

Development Permit

Permit No: DP000172/19.27
Applicant: Community Land Trust Foundation of BC
Registered Owner: The Corporation of the District of North Cowichan
Subject Property 1: 3191 Sherman Road **Folio:** 06000-000
Subject Property 2: 3253 Sherman Road **Folio:** 05999-000

Description of Lands:

Subject Property 1

Parcel Identifier: 003-809-510

Legal Description: Lot 2, Section 1, Range 4, Somenos District, Plan 18897

Subject Property 2

Parcel Identifier: 003-809-471

Legal Description: Lot 1, Section 1, Range 4, Somenos District, Plan 18897

Proposal: **Development Permit DPA-1 (General) for construction of 92 Unit Apartment and Townhouse Development at 3191 and 3253 Sherman Road**

Conditions of Permit:

1. This permit is issued subject to compliance with all relevant District of North Cowichan bylaws, except as specifically varied or supplemented by this Permit.
2. This permit applies to the lands described above, and any buildings, structures, and other development thereon (hereinafter called 'the Lands').
3. Authorization for works within Development Permit Area – 1 (General) are limited to the construction of a 92 unit apartment and townhouse housing development.
4. The Lands which are subject to this Permit shall be developed strictly in accordance with the terms and conditions of this Permit and in accordance with the following schedules:

Schedule 1

Site Plan and Elevations by Low Hammond Rowe Architects dated 2020-10-26

Schedule 2

Landscaping by Murdoch DeGreef Inc. dated 2020-10-28

Schedule 3

Site Lighting and Wayfinding dated 2020-10-26

Schedule 4

Landscape Estimate for Bonding by Murdoch DeGreef Inc. dated 2020-01-26

Schedule 5

Stormwater Management by Murdoch DeGreef Inc. dated 2020-10-28

Schedule 6

3191 Sherman Road Construction Impact Assessment and Tree Preservation Plan by Talbot and MacKenzie & Associates dated 2020-11-04

5. Pursuant to section 504(1) of the *Local Government Act*, this permit will lapse two years from the date of the Development Permit approval unless construction, in accordance with the terms and conditions of this permit, has substantially started.
6. Further to Condition 5, construction is considered to be substantially started when a valid building permit for the development has been issued and shall not have lapsed; and excavation or construction works associated with the development hereby approved must have commenced to the satisfaction of the Director of Planning and Building. Demolition does not constitute construction.
7. This permit is not a building, sign or awning permit or a subdivision approval. The applicant may contact the Planning Department to determine whether further permits are required in association with the development hereby approved.
8. As a condition of the issuance of this Permit, Council requires a security as authorized by Section 502 of the *Local Government Act*, to ensure that any conditions with respect to landscaping are satisfied or to ensure that no conditions of the Permit are being breached resulting in an unsafe condition of the Land.
9. Security for landscaping in the amount of \$436,627.40 is required by the permit holder at the time of building permit application. This amount is in accordance with the estimate provided in Schedule 4.
10. Section 13 of the *Heritage Conservation Act* protects heritage (archaeological) sites and heritage objects. This permit does not authorize the alteration of any such site or object. The permit holder is responsible for ensuring compliance with the *Heritage Conservation Act*, including taking any steps required to determine whether or not the subject property contains a heritage (archaeological) site or heritage object. Under section 36 of the *Heritage Conservation Act*, it is an offence to alter a heritage (archaeological) site or heritage object without first obtaining a permit to do so from the Province of British Columbia.
11. This permit does not exempt the owner from obtaining all other federal and provincial approvals required to carry out the proposed development.

Monitoring and Inspections

12. An inspection of the application site by Planning and Building Department staff will take place prior to the issuance of an Occupancy Permit to ensure that the development is in complete accordance with the approved Development Permit plans. The applicant is responsible for contacting the Planning and Building Department to arrange the inspection at least three weeks prior to applying for an Occupancy Permit. Additional site inspections by Planning and Building Department staff may occur during the construction phase of the project.

Date of Development Permit Approval/Issue by Council or its Delegate:

This permit was approved and issued on **March 23, 2021**.

This permit expires on **March 23, 2023**.

The Corporation of the District of North Cowichan



Designated Municipal Officer



SITE PLAN

FUTURE SHARED ROAD ALIGNMENT



LOW HAMMOND ROWE ARCHITECTS



TL HOUSING SOLUTIONS



NORTH COWICHAN FAMILY HOUSING

3191 SHERMAN ROAD, DUNCAN BC

ISSUED FOR DEVELOPMENT PERMIT

REVISION

OCT 26, 2020

SITE/ROOF PLAN
OCT 26, 2020

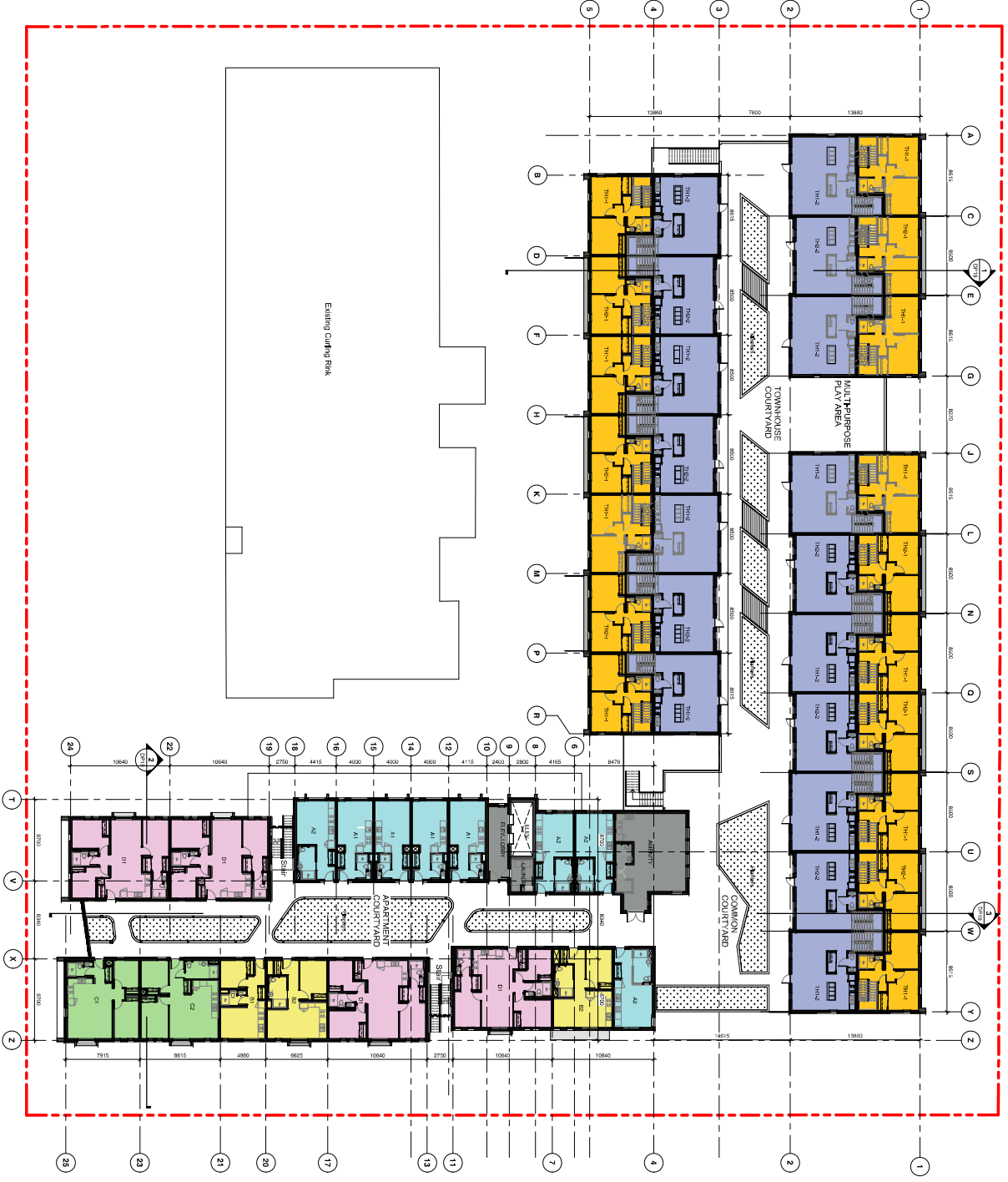
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DP03





LOW HAMMOND ROWE ARCHITECTS



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NORTH COWICHAN FAMILY HOUSING
 3197 SHERMAN ROAD, DUNCAN BC
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OCT 26, 2020

LEVEL 2 CONTEXT PLAN

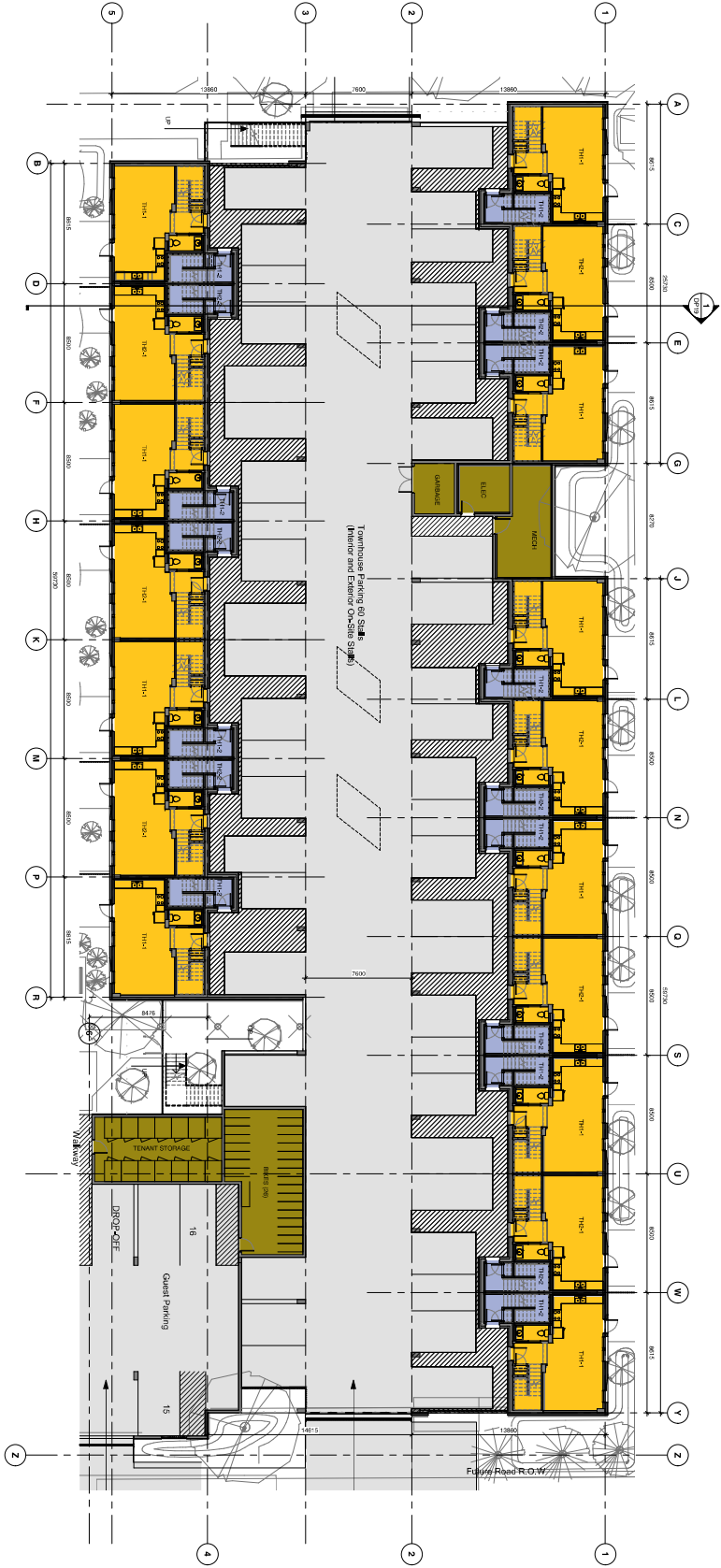
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OCT 26, 2020

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DP05



LOW HAMMOND ROWE ARCHITECTS



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NORTH COWICHAN FAMILY HOUSING LEVEL 1 PLAN - TOWNHOUSE
 3197 SHERMAN ROAD, DUNCAN BC
 ISSUED FOR DEVELOPMENT PERMIT
 REVISION

OCT 26, 2020

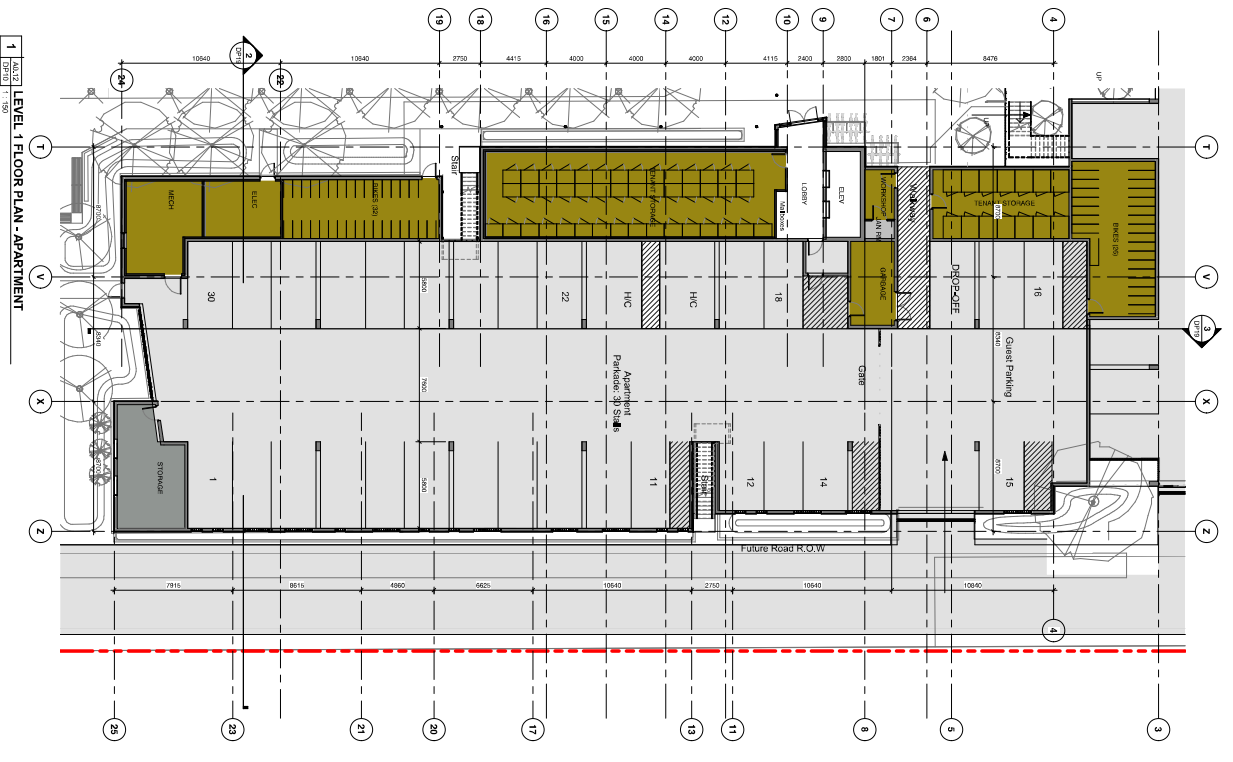
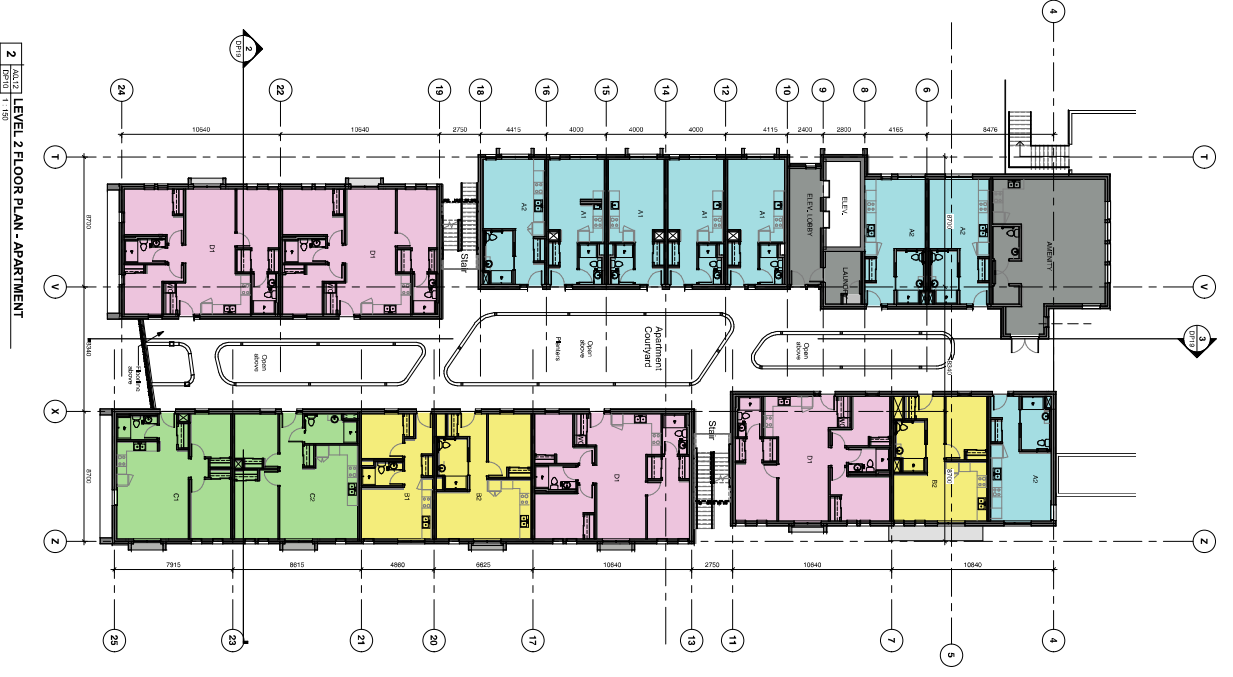
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OCT 26, 2020

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DP07



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NORTH COWICHAN FAMILY HOUSING LEVEL 1-2 PLAN - APARTMENT
 3197 SHERMAN ROAD, DUNCAN BC
 ISSUED FOR DEVELOPMENT PERMIT
 REVISION

OCT 26, 2020

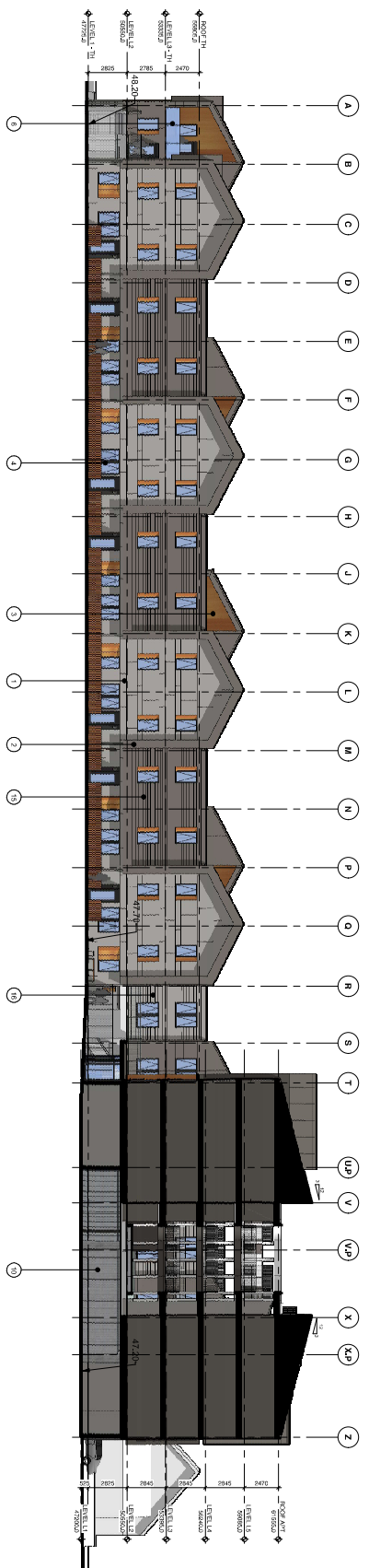
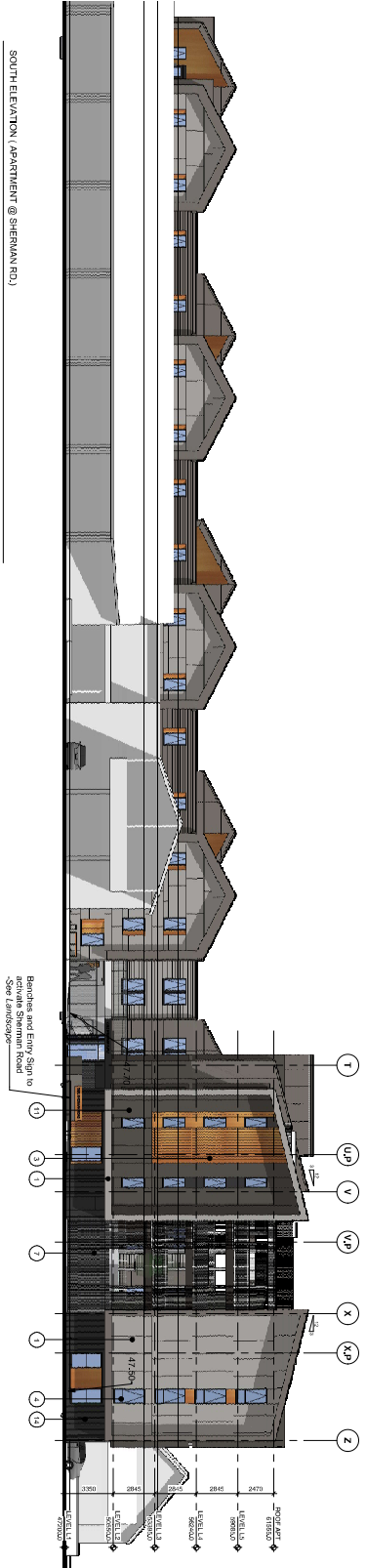
SCALE
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DP10

ATTACHMENT 5

- MATERIAL LEGEND**
- 1 CERAMTICUS PANELS + GRASS
 - 2 CERAMTICUS PANELS + WOOD
 - 3 METAL MESH + ROSSBORO W
 - 4 VINYL WINDOW - CHARCOAL
 - 5 CERAMTICUS PANEL + CHARCOAL
 - 6 CERAMTICUS PANEL + WOOD
 - 7 CERAMTICUS PANEL + WOOD
 - 8 GLASS QUADRANGLE
 - 9 METAL SCREEN - ROSSBORO W FINISH
 - 10 METAL MESH QUADRANGLE
 - 11 HINGED GLASS STAIRWELL & DOOR SYSTEM - CHARCOAL
 - 12 VINYL DOOR - CHARCOAL
 - 13 STAINLESS STEEL METAL ROOFING & CLADDING - PALPE
 - 14 CERAMTICUS PANEL WITH BRITISH - CHARCOAL
 - 15 CERAMTICUS PANEL WITH BRITISH - WOOD
 - 16 CERAMTICUS PANEL WITH BRITISH - WOOD
 - 17 CERAMTICUS PANEL WITH BRITISH - WOOD
 - 18 CERAMTICUS PANEL WITH BRITISH - WOOD
 - 19 CERAMTICUS PANEL WITH BRITISH - WOOD
 - 20 CERAMTICUS PANEL WITH BRITISH - WOOD



LOW HAMMOND ROWE ARCHITECTS



TL HOUSING SOLUTIONS



NORTH COWICHAN FAMILY HOUSING
3197 SHERMAN ROAD, DUNCAN BC
ISSUED FOR DEVELOPMENT PERMIT
REVISION

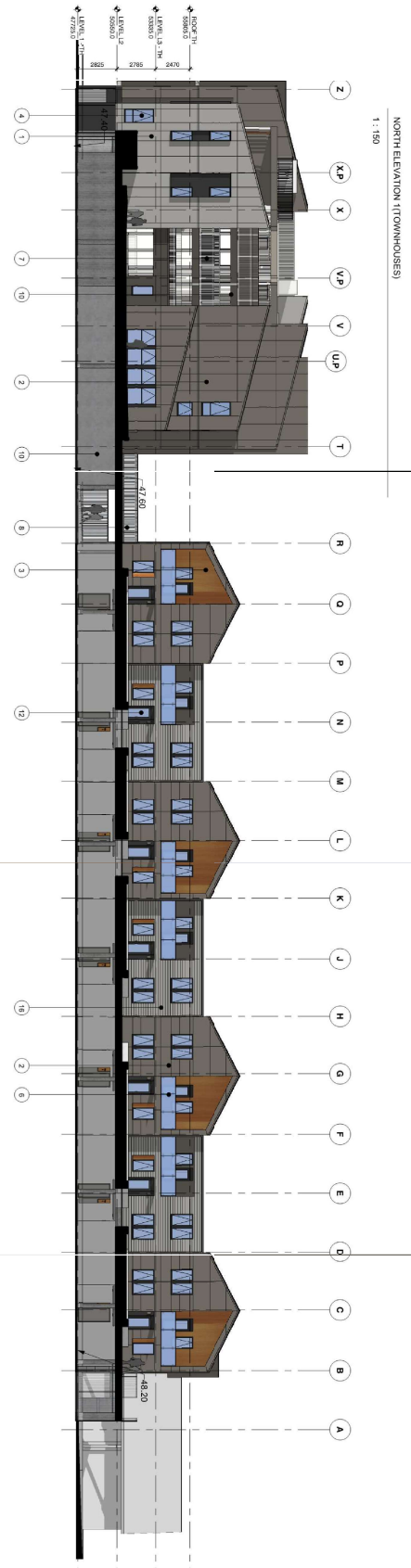
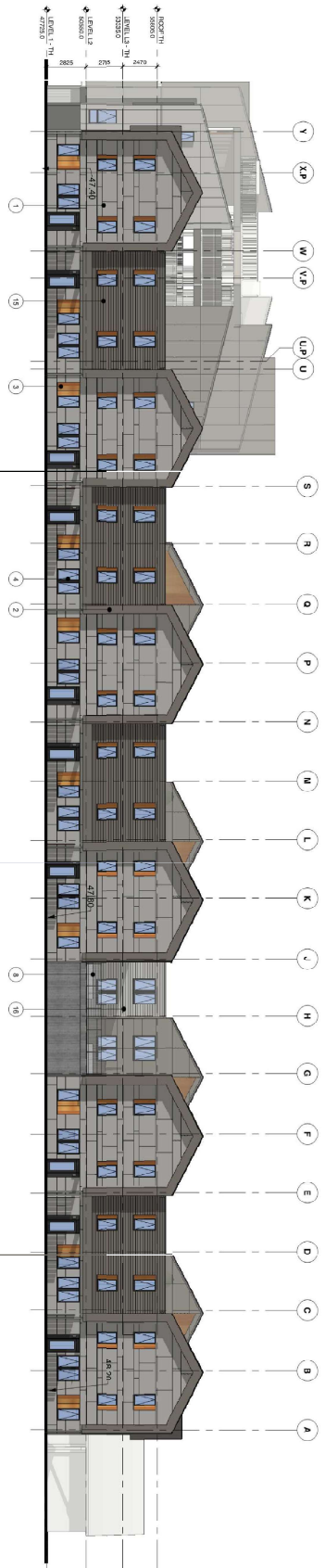
OCT 26, 2020

BUILDING ELEVATIONS
OCT 26, 2020
SCALE
As indicated

DP16

ATTACHMENT 5

- MATERIAL LEGEND**
- 1 GRANITIOUS PANELS - GREY
 - 2 GRANITIOUS PANELS - MAPLE
 - 3 METAL SCREEN - WOODGRAIN
 - 4 VINYL WINDOW - CHARCOAL
 - 5 GRANITIOUS PANEL - CHARCOAL
 - 6 GLASS GUARDRAIL
 - 7 METAL SCREEN - WOODGRAIN
 - 8 METAL POCKET GUARDRAIL
 - 9 FIBREGLAS STORFRONT & DOOR SYSTEM - CHARCOAL
 - 10 CONCRETE (BANDER-PANNE)
 - 11 GRANITIOUS PANEL - REDBIRCH MAPLE
 - 12 VINYL DOOR - CHARCOAL
 - 13 STANDING SEAM METAL ROOFING & CLADDING - TAPE
 - 14 GRANITIOUS PANEL WITH BATTENS - CHARCOAL
 - 15 GRANITIOUS PLANK HORIZONTAL - TAPE
 - 16 GRANITIOUS PLANK HORIZONTAL - GREY



NORTH ELEVATION Z (TOWNHOUSES INTERIOR COURTYARD)
1 : 150



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NORTH COWICHAN FAMILY HOUSING
3197 SHERMAN ROAD, DUNDAS BC
ISSUED FOR DEVELOPMENT PERMIT
REVISION

OCT 26, 2020

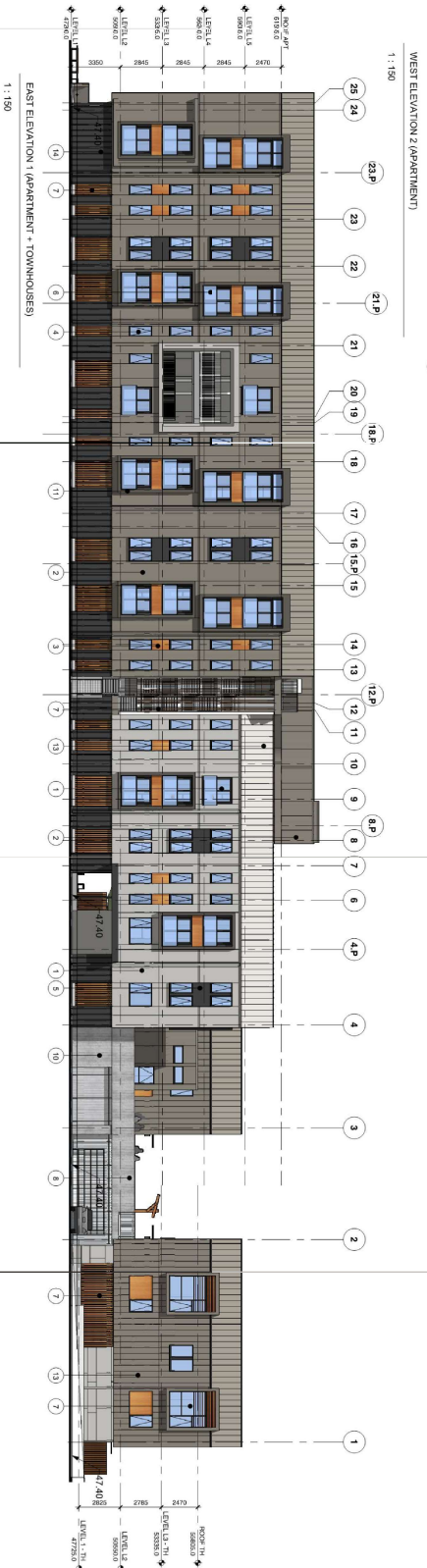
BUILDING ELEVATIONS
OCT 26, 2020
SCALE
As indicated

DP17

ATTACHMENT 5

MATERIAL LEGEND

- 1 CEMENTITIOUS PANELS - GRAY
- 2 CEMENTITIOUS PANELS - WHITE
- 3 METAL PANEL - HORIZONTAL FINISH
- 4 METAL WINDOW - CHARCOAL GRAY
- 5 CEMENTITIOUS PANEL - CHARCOAL
- 6 GLASS GUARDRAIL
- 7 METAL SCREEN - HORIZONTAL FINISH
- 8 METAL PANEL GUARDRAIL
- 9 FIBREGLOSS STOREFRONT & DOOR SYSTEM - CHARCOAL
- 10 CONCRETE (BROWNEKEM)
- 11 CEMENTITIOUS PANEL - METALLIC FINISH
- 12 VANIT DOORS - CHARCOAL
- 13 STANDING SEAM METAL ROOFING & CLADDING - FAUXE
- 14 CEMENTITIOUS PANEL WITH BRATTING - CHARCOAL
- 15 CEMENTITIOUS PANEL - HORIZONTAL FINISH
- 16 CONCRETE SLAB PANEL - HORIZONTAL - GRAY



LOW HAMMOND ROWE ARCHITECTS



TL HOUSING SOLUTIONS



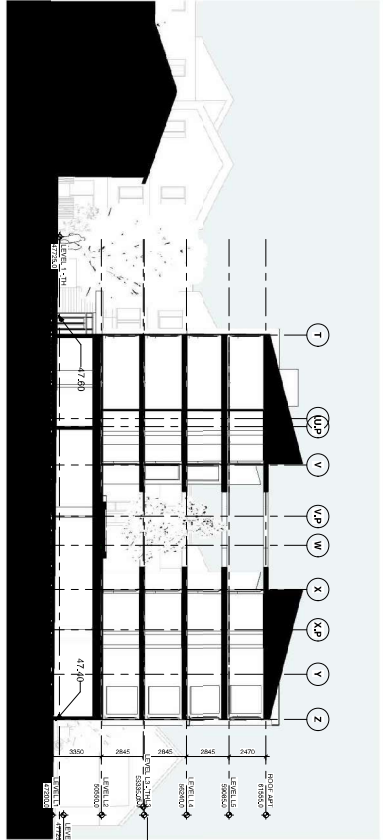
NORTH COWICHAN FAMILY HOUSING
3197 SHERMAN ROAD, DUNCAN BC
ISSUED FOR DEVELOPMENT PERMIT
REVISION

OCT 26, 2020

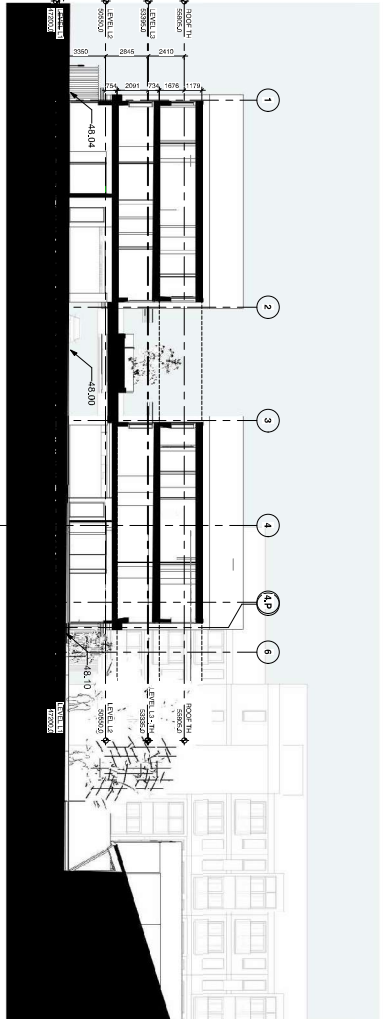
BUILDING ELEVATIONS
SCALE
As indicated

OCT 26, 2020

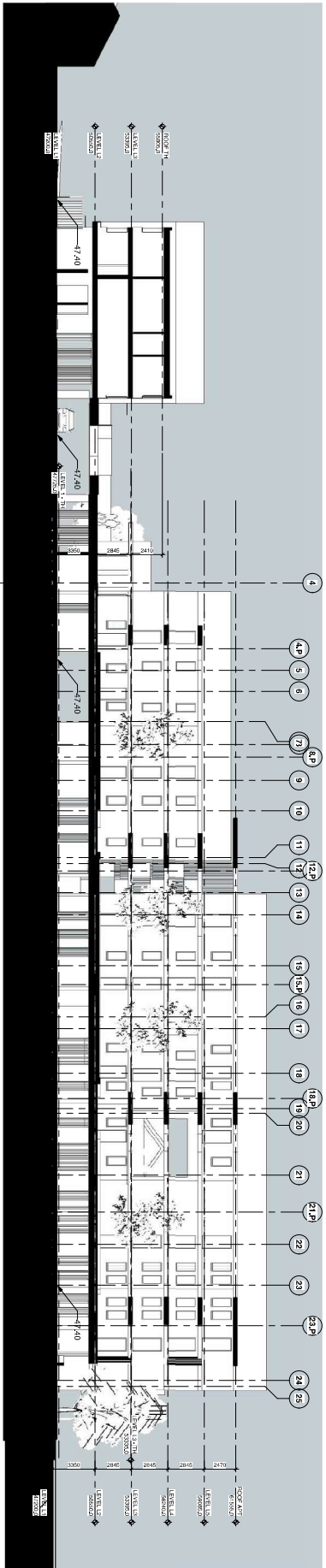
DP18



2 Section 2
SCALE 1 : 150



1 Section 1
SCALE 1 : 150



3 Section 3
SCALE 1 : 150



LOW HAMMOND ROWE ARCHITECTS



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NORTH COWICHAN FAMILY HOUSING
3197 SHERMAN ROAD, DUNCAN BC
ISSUED FOR DEVELOPMENT PERMIT
REVISION

OCT 26, 2020

BUILDING SECTIONS
OCT 26, 2020
SCALE 1 : 150

DP19



1 Conceptual Section: Division of Program at Artificial Grass Walk
Scale: 1/8" = 1'-0"

LEGEND

Plaster / Dry
Rear garden / TOP OF POOL
Rear garden / BOTTOM OF POOL

LANDSCAPE MATERIALS / FINISHINGS

(A)	Light Grey Concrete (See Note 2)
(B)	Light Grey Concrete (See Note 2)
(C)	Light Grey Concrete (See Note 2)
(D)	Light Grey Concrete (See Note 2)
(E)	Light Grey Concrete (See Note 2)
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(W)	Light Grey Concrete (See Note 2)
(X)	Light Grey Concrete (See Note 2)
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(Z)	Light Grey Concrete (See Note 2)

(A)	Light Grey Concrete (See Note 2)
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(V)	Light Grey Concrete (See Note 2)
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(X)	Light Grey Concrete (See Note 2)
(Y)	Light Grey Concrete (See Note 2)
(Z)	Light Grey Concrete (See Note 2)

- REVISIONS**
1. Additions to the program at the artificial grass walk.
 2. Additions to the program at the artificial grass walk.
 3. Additions to the program at the artificial grass walk.
 4. Additions to the program at the artificial grass walk.
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 10. Additions to the program at the artificial grass walk.
 11. Additions to the program at the artificial grass walk.
 12. Additions to the program at the artificial grass walk.
 13. Additions to the program at the artificial grass walk.

NOT FOR CONSTRUCTION

Murdock deGreeff
A Landscape Planning & Design Firm

71 Tending Gardens
Victoria, BC
HORN COOMAN RAIL Y
3191 Sherman Rd.
Durrhill, BC

Lead 3 Landscape Materials

DATE	1/18/13
PROJECT	1:200
DRAWN BY	SH/DF
CHECKED BY	SH/DF
PROJECT NO.	1102



TABLE 1 - Level 1

Item | **Qty** | **Species Name** | **Common Name** | **Plant Size / Spacing**

1. Red Cedar
2. Douglas Fir
3. White Fir
4. Pine
5. Spruce
6. Fir

TABLE 2 - Level 2

Item | **Qty** | **Species Name** | **Common Name** | **Plant Size / Spacing**

1. Red Cedar
2. Douglas Fir
3. White Fir
4. Pine
5. Spruce
6. Fir
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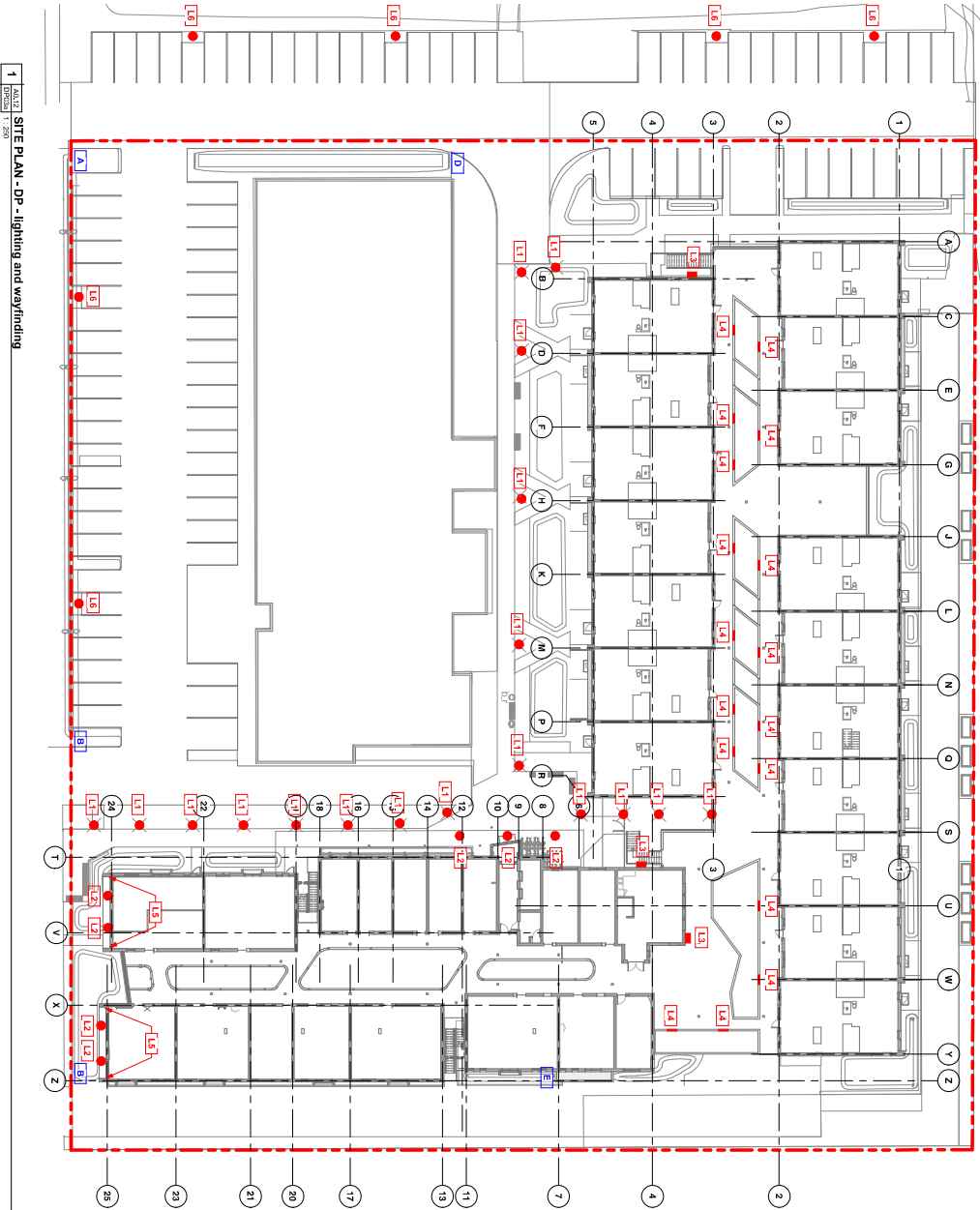
TABLE 3 - Level 3

Item | **Qty** | **Species Name** | **Common Name** | **Plant Size / Spacing**

1. Red Cedar
2. Douglas Fir
3. White Fir
4. Pine
5. Spruce
6. Fir

PLANTING NOTES

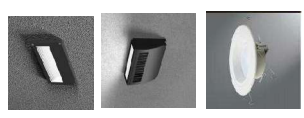
1. Planting shall be done in accordance with the approved planting plan.
2. All plants shall be installed in accordance with the approved planting plan.
3. All plants shall be installed in accordance with the approved planting plan.



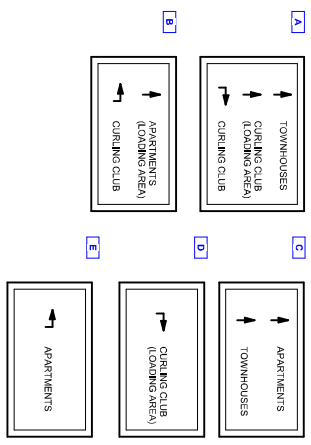
1 SITE PLAN - DP - lighting and wayfinding

SCHEDULE 3

- DP Site Lighting Legend**
- L1** landscape light fixture
- L2** recessed ceiling lighting
- L3** surface-mount downlight
- L4** concrete-recessed planer light
- L5** LED cove strip light
- L6** parking lamp standard



DP Sign Wayfinding Legend
(exact signage design to be confirmed)



LOW HAMMOND ROWE ARCHITECTS



TL HOUSING SOLUTIONS



NORTH COWICHAN FAMILY HOUSING
3191 SHERMAN ROAD, DUNCAN BC
ISSUED FOR DEVELOPMENT PERMIT
REVISION

SITE LIGHTING, WAYFINDING
OCT 26, 2020
SCALE As indicated



OCT 26, 2020



200 -524 Culduthel Road
Victoria, BC, V8Z 1G1
p 250.412-2891

North Cowichan Family Housing

3191 Sherman Road, Duncan BC

Landscape Estimate for Bonding

Based on Landscape Plans submitted for Development Permit, dated October 28, 2020.

Offsite Landscape (Improvements adjacent playing field, existing rink, and parking area)

1. Plants (Includes bed / pit preparation, planting, staking & mulch finish for nursery stock)

Shrubs/Grasses/Perennials/Ferns:	Qty.	Size	Unit Cost	Cost
Shrubs Sp3	174	Sp3	\$ 4.50	\$ 783.00
Shrubs #1 pot	556	#1 pot	\$ 10.00	\$ 5,560.00
Shrubs #2 pot	23	#2 pot	\$ 20.00	\$ 460.00
Shrubs #3 pot	6	#3 pot	\$ 30.00	\$ 180.00
				\$ 6,983.00

Soil, Mulch, Grass:	Qty.	Size	Unit Cost	Cost
Soil Ornamental Shrub Areas (450 mm depth Shrub Growing Medium)	29	sq. m.	\$ 50.00	\$ 1,450.00
Rain Garden soil (600 mm depth Rain Garden Growing Medium)	233	sq. m.	\$ 65.00	\$ 15,145.00
Mulch Orn. Planted Areas (50 mm dep.)	262	sq. m.	\$ 6.00	\$ 1,572.00
Lawn - Seed over 150 mm Lawn Growing Medium	830	sq. m.	\$ 15.00	\$ 12,450.00
Subtotal				\$ 30,617.00

2. Irrigation	Qty.	Units	Unit Cost	Cost
Irrigation	3	zone	\$ 1,500.00	\$ 4,500.00
Sub-Total				\$ 4,500.00

3. Hardscape (excluding municipal walkway and parking areas)

	Qty.	Units	Avg/unit cost	Cost
Granular Pathway	96	sq. m.	\$ 80.00	\$ 7,680.00
Subtotal				\$ 7,680.00

OFFSITE LANDSCAPE SUBTOTAL **\$ 49,780.00**

ATTACHMENT 5

Onsite Landscape - Level 1

1. Plants (Includes bed / pit preparation, planting, staking & mulch finish for nursery stock)

Trees:	Qty.	Size	Unit Cost	Cost
Acer circinatum	13	2.4 m ht, 1.5 width	\$ 150.00	\$ 1,950.00
Fraxinus oxycarpa 'Raywood'	3	6.0cm cal, b&b	\$ 350.00	\$ 1,050.00
Fraxinus pennsylvanica 'Patmore'	7	6.0cm cal, b&b	\$ 350.00	\$ 2,450.00
Picea omorika	13	2.5m ht, b&b	\$ 200.00	\$ 2,600.00
Pseudotsuga menziesii	3	1.5m ht, b&b	\$ 100.00	\$ 300.00
Quercus garryana	1	4.0cm cal, b&b	\$ 225.00	\$ 225.00
Quercus rubra	6	6.0cm cal, b&b	\$ 350.00	\$ 2,100.00
Robinia pseudoacacia 'Frisia'	10	6.0cm cal, b&b	\$ 350.00	\$ 3,500.00
			\$	14,175.00

Shrubs/Grasses/Perennials/Ferns:	Qty.	Size	Unit Cost	Cost
Shrubs Sp3	1264	Sp3	\$ 4.50	\$ 5,688.00
Shrubs #1 pot	2000	#1 pot	\$ 10.00	\$ 20,000.00
Shrubs #2 pot	452	#2 pot	\$ 20.00	\$ 9,040.00
Shrubs #3 pot	59	#3 pot	\$ 30.00	\$ 1,770.00
			\$	36,498.00

Soil, Mulch, Grass:	Qty.	Size	Unit Cost	Cost
Soil Ornamental Shrub Areas (450 mm depth Shrub Growing Medium)	494	sq. m.	\$ 50.00	\$ 24,700.00
Soil Community Garden Bed (600 mm depth Growing Medium)	20	sq. m.	\$ 55.00	\$ 1,100.00
Rain Garden soil (600 mm depth Rain Garden Growing Medium)	878	sq. m.	\$ 65.00	\$ 57,070.00
Mulch Orn. Planted Areas (50 mm dep.)	1372	sq. m.	\$ 6.00	\$ 8,232.00
Lawn - Seed over 150 mm Lawn Growing Medium	663	sq. m.	\$ 15.00	\$ 9,945.00
Subtotal				\$ 101,047.00

2. Irrigation	Qty.	Units	Unit Cost	Cost
Irrigation	8	zone	\$ 1,500.00	\$ 12,000.00
Sub-Total				\$ 12,000.00

3. Hardscape (excluding municipal walkway and vehicular areas)

	Qty.	Units	Avg/unit cost	Cost
Cast in Place Concrete, 100 mm thickness	245	sq. m.	\$ 110.00	\$ 26,950.00
Unit Paving -pedestrian	573	sq. m.	\$ 110.00	\$ 63,030.00
Granular Pathway	59	sq. m.	\$ 80.00	\$ 4,720.00
Gravel Maintenance Edge	100	lin m	\$ 20.00	\$ 2,000.00
Subtotal				\$ 96,700.00

4. Site Furnishings	Qty.	Units	Unit Cost	Cost
1800 mm high Wood Fence/Screen	28	lin m	\$ 120.00	\$ 3,300.00
1000 mm high Wood Picket Fence	58	lin m	\$ 80.00	\$ 4,640.00
Bicycle Rack	5	ea	\$ 1,000.00	\$ 5,000.00
Community Garden Bed	10	ea	\$ 400.00	\$ 4,000.00
Smoking Butt Receptacle	1	ea	\$ 200.00	\$ 200.00
Smoking Signage	1	ea	\$ 100.00	\$ 100.00
Bench	10	ea	\$ 1,500.00	\$ 15,000.00
Subtotal				\$ 32,240.00

LEVEL 1 LANDSCAPE SUBTOTAL **\$ 292,660.00**

ATTACHMENT 5

Onsite Landscape - Level 2 (excluding architectural hard surfacing areas and planter walls).

1. Plants (Includes bed / pit preparation, planting, staking & mulch finish for nursery stock)

Trees:	Qty.	Size	Unit Cost	Cost
Acer palmatum'Katsura'	8	min 2 m height, multistem	\$ 150.00	\$ 1,200.00
Acer tegmentosum 'White Tigress'	5	6.0cm cal, b&b	\$ 350.00	\$ 1,750.00
				\$ 2,950.00

Shrubs/Grasses/Perennials/Ferns:	Qty.	Size	Unit Cost	Cost
Shrubs #1 pot	603	#1 pot	\$ 10.00	\$ 6,030.00
Shrubs #2 pot	6	#2 pot	\$ 20.00	\$ 120.00
Shrubs #3 pot	198	#3 pot	\$ 30.00	\$ 5,940.00
				\$ 12,090.00

Soil, Mulch, Grass:	Qty.	Size	Unit Cost	Cost
Soil Ornamental Shrub Areas (450 mm depth Shrub Growing Medium)	264	sq. m.	\$ 50.00	\$ 13,200.00
Mulch Orn. Planted Areas (50 mm dep.)	264	sq. m.	\$ 6.00	\$ 1,584.00
Subtotal				\$ 14,784.00

2. Irrigation	Qty.	Units	Unit Cost	Cost
Irrigation	3	zone	\$ 1,500.00	\$ 4,500.00
Sub-Total				\$ 4,500.00

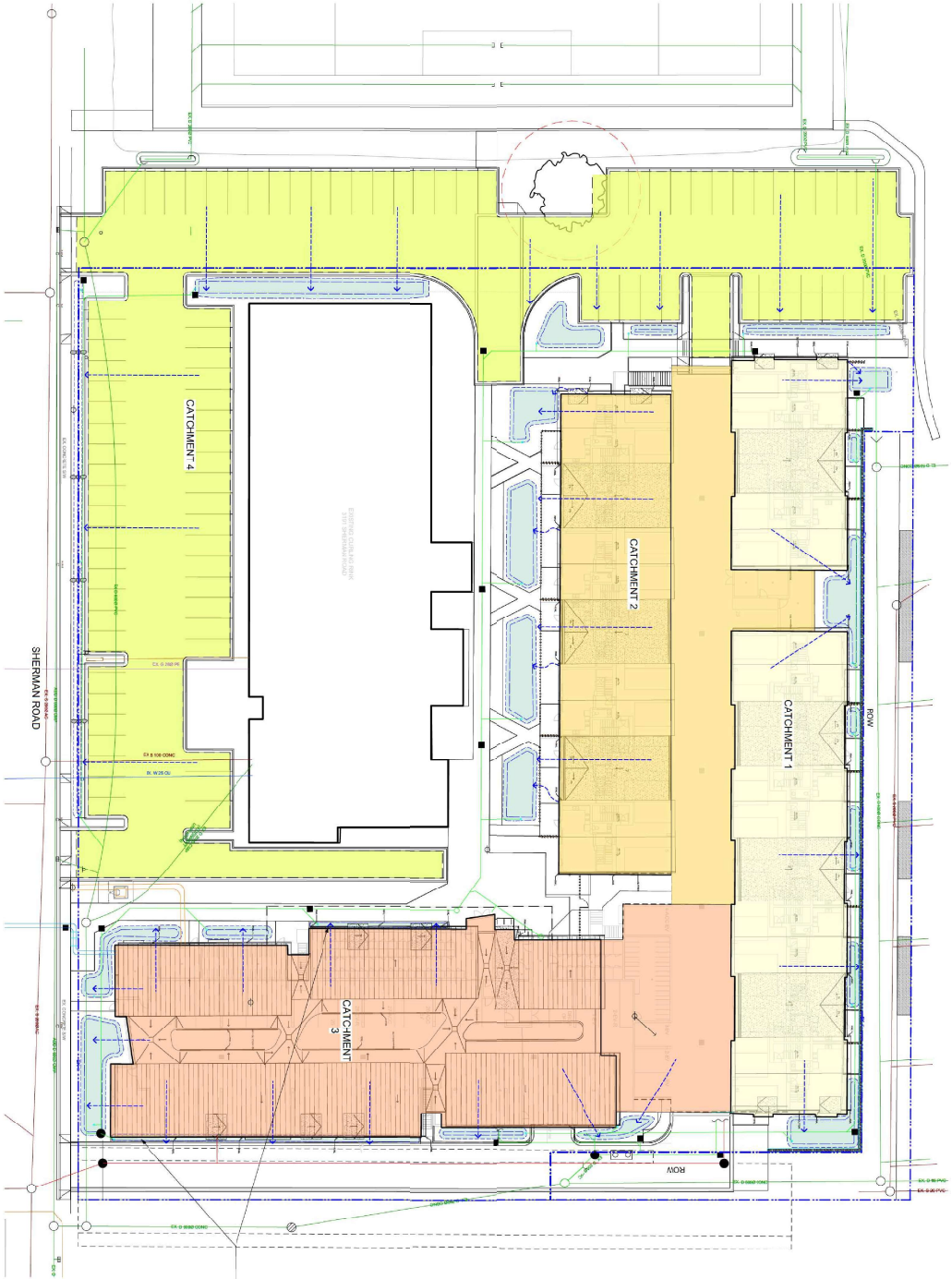
3. Site Furnishings	Qty.	Units	Unit Cost	Cost
Artificial Turf	147	sq. m.	\$ 110.00	\$ 16,170.00
Bench	2	Lump sum	\$ 2,000.00	\$ 4,000.00
Subtotal				\$ 20,170.00

LEVEL 2 LANDSCAPE SUBTOTAL \$ 54,494.00

Contingency 10% \$ 39,693.40
Total Estimate: \$ 436,627.40
plus GST

date: January 26, 2020

prepared by Paul deGreeff, RLA



Raised pavements to allow
runoff to gravity flow to large
interceptors is shown in yellow.

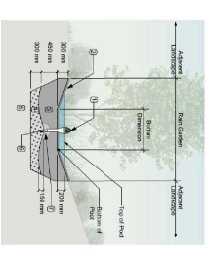
LEGEND

- PROPERTY LINE
- EXTENT OF UNDERGROUND PARKING INDICATIVE
- EXTENT OF ROOF (CONCRETE LINE INDICATIVE)
- RAIN GARDEN - BOTTOM OF TROG
- EXISTING SHADE (APPROXIMATE)
- PROMISED LANDSCAPE GRADE
- DIRTY FLOW TROG
- DIRECTION OF FLOW
- RAIN GARDEN OR GARDEN
- LANDSCAPE AREAS
- ROOF DRAINING TO RAIN GARDEN
- ROAD LANDSCAPE DRAINING TO RAIN GARDEN

RAIN WATER MANAGEMENT NOTES

Water collected from roof areas, parking roads, lawn to the site systems located throughout the site.

Water is collected from roof areas, parking roads, lawn to the site systems and is stored in the rain garden. The rain garden is designed to capture the water and provide a natural filtration process. The rain garden is designed to capture the water and provide a natural filtration process. The rain garden is designed to capture the water and provide a natural filtration process.



- CONSTRUCTION NOTES:**
1. Construct rain garden to 200 mm finished grade - 400 mm depth.
 2. Construct rain garden to 200 mm finished grade - 400 mm depth.
 3. Construct rain garden to 200 mm finished grade - 400 mm depth.
 4. Construct rain garden to 200 mm finished grade - 400 mm depth.
 5. Construct rain garden to 200 mm finished grade - 400 mm depth.
 6. Construct rain garden to 200 mm finished grade - 400 mm depth.
 7. Construct rain garden to 200 mm finished grade - 400 mm depth.
 8. Construct rain garden to 200 mm finished grade - 400 mm depth.
 9. Construct rain garden to 200 mm finished grade - 400 mm depth.
 10. Construct rain garden to 200 mm finished grade - 400 mm depth.

SCHEDULE 5

NOT FOR CONSTRUCTION

Murdoch deGreeff
A Landscape Planning & Design Firm

Stenmark Management

HORN/COWAN/FAMILY
3191 Sherman Rd.
Dufferin, BC

1103



TALBOT MACKENZIE & ASSOCIATES

CONSULTING ARBORISTS

3191 Sherman Road

**Construction Impact Assessment &
Tree Preservation Plan**

PREPARED FOR: TL Housing Solutions
1212 – 450 Marine Drive
Vancouver, BC V5X 0C3

PREPARED BY: Talbot, Mackenzie & Associates
Noah Talbot – Consulting Arborist
ISA Certified # PN-6822A
Tree Risk Assessment Qualified

DATE OF ISSUANCE: November 04, 2020

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APPENDICES

- Appendix A Tree Management Plan (T1)
- Appendix B Diagram – Site Specific Driveway, Parking and Walkway
- Appendix C Site Photographs

1. INTRODUCTION

Talbot Mackenzie & Associates was asked to complete a tree inventory and impact assessment for the tree at the following proposed project:

Site:	3191 Sherman Road
Municipality	North Cowichan
Client Name:	TL Housing Solutions
Dates of Site Visit:	September 09, 2020
Site Conditions:	Grass field between existing turf field and curling rink
Weather During Site Visit:	Clear and Sunny

The purpose of this report is to visually examine the health and structural condition of a Garry oak located on the 3191 Sherman Road property and provide an impact assessment for proposed construction works within the critical root zone of the tree. The impact assessment section of this report (section 7), is based on plans reviewed to date, including the Architectural site plan (Prepared by Low Hammond Rowe Architects Inc) , preliminary (50% review) site servicing and grading plans (prepared by McElhanney Ltd.), and landscape plan (prepared by Murdoch DeGreeff Inc.).

2. TREE INVENTORY METHODOLOGY

For the purpose of this report, the size, health, and structural condition of a single Garry oak tree was documented. For ease of identification in the field, a numeric metal tag was attached to the lower trunk. The subject tree was visually examined on a basic assessment basis (level 2), in accordance with Tree Risk Assessment Qualification (TRAQ) methods (Dunster *et al.* 2017) and ISA Best Management Practices.

*Note that we were not asked to inventory or assess the potential impacts to any other on or offsite trees as part of this assignment.

3. SUMMARY

Based on review of the architectural site plan, civil servicing and grading plans, and landscape plan provided Garry oak (tag# 0989) is possible for retention, provided that its critical root zone can be adequately protected during construction. All grading that is required within the critical root zone to install the proposed parking area, curb, gutter, underground utilities, and any backfilling of the existing drainage swale must be performed under the supervision of the project arborist.

4. TREE INVENTORY DEFINITIONS

Tag: Tree identification number on a metal tag attached to tree with nail or wire, generally at eye level. Trees on municipal or neighboring properties are not tagged.

NT: No tag due to inaccessibility or ownership by municipality or neighbour.

DBH: Diameter at breast height – diameter of trunk, measured in centimetres at 1.4m above ground level. For trees on a slope, it is taken at the average point between the high and low side of the slope.

* Measured over ivy

~ Approximate due to inaccessibility or on neighbouring property

Dripline: Indicates the radius of the crown spread measured in metres to the dripline of the longest limbs.

Relative Tolerance Rating: Relative tolerance of the tree species to construction related impacts such as root pruning, crown pruning, soil compaction, hydrology changes, grade changes, and other soil disturbance. This rating does not take into account individual tree characteristics, such as health and vigour. Three ratings are assigned based on our knowledge and experience with the tree species: Poor (P), Moderate (M) or Good (G).

Critical Root Zone: A calculated radial measurement in metres from the trunk of the tree. It is the optimal size of tree protection zone and is calculated by multiplying the DBH of the tree by 10, 12 or 15 depending on the tree's Relative Tolerance Rating. This methodology is based on the methodology used by Nelda Matheny and James R. Clark in their book "Trees and Development: A Technical Guide to Preservation of Trees During Land Development."

- 15 x DBH = Poor Tolerance of Construction
- 12 x DBH = Moderate
- 10 x DBH = Good

To calculate the critical root zone, the DBH of multiple stems is considered the sum of 100% of the diameter of the largest stem and 60% of the diameter of the next two largest stems. It should be noted that these measures are solely mathematical calculations that do not consider factors such as restricted root growth, limited soil volumes, age, crown spread, health, or structure (such as a lean).

Health Condition:

- Poor - significant signs of visible stress and/or decline that threaten the long-term survival of the specimen
- Fair - signs of stress
- Good - no visible signs of significant stress and/or only minor aesthetic issues

Structural Condition:

- Poor - Structural defects that have been in place for a long period of time to the point that mitigation measures are limited
- Fair - Structural concerns that are possible to mitigate through pruning
- Good - No visible or only minor structural flaws that require no to very little pruning

Retention Status:

- Remove - Not possible to retain given proposed construction plans
- Retain - It is possible to retain this tree in the long-term given the proposed plans and information available. This is assuming our recommended mitigation measures are followed
- Retain * - See report for more information regarding potential impacts
- TBD (To Be Determined) - The impacts on the tree could be significant. However, in the absence of exploratory excavations and in an effort to retain as many trees as possible, we recommend that the final determination be made by the supervising project arborist at the time of excavation. The tree might be possible to retain depending on the location of roots and the resulting impacts, but concerned parties should be aware that the tree may require removal.
- NS - Not suitable to retain due to health or structural concerns

Descriptive information for each tagged tree is recorded in the tree inventory table (*Table 1*). The locations and proposed treatment for each inventoried tree is detailed on the Tree Management Plan (T1) in *Appendix A*.

Table 1. Tree Inventory

ID	Name		dbh (cm)	Ht (m)	Critical root zone radius (m)	Drip-line radius (m)	Condition		Relative Tolerance	General Field Remarks	Tree Retention Comments	Retention Status
	Common	Botanical					Health	Structural				
0989	Garry oak	<i>Quercus garryana</i>	68	15	7'	8.5	Good	Good	Good	Growing on open field - balanced crown - good trunk taper, small dead branches in lower crown, some end weighted scaffold limbs, historic pruning wounds with callous growth - indicating healing. Existing drainage swale 4m from East side of root collar.	*This tree is possible for retention, provided that care is taken during the proposed grading within its critical root zone. Low impact construction methods must be utilized for any excavation, backfilling or hard surface installation within its critical root zone. The project arborist must be onsite to supervise all excavation that is required within the critical root zone of this tree (CRZ shown on the Tree Management Plan in Appendix A). All canopy clearance pruning above the new parking area to be performed to ANSI A300 Standards.	Retain*

*Note – The critical root zone radius for Garry oak 0989 was calculated as follows: $10 \times 68 \text{ (dbh)} = 6.8 \text{ m}$ (rounded up to 7 meters)

ATTACHMENT 5

5. SITE INFORMATION & PROJECT UNDERSTANDING

The subject site consists of an existing curling rink building and parking lot. A single Garry oak tree (tag#0989) is growing in an open lawn area, between the existing curling rink building and turf soccer field (see *figure 1*). An existing drainage swale is located 4 meters from the East side of the root collar of the tree (see photo 4 in *appendix C*). It is our understanding that the proposal is to construct new townhomes, an apartment building, parking areas, underground servicing, rain gardens and new landscaping.

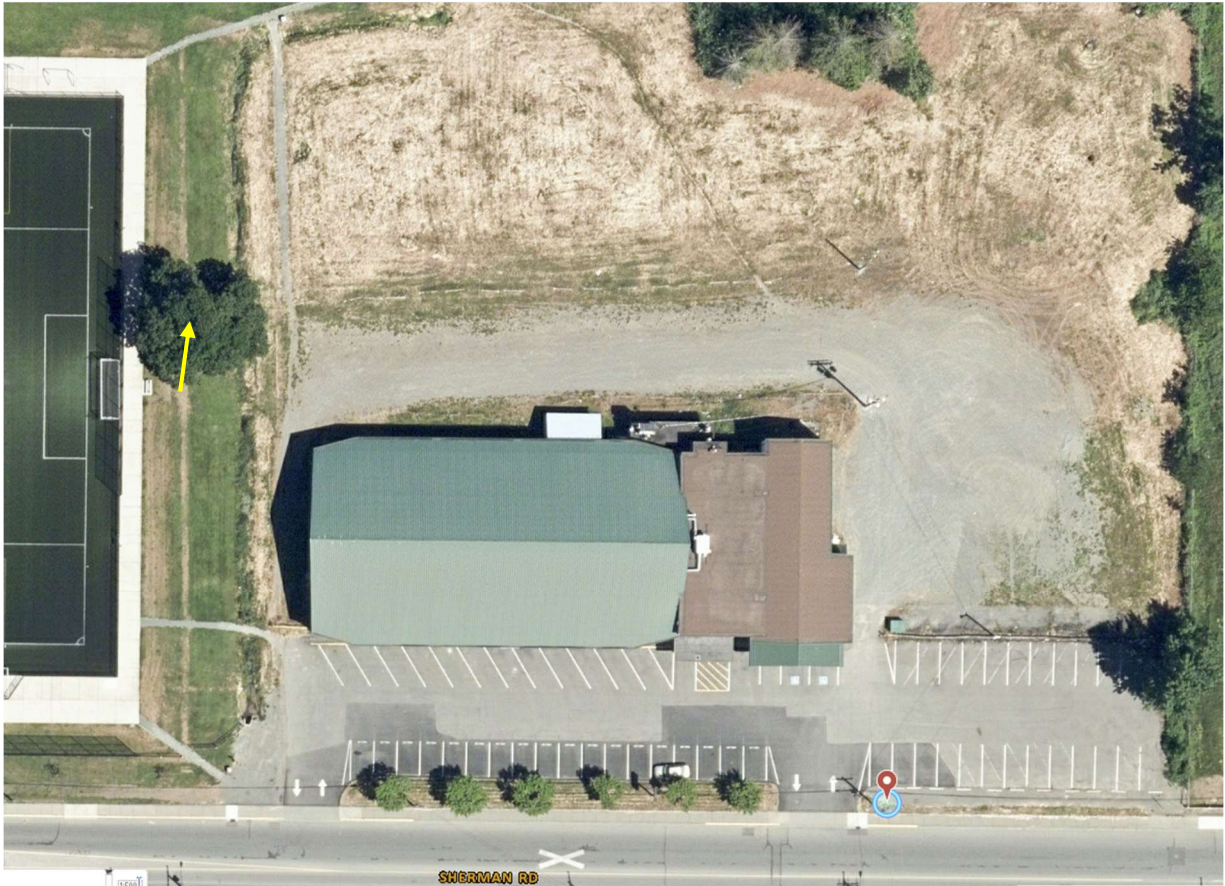


Figure 1: Yellow arrow indicates location of Garry oak (tag# 0989)

6. DISCUSSION

Garry oak (tag# 0989) was observed to have relatively good health and structural characteristics and is growing in open landscape conditions (see photo's 1, 2 & 3 in *appendix C*). These open growing conditions has allowed the tree to form a well-balanced crown. Low limbs have been removed historically (likely for mower clearance), but there were no major structural defects observed.

Figure 2 below is a snip from the October 20, 2020 Landscape Plan (prepared by Murdoch deGreeff Inc.) which shows a parking area, curb and a vehicular unit paved surface within the dripline and critical root zone of Garry oak (tag# 0989). In addition to these proposed hard surface installations, the existing drainage swale on the East side of the tree is proposed to be infilled and paved over.

Provided that the depth of excavation within the critical root zone is minimized (not to full depth - bearing ground), and over excavation is minimized, it is possible to mitigate impacts to the tree and maintain its good health condition and structural integrity. *Appendix B* is a diagram which we typically recommend for hard surface installations within critical root zones. If this aeration system can be used within the critical root zone, as an alternative to a full depth excavation to bearing ground, the likelihood of this tree surviving long term will increase.

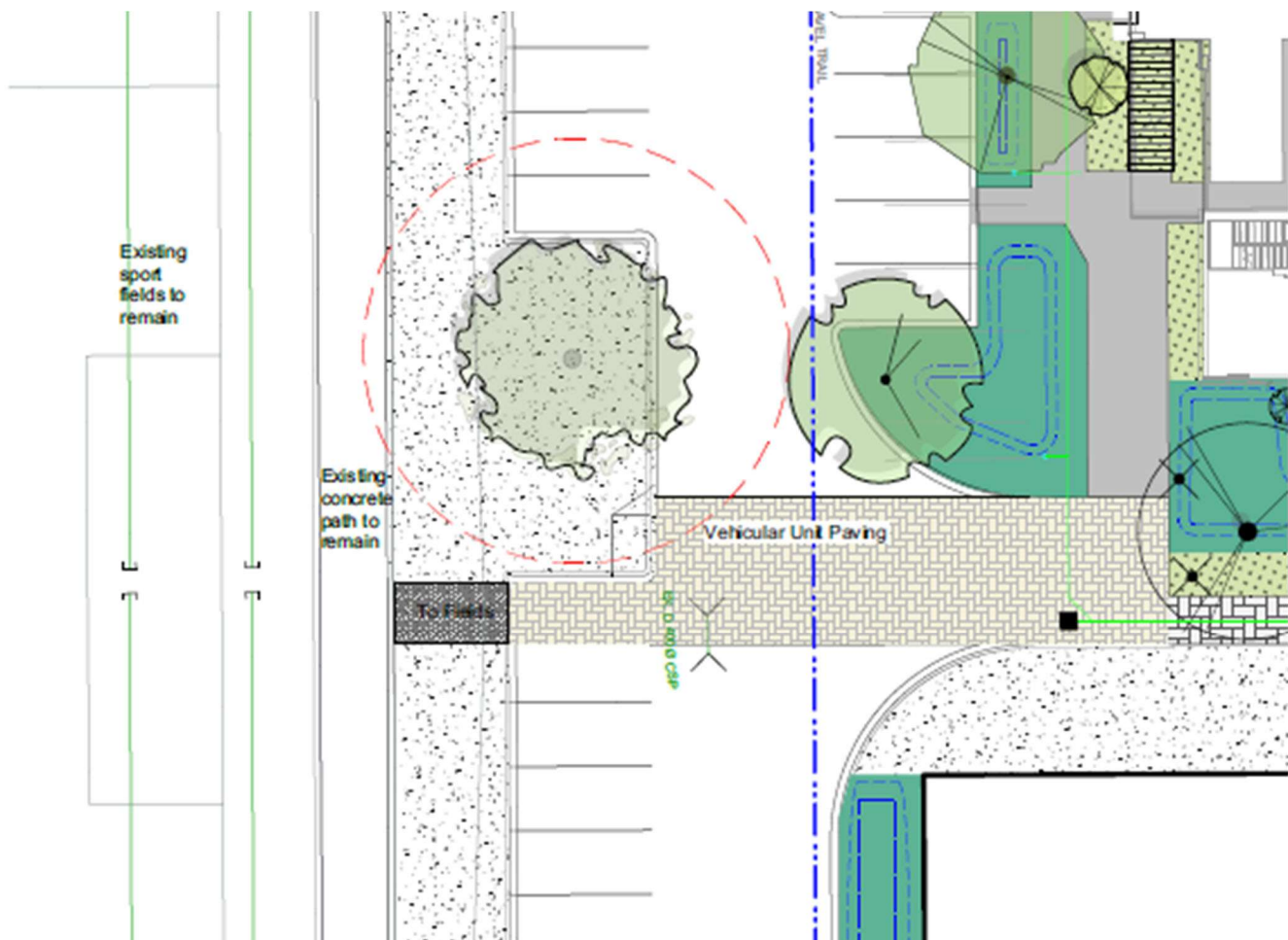


Figure 2: Snip from October 20, 2020 Landscape plan prepared by Murdoch deGreeff Inc. that shows proposed hard surface installations within the drip line of Gary oak (tag# 0989).

7. TREE RISK ASSESSMENT

During our September 09, 2020 site visit and in conjunction with the tree inventory, Garry oak (tag# 0989) was assessed for risk, on a basic assessment basis (level 2), and in the context of the existing and proposed land uses. The time frame used for the purpose of our assessment is one year (from the date of the September 09, 2020 tree inventory). Unless otherwise noted herein, we did not conduct an advanced (level 3) risk assessment, such as resistograph testing, increment core sampling, aerial examinations or subsurface root/root collar examinations.

The subject tree was deemed to be low risk (within a 1-year timeframe). Targets considered during this TRAQ assessment include: pedestrians travelling along the adjacent sidewalk (occasional use), people sitting on the park bench within the dripline (occasional use), occupants of vehicles in adjacent parking areas (frequent use).

8. IMPACT ASSESSMENT

8.1. RETENTION OF ONSITE TREE

The following tree (indicated by tag#) is located where it can be retained provided that its critical root zone can be adequately protected during construction. The project arborist must be onsite to supervise and excavation or fill placement required within their critical root zone (shown on the tree management plan (T1) in [appendix A](#)):

Retain and protect 1 tree

- 0989

9. IMPACT MITIGATION

Tree Protection Barrier: The areas, surrounding the trees to be retained should be isolated from the construction activity by erecting protective barrier fencing (see [Appendix A](#) for barrier specifications). Where possible, the fencing should be erected at the perimeter of the tree dripline. 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 flexible snow fencing. The fencing must be erected prior to the start of any construction activity on site (i.e. demolition, excavation, construction), and remain in place through completion of the project. Signs should 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.

Excavation: We recommend that no excavation occur within tree protection zones of trees that are to be retained. Any excavation that is necessary, within the working space setback of trees to be retained must be completed under the direction of the project arborist. If it is found, at the time of excavation, that the excavation cannot be completed without severing roots that are critical to the trees health or stability it may be necessary to remove additional trees.

Material storage: Areas must be designated for material storage and staging during the construction process. Ideally these areas will be located outside of the tree protection areas that will be isolated by barrier

fencing. Should it be necessary to store material temporarily within any of the tree protection areas, the project arborist must be consulted.

Mulch layer or plywood over heavy traffic areas: Should it be necessary to access tree protection areas during the construction phase of the project, and heavy foot traffic or vehicular encroachment is required, we recommend that a layer of wood chip horticultural mulch (minimum of 15cm depth) or plywood be installed to reduce compaction. This project arborist must be consulted prior to removing or moving the protection barrier for this purpose.

Pruning: We recommend that any pruning of bylaw-protected trees to be retained be conducted to ANSI A300 Standards and Best Management Practices.

Stump removal: We recommend that, if stumps require removal, they are removed under arborist supervision or ground using a stump grinder to avoid disturbing root systems of trees in close proximity to retained trees in plan.

Demolition: If tree removal is proposed to be undertaken in conjunction with demolition operations, tree removal permits may be necessary. Note that some municipalities may not approve tree removal at this phase. If the municipality relaxes the requirement for barrier fencing installations prior to demolition (subject to onsite arborist supervision during demolition operations) a Letter of Undertaking may be required by the municipality.

Blasting and rock removal: If it is necessary to blast areas of bedrock near critical root zones of trees to be retained, the blasting to level these rock areas should be sensitive to the root zones located at the edge of the rock. Care must be taken to assure that the area of blasting does not extend into the critical root zones beyond the building and road footprints. The use of small low-concussion charges, and multiple small charges designed to pre-shear the rock face, will reduce fracturing, ground vibration, and reduce the impact on the surrounding environment. Only explosives of low phytotoxicity, and techniques that minimize tree damage, are to be used. Provisions must be made to store blast rock, and other construction materials and debris, away from critical tree root zones.

Washout area: It may be necessary to designate any area on the property for washing out cement and masonry tools and equipment. This area should be located away from the critical root zones of any trees to be retained.

Paved areas over critical root zones of trees to be retained: Where paved areas cannot avoid encroachment within critical root zones of trees to be retained, construction techniques, such as floating permeable paving, may be required. (specifications can be provided by the project arborist, in consultation with the design consultant).

Landscaping: Any proposed landscaping within the critical root zones of trees to be retained must be reviewed with the project arborist.

Review and site meeting: Once the project receives approval, it is important that the project arborist meet with the principals involved in the project to review the information contained herein. It is also important that the arborist meet with the site foreman or supervisor before any demolition, site clearing or other construction activity occurs.

10. LIMITATIONS OF REPORT

This arboricultural field review report was prepared by Talbot Mackenzie & Associates for the exclusive use of the Client and may not be reproduced, used or relied upon, in whole or in part, by a party other than the Client without the prior written consent of Talbot Mackenzie & Associates. Any unauthorized use of this report, or any part hereof, by a third party, or any reliance on or decisions to be made based on it, are at the sole risk of such third parties. Talbot Mackenzie & Associates accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report, in whole or in part.

Arborists are professionals who examine trees and use their training, knowledge, and experience to recommend techniques and procedures that will improve a tree's health and structure 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. The arborist's review is limited to a visual examination of tree health and structural condition, without excavation, probing, resistance drilling, increment coring, or aerial examination. There are inherent limitations to this type of investigation, including, without limitation, that some tree conditions will inadvertently go undetected. The arborist's review followed the standard of care expected of arborists undertaking similar work in British Columbia under similar conditions. No warranties, either express or implied, are made as to the services provided and included in this report.

The findings and opinions expressed in this report are based on the conditions that were observed on the noted date of the field review only. The Client recognizes that passage of time, natural occurrences, and direct or indirect human intervention at or near the trees may substantially alter discovered conditions and that Talbot Mackenzie & Associates cannot report on, or accurately predict, events that may change the condition of trees after the described investigation was completed.

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. The only way to eliminate tree risk entirely is to remove the entire tree. All trees retained should be monitored on a regular basis. 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.

Immediately following land clearing, grade changes or severe weather events, all trees retained should be reviewed for any evidence of soil heaving, cracking, lifting or other indicators of root plate instability. If new information is discovered in the future during such events or other activities, Talbot Mackenzie & Associates should be requested to re-evaluate the conclusions of this report and to provide amendments as required prior to any reliance upon the information presented herein.

11. IN CLOSING

We trust that this report meets your needs. Should there be any questions regarding the information within this report, please do not hesitate to contact the undersigned.

Yours truly,

Talbot Mackenzie & Associates

Prepared by:



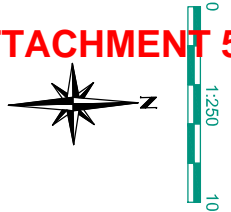
Noah Talbot, BA
ISA Certified Arborist PN – 6822A
Tree Risk Assessment Qualification
Email: tmtreehelp@gmail.com

12. REFERENCES

Dunster, J.A., E.T. Smiley, N. Matheny, and S. Lily. 2017. Tree Risk Assessment Manual, International Society of Arboriculture (ISA).

APPENDIX A
TREE MANAGEMENT PLAN (T1)

THIS PLAN IS PROVIDED FOR CONTEXT ONLY AND IS NOT CERTIFIED AS TO THE ACCURACY OF THE LOCATION OF FEATURES OR DIMENSIONS THAT ARE SHOWN ON THIS PLAN. PLEASE REFER TO THE ORIGINAL SURVEY PLAN AND ARCHITECTURAL PLANS.



ATTACHMENT 5

FIELD AT THE TREE PROTECTION BARRIER TO THE EDGE OF THE EXISTING SIDEWALK ON THE WEST SIDE, TO THE EDGE OF THE EXISTING DRAINAGE SWALE ON THE EAST SIDE, AND TO THE EDGE OF THE DRIFLINE ON THE NORTH AND SOUTH SIDES. REALIGN THE TREE PROTECTION BARRIER AT THE TIME OF GRADING FOR THE INSTALLATION OF THE NEW PARKING LOT (UNDER THE DIRECTION OF THE PROJECT ARBORIST).

THE PROJECT ARBORIST TO SUPERVISE ALL EXCAVATION AND FILL PLACEMENT REQUIRED WITHIN THE CRITICAL ROOT ZONE OF GARRY OAK (TAG#0989) DURING GRADING FOR THE INSTALLATION OF THE NEW PARKING LOT, BACKFILLING THE EXISTING DRAINAGE SWALE, INSTALLATION OF NEW UNDERGROUND SERVICES, RAINGARDENS OR ANY OTHER REQUIRED GRADE CHANGES, MAINTAIN THE EXISTING GRADES TO THE FULLEST EXTENT POSSIBLE.

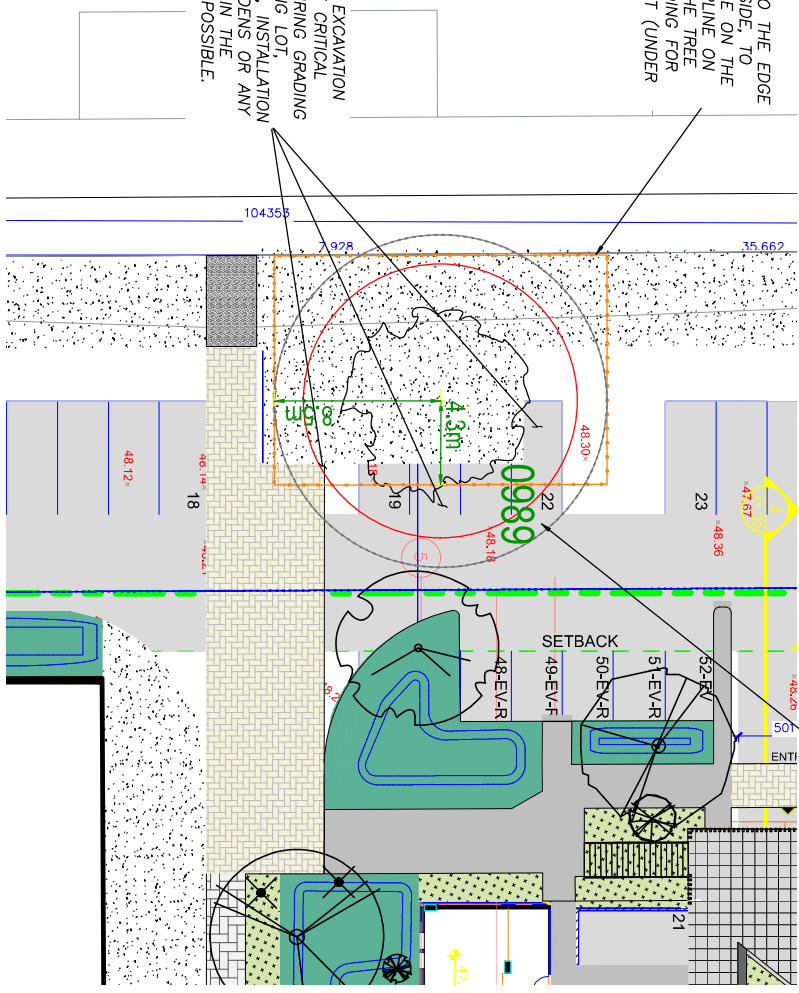
GENERAL NOTES

The Protection Barrier: The areas surrounding the trees to be retained, should be isolated from the construction activity by existing or proposed barrier fencing. Where possible, the fencing should be erected at the perimeter of the critical root zone. The barrier fencing to be erected must be a minimum of 1200mm 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. The fencing must be on the ground surface and not suspended from trees or structures. The fencing should be erected prior to any excavation or fill placement. The project arborist must be consulted before the fencing is removed or moved for any purpose.

Excavation: We recommend that no excavation occur within the critical root zones of trees that are to be retained. Any excavation that is necessary, within the critical root zone must be completed under the direction of the project arborist.

Removal of trees: The project arborist must be consulted before any tree removal occurs. The removal permits may be necessary. Note that some municipalities may not approve tree removal at this phase. If the municipality releases the requirement for barrier fencing, installation prior to demolition (subject to onsite arborist supervision during demolition operations) a letter of assurance may be required by the municipality.

Installation of barrier fencing: Should it be necessary, to access the excavation areas during the construction phase of the project, and heavy foot traffic or vehicular encroachment is required, we recommend that a layer of wood chip mulch or geotextile fabric be installed to reduce compaction. The project arborist must be consulted prior to removing or moving the protection barrier for this purpose.



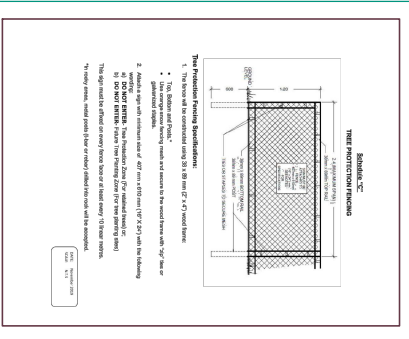
ALL CANOPY CLEARANCE PRUNING ABOVE THE NEW PARKING AREA TO BE PERFORMED TO ANSI A300 STANDARDS.

- Pruning:**
- Once tree clearing has taken place we recommend that trees to be retained be pruned to remove deadwood, and to address any structural issues.
 - We recommend that any pruning of bylaw-protected trees be performed to ANSI A300 standards and Best Management Practices.
 - Mulching: A minimum of 100mm of mulch should be applied to the base of trees to be retained. Mulch should be applied to a depth of 100mm around the base of trees to be retained. When mulch is applied to a depth of 100mm, it should be applied to a depth of 100mm around the base of trees to be retained. When mulch is applied to a depth of 100mm, it should be applied to a depth of 100mm around the base of trees to be retained.
 - Paved areas over critical root zones of trees to be retained: Where paved areas cannot avoid encroachment within driplines of trees to be retained, construction techniques such as floating permeable paving, may be required. Specifications can be provided by the project arborist, in consultation with the design consultant.
 - Relined construction techniques: Within the critical root zones of trees to be retained must be reviewed with the project arborist.
 - Arborist Role: It is the responsibility of the client or his/her representative to contact the project arborist for the purpose of:
 - Reviewing the report with the project foreman or site supervisor.
 - Locating work zones and machine access corridors where required.
 - Supervising excavation for any areas within the critical root zones of trees to be retained including any proposed retaining wall footings and review any proposed fill areas near trees to be retained.

LEGEND

- Existing tree with tag #
- Dripline radius (m)
- Tree protection fencing
- Critical root zone radius (m)

TREE PROTECTION FENCING SPECS



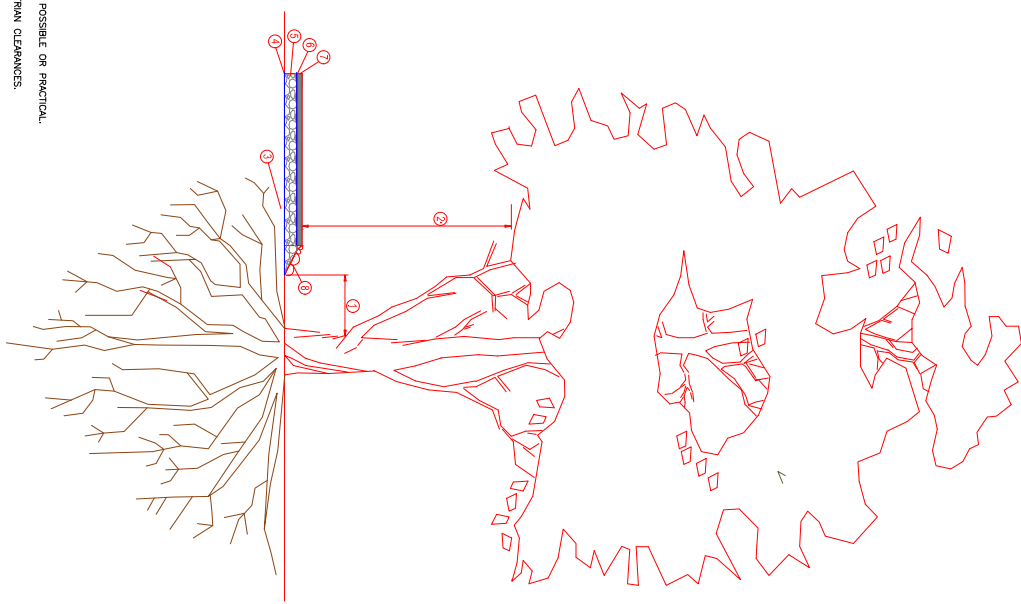
Sketch T1
Tree Management Plan
 3191 Sherman Road
 North Cowichan, BC

DATE: November 04, 2020
 PREPARED FOR: T. Hansen, S. Curtis
 SCALE: 1:250 @ 11"x17"

TALBOT MACKENZIE & ASSOCIATES
 CONSULTING ARBORISTS
 VICTORIA, BC, V8Z 7H2
 TEL: 250-464-8723
 FAX: 250-464-8724
 WWW.TMBA.CO

APPENDIX B
DIAGRAM – SITE SPECIFIC DRIVEWAY,
PARKING AND WALKWAY

DIAGRAM - SITE SPECIFIC DRIVEWAY, PARKING AND WALKWAY



CROSS SECTION VIEW

CONSTRUCTION NOTES:

1. MAINTAIN AS LARGE A SETBACK BETWEEN FILL ENCROACHMENT AND THE TRUNK AS POSSIBLE OR PRACTICAL.
2. CONSIDER PRUNING REQUIREMENTS TO ACCOMMODATE VEHICLE, BICYCLE OR PEDESTRIAN CLEARANCES.
3. EXCAVATE THE FOOTPRINT OF THE PROPOSED DRIVEWAY UNDER THE SUPERVISION OF AN ISA CERTIFIED ARBORIST. EXCAVATION WILL BE LIMITED TO THE REMOVAL OF THE TOP ORGANIC LAYER/OR EXISTING HARD SURFACE). EXCAVATION AROUND ROOT STRUCTURES MUST BE PERFORMED BY HAND, AIRSHADE OR HYDROEXCAVATION.
4. INSTALL A LAYER OF MEDIUM WEIGHT NON WOVEN GEOTEXTILE(NILEX 4535 OR APPROVED EQUIVALENT)OVER THE ENTIRE AREA OF THE CRITICAL ROOT ZONE THAT IS TO BE COVERED BY A PAVED SURFACE. COVER THIS GEOTEXTILE FABRIC WITH WITH A LAYER OF WOVEN AMOCO 2002 OR TENSAR BX 1200. EACH PIECE OF FABRIC MUST OVERLAP THE ADJOINING PIECE BY APPROXIMATELY 30CM.
5. INSTALL A 10cm LAYER OF CLEAR CRUSHED GRAVEL (NO FINES) USING 20mm DIAMETER MATERIAL OR APPROVED EQUIVALENT.
6. A LAYER OF FELTED FILTER FABRIC IS TO BE INSTALLED OVER THE CRUSHED GRAVEL LAYER TO PREVENT FINE PARTICLES OF SAND AND SOIL FROM INFILTRATING THIS LAYER
7. THE BEDDING OR BASE LAYER AND SIDEWALK SURFACING CAN BE INSTALLED DIRECTLY ON TOP OF THE GEOTEXTILE FABRIC. NOTE THAT TWO-DIMENSIONAL (SUCH AS CORNBOR 30/30) OR THREE-DIMENSIONAL GEO-GRID REINFORCEMENTS CAN BE INSTALLED IN COMBINATION WITH, OR INSTEAD OF, THE GEOTEXTILE FABRIC.
8. FILL SLOPES - WHERE POSSIBLE, INSTALL LOOSE STACKED BOULDERS TO REDUCE THE FOOTPRINT OF FILL SLOPES THAT ENOUGH WITHIN CRITICAL ROOT ZONES OF TREES TO BE RETAINED. DO NOT FILL MATERIAL DIRECTLY AGAINST THE TRUNK OF THE TREE.



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APPENDIX C

SITE PHOTOGRAPHS



Photograph 1 – Photo of subject tree looking North to South.



Photograph 2 – Photo of Subject tree looking South to North.



Photograph 3 – Photo of subject tree looking East to West.



Photograph 4 – Yellow arrow indicates location of existing drainage swale within the East side of the critical root zone of the subject tree (4 meters from the East side of the root collar).



Photograph 5 – Photo of the lower trunk and root collar of the subject tree.