



October 31st, 2017

Township of Esquimalt
1229 Esquimalt Road
Esquimalt, British Columbia
V9A 3P1



Re: Roger's Court Development & the Integration of St. Paul's Historic Church

Dear Mayor and Council:

Originally constructed in 1866, St. Paul's Church was built on the shores of Esquimalt Harbour with the intention of providing worship space for the village of Esquimalt and the military personnel stationed at the nearby base. After the addition of the transepts in 1879 the church was relocated in 1904 to its current location on Esquimalt Road and extended by an additional bay. In 1928, the east apse and vestry were added. Today, there is the opportunity to continue the story of this historic building by revitalizing its function as a place of worship and enhancing its contemporary potential with the development of Roger's Court.

John Dam & Associates has been actively involved with the development documents, providing input on the siting and orientation of the new tower including its impact on and connection to the historic church.

Noting the west elevation with the stained glass windows as an important character defining element, the new building has been pulled back from obscuring this wall by creating a low-rise, 'opaque' corridor between the two buildings. The corridor will feature curtain wall glazing, subtly incorporating a strong Gothic tenet of the arched window within its framing while keeping the two buildings visually separate. A key importance of this corridor, despite effectively separating the two buildings, will allow for comfortable access into and between the two buildings for both the residents of the new building and the general public. This is intended to revitalize the church for both traditional and contemporary use – an important aspect for the continued existence this historic building.

The new development will both renew the purpose and use of the historic church space while remaining mindfully separate from it and minimally impacting the view lines of this historic building.

Sincerely,

John Dam, Principal
Building Conservation Engineer
B.A.Sc., M.Sc., P.Eng., CAHP, LEED AP



1379 Esquimalt Road Development

Parking Study



Prepared for: **number TEN architectural group**

Prepared by: **Watt Consulting Group**

Our File: **2244**

Date: **May 10, 2018**

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1.0 INTRODUCTION

Watt Consulting Group was retained by number TEN architectural group to prepare a parking study for the proposed rezoning of the 1379 Esquimalt Road property in the Township of Esquimalt. The purpose of this study is to determine if the proposed parking supply will accommodate parking demand by considering demand at representative sites and in consideration of parking management approaches.

1.1 SUBJECT SITE

The proposed development site is located at 1379 Esquimalt Road in the Township of Esquimalt. The site is currently zoned CD-23 Comprehensive Development District No. 23. See **Figure 1.**

FIGURE 1. SUBJECT SITE



1.2 SITE CHARACTERISTICS

The following provides details regarding transportation options and services that are located in close proximity to the site.



Transit

The closest bus stops to the site are 85m west of the site (eastbound service), and adjacent the site on the north side of Esquimalt Road (westbound service). Routes that serve the bus stops are Route 15 | Uvic/Esquimalt, Route 25 | Maplewood/Admirals Walk/Colwood, and Route 26 | Dockyard/Uvic. These routes provide service and/or connection to the majority of destinations in Greater Victoria including UVic, Camosun, Downtown Victoria, and the Western Communities. Route 15 is a Regional Route with a service frequency of 15 to 60 minutes with limited stops; Routes 25 and 26 are local routes with service frequency of 20 to 120 minutes.

BC Transit's Transit Future Plan has identified Esquimalt Road as a "Frequent Transit Corridor"¹ that will provide frequent service (15 minutes or better between 7am and 10pm, 7 days per week) with improved transit travel times achieved by fewer stops and transit priority measures and enhanced bus stop infrastructure. With the Frequent Transit Network projected to carry a large share of the future transit system's total ridership, the subject site will benefit from frequent, reliable and convenient transit service.



Walking

There are adequate sidewalks on both sides of the road on Esquimalt Road. There are also crosswalks at major intersections, and a mid-block crosswalk on Esquimalt Road directly adjacent the site connecting to the north side of Esquimalt Road. The site has a Walkscore² of 60 which suggests the site is somewhat walkable and some errands can be accomplished on foot.



Services

At the intersection of Admirals Road and Esquimalt Road (less than 500m from the site) there is a grocery store, liquor store, and a few small-scale restaurants and retail shops. Esquimalt Village is less than 1km from the site and has a library, medical services, postal services, and various commercial uses that will accommodate the daily needs of site residents.

¹ More information on the Victoria Transit Future Plan is available online at: <http://bctransit.com/victoria/transit-future/victoria-transit-future-plan>

² Walkscore. <https://www.walkscore.com/score/1379-esquimalt-rd-victoria-bc-canada>

2.0 PROPOSED DEVELOPMENT

The proposed development is for 24 units of non-profit senior's housing with a Ministry Centre on the main floor of the building. The existing St. Paul's & St. Peter's Church will be retained and the existing Community Hall will be demolished. See **Table 1**.

The Ministry Centre will consist of meeting spaces, limited offices, a kitchen, and a multi-purpose space with capacity for 48 people, seated. As the Ministry Centre is located on the ground floor, and is connected with the Church, they will be utilized in conjunction with each other. The proposed Ministry Centre is expected to function similarly to the existing Community Hall and exhibit similar parking demand characteristics.

The senior's housing units will be operated by the Rogers Court Society. A portion of funding will be received through BC Housing for interim construction financing, and purchasing 16 of the units which will decrease the rent rates. An operating agreement will be developed with BC Housing and through a housing agreement with the Township of Esquimalt to ensure affordable rents. The goal for this site is to have rents set at 65% of average market rents (approximately \$740 per month). Incomes of residents are expected to be lower than \$30,000 and more typically range from \$18,000 to \$24,000.

TABLE 1. SUMMARY OF PROPOSED DEVELOPMENT

Land Use	Quantity		
	Units	Sq.ft.	m ²
Senior's Housing (new)	24		
Ministry Centre (new)		4,857	451
Church (existing)	110		

2.1 PROPOSED PARKING SUPPLY

The proposed parking supply for the site is 27 parking spaces; a combined 23 spaces for the Senior's Housing, Church and Ministry Centre, and four spaces for the Hermitage building³.

The project also includes four on-street parking spaces on Foster Street.

3.0 PARKING REQUIREMENT

The Township of Esquimalt Parking Bylaw No. 2011⁴ determines the minimum parking supply requirement for all land uses. The site is subject to a total parking requirement of 53 parking spaces. See **Table 2**.

³ The Hermitage (a condominium building located at 520 Foster Street) has an agreement that 4 of the site's existing 21 parking spaces are for their use. This agreement will be fulfilled post-development within these 4 reserved parking spaces.

https://www.esquimalt.ca/sites/default/files/docs/municipal-hall/bylaws/parking_bylaw_2011_july.pdf

TABLE 2. SUMMARY OF PROPOSED DEVELOPMENT

Land Use	Quantity	Parking Requirement		
		Use	Rate	Req't
Senior's Housing (new)	24	Senior Citizens Apartments	0.5 / unit	12
Ministry Centre	426m ²	Entertainment	1/5 seats with a minimum of 1 / 14m ² GFA	30
Church	110	Churches	1 / 10 seats	11
Total Parking Requirement				53

4.0 EXPECTED PARKING DEMAND

Expected parking demand is estimated in the following sections to determine if the proposed parking supply will accommodate site parking needs. Expected parking demand is based on vehicle ownership information from ICBC, observations, surveys and research.

4.1 SENIOR'S HOUSING

There are two existing multi-family buildings on the same block as the proposed site. Parking demand information was obtained for both buildings as follows:

Hermitage, 520 Foster Street. The Hermitage building has 26 residential units, subject to strata title ownership. Based on conversations with site manager⁵, it is understood that there are 31 vehicles associated with the building; a parking demand rate of 1.19 vehicles per unit.

Vista Del Mar Apartments, 1378 Lyall Street. This building has 26 residential units that are all adult-oriented, accessible, apartment rentals. Parking observations were conducted on site, and concluded a peak parking occupancy of 74% (20 vehicles), which occurred on Friday at 10:00pm. This results in a peak parking demand of 0.69 vehicles per unit.

There is significant research to suggest that parking demand varies depending on tenure type (i.e., condominium vs. rental apartment)⁶. This is evident in the parking demand rates generated for these two buildings that found the condominium site has a 72% higher parking demand than the rental apartment. Although these sites represent similar characteristics in terms of location, they are different residential land uses and are expected to experience higher parking demand than the subject site. Similar to the variation in parking demand between a

⁵ Email correspondence occurred on August 29, 2017 via email.

⁶ Based on findings from two research studies:

a. City of Toronto, Parking Standards Review, February 2007, p16, Figure 3.1. Available at: www1.toronto.ca/city_of_toronto/city_planning/zoning_environment/files/pdf/cansult_final_apart_stds.pdf

b. Metro Vancouver, The Metro Vancouver Apartment Parking Study – Technical Report, 2010, p44, Table 21. Available at: www.metrovancouver.org/planning/development/strategy/RGSDocs/Apartment_Parking_Study_TechnicalReport.pdf

condominium and rental apartment, there is a similar variation between rental apartments and senior's housing.

Other residential sites in the region were considered that more closely represent the proposed land use at the subject site. Parking demand at representative seniors housing sites has been obtained at sites throughout the CRD using vehicle ownership information provided by the Insurance Corporation of British Columbia ("ICBC"), parking demand information from building managers and through on-site observations. Results conclude an average vehicle ownership rate of 0.44 vehicles per unit, and range from 0.31 vehicles per unit to 0.56 vehicles per unit. See **Table 3**.

TABLE 3. VEHICLE OWNERSHIP AT REPRESENTATIVE SITES

Site	Tenure	Parking Demand		Other Notes
		Rate (vehicles/unit)	Source	
506 Grafton Street Grafton Lodge	Apartment	0.31	Building Manager	Seniors 55+ Subsidized
847 Flemings Street Esquimalt Lions Club	Apartment	0.34	Building Manager	Seniors Low-Income
1550 Arrow Road Mount Douglas	Apartment	0.49 0.41	Observations ICBC	Seniors 55+ Independent
3221 Cedar Hill Road Marguerite Court	Apartment	0.48	ICBC	Adults 55+ Subsidized based on Income
1780 Townley Street Townley Lodge	Apartment	0.41	ICBC	Seniors Low-Income
2840 Gillie Place Castanea Place	Apartment	0.55	ICBC	Seniors
3812 Carey Road Carey Place	Apartment	0.56	ICBC	Seniors Affordable
Average Parking Demand		0.44		

The expected parking demand rate for the Senior's Housing is 0.44 vehicles per unit. This takes into consideration the parking demand rate at the representative senior's sites in close proximity to the subject site, and the average parking demand from the five Seniors sites elsewhere in the Capital Region (0.48 vehicles per unit).

4.2 CHURCH / MINISTRY CENTRE

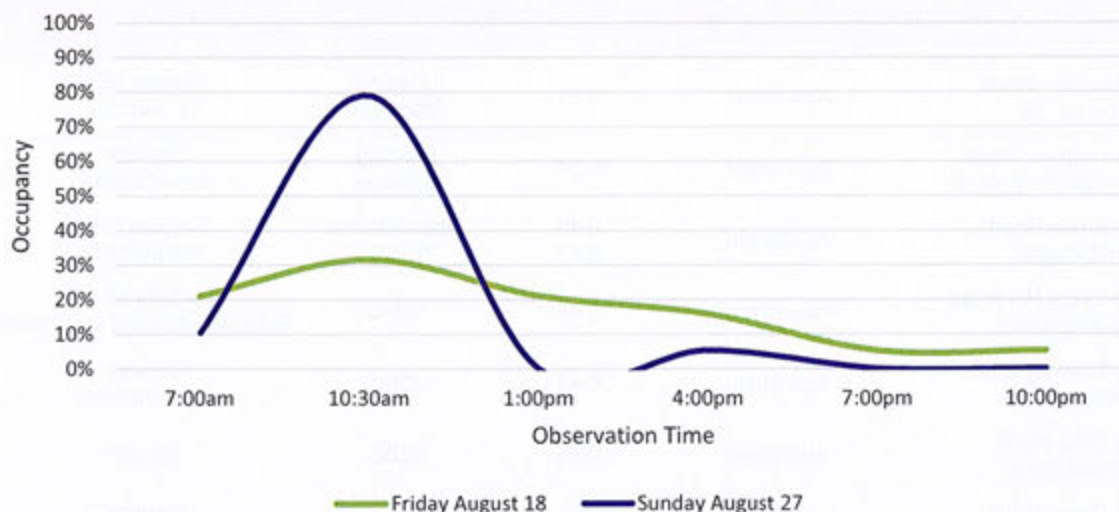
The existing Church and Community Hall function simultaneously with each other. The Community Hall may hold pre- and post-Sunday Church service events, and events throughout the week. Sunday Church Service occurs every Sunday at 8:30am and 10:30am. Typical attendance at the 8:30am service is 15-20 people and the 10:30am service attracts approximately 60-65 people. The size of the congregation is not expected to change in size as

a result of the redevelopment. The majority of congregation members live in Esquimalt, View Royal and a portion of Saanich that borders Gorge Road.

In future, the Church and the proposed Ministry Centre are expected to function similarly to the existing Community Hall and Church. Existing parking demand is therefore considered a good forecast of future parking demand. Observations were conducted at the site during a weekday and a Sunday to understand parking demand characteristics throughout the day. See **Figure 2**. The Church parking lot has a supply of 19 unreserved parking spaces. Observations were conducted during the following periods:

- Friday August 18, 2017 at 7:00am, 10:30am, 1:00pm, 4:00pm, 7:00pm and 10:00pm
- Sunday August 27, 2017 at 7:00am, 10:30am, 1:00pm, 4:00pm, 7:00pm, and 10:00pm

FIGURE 2. SUMMARY OF CHURCH OFF-STREET PARKING UTILIZATION



Peak parking demand was observed on Sunday at 10:30am during Church service when 15 vehicles were observed on-site. An additional five vehicles were observed on the south side of Esquimalt Road directly adjacent the site (during all other observations there were no vehicles parked here), and are assumed to be vehicles related to the Church service. There were four vehicles observed on Grafton Street in the 2 hour parking area adjacent the site that are also assumed to be attributed to the Church function. This suggests there are a total of 24 vehicles attributed to the Church. There were 37 individuals in attendance at the Church on the day of the observations⁷, which results in a parking demand rate of 0.65 vehicles per person. Observations were conducted during the summer when attendance is lower than a typical service during the year. Attendance for a typical service during the rest of the year is approximately 60 people. Using the observed parking demand rate, it is assumed that Church service throughout much of the year results in approximately 39 vehicles.

⁷ Attendance figure provided by Church representative

Peak parking demand for a church occurs for a limited time during the week (every Sunday during church service), and it is inefficient to supply parking that will accommodate parking demand during this time, as it will significantly oversupply parking at all other times. On-street parking observations were undertaken (see Section 5.0) that concluded there is sufficient on-street parking available surrounding the site to accommodate Sunday church parking demand without preventing area residents from accessing on-street parking.

Off-peak Church parking demand was assessed to determine church parking demand when service is not offered. Site observations determined an average of two vehicles associated with the church use, with a peak demand of six vehicles. Based on the assumed increase in congregation during a typical period in the year (non-summer), this suggests that average parking demand will be increased to 3 vehicles and peak parking demand is increased to 10 vehicles.

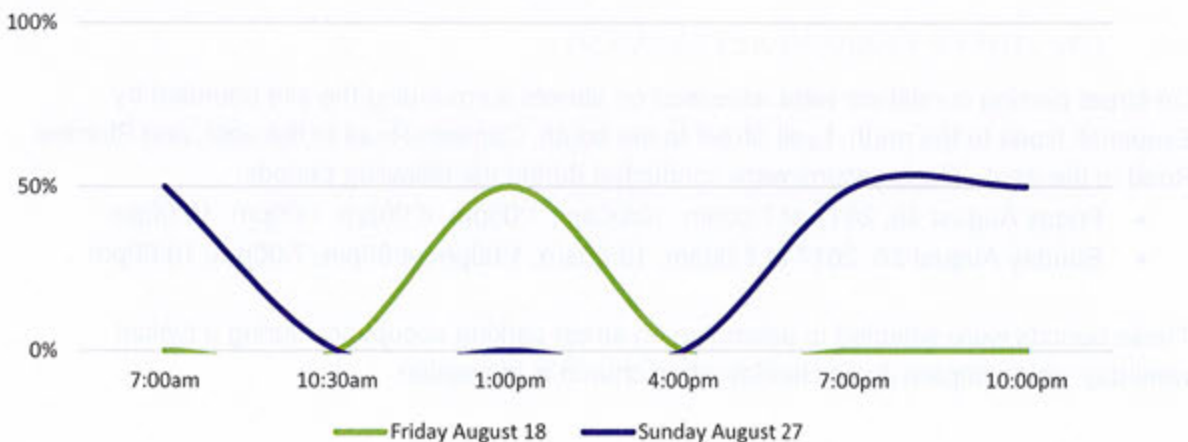
4.3 VISITOR PARKING DEMAND

Visitor parking observations were conducted at the designated visitor parking for the Hermitage building at 520 Foster Street. There are two designated visitor parking spaces – a visitor parking supply rate of 0.08 spaces per unit. Observations were conducted during the following periods:

- Friday August 18, 2017 at 7:00am, 10:00am, 1:00pm, 4:00pm, 7:00pm, 10:00pm
- Sunday August 26, 2017 at 7:00am, 10:00am, 1:00pm, 4:00pm, 7:00pm, 10:00pm

These visitor parking spaces were most commonly observed empty – the peak visitor parking demand occurred on various periods during observations. See **Figure 3**. Peak visitor parking demand was 1 vehicle; a parking demand rate of 0.04 vehicles per unit.

FIGURE 3. SUMMARY OF VISITOR PARKING OCCUPANCY



Observations were conducted as part of a study by Metro Vancouver⁸ that concluded typical visitor parking demand is less than 0.1 vehicles per unit. This is similar to observations that were conducted for parking studies in the City of Langford and the City of Victoria, and suggests that visitor parking demand is not strongly influenced by location.

Observations were conducted in the summer and it is expected that visitor parking demand will be higher during other times of the year. It is therefore suggested that a visitor parking demand will be no more than 0.1 vehicles per unit.

4.4 SUMMARY OF EXPECTED PARKING DEMAND

Based on analysis of each proposed land use, total expected parking demand for the site is 23-52 vehicles (23 vehicles represents a typical day at the site, and 52 vehicles represents when a Sunday Church Service is in session). See **Table 4**. Parking for the existing Community Hall and Church were assessed together – the future Ministry Centre and Church will share parking, similar to their current function. This suggests parking demand will be accommodated during a typical non-church service period. When a Church service is in session it is estimated that approximately 29 vehicles will seek parking on-street nearby the site.

TABLE 4. SUMMARY OF EXPECTED PARKING DEMAND

Land Use		Quantity	Expected Parking Demand Rate	Expected Parking Demand
Senior's Housing (new)	Resident	24	0.44 vehicles / unit	11
	Visitor		0.1 vehicles / unit	2
Ministry Centre/Church			10-39 vehicles	10-39
Total Expected Parking Demand				23-52

5.0 ON-STREET PARKING ASSESSMENT

On-street parking conditions were assessed on streets surrounding the site bounded by Esquimalt Road to the north, Lyall Street to the south, Canteen Road to the east, and Sturdee Road to the west. Observations were conducted during the following periods:

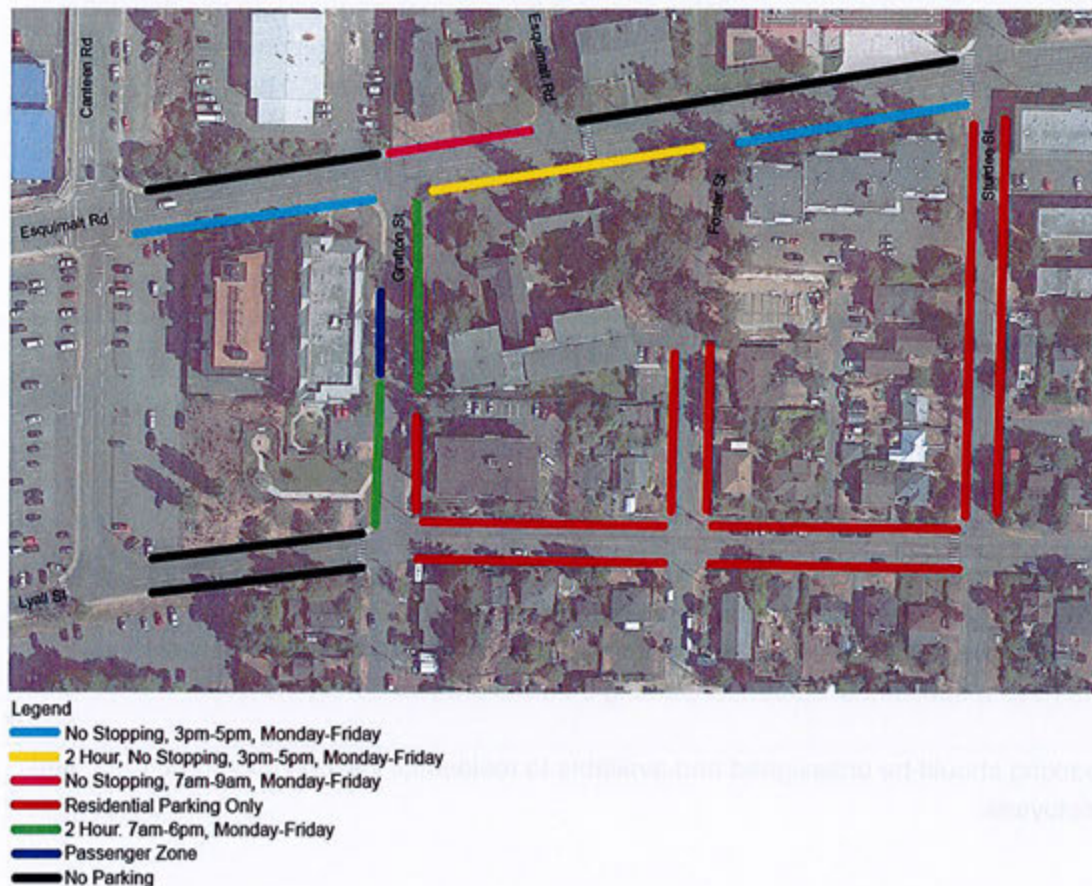
- Friday August 18, 2017 at 7:00am, 10:00am, 1:00pm, 4:00pm, 7:00pm, 10:00pm
- Sunday August 26, 2017 at 7:00am, 10:00am, 1:00pm, 4:00pm, 7:00pm, 10:00pm

These periods were selected to determine on-street parking occupancy during a typical weekday, and compare it to a Sunday when church is in session.

⁸ Metro Vancouver Apartment Parking Study, Technical Report, 2012. Available online at: http://www.metrovancouver.org/services/regional-planning/PlanningPublications/Apartment_Parking_Study_TechnicalReport.pdf

On-street parking restrictions adjacent the site limits the ability for site residents and visitors to park on-street. Parking directly adjacent the site on Grafton Street are restricted to 2 hours, 7am – 6pm, Monday – Friday. Parking on Esquimalt Road is restricted to 2 hours and no stopping from 3pm to 5pm, Monday to Friday. This is due to heavy traffic leaving the Navy Base in the afternoon. This restriction is reversed in the morning, with no stopping from 7am to 9am on the north side. Parking on Foster Street is restricted to Residential Parking Only. See **Figure 4.**

FIGURE 4. SUMMARY OF ON-STREET PARKING RESTRICTIONS



There are a total of 18 parking spaces that are restricted to 2 hour, 7am-6pm, Monday to Friday on Grafton Street and 36 parking spaces on Esquimalt Road that restrict No Stopping from 3pm-5pm, Monday to Friday, eastbound, and 7am-9am, Monday to Friday, westbound. Total parking available within one block of the site is 54 parking spaces. During the peak period (Sunday August 27 at 10:30pm), total occupancy of these spaces was 20% with 43 spaces still available. On-street parking that is located on the site frontage has a total parking supply of 25 parking spaces plus an additional 4 parking spaces, as part of the development; suggesting spill-over from the site can be accommodated. However, it will fully occupy this parking inventory, and church attendees will likely seek parking more than a block away and will be accommodated.

6.0 ON-SITE PARKING MANAGEMENT

Site parking demand will vary depending on whether there is an event at the Church. Church events vary in size and frequency throughout the year, however Sunday service is considered peak parking demand. See **Table 5**. These results suggest that total parking demand during a typical day at the site is 23 vehicles and during Church service is 52 vehicles. Parking demand during a typical day will be accommodated on-site, however approximately 29 vehicles are expected to seek parking in nearby on-street parking during Sunday morning Church service.

There is sufficient on-street parking available adjacent the site to accommodate this additional demand. Of the on-street parking that is available to site visitors, this additional demand will increase occupancy to 74%. Given the limited timeframe of Church Service and low frequencies, this additional on-street parking occupancy is seen as acceptable.

TABLE 5. SUMMARY OF EXPECTED PARKING DEMAND

	Parking Demand	
	Typical	Church Service
Senior's Housing(Resident)	11	11
Senior's Housing (Visitor)	2	2
Church	10	39
Total Expected Parking Demand	23	52

Regardless of an event occurring at the Church, all resident parking should be reserved at all times of the day. Typically, resident parking demand is significantly lower during the day than in the evening, however, since residents are seniors and more likely to be retired, it is still expected to have a substantial amount of parking demand present during the day.

All other parking should be unassigned and available to residential visitors, church patrons, and church employees.

7.0 SUMMARY

The proposed development is for 24 senior's housing units and a Ministry Centre that will be connected to the existing church. The proposed parking supply for the site is 27 parking spaces; four of which are reserved for the adjacent Hermitage condominium building.

Expected parking demand was generated based on vehicle ownership information, observations, surveys and research. Results suggest resident parking demand will be 11 vehicles, residential visitor parking demand will be 2 vehicles, typical church parking demand will be 10 vehicles, and 39 vehicles during a Sunday Service.

11 parking spaces should be reserved for residents. Residential visitor and church parking will be accommodated on-site during a typical day with no impact on on-street parking. Approximately 29 vehicles are expected to seek nearby on-street parking during Sunday Church service (approximately 8:30am to 11:30am), which can be accommodated in on-street parking areas within two blocks of the site.

7.1 RECOMMENDATIONS

1. Proposed parking supply is supported for the site
2. 11 spaces should be assigned to residents



GREEN BUILDING CHECKLIST

The purpose of this Checklist is to make property owners and developers aware of specific green features that can be included in new developments to reduce their carbon footprints to help create a more sustainable community.

Creating walkable neighbourhoods, fostering green building technologies, making better use of our limited land base and ensuring that new development is located close to services, shops and transit are some of the means of achieving sustainability.

The Checklist which follows focuses on the use of **Green Technologies** in new buildings and major renovations. The Checklist is not a report card, it is a tool to help identify how your project can become 'greener' and to demonstrate to Council how your project will help the Township of Esquimalt meet its sustainability goals. It is not expected that each development will include all of the ideas set out in this list but Council is looking for a strong commitment to green development.

There are numerous green design standards, for example, Built Green BC; LEED ND; Living Building Challenge; Green Shores; Sustainable Sites Initiative. Esquimalt is not directing you to follow any particular standard, however, you are strongly encouraged to incorporate as many green features as possible into the design of your project.

As you review this checklist, if you have any questions please contact **Development Services** at 250.414.7108 for clarification.

**New development is essential to Esquimalt.
We look forward to working with you
to ensure that development is
as green and sustainable as possible.**

Other documents containing references to building and site design and sustainability, which you are advised to review, include:

- Esquimalt's Official Community Plan
- Development Protocol Policy
- Esquimalt's Pedestrian Charter
- Tree Protection Bylaw No. 2664
- A Sustainable Development Strategic Plan for the Township of Esquimalt

Adopted on January 10th, 2011



"One-third of Canada's energy use goes to running our homes, offices and other buildings. The federal government's Office of Energy Efficiency (Natural Resources Canada) reports that a corresponding one-third of our current greenhouse gas (GHG) emissions come from the built environment."

[Green Building and Development as a Public Good, Michael Buzzelli, CPRN Research Report June 2009]

Please answer the following questions and describe the green and innovative features of your proposed development. Depending on the size and scope of your project, some of the following points may not be applicable.

Green Building Standards

Both energy use and emissions can be reduced by changing or modifying the way we build and equip our buildings.

1	Are you building to a recognized green building standard? If yes, to what program and level? <u>BC Energy Step Code – Step 2</u>	Yes ✓	No
2	If not, have you consulted a Green Building or LEED consultant to discuss the inclusion of green features?	Yes ✓	No
3	Will you be using high-performance building envelope materials, rainscreen siding, durable interior finish materials or safe to re-use materials in this project? If so, please describe them. <u>Building envelope will be designed with a rainscreen & interior materials will be durable, including vinyl flooring in the rental suites & marmoleum flooring in the Church Hall.</u>	Yes ✓	No
4	What percentage of the existing building[s], if any, will be incorporated into the new building? <u>100</u> %		
5	Are you using any locally manufactured wood or stone products to reduce energy used in the transportation of construction materials? Please list any that are being used in this project. <u>The second to fifth floors will be wood frame construction using lumber products from BC.</u>		
6	Have you considered advanced framing techniques to help reduce construction costs and increase energy savings?	Yes ✓	No
7	Will any wood used in this project be eco-certified or produced from sustainably managed forests? If so, by which organization? <u>No</u> For which parts of the building (e.g. framing, roof, sheathing etc.)? <u>NA</u>		
8	Can alternatives to Chlorofluorocarbon's and Hydro-chlorofluorocarbons which are often used in air conditioning, packaging, insulation, or solvents] be used in this project? If so, please describe these. <u>See attached.</u>	Yes ✓	No
9	List any products you are proposing that are produced using lower energy levels in manufacturing. <u>Concrete foundations, main floor structure, second floor concrete slab & upper floor concrete toppings. Cellulose insulation in exterior walls. Wood frame construction from second to fifth floors.</u>		
10	Are you using materials which have a recycled content [e.g. roofing materials, interior doors, ceramic tiles or carpets]?	Yes ✓	No
11	Will any interior products [e.g. cabinets, insulation or floor sheathing] contain formaldehyde?	Yes	No ✓

Water Management

The intent of the following features is to promote water conservation, re-use water on site, and reduce storm water run-off.

Indoor Water Fixtures

12	Does your project exceed the BC Building Code requirements for public lavatory faucets and have automatic shut offs?	Yes ✓	No
13	For commercial buildings, do flushes for urinals exceed BC Building Code requirements?	Yes	No ✓
14	Does your project use dual flush toilets and do these exceed the BC Building Code requirements?	Yes	No ✓
15	Does your project exceed the BC Building Code requirements for maximum flow rates for private showers?	Yes	No ✓
16	Does your project exceed the BC Building Code requirements for flow rates for kitchen and bathroom faucets?	Yes	No ✓

Storm Water

17	If your property has water frontage, are you planning to protect trees and vegetation within 60 metres of the high water mark? [Note: For properties located on the Gorge Waterway, please consult Sections 7.1.2.1 and 9.6 of the Esquimalt Official Community Plan.]	Yes	No	N/A ✓
18	Will this project eliminate or reduce inflow and infiltration between storm water and sewer pipes from this property?	Yes ✓	No	N/A
19	Will storm water run-off be collected and managed on site (rain gardens, wetlands, or ponds) or used for irrigation or re-circulating outdoor water features? If so, please describe. <u>The intent is to create a rain garden along the front of Esquimalt Road & a second rain garden along the western property line along Grafton Street.</u>	Yes ✓	No	N/A
20	Have you considered storing rain water on site (rain barrels or cisterns) for future irrigation uses?	Yes	No ✓	N/A
21	Will surface pollution into storm drains will be mitigated (oil interceptors, bio-swales)? If so, please describe. <u>New surface parking lot will drain toward new building & a strip of permeable pavers to allow infiltration of runoff prior to conveyance to rain garden along Grafton St.</u>	Yes ✓	No	N/A
22	Will this project have an engineered green roof system or has the structure been designed for a future green roof installation?	Yes	No ✓	N/A
23	What percentage of the site will be maintained as naturally permeable surfaces?	39.8 %		

Waste water

24	For larger projects, has Integrated Resource Management (IRM) been considered (e.g. heat recovery from waste water or onsite waste water treatment)? If so, please describe these. _____	Yes	No	N/A ✓
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Natural Features/Landscaping

The way we manage the landscape can reduce water use, protect our urban forest, restore natural vegetation and help to protect the watershed and receiving bodies of water.

25	Are any healthy trees being removed? If so, how many and what species? <u>Three Scotch Pine are being removed from the existing Church parking lot. (See Tree Management Plan)</u>	Yes ✓	No	N/A
	Could your site design be altered to save these trees?		✓	
	Have you consulted with our Parks Department regarding their removal?		✓	

26	Will this project add new trees to the site and increase our urban forest? If so, how many and what species? <u>Five Crimson King Maples, six Sweet Gum & three Austrian Pines</u>	Yes ✓	No	N/A
27	Are trees [existing or new] being used to provide shade in summer or to buffer winds?	Yes ✓	No	N/A
28	Will any existing native vegetation on this site be protected? If so, please describe where and how. <u>See attached.</u>	Yes ✓	No	N/A
29	Will new landscaped areas incorporate any plant species native to southern Vancouver Island? <u>Native plant species will be used in the rain gardens for stormwater treatment.</u>	Yes ✓	No	N/A
30	Will xeriscaping (i.e. the use of drought tolerant plants) be utilized in dry areas? <u>Lily of the Valley, California Lilac, Pink Azalea, Shirobana Spirea & Japanese False Holly</u>	Yes ✓	No	N/A
31	Will high efficiency irrigation systems be installed (e.g. drip irrigation; 'smart' controls)?	Yes ✓	No	N/A
32	Have you planned to control invasive species such as Scotch broom, English ivy, Himalayan and evergreen blackberry growing on the property?	Yes ✓	No	N/A
33	Will topsoil will be protected and reused on the site?	Yes ✓	No	N/A

Energy Efficiency

Improvements in building technology will reduce energy consumption and in turn lower greenhouse gas [GHG] emissions. These improvements will also reduce future operating costs for building occupants.

34	Will the building design be certified by an independent energy auditor/analyst? If so, what will the rating be? <u>BC Energy Step Code – Step 2</u>	Yes ✓	No	N/A
35	Have you considered passive solar design principles for space heating and cooling or planned for natural day lighting?	Yes ✓	No	N/A
36	Does the design and siting of buildings maximize exposure to natural light? What percentage of interior spaces will be illuminated by sunlight? <u>60 %</u>	Yes ✓	No	N/A
37	Will heating and cooling systems be of enhanced energy efficiency (ie. geothermal, air source heat pump, solar hot water, solar air exchange, etc.). If so, please describe. <u>See attached.</u> If you are considering a heat pump, what measures will you take to mitigate any noise associated with the pump? <u>See attached.</u>	Yes ✓	No	N/A
38	Has the building been designed to be solar ready?	Yes ✓	No	N/A
39	Have you considered using roof mounted photovoltaic panels to convert solar energy to electricity?	Yes ✓	No	N/A
40	Do windows exceed the BC Building Code heat transfer coefficient standards?	Yes	No ✓	N/A
41	Are energy efficient appliances being installed in this project? If so, please describe. <u>EnergyStar appliances (fridges, stoves, washer, dryers) will be installed.</u>	✓		
42	Will high efficiency light fixtures be used in this project? If so, please describe. <u>All light fixtures will be LED or Compact Fluorescent (CFL).</u>	Yes ✓	No	N/A
43	Will building occupants have control over thermal, ventilation and light levels?	Yes ✓	No	N/A
44	Will outdoor areas have automatic lighting [i.e. motion sensors or time set]?	Yes ✓	No	N/A
45	Will underground parking areas have automatic lighting?	Yes	No	N/A ✓

Air Quality

The following items are intended to ensure optimal air quality for building occupants by reducing the use of products which give off gases and odours and allowing occupants control over ventilation.

46	Will ventilation systems be protected from contamination during construction and certified clean post construction?	Yes ✓	No	N/A
47	Are you using any natural, non-toxic, water soluble or low-VOC [volatile organic compound] paints, finishes or other products? If so, please describe. <u>Low VOC paints, primers, varnishes and flooring will be used throughout.</u>	Yes ✓	No	N/A
48	Will the building have windows that occupants can open?	Yes ✓	No	N/A
49	Will hard floor surface materials cover more than 75% of the liveable floor area?	Yes ✓	No	N/A
50	Will fresh air intakes be located away from air pollution sources?	Yes ✓	No	N/A

Solid Waste

Reuse and recycling of material reduces the impact on our landfills, lowers transportation costs, extends the life-cycle of products, and reduces the amount of natural resources used to manufacture new products.

51	Will materials be recycled during demolition of existing buildings and structures? If so, please describe. <u>Reuse of dimensional lumber.</u>	Yes ✓	No	N/A
52	Will materials be recycled during the construction phase? If so, please describe. <u>Reuse of forming material.</u>	Yes ✓	No	N/A
53	Does your project provide enhanced waste diversion facilities i.e. on-site recycling for cardboard, bottles, cans and or recyclables or on-site composting?	Yes ✓	No	N/A
54	For new commercial development, are you providing waste and recycling receptacles for customers?	Yes	No	N/A ✓

Green Mobility

The intent is to encourage the use of sustainable transportation modes and walking to reduce our reliance on personal vehicles that burn fossil fuels which contributes to poor air quality.

55	Is pedestrian lighting provided in the pathways through parking and landscaped areas and at the entrances to your building[s]?	Yes ✓	No	N/A
56	For commercial developments, are pedestrians provided with a safe path[s] through the parking areas and across vehicles accesses?	Yes	No	N/A ✓
57	Is access provided for those with assisted mobility devices?	Yes ✓	No	N/A
58	Are accessible bike racks provided for visitors?	Yes ✓	No	N/A
59	Are secure covered bicycle parking and dedicated lockers provided for residents or employees?	Yes	No ✓	N/A
60	Does your development provide residents or employees with any of the following features to reduce personal automobile use [check all that apply]: <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div> <input type="checkbox"/> transit passes <input type="checkbox"/> car share memberships <input type="checkbox"/> shared bicycles for short term use <input type="checkbox"/> weather protected bus shelters <input type="checkbox"/> plug-ins for electric vehicles </div> <div> <input checked="" type="checkbox"/> Secured and enclosed scooter parking </div> </div>			

Is there something unique or innovative about your project that has not been addressed by this Checklist? If so, please add extra pages to describe it.

GREEN BUILDING CHECKLIST

Green Building Standards

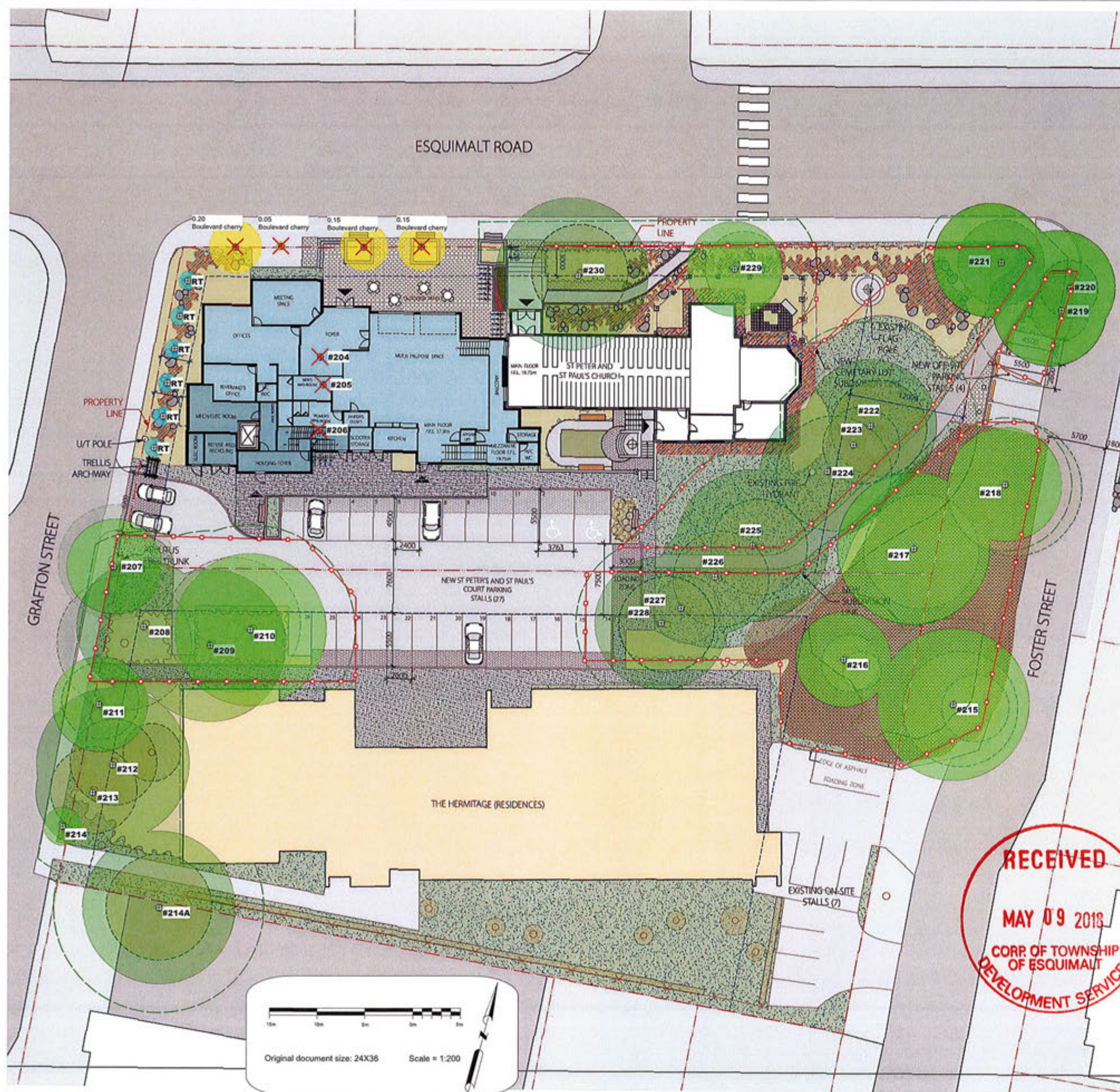
8. Any refrigerant required for this project will be hydro-fluorocarbon (HFC). Mechanical and building materials will be fibreglass rather than foamed insulation. There is no intent to use CFCs or HCFCs on this project.

Natural Features/Landscaping

28. The Project Team includes an arborist who will provide guidance and supervise work within or near critical root zones of trees to be retained on and off-site. The work will include, but is not limited to:
- Pruning, root pruning, excavation, etc.
 - Arranging for specified growing medium to be placed in excavations.
 - Ensuring barriers are installed or re-installed according to Township specifications after work in critical work zones is completed prior to Township inspection/re-inspection.
 - Coordinating service installers for excavation of utility serving, particularly when using a common trench.

Energy Efficiency

37. An air source heat pump may be used where single application cooling is required (common lounge area). There is currently no intent to air condition the entire building. Condensing units, if required, will be small (less noise), located in parking areas away from residential units, and screened with plantings. Efficiencies in heating will be gained through heat recovery of the ventilation systems rather than a primary heating plant.



GAA Tree ID	Common Name	DBH (cm)	Protected Root Zone Radius (m)	Crown Radius (m)	Health (Good, Fair, Poor)	Structural Condition (Good, Fair, Poor)	Bylaw Protected Tree?	Proposed Action
Boulevard Trees:								
n/a	4x Boulevard flowering trees	5 - 20	1 - 3	0.5 - 2.5	Poor - Fair	Poor - Fair	Boulevard	REPLACE
207	Arbutus	36,32,30,28,30	8	6	Good	Good	Yes	Retain
214	Arbutus	14	3	2	Good	Good	Yes	Retain
215	Garry oak X4	38,30,30,18	9	8	Good	Fair	Yes	Retain
218	Garry oak	60	7	6	Good	Good	Yes	Retain
219	Bigleaf maple	46	8	6	Good	Fair	Yes	Retain
220	Bigleaf maple X2	32,28	7	6	Poor	Poor	Yes	Retain
221	Bigleaf maple	62	7	6	Good	Fair	Yes	Retain
Bylaw-protected Trees:								
204	Scots pine	54	8	6	Good	Fair	Yes	REPLACE
205	Scots pine	52	8	6	Good	Good	Yes	REPLACE
206	Scots pine	54	8	6	Good	Good	Yes	REPLACE
208	Douglas fir	86	10	7	Good	Good	Yes	Retain
209	Douglas fir	98	12	8	Good	Good	Yes	Retain
210	Arbutus	60	11	8	Good	Good	Yes	Retain
211	Bigleaf maple X2	46,24	7	5	Good	Fair	Yes	Retain
212	Douglas fir	92	11	8	Good	Good	Yes	Retain
213	Douglas fir	78	9	6	Good	Good	Yes	Retain
216	Garry oak X3	22,24,10	7	5	Good	Fair	Yes	Retain
217	Garry oak	70	8	8	Good	Good	Yes	Retain
222	Douglas fir	88	11	7	Fair	Fair	Yes	Retain
223	Douglas fir	48	9	5	Fair	Fair	Yes	Retain
224	Red cedar	90	11	7	Good	Good	Yes	Retain
225	Douglas fir	80	10	8	Good	Good	Yes	Retain
226	Douglas fir	74	9	6	Good	Fair	Yes	Retain
227	Douglas fir	50	9	5	Good	Good	Yes	Retain
228	Douglas fir	74	9	7	Good	Good	Yes	Retain
229	Sycamore maple	44	8	5	Fair	Good	Yes	Retain
230	Blue Atlas cedar	98	12	8	Good	Good	Yes	Retain
Private Off-site Trees:								
214A	Douglas fir	92	11	8	Good	Good	Yes	Retain

Note: Green, round plastic tags were placed at the eyes level on the trees facing South.

SUMMARY TREE STATISTICS	
CLASSIFICATION	NUMBER OF TREES
On-site bylaw-protected trees	20
Municipal boulevard trees	11
Private off-site trees within 3m of boundary	1
Bylaw-protected proposed for removal	3
Municipal boulevard trees proposed for removal	4
Residual on-site trees to be protected	17
Total number of REPLACEMENT trees to be planted on-site (see Landscape Plan)	6

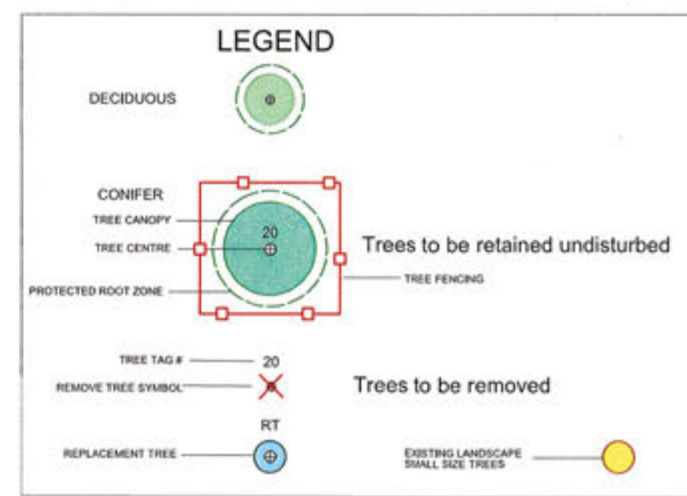
Tree Protection Fencing Detail

Robust Tree Protection Fencing shall be constructed with a 2x4 frame and supports. (See photo below.) Snow-fencing will then be affixed to the frame using zip-ties, staples wire or nails. All-weather signage will be attached, clearly designating the area within as a TREE PROTECTION AREA - NO TRESPASSING.



TREE PRESERVATION MEASURES

1. Before demolition, site servicing, landscaping or other site work commences, the owner, contractor and relevant design consultant shall meet with the arborist to review the Tree Protection Plan and associated measures.
2. Tree fencing shall be erected to the satisfaction of the project arborist and the Township of Esquimalt before other site work commences and remain in good condition throughout the duration of the project.
3. Temporary construction access within a TPA must be approved and supervised by the project arborist. This includes any temporary TPA alterations. The Landscape Architect and Landscaper shall meet with the project arborist to review the landscape work plan prior to any site preparation within the TPAs.
4. If it should prove necessary to reduce the tree fencing, the exposed TPA outside the fencing shall be equipped with 3/4" plywood or a temporary cover of geotextile and 200mm of roadbase, neatly secured with a plate contractor.
5. All forms of disturbance to the protected trees or their habitat within the fenced protection areas (TPAs) is prohibited.
6. No equipment, materials, waste products or excavated soil shall be placed or stored within the TPA. THIS PARTICULARLY INCLUDES HOARDING OF EXCAVATED SOILS NEEDED FOR BACKFILLING OF THE HOUSE FOUNDATION.
7. The arborist shall be present to oversee stump removal, excavation, service trenching, site grading, landscaping and landscaping within, or adjacent to, the tree protection areas (TPAs).
8. Any tree roots damaged shall be pruned back to undamaged tissue by the arborist.
9. The vertical face of the excavation adjacent to the TPAs shall be covered with geo-textile to prevent soil desiccation and erosion.
10. The contractor and landscaping sub-contractor shall work with the arborist to review the blasting plan prior to doing the Modified blasting practices or rock removal techniques shall be utilized where considered necessary by the arborist to minimize blasting impacts to protected trees.
11. Procedure for blasting near tree root zones:
 - a) When blasting is required immediately adjacent to a Tree Protection Area, the blasting contractor shall work with the Modified blasting practices or rock removal techniques that minimize impacts to protected trees.
 - b) Blasting vibrations in the vicinity of the Tree Protection Areas are not to exceed a peak particle velocity of 25 mm/sec.
 - c) Use DYNAMITE as the explosive product. No fertilizer-based explosive is permitted, due to its toxicity to tree roots.
 - d) The contractor shall prevent rock debris from the blast site from entering the TPA.
12. In areas where the root zone of the tree has been reduced by excavation or rock removal, the remaining area shall be top-dressed with 10cm of free chip mulch.
13. Retained trees shall be irrigated twice weekly during the dry summer period to a maximum effective depth of 30cm.
14. The General Contractor, Landscape Contractor and Landscape Architect shall meet with the arborist to review the landscaping workplan prior to landscape construction or site preparation commencing. Potential impacts to the arborist's habitat shall be identified and measures provided to eliminate or mitigate the impacts.
15. The Project Arborist shall monitor the site during the site preparation, construction and landscaping phases to ensure ongoing and effective compliance with the tree protection measures specified in this tree plan and in on-site meetings with the General Contractor and relevant sub-contractors.
16. Six (6) new trees shall be planted on the subject property in replacement of three bylaw-protected trees removed. See Landscape Plan for proposed species and planting locations.
17. The 4 municipal trees proposed for removal shall be replaced or compensated for per the Township of Esquimalt's boulevard tree replacement policy.
18. A full-size all-weather copy of the Tree Plan shall be posted in the site office in plain site.
19. A post-construction inspection and assessment of the site and protected trees shall be conducted by the Project Arborist in the company of the General Contractor. Any deficiencies will be identified. Once all deficiencies have been addressed to the satisfaction of the Project Arborist and the Township of Esquimalt, a post-construction letter of completion will be prepared by the arborist and submitted to the Township.



TREE INVENTORY TABLE

G&A Tree ID	Common Name	DBH (cm)	Protected Root Zone Radius (m)	Crown Radius (m)	Health (Good, Fair, Poor)	Structural Condition (Good, Fair, Poor)	Bylaw Protected Tree?	Proposed Action
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