

## TREE MANAGEMENT REPORT FOR DEVELOPMENT APPLICATION PURPOSES

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Prepared for: **Sean O'Reilly**  
**Harrison Productions Inc**  
 44390 Bayview Rd  
 Agassiz, BC V0M 1N0

Prepared by: **Norman Hol**  
 Principal and Senior Consultant

Project: **Proposed Arcana Film Studio**  
**44390 Bayview Road Agassiz BC**

### BACKGROUND

Our site investigations were performed on October 8 and October 21, 2020. This report is intended to meet municipal tree bylaw and/or other regulations for tree preservation relative to a development application. If the project requires advance works or site activities such as demolition, site preparation, fill placement, excavation/shoring or other works that may impact trees, then a separate tree management report and drawing specific to those works may be required by the city.

Reference documents provided by the client include; *Topographic Survey* and the current *Conceptual Site Plan* with the proposed Landscape Buffer and SPEA setbacks. We understand that the remainder of the property, outside of those buffer and SPEA setback areas are proposed to be cleared.

We have undertaken an assessment of existing forests within the site using stand assessment methods to determine tree density, species composition, age class, structural class and general health condition. Our site assessment also includes consideration of topography, anticipated site changes, soil and drainage conditions, history of past tree failures, and other relevant factors.

The reader is advised to review appendix A (photos from site visit) and appendix B (tree management drawing) for additional details.

### TREE ASSESSMENT FINDINGS

The site is on a north facing slope partially protected from southerly winds by the rising topography to the south of the property, but exposed to northerly outflows by a large wind fetch across Harrison Bay and Harrison River. Historical clearing for a residential and shop area within the west-central area of the site has created a large opening in the stand that appears to be well acclimated to the prevailing winds, and forest stand edges appear mostly windfirm in their present condition. Exceptions are in small zones to the eastern side of the clearing area where some recent pockets of tree removals have been undertaken and new forest edges are apparent. These new forest edges also appear windfirm considering the full crowns and well tapered trunks of the primary canopy trees.

The forested portion of the site contains a closed canopy forest of predominantly bigleaf maple, along with minor components of other native species. The primary canopy is generally 30m tall, with cedar extending up to 35m tall and fir extending up to 40m tall.

We undertook stand plot sampling at 4 locations, including 1 20m by 20m plot (400m<sup>2</sup>) and 3 plots of 10m radius (314m<sup>2</sup> each).

The total area of the proposed clearing, excluding the previously cleared lands, the landscape buffers and the proposed SPEA, is estimated to be 16,500m<sup>2</sup>. Via a count of trees within the plot sample areas, we have determined the following:

**Table 1.** Tree Stand Composition and Quantity of Proposed Removal Trees

Species	Stand Composition	Trees to be Removed
Bigleaf maple ( <i>Acer macrophyllum</i> )	63.2%	264
Western redcedar ( <i>Thuja plicata</i> )	11.8%	49
Paper birch ( <i>Betula papyrifera</i> )	8.8%	37
Red alder ( <i>Alnus rubra</i> )	8.8%	37
Douglas-fir ( <i>Pseudotsuga menziesii</i> )	5.9%	25
Cascara ( <i>Rhamnus purshiana</i> )	1.5%	6
<b>TOTALS</b>	<b>100%</b>	<b>418</b>

These quantities are estimates only, limited by the stand plot sampling methods. Due to variabilities in the stand the actual quantities will vary.

## BUFFER AND SPEA ASSESSMENT FINDINGS

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### ***NORTH AND WEST LANDSCAPE BUFFERS***

The proposed 20m buffer along the northern and western perimeters of the site has a sparse stand of trees, remnant from the native forest stand, and many of which have been previously topped. There is significant exposure to northerly winds, however both of these zones appear to have been exposed to these winds for many decades, and the trees have generally acclimated and growth to have developed superior structural form characterized by increased trunk taper, crowns to near ground level and shorter stouter general form. The site changes from clearing is expected to have negligible impacts to the wind exposure to these trees, however these zones should be inspected thoroughly by the project arborist during the land clearing using Tree Risk Assessor Qualification (TRAQ) methods to identify any high risk trees that may require treatment to mitigate risks to the site.

Some growing site changes such as to overland drainage, soil hydrology and sun exposure may occur. Long term health impacts to these trees may result. Proactive mitigation measures such as using wood chip waste from land clearing as a soil amender to be placed within the buffer along the clearing interface may assist with reducing soil desiccation. This work should be directed by the project arborist at the time of land clearing. Reactive measures such as reinspection of the trees by the project arborist on an annual schedule over a five year acclimation period will also enable the tree health to be monitored as well as provide an opportunity to check for risk trees as a site safety protocol.

### ***SOUTH LANDSCAPE BUFFER***

The approximate alignment of the proposed clearing interface was estimated through range finder reviewed to the extent possible, with access limited by topographic obstacles in certain locations and with the limitation that the actual alignment of the buffer and the property line were not surveyed in the field. The buffer in this section of the site will form a continuous stand with the adjacent crown lands to the south. The interface appears to contain some trees that have overt defective form issues such as dieback and/or decay from natural causes, and selective removal of vulnerable trees will be necessary. In order to manage the risks associated with those defective trees, this buffer should be inspected thoroughly by the project arborist during the land clearing using TRAQ methods to identify any high risk trees that may require treatment to mitigate risks to the site.

The slope conditions and the northern exposure limits the potential for impacts from drainage changes and sub exposure, however reduced soil moisture is possible, and this can be mitigated by applying wood chip waste from site clearing as a soil amender. The project arborist can direct this work at the time of land clearing.

### ***EAST SPEA***

The proposed clearing interface with the SPEA is in a zone of forest stand that is more sparse than the main clearing area and, combined with the micro-topography (i.e. small ravine), these growing site conditions have exposed individual trees to greater wind stresses over time. The primary canopy trees within the SPEA have developed a stronger form as a result. There are some individual trees that have pre-existing defects such as but not limited to; understory or suppressed class trees with spindly and top heavy form, significant lean toward the development area of the site, overt decline or dead trees, trees with wounds and decay, etc.

For a comprehensive Wildlife and Danger Tree Assessor (WDTA) methods of assessment to identify the Danger Trees, the clearing interface along the SPEA alignment will need to be advanced. At present, I have estimated that 10 Danger Trees will require treatment (felling or conversion to wildlife stems), however this quantity may change depending on the actual location and proximity of the defective trees once the clearing alignment is known. A comprehensive assessment by the project arborist is required at that time.

## TREE PROTECTION PRESCRIPTION

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Our specified ***Tree Protection Zone (TPZ)*** consists of the following;

- ***Crown Protection Zone (CPZ)***: denotes the dripline; the furthest extent of branches and foliage projected to the ground below – a zone where aerial encroachment is not desirable. Buildings should be set back from the CPZ sufficiently to allow working space to; enable general construction of the structure, install the envelope/glazing, undertake future maintenance, and to accommodate future growth of the crown as the tree matures. Any encroachments within 1m of the CPZ or closer (i.e. construction of buildings, operation of machinery, cranes, lifts or other equipment, passage of pedestrian or vehicles, erection of scaffolding, etc) may affect viability for tree retention and will require an impact assessment by the project arborist to determine feasibility and to specify mitigation measures as necessary.

- **Root Protection Zone (RPZ):** a setback prescribed by the project arborist representing the closest proximities of soil and root disturbance (any soil disturbance including but not limited to toward a tree where manageable and tolerable impacts are feasible conditional to certain mitigation measures and compensatory treatments that the arborist may specify. Minor encroachments into the RPZ may be possible but such encroachments would require a detailed impact and mitigation analysis by the project arborist and may require detailed testing before confirming (i.e. root mapping).
- **Working Space Setback (WSS):** is a setback outside of the RPZ as specified by the project arborist where soil disturbances may occur (i.e. excavation or site preparation), conditional to the on-site supervision and direction by the project arborist, implementation of mitigation measures and undertaking of certain best management practices and treatments (i.e. root pruning).

### LANDSCAPE BUFFER PROTECTION

The landscape buffers should be protected with a temporary tree protection barrier along the buffer alignment, and restrictions on access by machinery should be implemented and enforced within those zones.

### SPEA PROTECTION

For the ESA, the root protection setback for trees to be retained within the SPEA is prescribed to be 3.0m from the SPEA line. This RPZ is expected to form the SPEA Protection Zone Boundary. A temporary tree protection barrier should be installed at this alignment to reduce risks of encroachment of clearing and construction activities.

This 3.0m setback will be a no grubbing zone where trees may be felled but stumps and ground cover will be left intact. Any grading work within 1.5m of this RPZ should be supervised by the project arborist in order to minimize root damage with the RPZ. Root pruning may be required along this interface.

It is important to include our report and appendices in the tendering and contract documents for the project. Prior to construction, the Issued for Construction (IFC) drawings should be forwarded to this office, and the client should schedule a pre-con meeting between the project arborist, the general contractor and certain subcontractors to review the tree protection specifications, restrictions, treatments and other measures.

## TREE REMOVAL METHODS:

The methods of cutting, rigging and removal of trees should conform to ANSI A300 and ANSI Z133 standards and best management practices, as well as WorksafeBC regulations as applicable. In the case of commercial land clearing operations the felling/handling of removal trees is required to be in conformance with other applicable regulations. Recovery and transport of any timber from any site will require that the land owner obtain a Timber Mark from the local BC Forest office in advance of transportation from the site.

Removal of trees from within an Environmental Sensitive Area (ESA) will have specific details determined as a field measure prior to and in conjunction with the tree removal and/or land clearing operations. In general, removal trees will be left cut to a height and modified as specified by the project arborist in consultation with the Qualified Environmental Professional (QEP) so that it can function as habitat (wildlife tree). Coarse woody debris (CWD) available from the tree removal debris will be left within the ESA in lengths that enable the logs and sections to lie flat on the ground and in contact with the soil, and/or as directed by the project arborist and QEP.

## TREE REPLACEMENT

Tree replacement requirements within the SPEA for the removal or conversion of Danger Trees within the SPEA will be designed and specified by the project environmental consultant (RP Bio QEP). The final quantity, sizes and species of Danger Trees will be determined by the Project Arborist (Specialist to the QEP) at the time of land clearing.

Tree replacement requirements within the development areas, if any, are to be confirmed by the municipality in relation to their policies. The specifications for those replacement trees can be provide by this office upon request once the criteria is known.

Certified by;



**Norman Hol, Company Principal and Senior Consultant**

ISA Certified Arborist #PN-0730A  
 ISA Qualified Tree Risk Assessor (TRAQ)  
 PNWISA Certified Tree Risk Assessor #0076  
 BC Certified Wildlife and Danger Tree Assessor #P2529  
 ASCA Qualified Tree and Plant Appraiser (TPAQ)  
 Land Surveying Technologist

APPENDICES;  
 APPENDIX A – PHOTOS  
 APPENDIX B – FIGURE 1, TREE MANAGEMENT DRAWING



**Assumptions and Limiting Conditions:**

This report was prepared for and on the behalf of the client as addressed herein. Upon receipt of payment of our account in full, this report will become the property of the client. This report is intended for the exclusive use of our client, but in its entirety. Arbortech Consulting shall not accept any liability derived from partial, unintended, unauthorized or improper use of this report.

This report is restricted only to the subject trees as detailed herein, and no other trees were inspected or assessed.

The inner tissue of the trunk, limbs and roots, as well as the majority of the root systems of trees are hidden within the tree and below ground and trees have adaptive growth strategies that can effectively mask defects. Our assessment is limited by relying on presence or absence of outward signs or symptoms of defect and non-destructive testing to identify the severity of defects that may be indicators of structural deficiencies. We use our training, experience and judgement in this regard, however not all defects can be diagnosed through available methods. It may not be feasible to identify certain defects, or to measure the severity, without causing mortal injury to the tree. Further, we must acknowledge that extreme weather and environmental influences are unpredictable, and that any tree has risk of failure in such events. We do not guarantee or warrant that a tree that we have assessed is free of defect or that it will not fail.

The ownership of trees is determined based on the location of the trunk where it emerges from the ground relative to the property line. This determination may require the advice from a duly qualified professional surveyor.

Third party information provided to the consultant may have been relied upon in the formation of the opinion of the consultant in the preparation of this report, and that information is assumed to be true and correct. We have not verified that information, and we do not warrant it as correct.

The use of maps, sketches, photographs and diagrams are intended only as a reference for the readers' use in understanding the contents and findings of this report, and are not intended as a representation of fact.

Approvals from a municipality and/or regulatory agency may be required prior to carrying out treatments that may be recommended in this report. The owner or client is responsible to make application for, pay related fees and costs, and meet all requirements and conditions for the issuance of such permits, approvals or authorizations.



## APPENDIX A: TREE PHOTOS

Photo 1 West Buffer



Photo 2 Northwest Corner (West and North Buffers)



Photo 3 North Buffer



Photo 4 South Tree Stand





**Photo 5 Interior Stand Conditions**



**Photo 6 Interior Stand Conditions**



**Photo 7 SPEA Interface**



**Photo 8 Northeast Corner of Clearing Area**





