

File No.: 04-1000-20-2022-590

February 3, 2023

s.22(1)

Dear s.22(1)

Re: **Request for Access to Records under the Freedom of Information and Protection of Privacy Act (the "Act")**

I am responding to your request of November 12, 2022 under the ***Freedom of Information and Protection of Privacy Act (the Act)*** for:

1. **Arborist report related to 1535-1557 Grant Street (DP-2020-00317) Development Application; and**
2. **Tree risk assessment report (Urban Forestry – Vancouver Park Board) related to 1551 Grant Street.**

**Date range: September 22, 2022 to November 10, 2022.**

All responsive records are attached. Please note, Park Board staff confirmed there were no records responsive to point two of your request.

Under section 52 of the Act, and within 30 business days of receipt of this letter, you may ask the Information & Privacy Commissioner to review any matter related to the City's response to your FOI request by writing to: Office of the Information & Privacy Commissioner, [info@oipc.bc.ca](mailto:info@oipc.bc.ca) or by phoning 250-387-5629.

If you request a review, please provide the Commissioner's office with: 1) the request number (#04-1000-20-2022-590); 2) a copy of this letter; 3) a copy of your original request; and 4) detailed reasons why you are seeking the review.

Yours truly,

*[Signed by Cobi Falconer]*

**Cobi Falconer, MAS, MLIS, CIPP/C**  
**Director, Access to Information & Privacy**  
[cobi.falconer@vancouver.ca](mailto:cobi.falconer@vancouver.ca)  
453 W. 12th Avenue Vancouver BC V5Y 1V4

If you have any questions, please email us at [foi@vancouver.ca](mailto:foi@vancouver.ca) and we will respond to you as soon as possible. Or you can call the FOI Case Manager at 604-871-6584.

Encl. (Response Package)

:dl

## TREE MANAGEMENT REPORT: FOR PROPOSED DEVELOPMENT

Report Date: June 18, 2018

Rev 2: November 15, 2018

ACL File:

16305

ACL Bus Lic: 16 742556 Inter-Municipal West

Prepared for: Attn.: Gavin McLeod  
Averra Developments  
104 – 1529 West 6 Avenue  
Vancouver, BC V6J 1R1

Prepared by: Nick McMahon  
Senior Project Arborist

Site Address: 1535 – 1557 Grant Street, Vancouver

Project: Proposed Development

### BACKGROUND

Arbortech Consulting is retained to provide professional consulting arborist services to undertake an assessment of the existing trees located at or within influencing distance of a proposed development at the above noted site. Our site investigation was performed most recently on June 5, 2018.

Reference documents provided by the client include; *Tree/Topographic Survey* and current *Architectural Site Plan*.

The subject site is comprised of existing single family lots, currently occupied with existing homes on each respective property and related hardscape with open landscape conditions. The proposed development consists of a multi-family residential development with related underground parking structure, utilities and service connections and landscaping.

Figure 1. Aerial Photo of the Subject Site





## METHOD

Our ground based visual assessment of the existing trees includes; measuring the size (trunk diameter, height and spread), rating the health and structural condition, as well as identifying the species, age class, structural class, growing site constraints and other relevant tree or site factors. This report is not intended as a tree failure risk analysis, however the structural form and presence and severity of defects were factors in our assessment. Tree health, structure and site factors were reviewed to rate the trees for viability of preservation in context to the proposed land use and expected construction related impacts to the site and the trees.

**Suitability Ratings** are as follows:

- **Unsuitable** = a tree that is in poor health, has significant health issues, is intolerant of the growing site changes, and/or has a pre-existing structural impairment that makes it likely not to survive or will be likely to present a hazard risk to the site. Note that a healthy appearing tree may have significant structural defects.
- **Conditional** = a tree with good health, is tolerant of changes to its growing environment, but has minor defects or inferior structural form that makes it suitable for preservation, but only if certain measures are implemented (i.e. retain with other trees, soil management, pruning, etc).
- **Suitable** = a tree with strong form, good health, no significant defects, tolerant of changes to its growing environment, and is well suited for preservation singly or otherwise.

**Contribution Ratings** are determined from several factors in relation to its value in the landscape of the proposed land use, including but not limited to; dominance and size, location, function (i.e. shade/sun, aesthetics, screening, etc) and other attributes - ratings are; Low, Medium or High.

From the suitability and contribution ratings, we have ranked the viability for retention of the subject trees on a priority basis as per below:

### Retention Viability Priority Rankings:

		CONTRIBUTION		
		Low	Medium	High
SUITABILITY	Unsuitable	NIL	NIL	2*
	Conditional	2*	2	1
	Suitable	2	1	1

\* denotes that the priority ranking may be adjusted by the arborist depending on specific circumstances.

With consideration of municipal bylaws/policies we have reviewed the project design in context to our tree data and priority rankings to specify tree preservation within the development to the extent possible. Our process includes liaison with the client and design team to explore alternatives and design changes where applicable or appropriate. Our tree protection measures are developed in accordance with arboricultural best management practices, and are the basis for our recommendations and specifications.

## TREE RETENTION AND PROTECTION PLANNING

The specified **Tree Protection Zone (TPZ)** consists of 3 main components;

- **Crown Protection Zone (CPZ)**: a minimum of 1.0 m outside the dripline (furthest extent of branches and foliage projected to the ground below) where any proposed aerial encroachment (i.e. for pedestrian or vehicle access, machinery or equipment operation, constructing building elements, operation of cranes or lifts etc) will require a detailed review by the project arborist to determine feasibility and to specify mitigation measures as necessary.
- **Root Protection Zone (RPZ)**: a no-encroachment setback prescribed by the project arborist representing the closest proximities of soil and root disturbance toward a tree that are deemed manageable based on site and tree factors, and conditional to mitigation and compensatory treatment that may be specified.
- **Working Space Setback (WSS)**: a setback outside of the RPZ of 1.5m or as specified by the project arborist where soil and root disturbance may occur (i.e. for excavation), conditional to supervision and direction by the project arborist and mitigation or treatment measures being implemented (i.e. root pruning).



Tree retention planning and design consists of determining the preservation of priority 1 and 2 trees, in that preferential order. We first consider an optimal TPZ deemed to be a setback equal to the CPZ or a root and crown protection radius deemed by the project arborist to net negligible impact to the tree. If the optimal TPZ cannot be fully achieved, then we carry out a detailed design review process in consideration of the species tolerance, the size, health and structural class and form of the tree, the site and soil conditions, the general changes in environmental influences (i.e. wind exposure, sun exposure and soil hydrology), the presence or absence of known root obstructions, among other factors. Our comprehensive prescriptive tree protection setbacks and measures supersede the optimal TPZ recommendations as well as city guideline for tree protection setbacks.

## TREE RETENTION FINDINGS

Refer to the Tree Photos (Appendix A), Tree Inventory (Appendix B) and the Tree Management Drawing (Appendix C) for pertinent details.

After consideration of; our tree assessment findings, our retention priority rankings, the protection setbacks required to preserve the trees, and the current project design as presented, existing trees are proposed to be treated as follows:

**Table 1.** Tree Retention/Removal by Priority Rankings (Includes City owned Road Frontage Trees – Priority: N/A)

Priority Ranking:	Total:	Remove:	Retain:	Tag/ID of Proposed Retention Trees:
1	1	1	0	
2	0	0	0	
Nil	2	1	1	271
N/A	3	0	3	C01, C02, C03
<b>TOTAL</b>	<b>6</b>	<b>2</b>	<b>4</b>	

Trees that are proposed to be retained require tree protection measures and restrictions as detailed herein and on the attached appendices. See Tree Protection Specifications (Appendix D).

Trees proposed to be removed are deemed to be unsuitable for retention due to their condition and suitability, and/or are not able to be accommodated within the current project design presented to this office.

### **Summary of Treatment of Trees within City Lands:** (Quantities included in table 1 above)

Trees located within the city road frontage or other city lands are proposed to be protected as follows:

- **Tree Tag/ID's: C01, C02 and C03.**
- Protect these trees with measures as shown on the Tree Management Drawing (appendix C) and as described in the Tree Protection Specifications (appendix D).
- Existing grades must be maintained within TPZs with the exception of the removal of existing planters/sidewalks and placement of new planters, fences and sidewalk access which both require project arborist direction and supervision. Fence installation at PL through the TPZ may require alternative measures to avoid a continuous strip footing, such as posts and suspended grade beams to avoid tree root loss.
- The project arborist must be on-site during the demolition of any hardscape features and excavation for the foundation underground parking structure to direct low impact methods and undertake root pruning. No over-excavation for shoring, forming or other infrastructure related encroachments are accepted within the Root Protection Zone.
- Service connections should be aligned to avoid encroachment within the TPZs. If re-alignment outside TPZs is not feasible/possible then low impact methods will be required to protect and preserve tree roots. Coordinate with this office for on-site supervision and direction during the excavation for service connections within or directly adjacent to TPZs.
- Pruning to reduce end-weight and wind loading stress on defective parts and to mitigate aerial conflict with the new building is recommended and must be approved in advance by the Parks department arborist. Pruning must be undertaken by an ISA Certified arborist, employed by a qualified tree service contractor – vetted by this office, in accordance with ANSI A300 Standards for pruning and as directed on-site by the project arborist.

## OFF-SITE PRIVATE TREES

Protect 3 off-site private trees as detailed herein and on the attached appendices.

- Tree Tag/ID's: N01, N02 and N03
- Protect these trees with measures as shown on the Tree Management Drawing (appendix C) and as described in the Tree Protection Specifications (appendix D).
- An existing concrete retaining wall restricts root growth within the subject site and root protection measures are not required within the site for these trees.
- Advance planning and attention is required to avoid aerial conflict with the crowns of these trees. Crane encroachment through crown protection zones impacting branches and foliage of protected trees is not accepted.

## TREE PROTECTION PRESCRIPTION

Refer to Tree Management Drawing (Appendix C), Tree Protection Specifications (Appendix D) and Letter of Undertaking (Appendix E) for further details. The owner is required to seek guidance and/or arrange on-site field services or supervision by the project arborist from this office, as specified on those documents.

## TREE REPLACEMENT

Tree replacement requirements will be confirmed by the municipality in relation to their policies. Design and specifications for the replacement trees will be provided by the project landscape architect.

Certified by:



Nick McMahon, Senior Project Arborist

ISA Board Certified Master Arborist #PN-7136B  
Qualified Tree Risk Assessor (TRAQ)  
Certified Tree Risk Assessor #1763

Enclosures: Appendix A: Tree Photos  
Appendix B: Tree Inventory  
Appendix C: Tree Management Drawing  
Appendix D: Tree Protection Specifications  
Appendix E: Letter of Undertaking/Comfort Letter

### 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. Trees have adaptive growth strategies that can effectively mask defects. Our assessment is limited by relying on the outward signs 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. Arbortech Consulting does not guarantee or warrant that a tree 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. Arbortech has not verified that information, and does 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 any treatments recommended in this report. The 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



Tree #271



Tree #271



Tree #272



Tree #272





## APPENDIX A

### TREE PHOTOS



Tree #273



Tree #273



Tree #N01



Tree #N02





## APPENDIX A

### TREE PHOTOS



Tree #N03



Tree #C01



Tree #C01



Tree #C001





## APPENDIX A

### TREE PHOTOS



Tree #C02



Tree #C03





## APPENDIX B: TREE INVENTORY

### Tree Inventory Legend:

**Tag/ID** denotes the serial numbered aluminum tag affixed to the tree or a reference ID as referenced in report and on tree management drawing.

**Loc** denotes the ownership of trees based on the survey and project plans provided; **ON** = On-Site, **SHARED** = On-Site tree straddling PL, **OFF** = Neighbour Tree, or **CITY**

**Survey** denotes tree whether is surveyed or not (Y/N)

**Dbh** denotes dia of the trunk in cm at 1.4 m above grade or to arboricultural standards (i.e. below scaff union). Multiple stems above the root crown are used to calculate dbh based on trunk area method. Multiple stems attached into the root crown references the largest stem. DBH may be estimated or derived from survey data.

**Ht** denotes the height of the tree in metres as measured or estimated by the assessor.

**Spr** denotes the spread RADIUS of the branches and foliage (dripline) in metres as measured or estimated by the assessor.

**LCR** denotes the live crown ratio based on percent of live crown observed in relation to a tree of normal form and with a full crown.

**Class** denotes the structural class of a tree growing in Landscape (**OPEN, GROVE, or EDGE**) or Forest stand environment (see below);

**UNDER** = understory tree; usually a component of the secondary canopy.

**SUPP** = suppressed tree; negligible trunk taper and very low LCR (<30%), usually not structurally viable along new forest edges.

**COD** = codominant tree; limited trunk taper, moderate LCR (30 to 50%), potentially viable in stand level retention zones.

**DOM** = dominant tree; stand anchoring attributes, strong trunk taper, moderate to full LCR (>50%), potentially viable in stand and selective groves.

**Suitability** for retention considers condition, age class, species, tolerance of disturbance, etc. ; **U** denotes Unsuitable, **C** denotes Conditional, **S** denotes Suitable

**Contribution** rating considers location, contribution and landscape function the tree may provide to the proposed land use; **L** denotes Low, **M** denotes Medium, **H** denotes High

**Priority** denotes a preservation ranking for consideration in tree retention planning, combining the suitability and contribution.

**Assessment Findings** summary description of overt defects and noteworthy growing condition factors, as well as preservation and protection considerations.

**Action** denotes proposed treatment in context to the current project design; **RETAIN, REMOVE or PROTECT**. Shared and Off-Site trees proposed as REMOVE **require owner consent**.

**CPZ** and **RPZ** are arborist assigned setbacks for Crown and Root protection. Along with the working space setback (**WSS**), they form the tree protection zone (**TPZ**).

Tag/ID	# of Trees	Loc	Survey	Common name, (Botanical)	Dbh	Ht	Spr	LCR	Class	Suitability	Contribution	Priority	Assessment Findings	Action	Rationale	CPZ	RPZ
271	1	ON	Y	Fig (Ficus sp.)	37	8	5.0	100	OPEN	U	L	NIL	<ul style="list-style-type: none"> <li>DBH of a single stem equivalent is calculated based on the area of measured stems (12+13+15+20+20cmØ) at 1.4m above grade for protection setback calculation purposes.</li> <li>History of excessive pruning resulting in large pruning wounds with decay and weakly attached waterspouts replacing the original canopy.</li> </ul>	RETAIN		6.0	3.0



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Tag/ID	# of Trees	Loc	Survey	Common name, (Botanical)	Dbh	Ht	Spr	LCR	Class	Suitability	Contribution	Priority	Assessment Findings	Action	Rationale	CPZ	RPZ
272	1	ON	Y	Japanese maple (Acer palmatum)	36	14	8.0	50	OPEN	C	H	1	<ul style="list-style-type: none"> <li>• DBH of a single stem equivalent is calculated based on the area of measured stems (18+20+24cmØ) at 1.4m above grade for protection setback calculation purposes.</li> <li>• Asymmetric crown biased to the south due to the proximity of adjacent trees.</li> <li>• Historically crown raise pruned to an excessive height of 5.0m above grade.</li> </ul>	<b>REMOVE</b>	<ul style="list-style-type: none"> <li>• Excessive root and crown loss will result from grading, preparation for installation of hardscape features and pruning to mitigate aerial conflict.</li> </ul>		
273	1	ON	Y	Western redcedar (Thuja plicata)	55	19	4.0	40	OPEN	U	M	<b>NIL</b>	<ul style="list-style-type: none"> <li>• Historically crown raise pruned to an excessive height on the north side, resulting in an asymmetrical, high crown biased to the south and a poorly tapered stem.</li> <li>• Roots bound by a retaining wall to the east and building foundation to the southwest resulting in an asymmetrical root plate and dependence on the existing building foundation for stability.</li> </ul>	<b>REMOVE</b>	<ul style="list-style-type: none"> <li>• Condition</li> <li>• Conflict with underground parking structure</li> </ul>		





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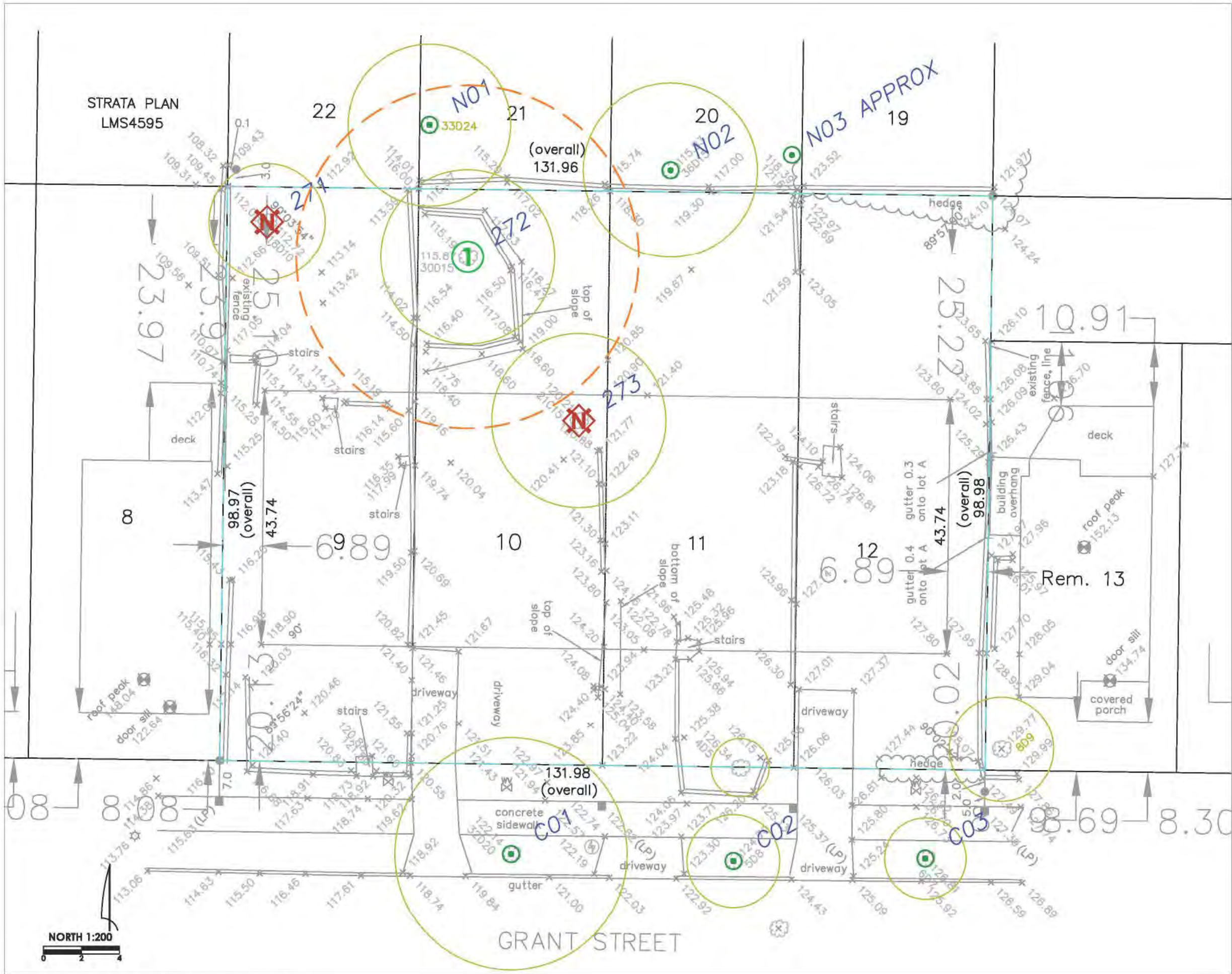
Tag/ID	# of Trees	Loc	Survey	Common name, (Botanical)	Dbh	Ht	Spr	LCR	Class	Suitability	Contribution	Priority	Assessment Findings	Action	Rationale	CPZ	RPZ
C01	1	CITY	Y	American elm (Ulmus americana)	75	24	10.0	60	OPEN	C	H	N/A	<ul style="list-style-type: none"> <li>• Historic primary scaffold failure resulted in a large open wound. Reaction wood has formed at the periphery of the wound. The extend of decay is unknown but the wound is below the next scaffold, detail testing is recommended due to the location of the wound and implications for the structure of the remaining crown.</li> <li>• Multiple scaffold branches weakly attached in a narrow v-shaped union with a bark inclusion. Pruning to reduce the end weight of the scaffold may partly mitigate the weak structural form of the tree.</li> <li>• Large surface roots in conflict with the existing curb and sidewalk. Alternate sidewalk design and curb alignment will be conditional to the retention of the tree.</li> <li>• A TRAQ level 3 inspection is recommended to aerially inspect cable and brace support hardware historically installed in the tree.</li> <li>• End weight reduction pruning in the upper crown -to remove not more than 25% of the crown, is recommended to reduce wind resistance and windloading stress on defective parts and support hardware.</li> </ul>	PROTECT		11.0	7.0
C02	1	CITY	Y	Sweetgum (Liquidambar styraciflua)	15	7	3.0	80	OPEN	S	H	N/A	<ul style="list-style-type: none"> <li>• No significant defect observed.</li> </ul>	PROTECT		4.0	1.5
C03	1	CITY	Y	Sweetgum (Liquidambar styraciflua)	14	7	4.0	80	OPEN	S	H	N/A	<ul style="list-style-type: none"> <li>• Low garden planter bed installed around the base of the tree and obscures root crown.</li> </ul>	PROTECT		5.0	1.5
N01	1	OFF	Y	Sycamore maple (Acer pseudoplatanus)	91	22	9.0	60	OPEN	C	H	N/A	<ul style="list-style-type: none"> <li>• DBH of a single stem equivalent is calculated based on the area of measured stems (50+50+40+40cmØ) at 1.4m above grade for protection setback calculation purposes.</li> <li>• Multiple stems joined at a single node near the base of the tree.</li> <li>• Historically crown raised to 9m</li> </ul>	PROTECT		10.0	



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Tag/ID	# of Trees	Loc	Survey	Common name, (Botanical)	Dbh	Ht	Spr	LCR	Class	Suitability	Contribution	Priority	Assessment Findings	Action	Rationale	CPZ	RPZ
<b>N02</b>	<b>1</b>	OFF	Y	Flowering cherry (Prunus serrulata)	<b>40</b>	<b>13</b>	<b>5.0</b>	<b>40</b>	OPEN	U	L	<b>N/A</b>	<ul style="list-style-type: none"> <li>• Access to off-site tree restricted stem due to site conditions and distance from property line. DBH estimated by arborist based on field observations.</li> <li>• History of excessive pruning has resulted in large decayed wounds.</li> <li>• Historically clearance pruned from the property line.</li> <li>• A retaining wall along the north property line effectively restricts root growth within the subject site.</li> </ul>	<b>PROTECT</b>			6.0
<b>N03</b>	<b>1</b>	OFF	N	Norway spruce (Picea abies)	<b>25</b>	<b>12</b>	<b>3.0</b>	<b>90</b>	OPEN	S	M	<b>N/A</b>	<ul style="list-style-type: none"> <li>• Access to off-site tree restricted stem due to site conditions and distance from property line. DBH estimated by arborist based on field observations.</li> <li>• No significant defect observed.</li> <li>• A retaining wall along the property line effectively restricts root growth within the subject site.</li> <li>• No overhanging crown in the subject property.</li> </ul>	<b>PROTECT</b>			4.0

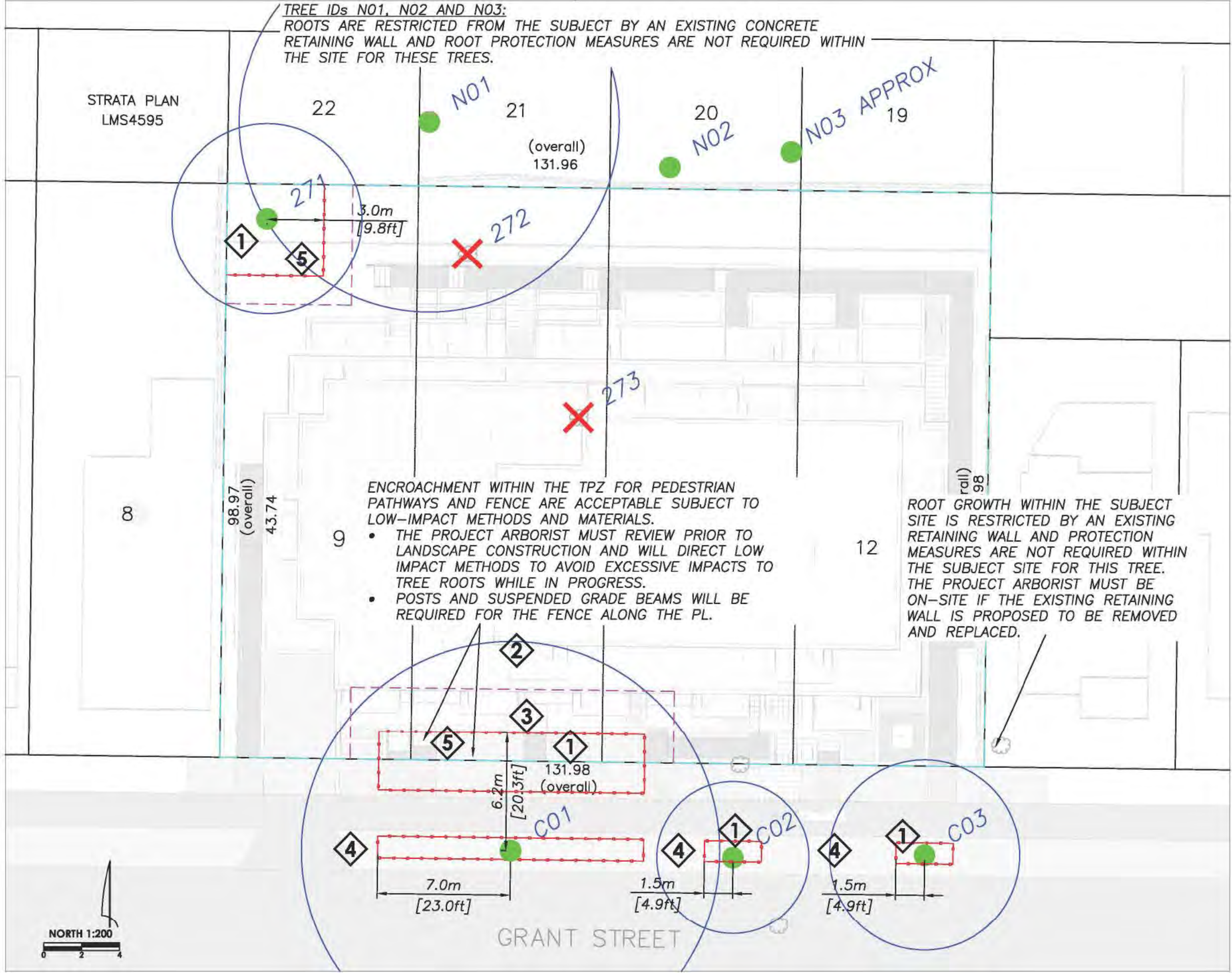




### TREE ASSESSMENT DETAIL

**LEGEND-TREE ASSESSMENT:**

- denotes TAG NUMBER or ID REFERENCE
- denotes **PRIORITY 1** tree **SUITABLE** for preservation (retention; if design can accommodate it)
- denotes **PRIORITY 2** tree **MARGINAL** for preservation (possible candidate subject to design and other conditions)
- denotes **PRIORITY NUL** tree **UNSUITABLE** for preservation (not viable)
- denotes **UNDERSIZE TREE** that is exempt from permitting (based on municipal bylaw)
- denotes **OFF-SITE** tree within influencing distance (neighbour or city to be advised or consulted)
- denotes **OPTIMAL TREE PROTECTION SETBACK** (for planning and design consideration)
- denotes **6 TIMES DBH SETBACK** (for reference only - not a specification)



### TREE MANAGEMENT DETAIL

**LEGEND-TREE MANAGEMENT IN DEVELOPMENT AREA:**

- See arborist report for further details.
- denotes TAG NUMBER or ID REFERENCE (see tree inventory and assessment list)
- denotes **RETENTION** tree (protection measures as specified)
- denotes **REMOVAL** tree (TAGGED TREE) (municipal permit or approvals may be required)
- denotes **HIGH RISK** tree to be **REMOVED** or **MODIFIED** (see tree inventory and report - permit or approval required)

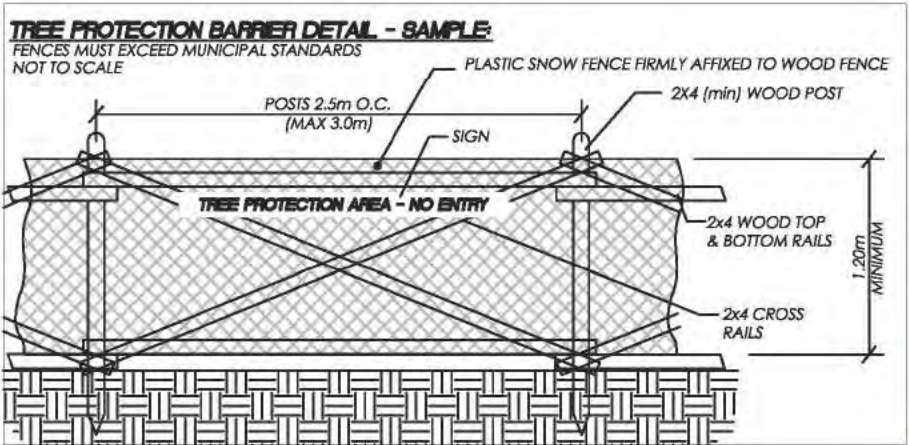
**LEGEND-TREE PROTECTION:**

- denotes **CROWN PROTECTION ZONE - CPZ** (Exclusion zone - no aerial encroachment of buildings to within 1.0m min)
- denotes **ROOT PROTECTION ZONE - RPZ** (This is the minimum alignment for **TREE PROTECTION BARRIERS**)
- denotes **WORKING SPACE SETBACK - WSS** (Offset from RPZ as specified by Project Arborist - Site works within WSS requires approval and on-site supervision by the Project Arborist)
- denotes **SPECIAL MEASURES** required (See report for further details, Project Arborist to direct or implement.)

**Note:** All tree protection setbacks are measured from the **centre** of trunk

**DRAWING USE AND COORDINATION:**

- This drawing relies on information and drawings supplied by the client or their consultants. Refer to original drawings from the consultants (i.e. surveyor, engineer, architect or other design professional) for accurate locations and dimension of site features.
- All tree protection measures specified herein should be included and coordinated with the design for the project, including but not limited to: architectural, landscape, civil and geo-technical. It is the responsibility of each design professional to understand and review the tree protection measures and determine any conflicts. If conflicts are identified, the design professional and/or the client should bring those to the attention of the project arborist from this office to review and resolve.
- Tendering and contracts for site preparation, land clearing, civil works and/or construction should include specifications for tree protection measures to be implemented as per this drawing and any reference documents.
- If it is the responsibility of the owner or their agent to obtain all necessary approvals for the tree retention and removal scheme presented herein. Any changes that the municipality requests should be brought to the attention of the project arborist from this office to review and resolve.
- Some existing trees may not be shown on this drawing (i.e. undersize or bylaw exempt trees, or grouped trees). It is the responsibility of the contractor(s) to confirm that all necessary municipal approvals are in place, and to determine the full scope of tree removal work. Only the trees known to be retained and protected are to remain on site, unless otherwise directed by the owner.
- Trees and stumps to be removed from within the tree protection zone (including CPZ, RPZ and WSS) are to be removed as directed and with on-site supervision from an arborist from this office.
- Stump grinding may be required for the removal of trees within the tree protection zone, at the discretion of an arborist from this office.
- Certain tree removals in proximity of retained trees or power lines may require assistance from a suitably qualified professional, such as but not limited to:
  - ISA Certified Arborist (tree removal, digging, pruning and other tree service work) working to ANSI A300 and ANSI Z133 Standards and Best Management Practices;
  - Certified Utility Arborist (tree removal, pruning and other tree service work) working to ANSI A300 and ANSI Z133 Standards and Best Management Practices; and following BC Hydro policies and procedures.



**TREE PROTECTION ZONE RESTRICTIONS:**

Trees that are specified to be retained must be protected from damage during all phases of development related work on the site. Any access or construction related work within the TPZ (CPZ, RPZ and/or WSS) requires advance approval, guidance and on-site direction or supervision by the project arborist. General restrictions in the TPZ are as follows:

- No soil disturbance of any scope or to any depth for cuts or fills, including but not limited to: trenching, shipping of over-burden, bulk excavation, fill placement, site preparation, grade transition, topsoil placement, etc.
- No passage or operation of machinery, trucks, vehicles or equipment (including small track machines, skid steers, lifts, etc), except as approved and directed by the project arborist, and subject to special measures.
- No storage of soil, spoil, gravel, construction materials, waste materials, etc.
- No use or washing of concrete, stucco, drywall, paint, or other potentially harmful materials.
- No placement of temporary structures or services.
- No use of lighting, signs, cables or any other device to retained trees.
- No pruning or cutting of retained trees, except as approved and directed by the project arborist, and performed by a qualified tree service firm employing ISA Certified Arborist and working to ANSI A300 and ANSI Z133 Standards.
- No landscape finishing, such as but not limited to: installing retaining walls, digging planting holes, placing growing medium, installing irrigation or conduit, etc., except as approved and directed by the project arborist.

### APPENDIX C: TREE MANAGEMENT DRAWING

**ARBORTECH CONSULTING**

SUITE 145 - 12051 HORSESHOE WAY, RICHMOND, BC V7A 4V4 604.275.3484

**PROJECT: PROPOSED DEVELOPMENT**

**ADDRESS: 1535 - 1557 GRANT STREET, VANCOUVER**

**CLIENT: AVERRA DEVELOPMENTS**

**CITY REF: [blank] IACIL FILE: 16305**

**PLOT SIZE: 22'x34' REV #: 2 DATE: NOV 15, 2018**



## APPENDIX D

### TREE PROTECTION SPECIFICATIONS



1. CONTACT INFORMATION:

All tree protection questions, clarifications and coordination, should be directed to:

ARBORTECH CONSULTING OFFICE: 604 275 3484 EMAIL: trees@aclgroup.ca

A project arborist will be assigned by our office to schedule a pre-construction meeting, and coordination of supervision protocols will be established.

2. TREE PROTECTION ZONES (TPZ):

Tree protection setbacks are defined on our drawings and documents relative to the centre of the tree trunk where it emerges from the ground and/or the actual extent and spread of the crown or roots of the tree. The TPZ is comprised of three main components:

CPZ – CROWN PROTECTION ZONE SETBACKS:

Specified by the project arborist to be at a minimum of the dripline extents of the crown (furthest reaching branches and foliage) plus 1.0 m. Restrictions on any aerial encroachment within a CPZ are required in order to protect from tree damage. This includes interim needs during site preparation or construction (machinery, cranes, trucks, vehicles, etc.), design elements (new structures, etc), and the working space required to build or maintain them. Pruning may be possible to accommodate certain encroachments but some encroachments may not be feasible within tolerances for impacts – consult with project arborist to confirm.

RPZ – ROOT PROTECTION ZONE SETBACKS:

A specified setback denoting the closest limits of soil/root disturbance determined by the project arborist based on; tree species, size, age class, condition, soil type and depth, drainage, topography, wind exposure and changes thereof, constrained root conditions, and acceptable thresholds specific to those factors. RPZ alignments that are smaller than the CPZ may be supported conditional to: the locations of the design features being sufficiently set back to allow for building space and grade transition, the aerial encroachment of that design feature within the CPZ being of tolerable impacts, and/or implementation of special remedial measures or enhancement treatments.

WSS – WORKING SPACE SETBACKS:

A setback zone to the specified offset from the RPZ (see tree management drawing) where all proposed site changes or construction work is to be supervised by the project arborist. Demolition of existing structures or hard landscape features will require low impact methods, and any excavations within this zone will require on-site direction and root pruning services of the project arborist.

The design professionals should consider the above, as well as the rest of this document in preparing the project designs.

3. TREE PROTECTION ZONE RESTRICTIONS:

Trees that are specified to be retained must be protected from damage during all phases of development related work on the site. Any access or construction related work within the TPZ (CPZ, RPZ and/or WSS) requires advance approval, guidance and on-site direction or supervision by the project arborist. General restrictions in the TPZ are as follows:

- No soil disturbance of any scope or to any depth for cuts or fills, including but not limited to; trenching, stripping of over-burden, bulk excavation, fill placement, site preparation, grade transitions, topsoil placement, etc.,
- No passage or operation of machinery, trucks, vehicles or equipment (including small track machines, skid steers, lifts, etc), except as approved and directed by the project arborist, and subject to special measures.
- No storage of soil, spoil, gravel, construction materials, waste materials, etc.,
- No waste or washing of concrete, stucco, drywall, paint, or other potentially harmful materials,
- No placement of temporary structures or services,
- No affixing lights, signs, cables or any other device to retained trees,
- No pruning or cutting of retained trees, except as approved and directed by the project arborist, and performed by a qualified tree service firm employing ISA Certified Arborists and working to ANSI A300 and ANSI Z133 Standards.
- No landscape finishing, such as but not limited to; installing retaining walls, digging planting holes, placing growing medium, installing irrigation or conduit, etc., except as approved and directed by the project arborist.

4. TENDERING, IFC DRAWINGS AND CONSTRUCTION MANAGEMENT:

Tendering of the project, issuance of the IFC drawings and documents (architectural, civil, landscape, mechanical, geo-technical, etc.) as well as planning of the construction (demolition, site clearing, excavation, shoring, access/egress, crane operations, etc.) should be coordinated with the tree protection specifications herein and the measures outlined as specified on the Tree Management Drawing prepared by this office. Any conflicts with the TPZ's identified by the project team or the contractor will require additional detailed review by the project arborist in advance of proceeding.

5. BARRIERS – TREE PROTECTION FENCES:

Barriers should be erected at the CPZ setback where possible, but must be installed no closer to the RPZ specified alignments as a minimum tree protection measure. Signs stating "TREE PROTECTION ZONE - NO ENTRY" must be placed on the tree protection fence at a suitable frequency at the direction of the project arborist. The contractor, sub-contractors and trades should be made aware of the restrictions therein (see above). The barriers must be maintained at those alignments in good condition, and may not be removed for any reason (including landscaping), unless prior approval from the project arborist is obtained.

6. SURVEYING:

Tree locations are derived from the project survey, and any discrepancies should be coordinated with their office directly and reported to the project arborist.

Tree barriers aligned with or within close proximity to a property line, a design feature, a restrictive covenant line, and/or an environmentally sensitive or protected area may require a survey in advance to enable accurate barrier installation.



## APPENDIX D

### TREE PROTECTION SPECIFICATIONS



7. TREE PRUNING, TREATMENTS, ENHANCEMENTS AND SPECIAL MEASURES:

The developer and their contractors are responsible to ensure completion of enhancement or remedial tree treatments, and proactive tree protection measures for retained trees as specified by the project arborist, including but not limited to;

- Pruning for risk mitigation, crown restoration, form, building or overhead clearance, and/or sight lines.
- Pre-treatments such as root mapping, vertical aeration, advance root pruning and other treatments.
- Installation of soil amender (i.e. mulch) within the RPZ to mitigate soil desiccation and to improve soil fertility.
- Supplemental watering to compensate for soil hydrology changes.
- Low impact removal for stumps located within a CPZ (i.e. stump grinding or cutting with project arborist supervision).
- Windfirming of new forest edges created by clearing of the development lands, including: re-assessment, tree removals, pruning, modification to wildlife tree, or other treatments as specified by the project arborist.

See the tree management drawing for further details.

8. DEMOLITION OR PRE-CONSTRUCTION OPERATIONS:

If tree removal permits are issued at this stage, please review next item also. Note that some municipalities will not approve tree removal at the demolition phase. Tree barriers may need to be installed prior to demolition and/or the municipality may require on-site direction and supervision by the project arborist during the process of demolishing existing structures and hardscapes. In some cases tree protection barriers must be realigned, and restoration of the zone undertaken, after demolition is complete. A letter of undertaking (LOU) confirming supervision may be required by, or may be on file with, the municipality. The demolition contractor will need to coordinate with the project arborist accordingly.

9. TREE REMOVAL/CLEARING OPERATIONS:

A copy of the tree permit must be provided to the project arborist to check for congruency with our tree management drawing. Note that neighbour approvals, additional municipal permits and/or authorizations from regulatory bodies may be required and are the responsibility of the developer or their assigned representative. Certain trees requiring removal may not be shown or referenced on the drawing or documents prepared by this office (i.e. undersize or non-by-law trees or untagged trees assessed in groups). There are often removal trees (identified or unidentified on our drawings) that require felling, extraction and stump removal from TPZ's using low impact methods. Only the trees shown for retention within a tree protection zone as specified on our tree management drawing shall be retained (unless otherwise directed by the developer). The contractor and/or the land clearing subcontractor should verify the tree removal and clearing scope based on their own site investigation. The developer/owner and their contractor should also coordinate with the project arborist in advance to identify retained trees, identify low impact removal trees, review the work plan, and to ensure contractor compliance with the tree protection measures specified.

10. CONSTRUCTION OPERATIONS:

A letter of undertaking (LOU) for arborist supervision may be on file with the municipality. The contractor (project manager/site superintendent) and the developer are encouraged to proactively meet with the project arborist in advance of commencing work on the project to; establish communication and procedural protocols, review responsibilities for tree protection measures at specific milestones of the project, and identify and resolve any anticipated tree protection related challenges. Pursuant to the Tree Protection Zone Restrictions noted above, the trunks, branches, foliage and roots of retained trees, as well as the soil within the TPZ, must not be damaged by construction activities. Careful attention to excavation, access/egress, servicing, and machinery equipment and crane operation in proximity to the height and size of the TPZ's is recommended. Note that pruning to reduce the height of retained trees (topping or heading) CANNOT be accommodated. It is recognized that certain unpredictable construction conflicts with a TPZ may arise that could interfere with the protection of the selected trees, however any proposed encroachment into a TPZ and/or changes to the tree retention scheme are subject to approval in advance by the project arborist and the municipality. Special measures required for tree protection compliance related to construction work in the CPZ or within an RPZ may be feasible to accommodate managed encroachments into a TPZ, such as but not limited to:

- Root mapping by the project arborist.
- Installing armour or suspended structures over the soil within the RPZ to accommodate temporary worker or equipment passage within a TPZ. Several types of armouring may be available. Implementation is at the discretion of the project arborist and may be conditional to municipal approvals.
- Low impact trenching using air-vac or hydro-vac, with arborist supervision, to accommodate underground services or utilities. This option is restricted as to viability by; proximity, scope, depth, shoring needs, tree species, site/soil conditions and other factors.

11. LANDSCAPING OPERATIONS:

Removal of the tree barriers requires advance coordination and approval by the project arborist. The operation of equipment of any size or type, the placement of growing medium, all grading and sub-base preparation for hard landscape features. (i.e. sidewalks and patios), site preparation for retaining walls and footings, excavation for fences, signs and other landscape features, digging of planting holes for new plants and trees, the digging of trenches for irrigation, drainage and lighting infrastructure, and the placement of turf and other surface finishing, all have a high potential for causing damage to trees, roots or soil. Advance coordination between the landscape contractor and our office prior to landscape operations commencing is required to avoid tree protection non-compliance and bylaw issues.

## APPENDIX E

### LETTER OF UNDERTAKING – COMFORT LETTER



PROOF OF CONTRACT FOR FIELD SERVICES BY PROJECT ARBORIST

November 15, 2018

ACL File: 16305

For Municipal Review and Approval Purposes

Client and Project: Avera Developments

Site Address: 1549 & 1557 Grant Street, Vancouver

Ref Documents: Arbortech Tree Management Report and Drawing

Pursuant to city bylaws or policies, the Project Arborist is confirmed to be retained under contract to the developer or owner to assist with tree protection treatments and compliance during site preparation and construction phase as summarized below:

#### SCHEDULE:

- PRE-CONSTRUCTION SITE VISIT:  
The tree protection zone setbacks and restrictions will be reviewed by the project arborist with the general contractor, including the working space setback provisions noted below.
- SITE VISITS DURING CONSTRUCTION:  
The project arborist will attend proactively once per month or as scheduled with the contractor when construction is in progress in vicinity of the retained trees in order to check on compliance.
- POST CONSTRUCTION ASSESSMENT AND SIGN-OFF:  
At completion of the project, the project arborist is required by the city to undertake an inspection and sign-off to confirm that all tree protection measures have been successfully implemented.

#### SPECIAL MEASURES:

1. General:  
We must be called to attend and review, approve, direct and/or supervise certain works from time to time during the demolition, site preparation, construction and landscaping, at critical milestones or activities:
  - a. Prior to demolition, site preparation or construction commencing, to direct and inspect the installation of tree protection barriers in advance of or in lieu of municipal inspection.
  - b. Whenever access into the tree protection zone (TPZ) is contemplated or desired for any reason.
  - c. Whenever any grading, trenching, excavation or landscape work occurs within a TPZ, including the root protection zone (RPZ) and the working space setback (WSS) of 1.5m setback from a RPZ.
  - d. For any pruning of a retained tree.
  - e. For any tree removal or stump removal from within a RPZ or WSS.
  - f. During any landscape finishing within the TPZ.
  - g. At the completion of the project to review the condition of the trees and to sign off on the construction and landscape having met tree protection compliance measures to the satisfaction of the project arborist.
2. Pruning- Tree C01:  
Certain retained trees may require pruning as recommended by the project arborist to treat one or more of the following; restoration of form, aesthetics, mitigation of defect(s), building clearance, sight lines, overhead clearance for vehicles or pedestrians and/or construction access. All tree work is to be carried under the direction of the project arborist from this office and by an ISA Certified Arborist employed by a qualified tree service firm, and working in conformance with applicable ANSI standards (A300 and Z133).
3. Root Pruning for Site Excavation- Tree C01:  
The project arborist must be on site concurrently with any excavation adjacent to the tree protection zone to identify tree roots, provide root protection measures and/or undertake root pruning treatments as necessary.
4. Root Pruning for Services Adjacent to TPZ- Trees C01, C02, C03:  
The project arborist must approve the method of excavation (i.e. excavator, hydro-vac, air-vac, air spade etc) and also must be on site concurrent with trenching to identify tree roots, provide root protection measures and/or undertake root pruning treatments as necessary.
5. Landscape Finishing- Tree 271, C01:  
Preparation works and construction of landscape finishing works including but not limited to; sidewalks, paths, patios, decks, retaining walls, fencing, irrigation, conduit, benches, patio pavers, soil placement,

## APPENDIX E

### LETTER OF UNDERTAKING – COMFORT LETTER

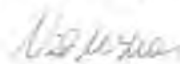




grass or turf installation, planting or other landscape features that are proposed within or directly adjacent to a TPZ must be reviewed by this office in advance and installed with on-site direction and guidance from the project arborist. Certain landscape features may be excluded or will require specific materials and methods to be utilized that meet tree root protection compliance requirements. Note that the planting of any ground cover, shrubs or hedges within the TPZ is restricted to small pot sizes (i.e. #1 or #2 depending on species) and using "pocket planting" standards. Planting holes minimized in size, dug into existing grade to avoid damage to woody roots, and backfilled with minimal addition of growing medium.

Site review reports will be issued to; the owner, the prime consultant and the general contractor through the construction phase, and the post construction assessment sign off report will be issued to the city after completion of the project.

By signing below, the owner agrees that they;

- Have read and understand Arbortech's standard **Tree Protection Specifications**,
- Will provide Arbortech Consulting with all design drawings and report any design changes that may impact tree preservation,
- Will ensure that Arbortech Consulting is contacted with a minimum of **3 business days advance notice** to arrange attendance by the project arborist at required times,
- Will comply with project arborist directed and supervised work in conformance with arboricultural standards and best management practices, using low impact materials and methods as directed, and facilitate any remedial work or treatments that may be prescribed or required by the project arborist.

<p>Submitted by:</p>  <p><b>Nick McMahon</b> For Scheduling: Phone: 604 275 3484 Email: trees@aclgroup.ca</p>	<p>Signature of Owner: </p> <p>Printed Name: <u>Gavin McLeod</u> Phone: <u>604. 868. 9680</u> Email: <u>gavin.mcleod@averra.ca</u></p>
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	<p>Signature of Contractor: </p> <p>Printed Name: <u>Averra Properties (Grant) LP</u> Phone: <u>604. 868. 9680</u> Email: <u>gavin.mcleod@averra.ca</u></p>
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