRA NEIGHBOURHOOD (WEST CAMBIE)”**;

 P.I.D. 003-874-117
 Lot 51 Section 34 Block 5 North Range 6 West New Westminster District Plan 35213

 P.I.D. 007-176-830
 Lot 52 Section 34 Block 5 North Range 6 West New Westminster District Plan 35213.

3. This Bylaw may be cited as “Richmond Zoning Bylaw 8500, Amendment Bylaw 9159”.

FIRST READING

PUBLIC HEARING

SECOND READING

THIRD READING

OTHER CONDITIONS SATISFIED

ADOPTED

MAYOR

CORPORATE OFFICER

