

Report to Development Permit Panel

To: Development Permit Panel

November 21, 2013 Date:

From: Wayne Craig File:

DP 13-643519

Director of Development

Re:

Application by Christopher Bozyk Architects for a Development Permit at 11100

Cambie Road

Staff Recommendation

That a Development Permit be issued which would:

- 1. Permit the construction of an automobile repair facility on a lot at 11100 Cambie Road on a site zoned Industrial Retail (IR1); and
- 2. Vary the provisions of Richmond Zoning Bylaw 8500 to:
 - a) Increase the maximum site coverage from 60% to 73%; and,
 - b) Reduce the minimum exterior side yard setback from 3.0 metres to 1.5 metres along the Cambie Road frontage.

Director of Development

WC:dcb

Staff Report

Origin

Christopher Bozyk Architects has applied to the City of Richmond for permission to develop an automobile repair facility on a lot at 11100 Cambie Road on a site zoned "Industrial Retail (IR1)". The site currently contains commercial vehicle parking and storage.

The existing zoning "Industrial Retail (IR1)" allows vehicle body repair or paint shop and vehicle repair. No rezoning is required for the proposed use.

Development Information

A pair of two-storey buildings are proposed, joined by a roof-top parking structure that will connect both buildings and cover most of the roofs of the buildings. One half of the facility will service BMW vehicles and the other will service Mercedes-Benz vehicles. An access ramp will be located along the southern property line providing vehicle access to the roof deck. Two vehicle accesses will connect the site to Vanguard Road and vehicle access to Cambie Road will not be provided. As the proposed gross floor area will exceed 2,000 m², the requirements of the Green Roof Bylaw (Bylaw No. 8385) apply.

Frontage improvements involving new sidewalks, treed boulevards and ditch infill, where required, will be undertaken along Cambie Road and Vanguard Road. Road widening, without dedication, will be required to complete the western half of the Vanguard Road cross section.

Utility upgrades will include removal and replacement of existing sanitary connections, installation of additional fire hydrants along Cambie Road and Vanguard Road to ensure spacing at minimum of one hydrant every 75 m, removal/abandonment of excess storm sewer connections along Cambie Road and infill of the existing open ditch along Vanguard Road with a new 600 mm diameter storm sewer.

Land dedication requirements consist of a 4.2 m wide road dedication across the entire site's frontage with Cambie Road to allow for future road widening and a 4 m by 4 m corner cut at the southwestern corner of the Cambie Road and Vanguard Road intersection.

Both the frontage improvements and the utility upgrades will be addressed under a separate Servicing Agreement. The land dedications are addressed through this Development Permit application.

Please refer to the attached Development Application Data Sheet (Attachment 1) for a comparison of the proposed development data with the relevant Bylaw requirements.

Background

The subject site has been vacant for a number of years with the primary use being at grade vehicle storage. A previous attempt (RZ 07-363032) to redevelop the site for an automobile dealership was withdrawn in favour of a larger site elsewhere. In the years since there have been numerous enquiries but no follow up applications.

Development surrounding the subject site is as follows:

- To the north, single-family and low density multifamily residential lots zoned "Single Detached (RS1/E)" and "Low Density Townhouses (RTL3)";
- To the east and south, large industrial retail lots zoned "Industrial Retail (IR1)";
- To the west, Shell Road rail corridor and a retail auto commercial lot zoned "Auto-Oriented Commercial (CA)"; and
- Three metre wide Statutory Right of Ways run along both the western and eastern property lines of the subject site.

Rezoning and Public Hearing Results

As the proposed use conforms to the "Industrial Retail (IR1)" zoning neither a Rezoning nor a Public Hearing are required for this project.

Staff Comments

The proposed design scheme attached to this report has satisfactorily addressed the significant urban design issues and other staff comments identified as part of the review of the subject Development Permit application. In addition, it complies with the intent of the applicable sections of the Official Community Plan and is generally in compliance with the "Industrial Retail (IR1)" except for the zoning variances noted below.

Zoning Compliance/Variances (staff comments in bold)

The applicant requests to vary the provisions of Richmond Zoning Bylaw 8500 to:

- 1) Increase the maximum site coverage from 60% to 73%; and,
 - (Staff supports the proposed variance to maximum site coverage as the operation will utilize extensive rooftop parking for the vehicle repair operations rather than parking the vehicles at grade thereby permitting more efficient use of the site.)
- 2) Reduce the minimum exterior side yard setback from 3.0 metres to 1.5 metres along the Cambie Road frontage.

(Staff supports the variance to the exterior side yard setback along Cambie Road since a road dedication totalling approximately 385 m² is being provided along that entire frontage to widen the road and allow for future turning lanes. The variance is limited to a portion of the BMW building adjacent to Cambie Road. In addition, the building design is high quality and will enhance the streetscape appearance.)

Advisory Design Panel Comments

The Advisory Design Panel reviewed the development proposal at their meeting on October 9, 2013, at which time they indicated their support for the project and the overall design concept subject to the proponent giving consideration to the Panel's comments. A copy of the relevant excerpt from the Advisory Design Panel Minutes from October 9, 2013, is attached for reference (Attachment 2). The design response from the applicant has been included immediately following the specific Design Panel comments and is identified in 'bold italics'.

Analysis

Conditions of Adjacency

- Building parapets will be employed on the roof-top parking deck to prevent vehicle lights from distracting passing motorists and from shining onto adjacent properties.
- On-site lighting is proposed to be down directed building lights or low height lighting standards.
- Damaged vehicles will be stored either at the rear of the buildings or on the roof-top parking deck. Neither location will have any significant visibility from the street.
- From Cambie Road both buildings will have office frontages with large window glazing facing the street giving more of an office appearance than an industrial appearance.
- The subject site is adjacent to the Shell Road corridor which is identified as Public Open Space in the Official Community Plan. The proposed design attempts to soften this interface through evergreen hedging along half of the length of the property interface with Shell Road and a vegetation wall (Boston Ivy) that will grow up the western face of BMW building wall. The southern remaining interface will incorporate a specially designed painted metal fence intended to complement the landscaping but also act as a partial visual barrier to the on-site activities.

Urban Design and Site Planning

- No vehicle accesses will be permitted off Cambie Road but two access points from Vanguard Road will be provided.
- Each building has a direct pedestrian access to Cambie Road.
- The combined operations will contain 42 service bays, 12 holding bays, 2 wash bays, 452 m² of office space and approximately 697 m² of parts storage. The workshops and detail shops will total approximately 3,942 m². One hundred ninety seven parking stalls, including 4 handicapped stalls are provided, fully meeting the Zoning Bylaw parking requirements.
- The accessible stalls will be located near both building entrances.
- Ninety nine of the required 196 required parking stalls will be standard sized meeting the Zoning Bylaw 50% standard stall requirements.
- Two medium sized loading spaces are proposed in an alignment which will permit space sharing to accommodate a single large loading space as permitted by the Zoning Bylaw.
 Registration of a legal agreement on title to prohibit large vehicles (i.e. WB 17) from accessing the site is a condition of the Development Permit approval.
- Accommodation is made for 14 Class 1 and 14 Class 2 bike stalls as per the Zoning Bylaw.

- A consolidated trash and recycling area has been located beneath the vehicle ramp to the roof-top parking. Containers will be pulled out from under the ramp when being picked up for disposal.
- Oil/sediment separators will be installed for roof deck runoff to capture any contaminants from vehicles stored on the roof and prevent them being discharged from the site.

Architectural Form and Character

- Both buildings will be approximately 9.8m in height with the BMW (west) building being positioned close to the Cambie Road frontage while the Mercedes-Benz (east) building will be placed further southward.
- The front offices of the BMW building will have primarily Alucobond cladding and curtain wall facing Cambie Road. The exposed western wall will have Alucobond cladding at the front then painted tilt up concrete for the balance of the building.
- The front offices of the Mercedes-Benz building will have primarily metal cladding and a curtain wall facing Cambie Road. The exposed eastern wall will be exposed concrete near grade and painted reveal patterned concrete above.
- Southern exposures for both buildings will be primarily exposed tilt up concrete with scoring or a decorative reveal pattern.

Landscape Design and Open Space Design

- Landscaping enhancements will be a component of the response to the Green Roof Bylaw (see below).
- Evergreen hedging and boxwoods are proposed along the BMWs western property line
 adjacent to the building and in front of the parking adjacent to Cambie Road. A variety of
 shrubs and grasses will be used immediately adjacent to both the BMW and Mercedes
 Benz buildings.
- No trees are proposed on-site due to the proposed site coverage, the significant 4.2m wide frontage dedication along Cambie Road and the presence of utility rights of way adjacent to both the east and west property lines that do not permit the planting of trees.

Crime Prevention Through Environmental Design

- Security gates and fencing structures will be installed to prevent general access to the rear of the site during non-business hours.
- The security gate near the south access to Vanguard Road is recessed to allow for a vehicle to pull fully off the road.
- Office entrances to both buildings will be highly visible to Cambie Road.

Green Roof Bylaw Response:

As noted earlier, the Green Roof Bylaw No. 8385 applies to this development as the proposed gross floor area will exceed 2,000 m². Key elements of the response to the Bylaw requirements include:

- roof top vehicle parking and storage;
- installation of a vegetation wall along approximately half of the west side of the building facing Shell Road;
- installation of a vegetated bioswale along a portion of the Cambie Road frontage;
- use of pavers for both pedestrian walkways allowing infiltration of storm water;

- use of permeable pavers across all the at-grade parking stalls adjacent to Cambie Road;
 and
- installation of a 213 m³ storm water detention tank system with an integrated irrigation system designed to collect and use the roof top storm water to irrigate the site's vegetation areas. Attachment 3 includes a report prepared by Envirowest Consultants indicating the technical requirements for achieving a 20% reduction of annual stormwater runoff from this development site and a report prepared by Hub Engineering confirming that they will design the recommended storage reservoir per Envirowest's specifications.
- A covenant will be registered on title per the Green Roof Bylaw No. 8385 ensuring that
 the owner shall maintain the storm water management work, landscaping features and
 structural elements support such features in accordance with generally accepted building,
 landscaping and engineering maintenance practices so that the design volume of storm
 water runoff from the site will, in perpetuity or until approved redevelopment, not be
 exceeded.

Flood Construction Level:

A flood construction level of 2.9 m GSC or a minimum elevation of 0.3 m above the highest crown of the adjacent roadway is required for habitable areas of the subject site. The proposed plans indicate that the minimum floor elevation of the buildings will be 2.45 m GSC. The reported highest crown on an adjacent road is 2.14 m at the east end of Cambie Road.

Registration on title of a flood indemnification covenant is a condition of the Development Permit issuance.

Aircraft Noise:

The subject property is located with Area 3, moderate noise. As this property is zoned for industrial use the aircraft noise policies do not apply. Registration on title of an aircraft noise indemnity covenant for non-sensitive uses is a condition of the Development Permit approval.

Conclusions

This development site is technically challenging in terms of meeting both the proponent's needs for efficient useable space and the City's requirements related to satisfying the requirements of Richmond's Green Roof Bylaw No. 8385. The final design has been endorsed by the Advisory Design Panel and the proponent has made a strong effort to address the Panel's comments and recommendations particularly with regard to the addition of a water retention tank plus integrated irrigation system.

There is a clear gain for the City in terms of land dedication along Cambie Road frontage improvements along both Cambie Road and Vanguard Road and through improved utilization of a property which has been under-used for a number of years.

Staff recommend issuance of the Development Permit permitting the construction of a dual automobile repair facility at 11100 Cambie Road as outlined in the development permit submission inclusive of the two requested variances.

David Brownlee

Planner 2

DCB:cas

The following are to be met prior to forwarding this application to Council for approval:

- 1. Receipt of a Letter-of-Credit (inclusive of a 10% contingency) for landscaping in the amount of \$22,176.00.
- 2. Dedication of a 4.2m wide land dedication along the entire 11100 Cambie Road frontage.
- 3. Dedication of a 4m x 4m corner cut at the southwest corner of the Cambie Road and Vanguard Road intersection, measured from the new property line.
- 4. Registration of a flood indemnity covenant on title.
- 5. Registration on title of an aircraft noise indemnity covenant for non-sensitive uses.
- 6. Registration of a legal agreement on title restricting larger vehicles (i.e. WB17) from accessing the site unless it can be demonstrated to the satisfaction of the Director of Transportation that a WB 17 can adequately manoeuvre through the site.
- 7. Registration of a legal agreement on title per the Green Roof Bylaw No. 8385 ensuring that the owner shall maintain the storm water management work, landscaping features and structural elements support such features in accordance with generally accepted building, landscaping and engineering maintenance practices so that the design volume of storm water runoff from the site will, in perpetuity or until approved redevelopment, not be exceeded.

Prior to future Building Permit issuance, the developer is required to complete the following:

1. Enter into a Servicing Agreement* for the design and construction of frontage works along both Cambie Road and Vanguard Road. Works include, but may not be limited to the following:

Storm

Cambie Road

Storm analysis and upgrades are not required. The development site is to connect to the existing storm sewer and utilize one of the existing tie-in points; all other connections are to be abandoned/removed at the developer's cost.

Vanguard Road

The developer is required to infill the existing ditch with a 600mm diameter storm sewer from the south P/L of the development site to existing manhole STMH2244 (Cambie Rd). A manhole will be required at the south P/L to connect the 600mm storm sewer to existing culver crossing at 4131 Cambie Rd. The infill may need to be extended past the development site to accommodate road widening.

Sanitary

Sanitary analysis and upgrades are not required.

Cambie Road

The existing sanitary sewer system, sewer pipe and manhole SMH5184, is to be removed up to existing manhole SMH5185, located at the northeast corner of the development site and the existing ROW is to be discharged.

Vanguard Road

- a) Existing sanitary service connections and ICs are to be removed at developer's cost.
- b) New sanitary connection is to tie into existing manhole SMH5186, located at the southeast corner of the development site.
- c) Since the proposed building will be located at the edge of the existing sewer ROW, the clearance from the existing sanitary sewer is a concern to the City; the developer is required to provide a letter, signed and sealed by an professional engineer, certifying that the City will be able to maintain, operate, repair or remove City utilities/infrastructure within the existing sewer ROW without any detrimental impact to the finished building structure and the construction/maintenance of the building structure will not cause any damage to City utilities/infrastructure. If this is not feasible, then the developer is required to either increase the building setback and provide an additional 2.0m ROW or relocate the existing sanitary sewer.
- d) A 2 year maintenance period may be required for the Servicing Agreement.

Water

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, is required as part of the Building Permit.

There is an existing asbestos cement watermain along Vanguard Rd. If the watermain is damaged and/or impacted during construction of frontage improvements, then repair and/or replacement will be required at the developer's cost.

Additional hydrants are required along Cambie Rd and Vanguard Rd to achieve minimum spacing of 75m for an industrial development. A hydrant is required along the south side of Cambie Rd, unless otherwise approved by the Richmond Fire Department.

Transportation Related

Applicant responsible for the design and construction of the following:

- a) Cambie Road frontage: 1.5m wide concrete sidewalk at the new property line and a treed/grassed boulevard between the remaining space to the existing curb. The placement of the trees should be within the 1.5m area next to the new sidewalk to allow for future road widening.
- b) Vanguard Road frontage: Road widening to complete the western half of the ultimate road cross-section, which includes a 12m wide pavement, and 0.15m wide curb and gutter, 1.5m wide sidewalk, and 1.5m wide tree boulevard on both sides of the road.

Additional Requirements

a) 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.

- b) Private utility companies will require rights-of-ways to accommodate their equipment (kiosks, vista, transformers, etc.); the developer is required contact the private utility companies to learn of their requirements.
- c) Relocation of City and Private infrastructure (street lighting, power poles, etc.) maybe required at the developer's cost to accommodate frontage improvements.
- d) Geotechnical assessment is required to determine the suitability of the existing road sub-grade on Vanguard Rd.
- 2. The applicant is required to obtain a Building Permit for any construction hoarding associated with the proposed development. If construction hoarding is required to temporarily occupy a street, or any part thereof, or occupy the air space above a street or any part thereof, additional City approvals and associated fees may be required as part of the Building Permit. For further information on the Building Permit, please contact Building Approvals Division at 604-276-4285.
- 3. Submission of a construction traffic and parking management plan to the satisfaction of the City's Transportation Division (http://www.richmond.ca/services/ttp/special.htm).
- 4. If applicable, payment of latecomer agreement charges associated with eligible latecomer works.



Development Application Data Sheet

Development Applications Division

DP 13-643519			Attachment 1
Address: 11100	Cambie Road		
Applicant: Christo	opher Bozyk Architects	Owner:	Openroad Auto Group Ltd. Inc.
Planning Area(s):	East Cambie		
Floor Area Gross:	5,090.2 m ² (54,790 ft ²)		

	Existing	Proposed
Site Area:	7,829 m ²	7,444 m ² after dedication
Land Uses:	Industrial	Industrial – Vehicle Body Repair & Paint
OCP Designation:	Mixed Employment	Same
Zoning:	Industrial Retail (IR1)	Same

	Bylaw Requirement	Proposed	Variance
Floor Area Ratio	1.0	0.68	None permitted
Lot Coverage	Max. 60%	73%	Variance
Setback - Front Yard	Min. 3,0 m	1.5 m	Variance
Setback - Side Yard Exterior	Min. 3.0 m	3.0 m	None
Setback – Side Yard Interior	Min. 0 m	0 m	None
Setback – Rear Yard	Min. 0 m	0 m	None
Height (m)	Max. 12 m	9.8 m	None
Lot Size	None	N/A	None
Off-street Parking Spaces – Commercial	196	197	None
Off-street Parking Spaces – Accessible	4	, 4	None
Tandem Parking Spaces	Not permitted	Only for repair vehicle storage on upper rooftop	
Bicycle Spaces	14 Class 1 14 Class 2	14 Class 1 14 Class 2	None
Loading Stalls 1 Large 2 Mediur		1 Large in a shared configuration with 2 Medium stalls	None

The Design Panel Meeting

Wednesday, October 9, 2013 – 4:00 p.m. Rm. M.1.003 Richmond City Hall

2. DP 13-643519 – TWO AUTOMOBILE REPAIR FACILITIES ON A SINGLE LOT

APPLICANT:

Christopher Bozyk Architects

PROPERTY

11100 Cambie Rd.

LOCATION:

Applicant's Presentation

Architect Ernst Loots, Christopher Bozyk Architects Ltd., and Landscape Architect Al Tanzer, LandSpace Design, Inc., and Tony Vigini, Wales McLelland Construction presented the project and answered queries from Panel on behalf of the applicant.

Panel Discussion

Comments from the Panel were as follows:

- like the design and location of the automobile repair facility;
- prefer to see trees instead of a fence on the west side of the building along Shell Road; the green look would be more aesthetically appealing;

Fenced area and fencing are required for parking and security

Added vertical landscaping addresses desire for more green

 appreciate the gates on driveways; consider adding nighttime removable bollards on the driveway;

Comment noted

 interesting project; consider opportunities for reducing energy use in the repair shop facility;

Comment noted

consider external shading for the big curtain wall;

Curtain wall faces north, obviating the need for sun shading; Low E glass will be used, providing sufficient shading

• car wash drainage for wastewater and residues should be separate from the public drainage system;

Requirement will be addressed at BP stage

consider opportunity to harvest rainwater from the roof for car wash use;

Comment noted – harvesting is not a consideration at this time

• west elevation of the building appears flat and long; reconsider the current approach which emphasizes the length of the building; suggest further design development;

West elevation has been altered and with addition of vertical landscaping provides more variation – refer updated drawings

• concern on the placement of the fence along Shell Road which is 10 feet away from the edge of the building; has the potential of becoming an unsightly storage area;

CBA feels the fence provides sufficient screening; the specific operation is very orderly and garbage is elsewhere located

- treatment of public areas are well thought out; will meet the needs of customers with disabilities;
- concern on access to the training areas on the second floor which are currently served by stairs; consider more convenient access through elevators to facilitate movement of staff and equipment;

Staff access via stair is sufficient; there is no requirement for equipment moving; additional elevators would be uneconomical; parts are moved by specific-purpose lifts

 consider providing amenities for disabled persons in second floor staff washrooms;

Provision is made for the disabled on the ground floor; workshop activity is not possible for the disabled, thus no provision for disabled at 2nd floor staff areas

• ensure that the plant species mix on the west elevation reinforce the intended objectives of the applicant; should be partially vegetative;

Comment noted – see also west elevation revisions and added vertical landscaping

 orange accent on the northwest corner of the facility should match with adjacent plant materials;

Comment noted - proposed landscaping is considered appropriate

 concern about the functionality of the rain garden (bio-swale) due to adjacent area with permeable paving;

Civil consultant is satisfied with the configuration

- good solution for two buildings with one identity;
- proposed picket fence along the west side of the property will not work well with the horizontal linear architectural treatment of the building;
 - CBA feels the deliberate juxtaposition of vertical with horizontal is appropriate and provides visual variation
- actual transition between the two buildings could be developed further; consider a different piece; could simply be a two-storey element of a different material;
 - CBA feels any further development of the interface will distract from the already bold and distinct character of the two buildings; the interface is intended to unify and act as backdrop, a third point of emphasis in not sought
- good landscaping treatment on the ground plane; appreciate the building façade visually broken up;
- no provision for stormwater runoff from the roof; since parked cars on the roof would have been involved in collisions, oil and other contaminants would likely be present on the roof surface; should be addressed by the applicant;
 - Roof run-off and oil/water separation will be addressed at BP stage see also Urban Design comments
- form, character and materials are good; like the roof-top parking;
- consider opportunity to add a window at the corner on the second floor;
 - Owner and CBA do not support a window in the curved wall the simplicity and scale of the form will be lost
- good placement of glass materials; will prevent solar gain as they are all facing north;
- like the scheme; appreciate the architecture and materials;

 concern on the awkward location of the vehicular entrances at the back corner off Vanguard Road;

Entrances are considered optimal in view of the site constraints

 not sure whether the Green Roof Bylaw requirements have been met by the applicant;

The consultant team is proposing that the required reduction be achieved mainly through a detention tank system – refer to Civil and RP Bio reports [Attachment 3]

- generally the project is well done; supportive of the project;
- good site planning and building design on a large square site;
- appreciate the separate distances of the elevations from the property line;
- like the stately pylons;
- northwest corner will attract a lot of public attention due to its proximity to a road intersection; orange accent treatment is inadequate; look at opportunity for further treatment of a very large and long façade along Shell Road; and

CBA considers the formal handling of the corner and orange accent appropriate and successful, with sufficient emphasis to not distract from the importance of the two main feature facades

model presented by the applicant does not provide details as shown in the drawings, e.g. glass materials.

Note that the model was asked to be a massing model, conveying the overall compositional quality, in which it succeeded – some detail will however be added to the final model

Panel Decision

It was moved and seconded

That DP 13-643519 be supported to move forward to the Development Permit Panel subject to the applicant giving consideration to the comments of the Panel.

CARRIED

Opposed: Matthew Thomson

ADDITIONAL COMMENTS:

The updated drawings contain the following revisions:

A. Revisions pertaining to Staff and ADP comments:

Development of west elevation and addition of vertical landscaping

Addition of exhaust ducts and west facade feature duct

Location of pad-mount transformer (n-west corner of site)

Relocation of BMW flag poles (due to transformer location)

North driveway width correction (required by Engineering)

Building sections update; addition of section through M-B

B. Revisions of note pertaining to design development and owner requirements:

Nominal raising of parking deck and related concrete tilt walls

Reconfiguration of BMW workshop bays along west wall

Deletion of Stair 4, stair not required for exiting

Relocation of gas meters from BMW n-west to BMW s-east

Parking layout revisions related to above Stair 4 and gas meter changes

Deletion of one washroom at M-B main floor offices, and related revision of partition layout

Response compiled by Ernst Loots / CBA



envirowest consultants inc.

Suite 101 - 1515 Broadway Street Port Coquitlam, British Columbia Cahada V3C 6M2 604-944-0502

November 14, 2013

Mr. Ernst Loots Christopher Bozyk Architects Ltd. Suite 414 - 611 Alexander Street Vancouver, BC V6A 1E1

Dear Sir,

RE: 11100 CAMBIE ROAD, RICHMOND ROOFTOP RUNOFF REDUCTION

The City of Richmond's Bylaw 8385 defines a stormwater management objective of reducing the total annual runoff discharged from a proposed rooftop to the City's storm sewer/drainage system by a minimum of 20 percent of the volume that would be generated by a conventional rooftop of equal area. Below, we describe a proposed scheme by which this objective can be achieved for the proposed development located at 11100 Cambie Road, Richmond.

The rooftop for the proposed structure is approximately 58,550 th^2 (5,442 m²) in area.

The average annual precipitation at the Vancouver International Airport, based on the 30-year period between 1970 and 2000, is 1,199 mm. The average annual runoff from the proposed rooftop, assuming an interception/evaporation loss of 10 percent, would be 5,872 m³. Compliance with Bylaw 8385 would require a reduction of 1,175 m³ in runoff from the rooftop to the off-site storm system.

The proposed approach to runoff reduction involves runoff storage and re-use as irrigation water. Runoff would be stored in an underground reservoir and would be distributed to landscaped portions of the site during the growing season (generally April through September) via an irrigation (sprinkler) system. The monthly volume of water to be diverted as irrigation water would be 196 m³ (1,175 m³ divided by 6). A storage reservoir of 213 m³ would be required to ensure the availability of water throughout the growing season. All rooftop runoff would be routed through the storage reservoir, with excess flow routed to the conventional storm sewer system. We suggest that a sediment trap be installed upstream of the reservoir to intercept grit originating at the rooftop.

www.envirowest.ca

Mr. Erust Loots 11100 Cambie Road, Richmond Rooftop runoff reduction November 14, 2013

Page 2 of 2

During the months of April and May, rooftop runoff (based on monthly average rainfall, reduced by interception losses) will exceed the required irrigation use. During the period of June through September, irrigation use will exceed inflow to the reservoir, such that the reservoir will empty by the end of September in a typical year. Interception losses are estimated to 30 percent for April and May, 40 percent for June and September, and 50 percent for July and August. The water balance for the months of April through September is tabulated below.

MONTH	RESERVOIR VOLUME AT START (m³)	AVERAGE PRECIP. (mm)	INFLOW TO RESERVOIR (m³)	WITHDRAWN FOR IRRIGATION (m³)	RESERVOIR VOLUME AT END (m³)
April	213	84	196	196	213
May	213	68	196	196	213
June	213	55	180	196	197
July	197	40	109	196	110
August	110	39	106	196	20
September	20	54	176	196	0

The site's landscaped area is estimated to be approximately 800 m². The proposed irrigation rate of 196 m³/month is equivalent to 245 mm (water depth) per month over the entire landscaped area. The irrigation system should be programmed to operate on alternate days, thus dispensing approximately 17 mm per (irrigation) day. The irrigation season typically includes 10 days with precipitation of 10 mm or more; irrigation should be suspended on those days.

Thank you for your attention. Please call either one of us should you have any questions regarding the aforementioned.

Yours truly,

IWW/MAA

ENVIROWEST CONSULTANTS INC.

Mark A. Achams, R.P.Bio.

Senior Project Manager/Biologist

Ian W. Whyte

Senior Project Manager

Hub Engineering Inc.

Engineering and Development Consultants



101 - 7485 - 130 Street, Surrey, B.C. V3W 1H8 Tol: 604-572-4328 Fax: 604-501-1625 Email: mail@hub-inc.com

November 14, 2013

Hub File: 13034-A3

Christopher Bozyk Architect Ltd. 414 - 611 Alexander Street Vancouver, B.C. V6A 1E1

Attention: Mr. Ernst Loots

Dear Sir:

Re: No. 1 Collision, 11100 Cambie Road, Richmond, B.C.
City Green roofs and other options involving Industrial and Office buildings
outside City Centre, Richmond Bylaw 8385

Further to our letters dated August 7, 2013, September 30, 2013 and November 6, 2013 to you regarding the above-referenced "Green Roof" bylaw, we provide an update on the issue of the 20% reduction of total annual rainfall from the roof:

Environest Consultants Inc have provided a letter outlining how the 20% reduction can be achieved for this site, dated November 14, 2013. We confirm that the Project Engineering consultant team will design the recommended storage reservoir with 213m3 capacity, as noted in the Environest Letter.

Yours truly,

HUB ENGINEERING INC.

Krozka

OAProjecte\13034.tvalVA3 Correspondence\2013-11-14 Letter CBA.docns



Development Permit

No. DP 13-643519

To the Holder:

Christopher Bozyk Architects

Property Address:

11100 Cambie Road

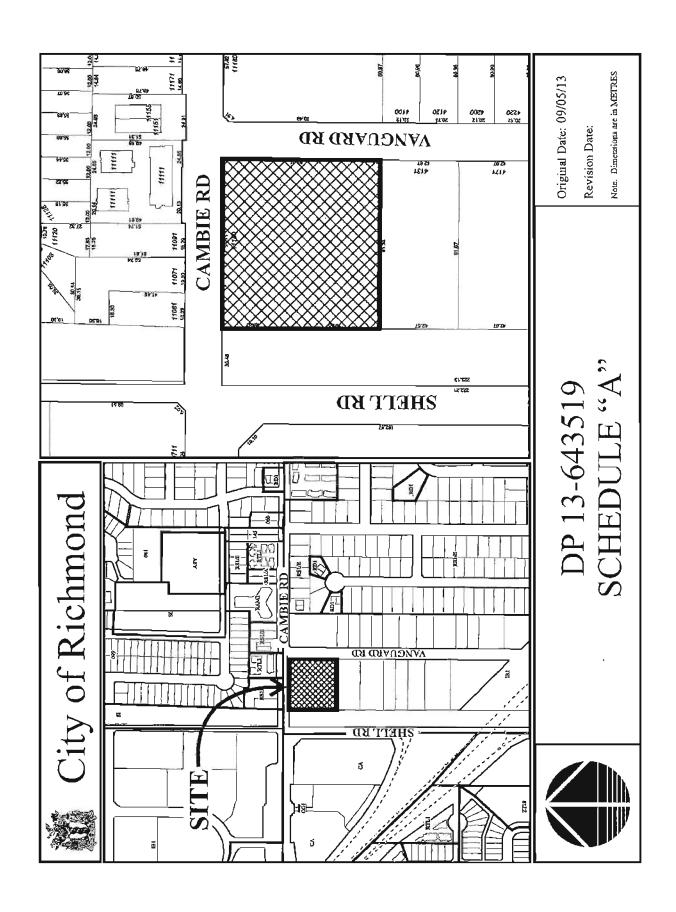
Address:

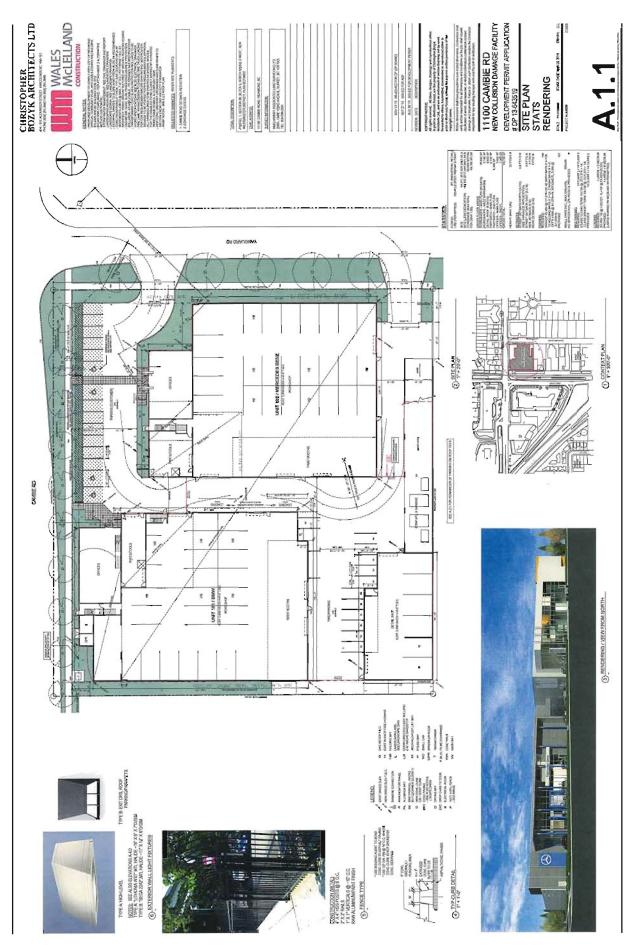
414 - 611 Alexander Street Vancouver, BC, V6A 1E1

- 1. This Development Permit is issued subject to compliance with all of the Bylaws of the City applicable thereto, except as specifically varied or supplemented by this Permit.
- 2. This Development Permit applies to and only to those lands shown cross-hatched on the attached Schedule "A" and any and all buildings, structures and other development thereon.
- 3. The "Richmond Zoning Bylaw 8500" is hereby varied to:
 - a) Increase the maximum site coverage from 60% to 73%; and,
 - b) Reduce the minimum exterior side yard setback from 3.0 metres to 1.5 metres along the Cambie Road frontage.
- 4. Subject to Section 692 of the Local Government Act, R.S.B.C.: buildings and structures; off-street parking and loading facilities; roads and parking areas; and landscaping and screening shall be constructed generally in accordance with Plans #1 to #7 attached hereto.
- 5. Sanitary sewers, water, drainage, highways, street lighting, underground wiring, and sidewalks, shall be provided as required.
- 6. As a condition of the issuance of this Permit, the City is holding the security in the amount of \$22,176.00. to ensure that development is carried out in accordance with the terms and conditions of this Permit. Should any interest be earned upon the security, it shall accrue to the Holder if the security is returned. The condition of the posting of the security is that should the Holder fail to carry out the development hereby authorized, according to the terms and conditions of this Permit within the time provided, the City may use the security to carry out the work by its servants, agents or contractors, and any surplus shall be paid over to the Holder. Should the Holder carry out the development permitted by this permit within the time set out herein, the security shall be returned to the Holder. The City may retain the security for up to one year after inspection of the completed landscaping in order to ensure that plant material has survived.
- 7. If the Holder does not commence the construction permitted by this Permit within 24 months of the date of this Permit, this Permit shall lapse and the security shall be returned in full.

Development Permit No. DP 13-643519

To the Holder:	Christopher Bozyk Architects
Property Address:	11100 Cambie Road
Address:	414 - 611 Alexander Street Vancouver, BC, V6A 1E1
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DELIVERED THIS	DAY OF , .
MAYOR	



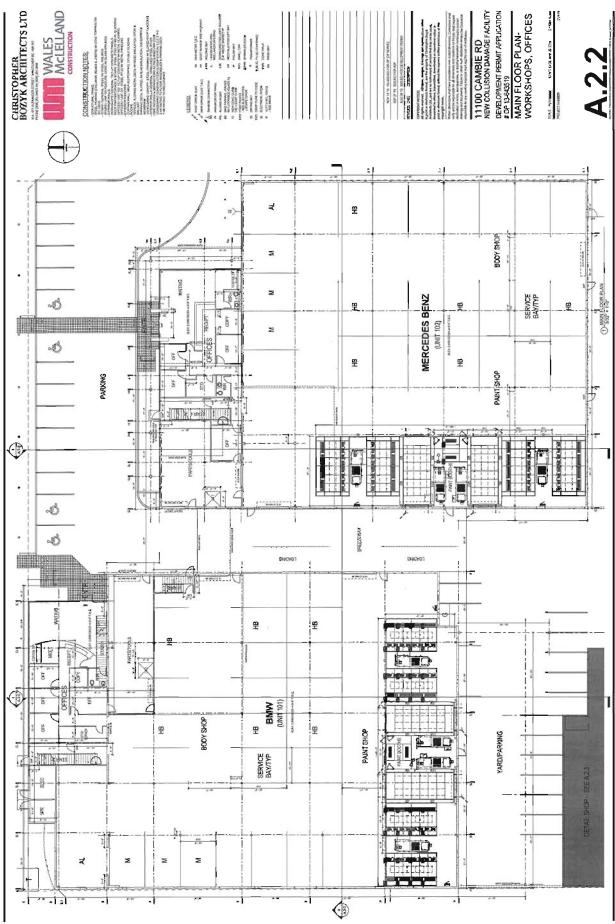


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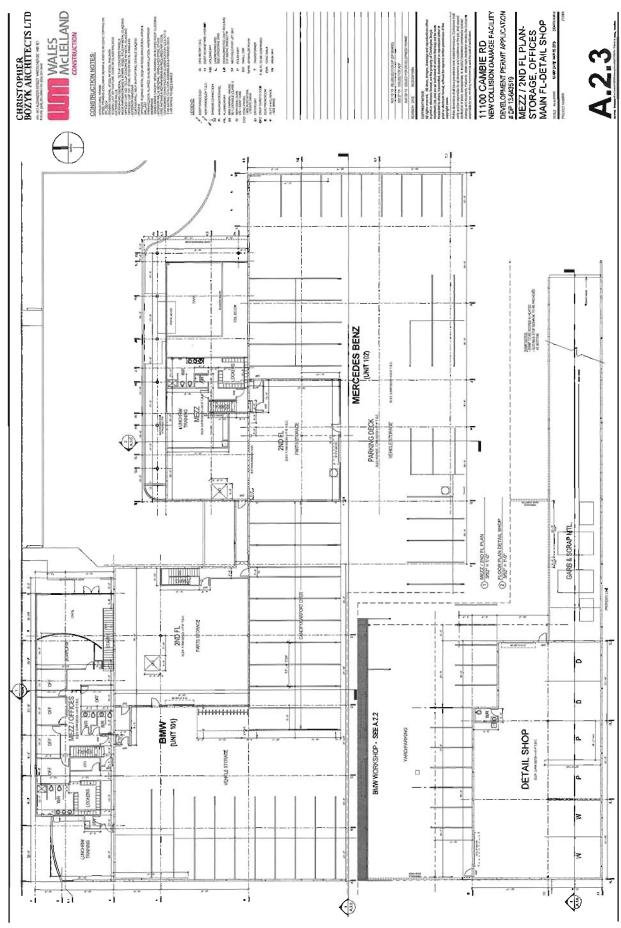
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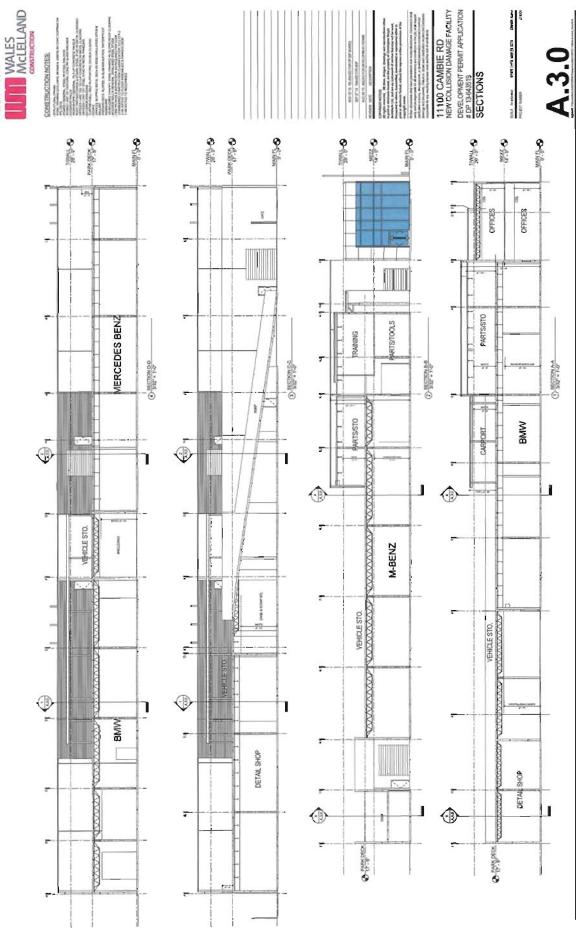
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CHRISTOPHER BOZYK ARCHITECTS LTD

DP 13-643519

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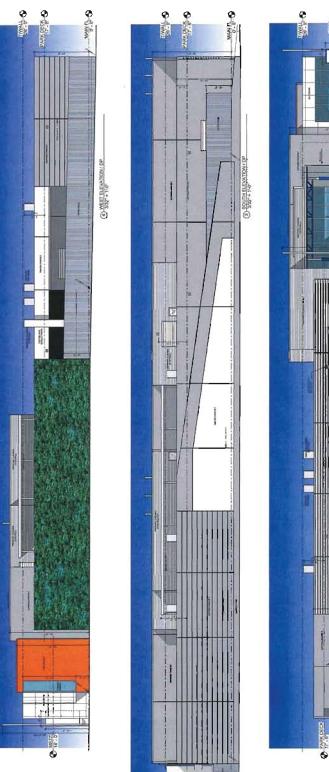
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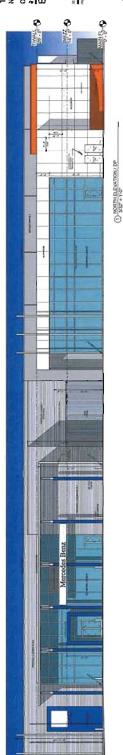
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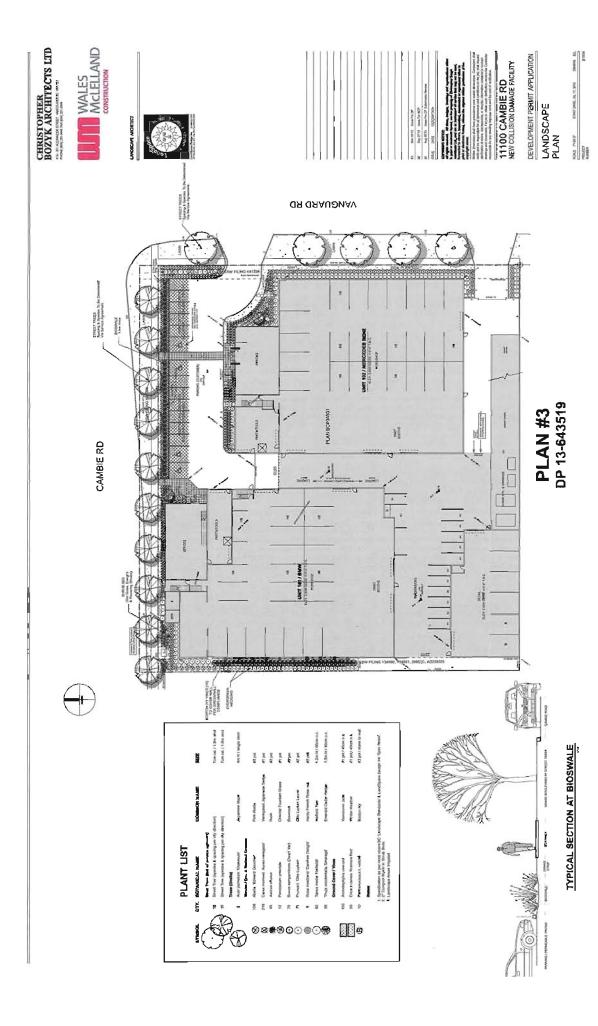
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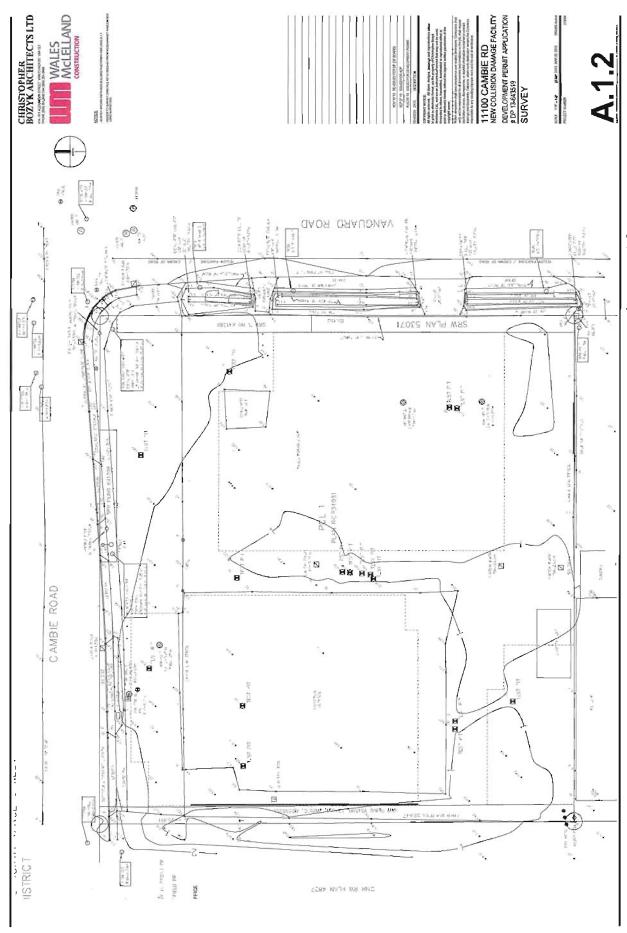
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