Talbot Mackenzie & Associates

Consulting Arborists

September 15, 2016

Mandeep Bains
7117 Veyaness Road
Saanichton, BC V8M 1W1

Re: 1025 – 1075 Tolmie Avenue at Fifth

During our August 23, 2016 site visit, at your request, we reviewed the plans that were supplied for the proposed subdivision of this property, and an arborist spreadsheet from a previous 2008 inspection of the tree resource. We also reviewed the driveway and house footprint locations in relation to a large 160 cm Sequoiadendron tree located on the adjacent property at 3184 Jackson Street.

It appears from the plans that the entire building is within the area that Michael Gye identified as the critical root zone for that tree. In our opinion, this defined root zone is unusually large for this tree species and more closely reflects the protected root zone as defined by the municipal bylaw as the area the municipality uses to control activity within the root zone of a protected tree in the absence of a defined critical root zone and where there exists construction on all sides of the tree. Sequoiadendron is a tree species that is very tolerant to construction impacts, and in this case the construction activity will occur in only one quadrant of its root zone; therefore, we would probably have defined a critical root zone (CRZ) with a 10 metre radius or less.

It appears that the tree is about 3 metres from the property boundary and the footprint will be another 7 metres from this boundary, which would place it at the edge of the defined root zone and outside the root zone radius (RZR) - the portion of a tree's root zone where typically the critical supporting roots will be located. The driveway and turnaround will be within the CRZ, but, in our opinion, it would be reasonable to construct a driveway and parking within this area if it is designed to float over the root structures.

Mitigation of Impacts: We recommend the following procedures be implemented to reduce the impacts on the bylaw-protected Sequoiadendron tree to be retained.

Barrier fencing: The barrier fencing should be erected two metres outside the house footprint or in an alternate location identified by the project arborist once the building and construction locations have been determined. Barrier fencing should also be erected along the edge of the portion of the driveway and turn around area that encroaches within the tree's critical root zone.

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The barrier fencing to be erected must be a minimum of 4 feet in height, of solid frame construction that is attached to wooden or metal posts. A solid board or rail must run between the posts at the top and the bottom of the fencing. This solid frame can then be covered with plywood, or flexible snow fencing (see attached diagram). The fencing must be erected prior to the start of any construction activity on site (i.e. demolition, excavation and construction), and remain in place through completion of the project. Signs must be posted around the protection zone to declare it off limits to all construction related activity. The project arborist must be consulted before this fencing is removed or moved for any purpose. Solid hording material may also be required to protect the trunks of trees from mechanical injury where vehicles or machinery are permitted close to tree trunks.

Driveway, parking and turnaround area: The construction of the driveway must be at an elevated grade where it encroaches within the critical root zone areas so it can bridge these root systems without excavating below the existing grade, thus reducing the subsequent impacts. The paved surface that is to be installed should be permeable to permit the infiltration of water and air beneath its surface. We have attached two possible designs for the driveway construction. The technique that is chosen for use will depend on how much the driveway grade can be raised above the existing site grade, and the number and size of roots that are encountered within the driveway footprint. The project arborist should review the driveway design and plan before it is finalized to determine if any alterations that favour tree retention can be implemented into this plan, and must supervise the excavation where it encroaches within the root zones of bylaw-protected trees. The portion of the driveway footprint that is outside the critical root zones of the subject trees can be constructed using a conventional construction technique.

Excavation: Excavation required for the building footprint and any excavation that may be possible for the driveway turn around area must be supervised by the project arborist.

Review and site meeting: Once the project receives approval, it is important that the project arborist meet with the principals involved and the work crews to review the information contained herein.

Please do not hesitate to call us at 250-479-8733 should you have any questions.
Thank you,
Talbot Mackenzie & Associates

Tom Talbot & Graham Mackenzie
ISA Certified, & Consulting Arborists

Enclosures: Barrier fencing specifications, Floating driveway specifications. plans reviewed.

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Disclosure Statement

Arborists are professionals who examine trees and use their training, knowledge and experience to recommend techniques and procedures that will improve the health and structure of individual trees or group of trees, or to mitigate associated risks.

Trees are living organisms, whose health and structure change, and are influenced by age, continued growth, climate, weather conditions, and insect and disease pathogens. Indicators of structural weakness and disease are often hidden within the tree structure or beneath the ground. It is not possible for an arborist to identify every flaw or condition that could result in failure nor can he/she guarantee that the tree will remain healthy and free of risk.

Remedial care and mitigation measures recommended are based on the visible and detectable indicators present at the time of the examination and cannot be guaranteed to alleviate all symptoms or to mitigate all risk posed.

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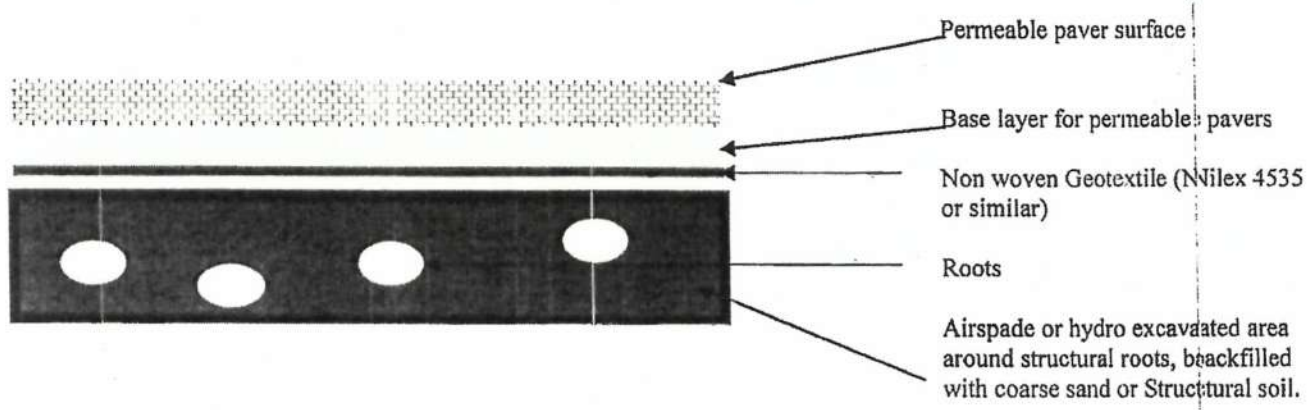
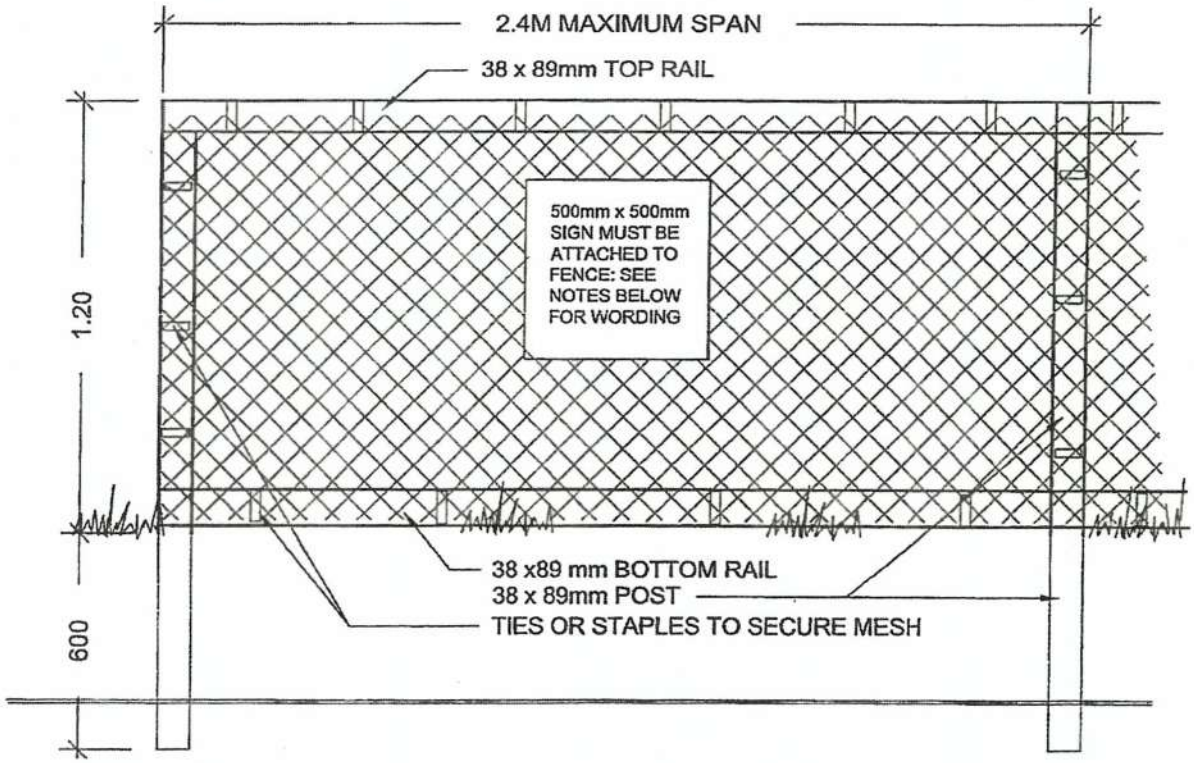
Diagram –Permeable paver driveway crossing over Critical Root Zone



Specifications for permeable paver driveway crossing over critical root zone

1. Excavate to a 6-8 inch depth, for the required permeable driveway surface, under the supervision of an ISA Certified Arborist.
2. Excavation for area around structural roots with an Airspade or by Hydro Excavation to bearing layer of soil if required.
3. Backfill area around roots with coarse sand or a structural soil mix
4. A layer of medium weight non woven Geotextile (Nilex 4535 or similar) is to be installed over the backfilled area of the driveway.
5. Construct base layer and permeable surface over Geotextile layer to required grade.



TREE PROTECTION FENCING

NOTES:

1. FENCE WILL BE CONTRUCTED USING 38 X 89 mm (2"X4") WOOD FRAME: TOP, BOTTOM AND POSTS. *
   USE ORANGE SNOW-FENCING MESH AND SECURE TO THE WOOD FRAME WITH "ZIP" TIES OR GALVANZIED STAPLES.

2. ATTACH A 500mm x 500mm SIGN WITH THE FOLLOWING WORDING: **WARNING-HABITAT PROTECTION AREA.** THIS SIGN MUST BE AFFIXED ON EVERY FENCE FACE OR AT LEAST EVERY 10 LINEAR METRES.

* IN ROCKY AREAS, METAL POSTS (T-BAR OR REBAR) DRILLED INTO ROCK WILL BE ACCEPTED

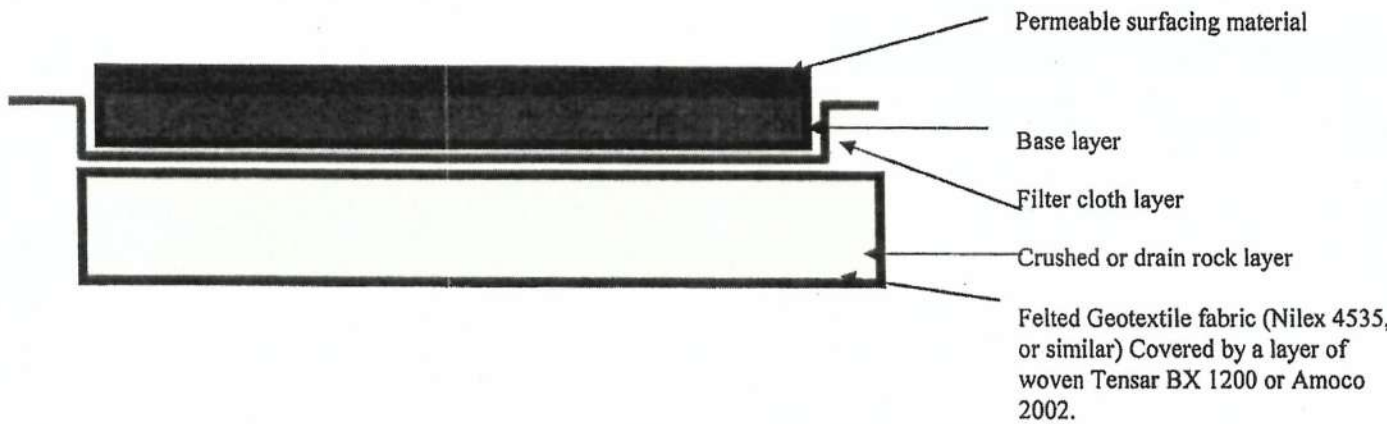
Saanich

DETAIL NAME: TREE PROTECTION FENCING

DATE:	March/08
DRAWN:	DM
APP'D.	RR
SCALE:	N.T.S.

H:\shared\parks\Tree Protection Fencing.pdf

Diagram – Site Specific Floating Driveway, Parking and Sidewalk Areas



Specifications for Floating Driveway and Parking Areas

1. Excavation for driveway or parking area construction must remove the sod layer only, where they encroach on the root zones of the protected trees
2. A layer of medium weight felted Geotextile fabric (Nilex 4535, or similar) is to be installed over the entire area of the critical root zone that is to be covered by the paving. Cover this Geotextile fabric with a layer of woven Amoco 2002 or Tensar BX 1200. Each piece of fabric must overlap the adjoining piece by approximately 30-cm.
3. A 10cm layer of torpedo rock, or 20-mm clean crushed drain rock, is to be used to cover the Geotextile fabric.
4. A layer of felted filter fabric is to be installed over the crushed rock layer to prevent fine particles of sand and soil from infiltrating this layer.
5. The bedding or base layer and permeable surfacing can be installed directly on top of the Geotextile fabric.