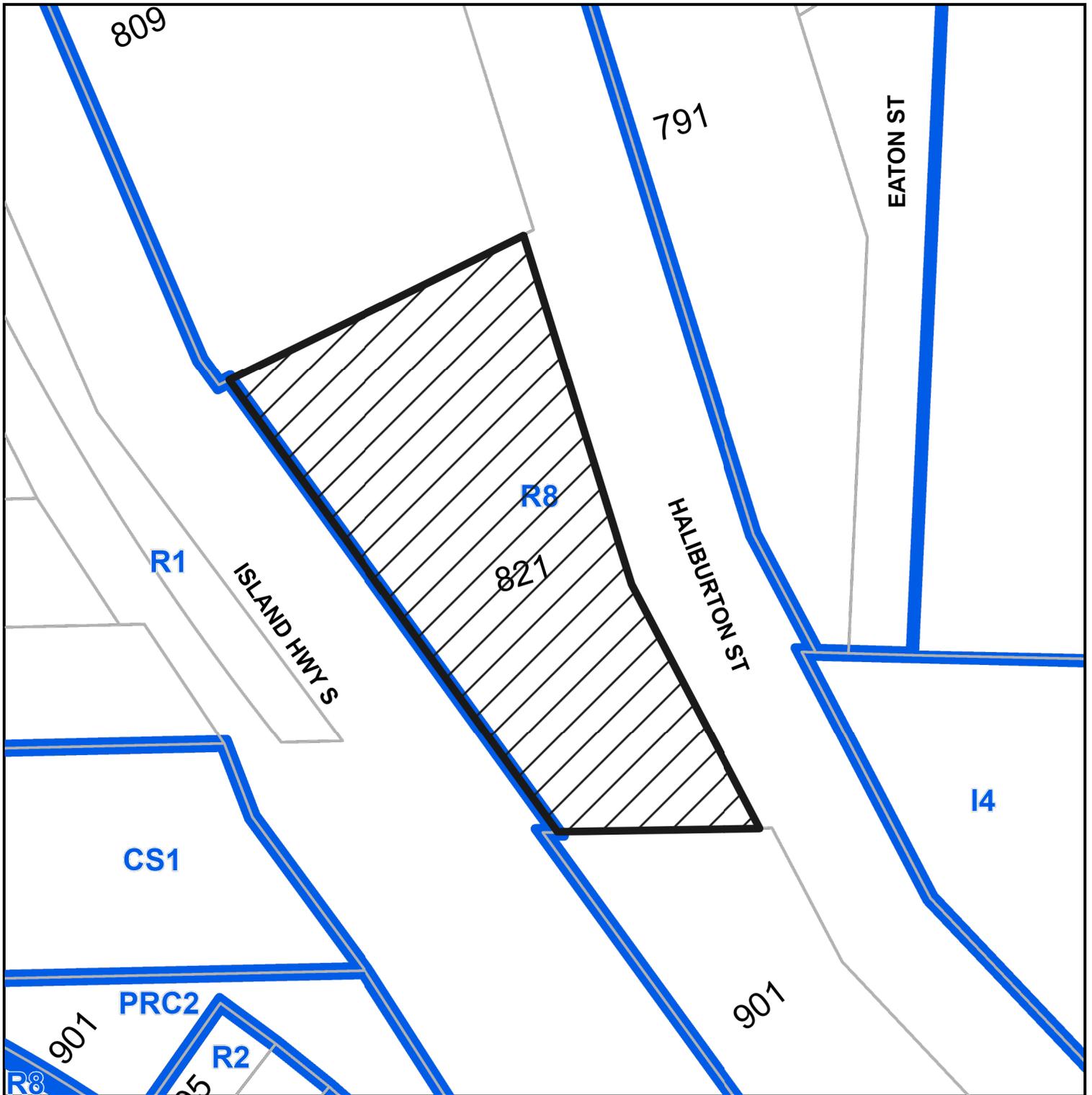


SUBJECT PROPERTY MAP



 821 Haliburton Street

March 23, 2023

821 Haliburton St – Development Permit Design Rationale

Project

104 Unit Residential Condos (strata) building with underground parking, 5th floor amenity room, and a roof garden.

Background

Development providing higher quality condos including additional amenities in Nanaimo South end, adjacent to the Island Highway, with ocean views on the Haliburton Street side. Efficient and contemporary design.

Site Layout

Building layout on site dictated by access from Haliburton street and creating an open space at the front on steep sloped site. Two Front Building setbacks from Haliburton St, and Island Highway S. Proposed utility easement at North side of lot. Roof top garden provides a communal gathering space with seating, tables, and shaded areas.

Pedestrian Circulation

Accessible main building entrance from Haliburton Street. Entrance canopy provided to demarcate building entrance near mid point of building to allow efficient interior circulation. Main entry forecourt provided with seating for socialization and street interaction. Two other exits provided at the two ends of the building.

Vehicle Circulation

Two entrances located at both ends of the building, each goes to one of the two levels of the parkade. Parkade entries allows two way access for entry and exit. Haliburton frontage defined and landscaped with surface parking stalls for visitors, loading/ moving access, and fire truck access.

Parking & Transportation

Provided underground and primarily out of sight except for vehicular entry and visitors surface parking. Vehicle parking is secure via ventilated overhead door, Bicycle parking secure with entry near the entry forecourt, hidden underneath green roof provided with natural lighting. Existing Bus service nearby on Haliburton street.

Form

The parkade mostly hidden from the Haliburton Street and fully underground from the Island Highway. 5 storeys of simple contemporary structure with finwalls/ frames forming smaller buildings to break out to soften the size of the building. Fin walls and extended guardrail glass panels help dampen the noise from the highway on the west and the mill on the east facade. The fifth floor is and the south end of the building are set back and clad with contrasting colour to minimize the scale of the building for pedestrians. Large balconies for outdoor living area partially covered for weather protection without limiting interior daylight penetration. Balconies on first level screened with landscape and planters for

privacy and visual delight, with the upper balconies projecting from the face the building to maximize views toward the ocean and highway. Haliburton parkade facade features vegetation and vertical board formed concrete covered planters wall and secure entrance/ exit from the bike storage room. Ground oriented units on the highway side provided with large patios. The roof projection, fascia, and soffit treatment provides protection to the doors and windows of the units on the top floor. Setback roof top deck.

Material & Colour

Contemporary material and neutral colour pallet with natural cedar wood accent. The colour scheme is neutral whites and greys with the natural cedar wood soffits and inner walls of the simple box masses. Stairway glazing provides interior daylight and visual facade variety giving longitudinal views along the landings encouraging using them instead of the elevators. Retaining walls both in smooth concrete and vertical board formed, and depending on the digging outcome, the upper wall on the highway side may be a rock outcrop. Balcony guardrails powder coated with clear and colored tempered glass. Fiber cement panel cladding with matching coloured metal trims.

Exterior Lighting

Main entrance and Exit canopy lighting. Soffit lighting on balconies. Light poles for the surface parking, and lighting bollards for the pedestrian paths.

Utilities/ Garbage/ Recycling

Building services located underground and close to City connections to reduce service length. To maximize parking and security, garbage/ recycling provided in outdoor underground room next to LB1 parkade entrance, garbage room is vented through the green roof above.

Key Features

Contemporary ocean and highway view condos. Stroll Garden, Roof top outdoor amenity space, Top floor common terrace and amenity room, storage lockers and underground parking for all residents.

Raymond de Beeld, Architect AIBC



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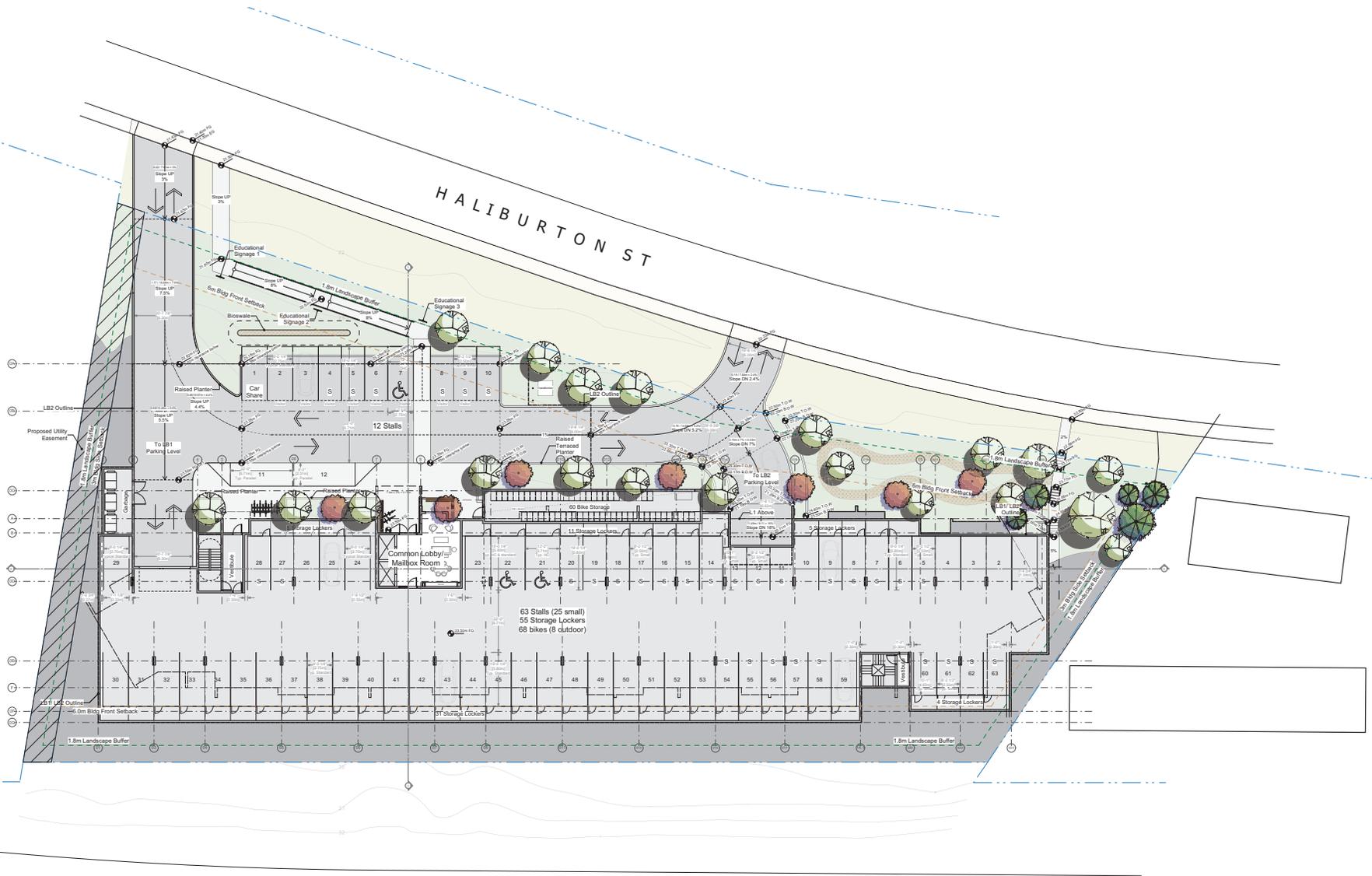
821 Haliburton St – Development Permit Variance Rationale – Revision 01

Building Height:

- Requirement:
 - 14.00m from the average natural grade.
- Proposed:
 - 15.07m, a variance of 1.07m.
- Rationale:
 - Variance is only for the Guardrails of the Roof Amenity.
 - Maximum slope for parkade ramps to minimize building height.
 - Island Highway side L1 units mostly under street level, with retaining walls/ stepped planters.
 - The guardrails are setback from the per miter of the roof, mostly not visible from street and neighbours.
 - No shadow/ privacy issues of neighbours.
 - No view blocking issues from uphill properties across highway.
 - Steep slope site distorts building height calculation.

Raymond de Beeld, Architect AIBC



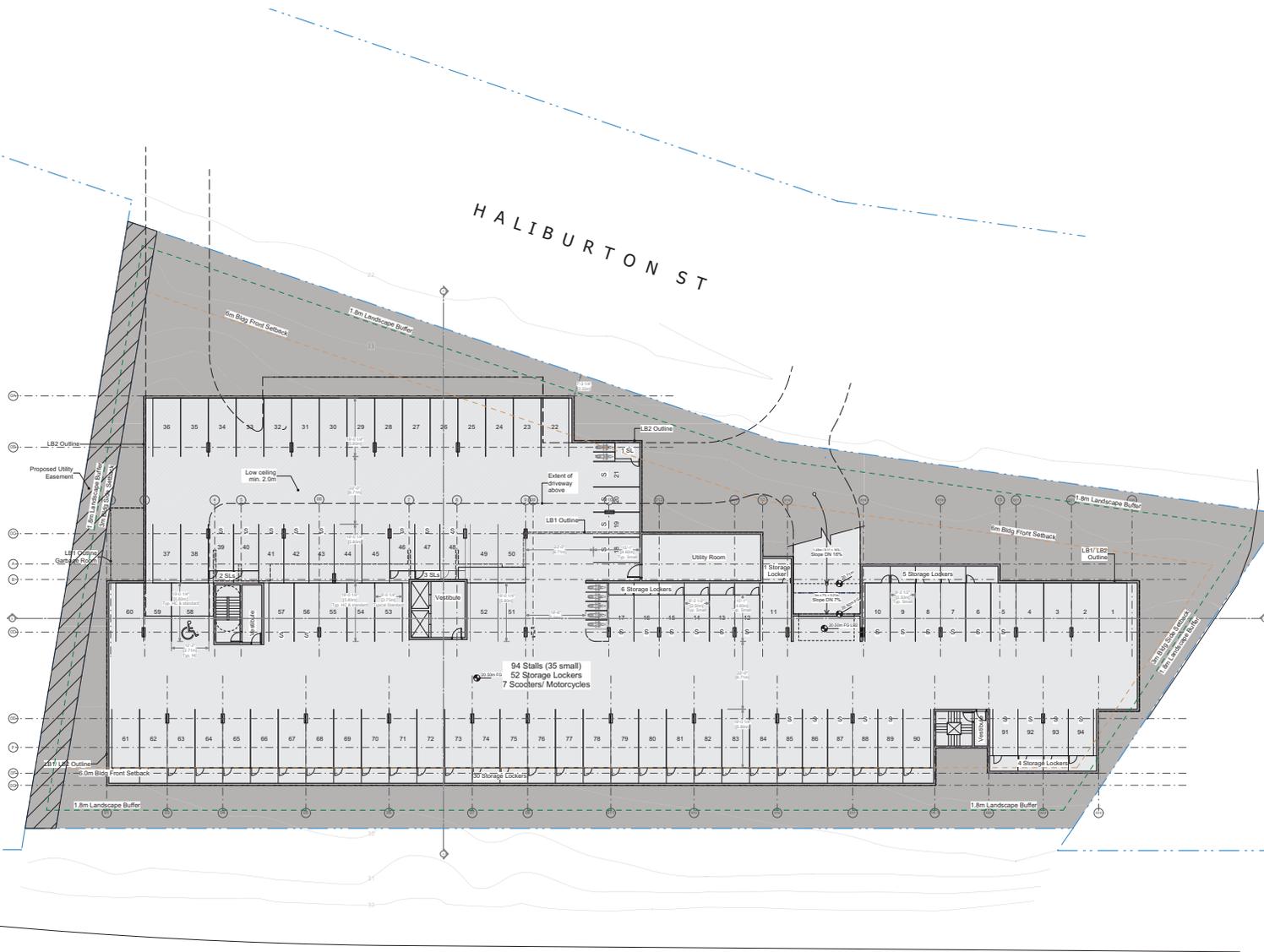


ISLAND HIGHWAYS

1 LB1 Floor Plan
Scale: 1/16" = 1'-0"



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HALIBURTON ST

ISLAND HIGHWAYS

1 LB2 Floor Plan
Scale: 1/16" = 1'-0"

RdB Raymond de Beeld
ARCHITECT inc.

Haliburton Apartments

821 Haliburton Street, Nanaimo

LB2 Floor Plan

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DP Rev. 01



A2.1



Drawing No.	Description
A0.0	Cover Sheet, Drawing List
A0.1-A0.8	Perspectives
A1.1	Context, Data, Permeable Area
A2.1	L1/L2 Floor Plan
A2.2	L1/L1 Floor Plan
A2.3	Site Plan, L1 Floor Plan
A2.4	L2, L5 Floor Plans, Roof Plan
A2.5	Units 1
A2.6	Units 2
A5.1	Elevations 1
A5.2	Elevations 2
A7.1	Sections

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1 North East Elevation (Haliburton St.)
Scale: 3/32" = 1'-0"



2 South East Elevation
Scale: 3/32" = 1'-0"

MATERIAL LEGEND:

FP1	FP1	Handle Panel Smooth w/ matching surround trim (Arctic White)
FP2	FP2	Handle Panel Smooth w/ matching surround trim (Grey)
FP3	FP3	Handle Panel Smooth w/ matching surround trim (Teal)
C01	C01	Concrete
C02	C02	Dark Grey Stained Concrete
C03	C03	Vertical Board Formed Concrete
W01	W01	T&G Cedar Wall and Soffit
AL1	AL1	Aluminum Grille Doors - Black Powder Coated
AL2	AL2	Aluminum Glass Railing - Black Powder Coated
AL3	AL3	Teal Coloured Glass/ Glass Railing - Black Powder Coated
W01	W01	Vinyl Window Door (Black Frame)





1 South West Elevation (Island Highway S)
Scale: 3/32" = 1'-0"

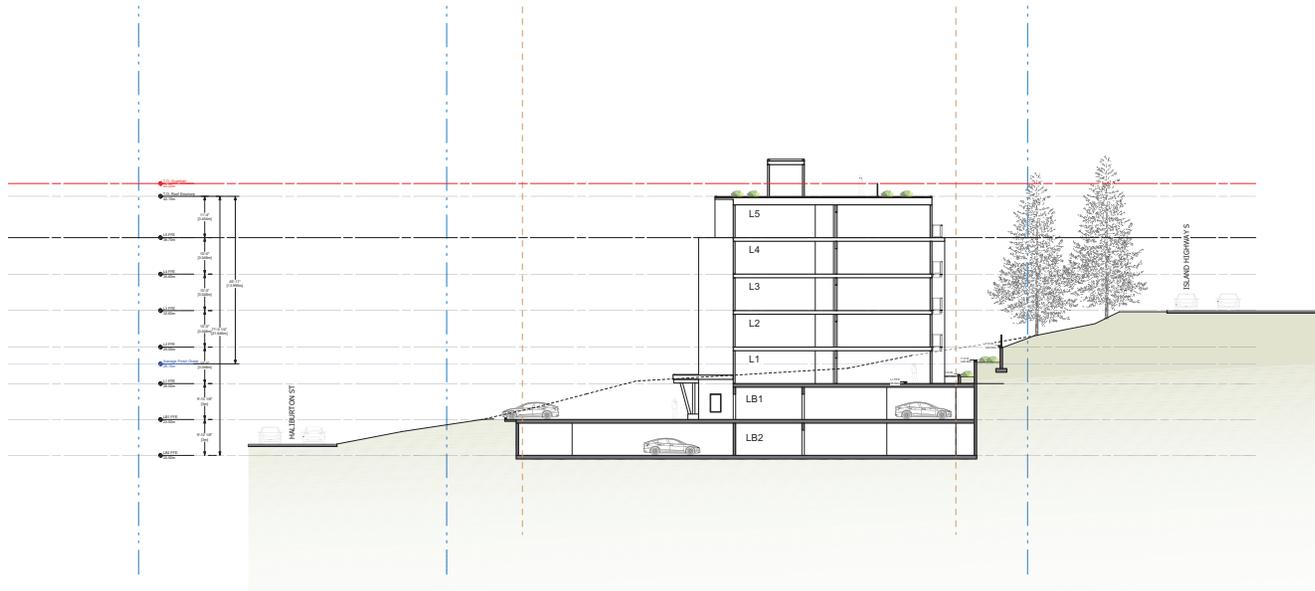


2 North West Elevation
Scale: 3/32" = 1'-0"

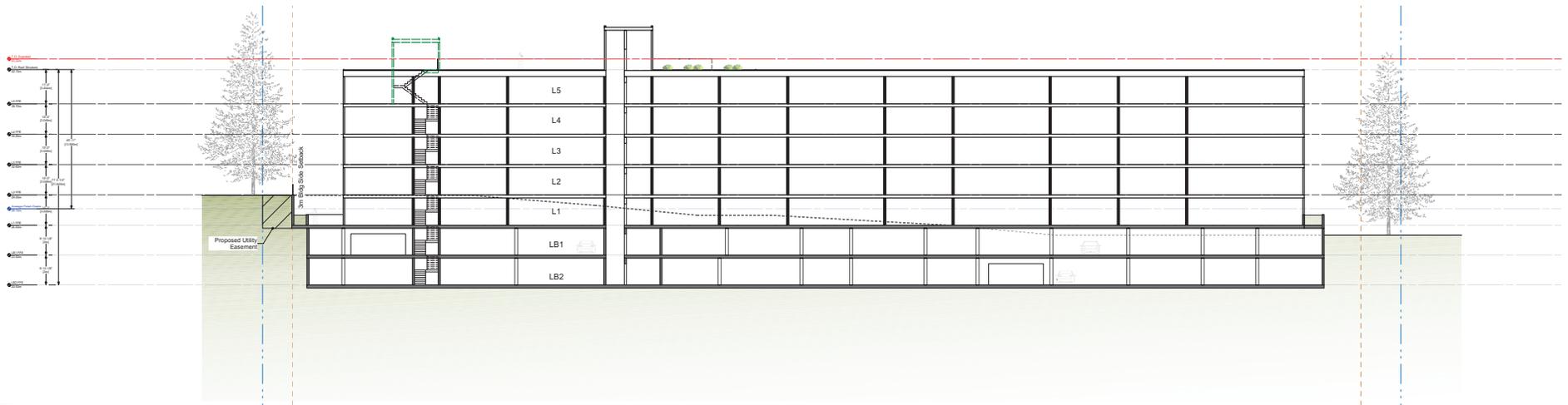
MATERIAL LEGEND:

PP1	PP1	Handle Panel Smooth w/ matching surround trim (Arctic White)
PP2	PP2	Handle Panel Smooth w/ matching surround trim (Grey)
PP3	PP3	Handle Panel Smooth w/ matching surround trim (Teal)
CN1	CN1	Concrete
CN2	CN2	Dark Grey Stained Concrete
CN3	CN3	Vertical Board Formed Concrete
MT1	MT1	Metall Flashing (White, 12")
MT2	MT2	Metall Flashing (Grey, 12")
WD1	WD1	T&G Cedar Wall and Soffit
AL1	AL1	Aluminum Grille Doors - Black Powder Coated
AL2	AL2	Aluminum Glass Railing - Black Powder Coated
AL3	AL3	Teal Coloured Glass/ Glass Railing - Black Powder Coated
VW1	VW1	Vinyl Window Door (Black Frame)





1 Section A
Scale: 1/16" = 1'-0"



1 Section B
Scale: 1/16" = 1'-0"

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ISLAND HIGHWAYS

1 L1 Floor Plan
Scale: 1/16" = 1'-0"



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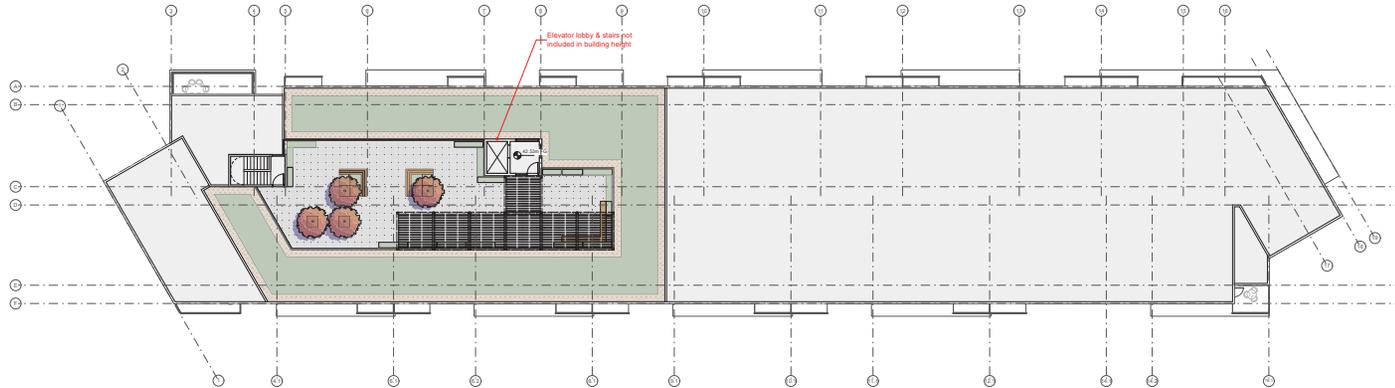




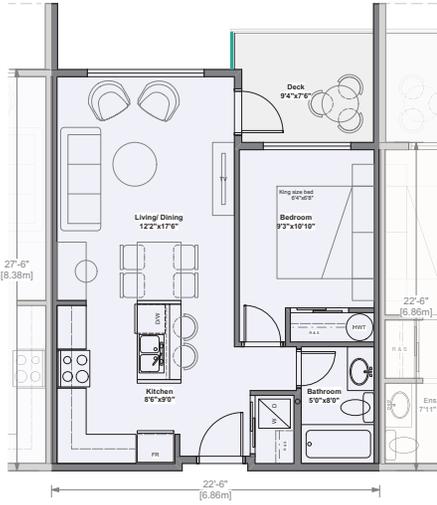
1 L2-L4 Typical Floor Plan
Scale: 1/16" = 1'-0"



2 L5 Floor Plan
Scale: 1/16" = 1'-0"

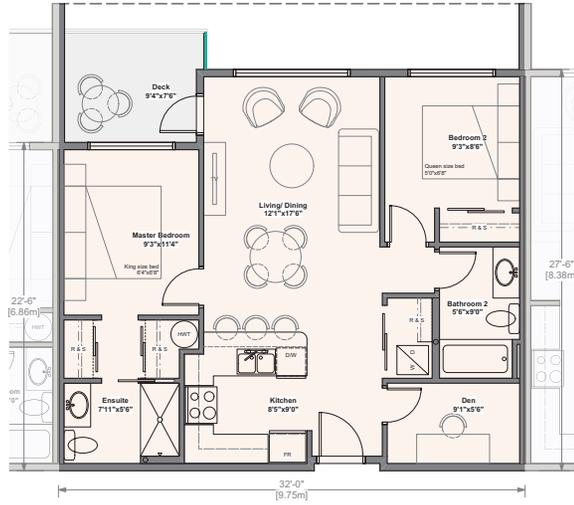


3 Roof Plan
Scale: 1/16" = 1'-0"



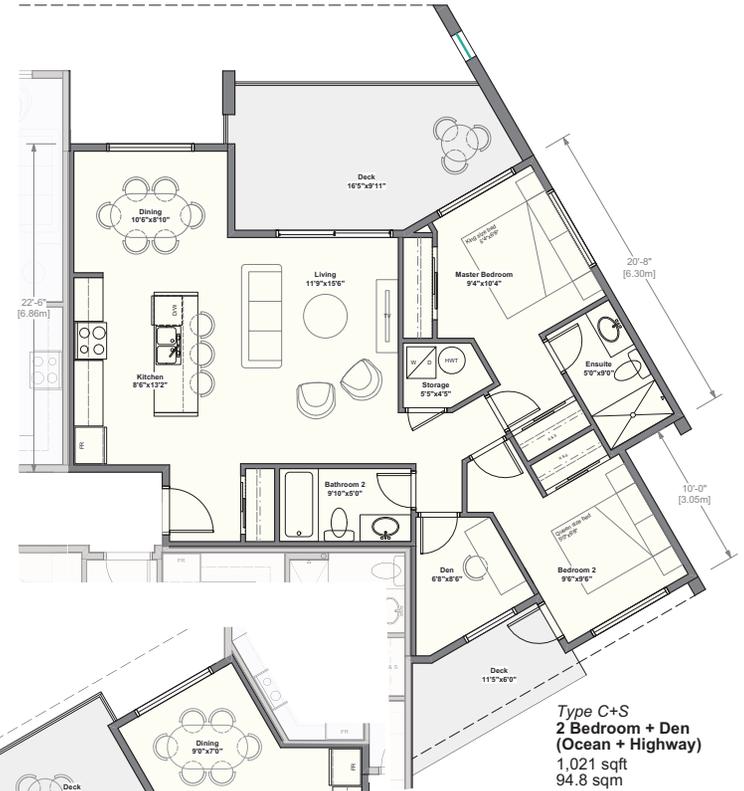
Type 1-O One Bedroom (Ocean)

569 sqft
52.8 sqm

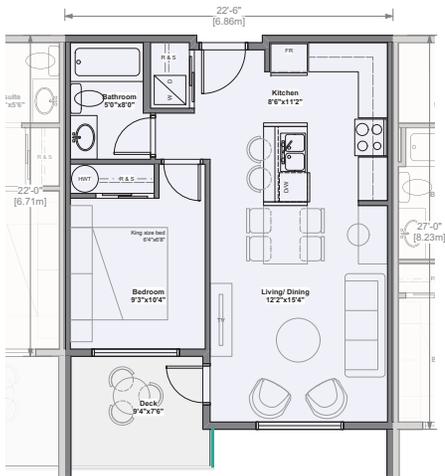


Type 2+O Two Bedroom + Den (Ocean)

830 sqft
77.1 sqm

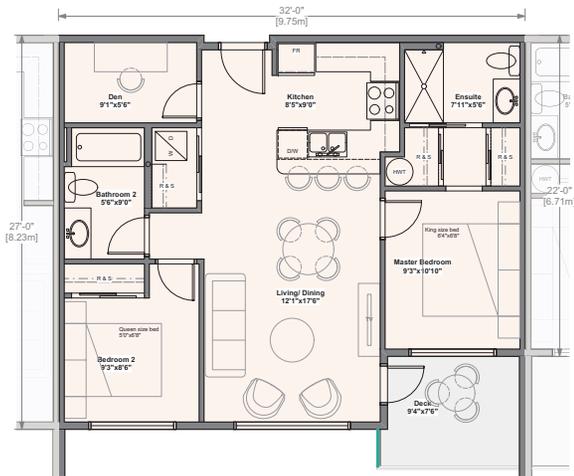


**Type C+S
2 Bedroom + Den
(Ocean + Highway)
1,021 sqft
94.8 sqm**



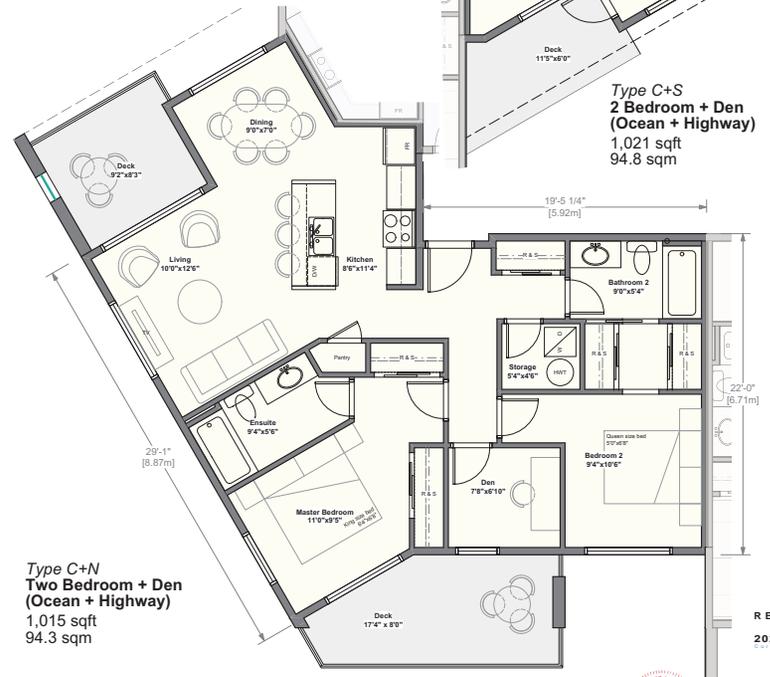
Type 1-H One Bedroom (Highway)

558 sqft
51.8 sqm

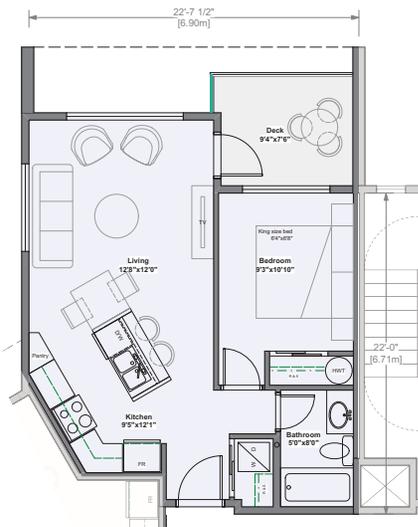


Type 2+H Two Bedroom + Den (Highway)

814 sqft
75.6 sqm

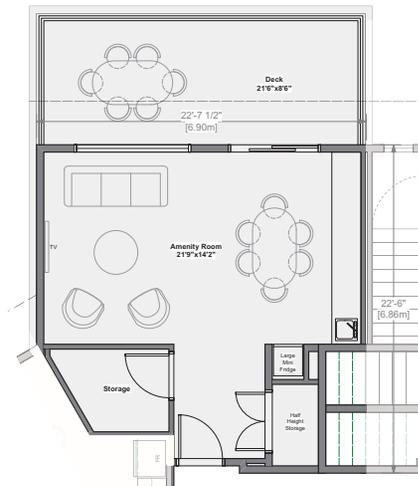


**Type C+N
Two Bedroom + Den
(Ocean + Highway)
1,015 sqft
94.3 sqm**



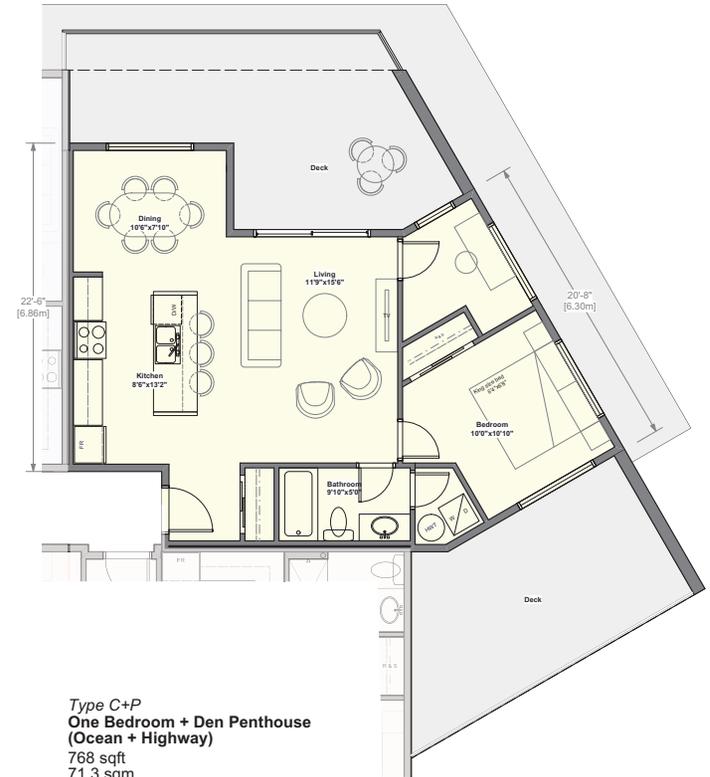
Type 1-N
One Bedroom (Ocean) North Corner

546 sqft
50.7 sqm



Amenity Room

453 sqft
42.1 sqm

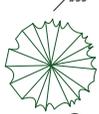


Type C+P
One Bedroom + Den Penthouse
(Ocean + Highway)

768 sqft
71.3 sqm



TMP LEGEND

-  Existing Tree to be removed (see sheet L3.02, Tree Inventory)
-  Key Number (see sheet L3.02, Tree Inventory to cross-reference for tree species, quantities, and size)
-  Existing Tree to be Retained (see sheet L3.02, Tree Inventory)
-  Existing Tree on Adjacent Parcel to be Protected
-  Tree Protection Fencing (see sheet L3.02, detail 1)

Refer to **Sheet L3.02** for Tree Inventory
 Refer to **Sheet L1.02** for Landscape Plan
 Refer to **Sheet L2.01** for Planting Plan North
 Refer to **Sheet L2.02** for Planting Plan South

NOT FOR CONSTRUCTION

TREE MANAGEMENT PLAN
 SCALE 1:200



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TREE MANAGEMENT PLAN

PROJECT ID 220009
 DB CM CB KS

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L3.01



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DATE July, 2022

TREE MANAGEMENT PLAN

L3.02

TREE INVENTORY

PROPERTY AREA: 0.49 ha
REPLACEMENT TREES REQUIRED: 49

EXISTING TREES

TREES TO BE RETAINED

KEY	QTY	BOTANICAL NAME	COMMON NAME	DBH	NOTES
62	(1)	Pseudotsuga menziesii	Douglas Fir	1.35	Significant

TOTAL NUMBER OF TREES TO BE RETAINED: 1

TREES TO BE REMOVED

KEY	QTY	BOTANICAL NAME	COMMON NAME	DBH	NOTES
8	(1)	Arbutus menziesii	Arbutus	0.50	Landmark
11	(1)	Arbutus menziesii	Arbutus	0.20	
12	(1)	Arbutus menziesii	Arbutus	0.40	
16	(1)	Arbutus menziesii	Arbutus	0.70	Landmark
7	(1)	Acer macrophyllum	Bigleaf Maple	0.20	
18	(1)	Acer macrophyllum	Bigleaf Maple	0.25	
19	(1)	Acer macrophyllum	Bigleaf Maple	0.25	
20	(1)	Acer macrophyllum	Bigleaf Maple	0.20	
21	(1)	Acer macrophyllum	Bigleaf Maple	0.45	
22	(1)	Acer macrophyllum	Bigleaf Maple	0.25	
23	(1)	Acer macrophyllum	Bigleaf Maple	0.25	
24	(1)	Acer macrophyllum	Bigleaf Maple	0.25	
25	(1)	Acer macrophyllum	Bigleaf Maple	0.20	
26	(1)	Acer macrophyllum	Bigleaf Maple	0.20	
27	(1)	Acer macrophyllum	Bigleaf Maple	0.30	
28	(1)	Acer macrophyllum	Bigleaf Maple	0.20	
31	(1)	Acer macrophyllum	Bigleaf Maple	0.20	
32	(1)	Acer macrophyllum	Bigleaf Maple	0.25	
33	(1)	Acer macrophyllum	Bigleaf Maple	0.20	
35	(1)	Acer macrophyllum	Bigleaf Maple	0.30	
36	(1)	Acer macrophyllum	Bigleaf Maple	0.20	
37	(1)	Acer macrophyllum	Bigleaf Maple	0.30	
38	(3)	Acer macrophyllum	Bigleaf Maple	0.25	Multistemme
39	(1)	Acer macrophyllum	Bigleaf Maple	0.25	
40	(1)	Acer macrophyllum	Bigleaf Maple	0.60	
41	(1)	Acer macrophyllum	Bigleaf Maple	0.25	
43	(1)	Acer macrophyllum	Bigleaf Maple	0.40	
44	(1)	Acer macrophyllum	Bigleaf Maple	0.20	
50	(1)	Acer macrophyllum	Bigleaf Maple	0.50	
55	(1)	Acer macrophyllum	Bigleaf Maple	0.20	
57	(1)	Acer macrophyllum	Bigleaf Maple	0.85	Landmark
58	(1)	Acer macrophyllum	Bigleaf Maple	0.25	
49	(4)	Dead tree	Dead tree	0.35	Multistemme
1	(1)	Pseudotsuga menziesii	Douglas Fir	0.45	
2	(1)	Pseudotsuga menziesii	Douglas Fir	0.35	
3	(1)	Pseudotsuga menziesii	Douglas Fir	0.40	
4	(1)	Pseudotsuga menziesii	Douglas Fir	0.25	
6	(1)	Pseudotsuga menziesii	Douglas Fir	0.45	
9	(1)	Pseudotsuga menziesii	Douglas Fir	0.35	
10	(1)	Pseudotsuga menziesii	Douglas Fir	0.20	
13	(1)	Pseudotsuga menziesii	Douglas Fir	0.35	
14	(1)	Pseudotsuga menziesii	Douglas Fir	0.25	
15	(1)	Pseudotsuga menziesii	Douglas Fir	0.35	
17	(1)	Pseudotsuga menziesii	Douglas Fir	0.55	
29	(1)	Ilex aquifolium	English Holly	0.30	Invasive
30	(1)	Ilex aquifolium	English Holly	0.20	Invasive
5	(1)	Pinus spp.	Pine	0.25	
34	(3)	Alnus rubra	Red Alder	0.25	Multistemme
42	(1)	Alnus rubra	Red Alder	0.30	
45	(1)	Alnus rubra	Red Alder	0.20	
46	(1)	Alnus rubra	Red Alder	0.30	
51	(1)	Alnus rubra	Red Alder	0.20	
52	(1)	Alnus rubra	Red Alder	0.30	
53	(1)	Alnus rubra	Red Alder	0.30	
47	(1)	Unknown	Unknown	0.20	
48	(1)	Unknown	Unknown	0.50	
54	(1)	Unknown	Unknown	0.20	
56	(1)	Unknown	Unknown	0.60	
59	(1)	Unknown	Unknown	0.20	
60	(1)	Unknown	Unknown	0.90	
61	(1)	Unknown	Unknown	0.20	

TOTAL NUMBER OF TREES TO BE REMOVED: 68

REPLACEMENT TREES

DECIDUOUS TREES

KEY	QTY	BOTANICAL NAME	COMMON NAME	MIN HT. (m)	NOTES
A	(2)	Acer macrophyllum	Bigleaf Maple	2.0m ht.	#20
Ac	(14)	Acer circinatum	Vine Maple	2.0m ht.	Multistem
Ag	(5)	Acer griseum	Paper Bark Maple	2.0m ht.	
Ce	(7)	Cornus eddies white wonder	Eddies White Wonder	2.0m ht.	#20

TOTAL NUMBER OF DECIDUOUS REPLACEMENT TREES: 28

CANIFEROUS TREES

KEY	QTY	BOTANICAL NAME	COMMON NAME	MIN HT. (m)	NOTES
Pc	(10)	Pinus contorta var. contorta	Shore Pine	2.0m ht.	
P	(8)	Pseudotsuga menziesii	Douglas Fir	2.0m ht.	#15
Po	(8)	Picea omarika bruns	Serbian Spruce	1.5m ht.	

TOTAL NUMBER OF CANIFEROUS REPLACEMENT TREES: 21

TOTAL NUMBER OF REPLACEMENT TREES: 49

ADDITIONAL LANDSCAPE TREES

DECIDUOUS TREES

KEY	QTY	BOTANICAL NAME	COMMON NAME	MIN HT. (m)	NOTES
Ap	(17)	Acer palmatum 'Osakazuki'	Japanese Maple	1.5m ht.	4 on Rooftop Garden
As	(8)	Acer palmatum 'Spondanops'	Japanese Maple	1.5m ht.	
Ck	(7)	Cornus kousa	Red Flowering Dogwood	1.5m ht.	

TOTAL NUMBER OF LANDSCAPE TREES: 32

TOTAL NUMBER OF TREES: 81

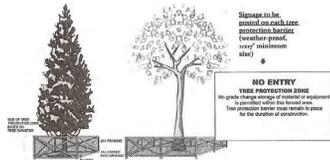
NOTES:

CITY OF NANAIMO REQUIRES 100 REPLACEMENT TREES PER HECTARE TO DETERMINE TOTAL REPLACEMENT TREES. AT 0.49 HECTARES, THE PROJECT REQUIRES 49 REPLACEMENT TREES. TO ESTABLISH A BIODIVERSE, CLIMATE RESILIENT AND VISUALLY INTERESTING LANDSCAPE AN ADDITIONAL 32 LANDSCAPE TREES ARE PROPOSED, INCLUDING 4 ROOFTOP TREES.

Refer to Sheet L3.01 for Tree Management Plan
Refer to Sheet L1.02 for Landscape Plan
Refer to Sheet L2.01 for Planting Plan North
Refer to Sheet L2.02 for Planting Plan South

NOT FOR CONSTRUCTION

01 Tree Protection Fence
L3.02 NTS Section



TREE PROTECTION FENCE

Prior to construction taking place on site a tree protection fence (see detail 01, sheet L3.02) shall be installed on site according to the layout as indicated on the **Tree Management Plan** (see sheet L3.01), the fence is to follow the existing grade.

Prior to the installation of this fence the layout should be reviewed by the City of Nanaimo Urban Forestry Coordinator.

The Project Manager will instruct all trades on the importance of following these tree protection measures. All trades will be required to sign off on their concurrence of this plan.

The fence is to remain in place for the duration of construction.

NOTES:

- Height of fence to be 1.2m (4').
- 2"x 4" to be used for vertical posts, top and bottom rails and cross bracing (in an "X") round un-treated vertical posts may be used with a minimum diameter of 9 cm.
- Spacing between vertical posts to be no further apart than 3.7m (12') on centre.
- Structure must be sturdy with vertical posts driven firmly into ground.
- Continuous plastic mesh screening (e.g. orange snow fencing).
- Signs entitled "Tree Protection Area" to be posted on fence every 15m.
- Location of fence as shown on plan.

HALIBURTON APARTMENTS

821 Haliburton Street, Nanaimo, BC

LANDSCAPE ARCHITECTURAL DRAWINGS

ISSUED FOR DEVELOPMENT PERMIT - JUNE 15, 2023

LANDSCAPE DRAWING SCHEDULE

- L0.00 Cover Page
- L1.01 Landscape Design Rationale
- L1.02 Landscape Plan
- L1.03 Rooftop Plan
- L1.04 Landscape Elevation
- L1.05 Landscape Sections
- L2.01 Planting Plan North
- L2.02 Planting Plan South
- L2.03 Rooftop Planting Plan
- L2.04 Plant List + Notes
- L3.01 Tree Management Plan
- L3.02 Tree Management Plan

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PROJECT
HALIBURTON APARTMENTS
821 Haliburton Street
Nanaimo, BC, V9R 4V9

COVER PAGE

PROJECT ID 220009
DB CM CB KS
SCALE NTS
DATE July, 2022

L0.00

DESIGN PRECEDENTS

PLANTINGS



01 Japanese Maple



02 Japanese Maple (fall colour)



03 White Flowering Dogwood



04 Red Flowering Dogwood



05 Forest Garden Understory: Sword Fern + Salal



06 Forest Garden Shrubs: Flowering Red Currant



07 Terrace garden: Japanese Forest Grass



08 Meadow Garden: Perennial grasses + flowers

SITE FURNISHINGS



09 Rooftop Garden: Planters with Perennials



10 Rooftop Garden: Planters + Benches



11 Rooftop Garden: Communal Table



12 Rooftop Garden: Steel + Wood Arbour



13 Benches



14 Front Entrance Paving



16 Cedar Board Perimeter Fence



16 Bollard lighting

DESIGN RATIONALE

SITE CONTEXT

Located at 821 Haliburton Street, the project site is situated between the Island Highway and Sunueymukw IR#1, in the south-east quarter of Nanaimo's South End Neighbourhood Plan area. The site drops 10m from the Island Highway to Haliburton Street, resulting in a north-east aspect that offers expansive views of the Nanaimo River estuary and Satsushun, Protection and Gabriola Islands. Rocky soils predominate the site, and the remnant forest is comprised primarily of Bigleaf maple, with a lesser component of Douglas fir and Red alder.

DESIGN RATIONALE

The landscape design takes cues from the **City of Nanaimo's South End Neighbourhood Plan, Zoning Bylaw 4500 and City Plan: Reimagine Nanaimo**. The South End Neighbourhood Plan states that ecosystem complexity and habitat enhancement are basic concepts of neighbourhood sustainability, that landscaping should consider native plant diversity, and that the protection and preservation of views to the ocean are of great importance. Principle 5 of the Plan is to "Preserve, enhance and restore the natural environment," and Principle 8 is to "Maintain key views and unique vistas."

Bylaw 4500 provides additional guidance, recommending an informal design approach to the landscape, including maintaining an equal balance of coniferous and deciduous trees in the south end of Nanaimo.

Section C.1.3 of City Plan: Reimagine Nanaimo outlines desired outcomes and policies relating to the Urban Tree Canopy, Natural Areas and Greenways. The plan targets enhanced ecosystem biodiversity and resilience, as well as consideration of climate change when replacing or replanting new trees; and promotion of pollinator friendly plants on public and private lands.

The intent of these policies and regulations is achieved at 821 Haliburton by going above and beyond the 49 required replacement trees, providing an additional 52 landscape trees that contribute to habitat diversity, watershed health, climate resilience and visual interest. To preserve views to the ocean considered so important in the South End Neighbourhood Plan, while creating buffers to adjacent uses including the Highway, trees are generally kept to the periphery of the parcel. Some smaller deciduous trees drift toward the front of the building to moderate the architecture along Haliburton. Overall, the planting scheme is inspired the Coastal Douglas fir ecosystem, including forest edges and meadow gardens that will result in a thriving, diverse and climate resilient urban ecosystem.

KEY DESIGN FEATURES AND ELEMENTS

- **Forest Edge:** A Coastal Douglas Fir inspired forest that includes a mix of evergreen & deciduous trees, shrubs, and groundcovers embraces the rear and sides of the proposed building. Lower, deciduous trees closer to the front of the building frame important views, increase species diversity and ensure solar access to the primary building façade.
- **Stroll Garden:** A meandering path through a garden that incorporates indigenous understory species, pollinator plants and ornamental perennials offers a contemplative stroll for residents to enjoy fresh air and beautiful vistas.
- **Meadow Garden:** A meadow landscape that includes a mix of evergreen & deciduous shrubs, perennial grasses & flowers, and groundcovers to add diversity, provide habitat to pollinators, offer visual interest, and to preserve views to the Nanaimo River estuary and beyond.
- **Terraced Gardens:** Due to the sloping nature of the site, sunken patios at the rear of the building nestle private patios into the landscape and provide refuges that immerse residents into the natural environment.
- **Rooftop Garden:** Due to the constrained nature of the site, an amenity space is provided on the rooftop. This creates a communal gathering space with seating, tables, and shaded areas, and capitalizes on dramatic north-eastward views to the ocean and islands off Nanaimo.
- **Site Accessibility:** An accessible entrance is provided that connects the main entry of the building to Haliburton Street through a refined walkway through the parking area at the front of the building.

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PROJECT

HALIBURTON APARTMENTS

821 Haliburton Street
Nanaimo, BC, V9R 4V9

PROJECT ID 220009

DB CM CB KS

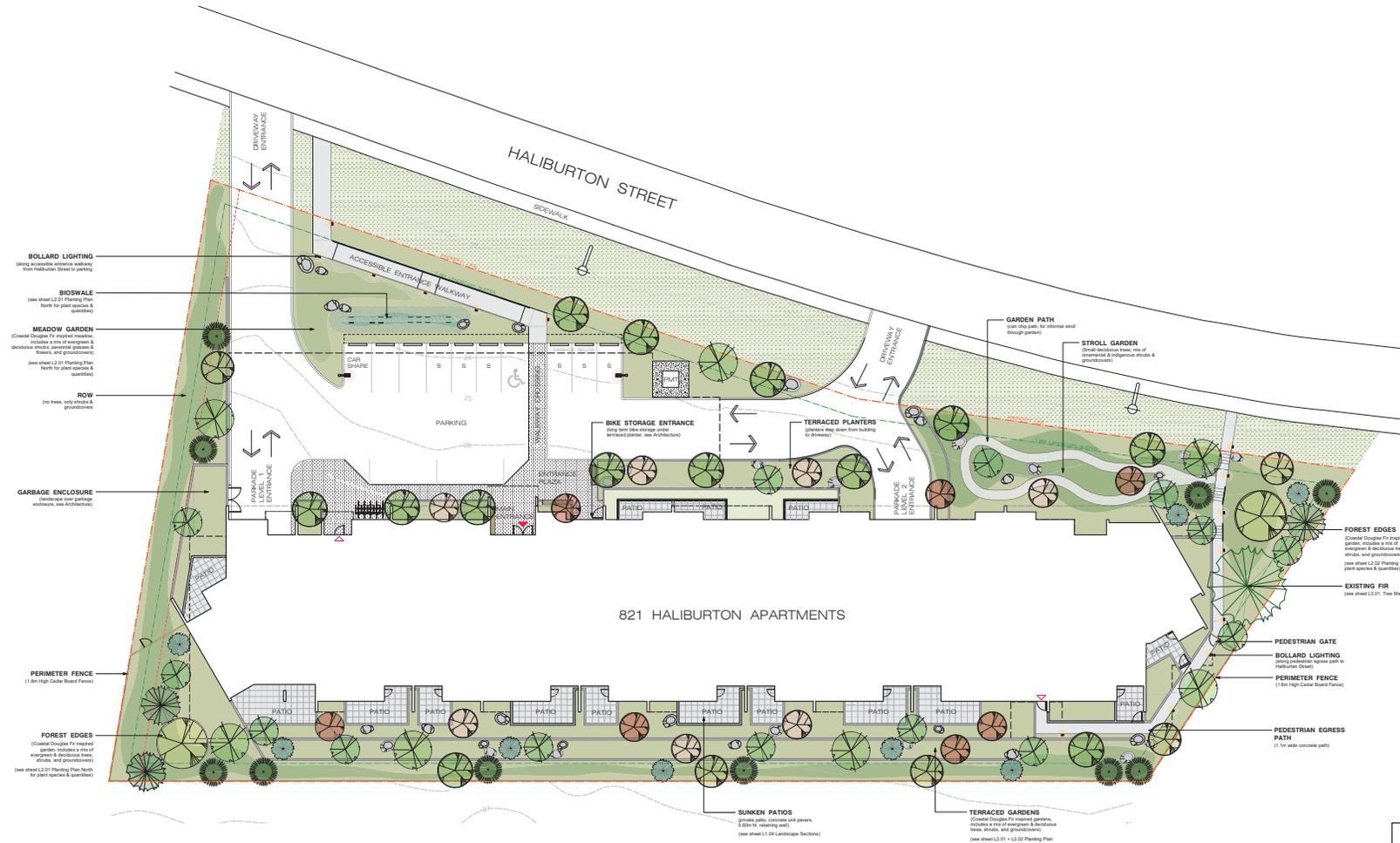
SCALE NTS

DATE July, 2022



LANDSCAPE LEGEND

-  BENCH TYPE 01
Quantity: 2
-  BENCH TYPE 02
Quantity: 4
-  BENCH TYPE 03
Quantity: 7
-  BICYCLE RACK
Capacity: 5-7 bikes
-  ENTRANCE
-  EXIT
-  LANDSCAPE BOULDER
Quantity: 35
-  LIGHTING BOLLARD
Quantity: 13
-  LIGHTING POLE TOP
Quantity: 2
-  PERIMETER FENCE
Cedar board, 1.8m high fence
-  STEEL PLANTER TYPE 01
Quantity: 10
-  STEEL PLANTER TYPE 02
Quantity: 18
-  CART CHIP PATH
Area: 65m²
-  CONCRETE WALKWAY
TYPE 01
Area: 116m²
-  CONCRETE UNIT PAVES
TYPE 01
Area: 146m²
-  CONCRETE UNIT PAVES
TYPE 02
Area: 427m²
-  GRASS BOULEVARD
Area: 635m²
Soil Depth: 150mm
-  GREEN ROOF
Area: 321m²
Soil Depth: 150mm
-  PLANTED AREA
Area: 1714m²
Soil Depth: 450mm
-  PLANTED AREA OVER STRUCTURE
Area: 36m²
Soil Depth: 300mm



LANDSCAPE PLAN
SCALE 1:200

Refer to **Sheet L1.01** for Design Rationale
 Refer to **Sheet L1.03** for Rooftop Landscape Plan
 Refer to **Sheet L1.04** for Landscape Elevation
 Refer to **Sheet L1.05** for Landscape Sections

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HALIBURTON APARTMENTS
 821 Haliburton Street
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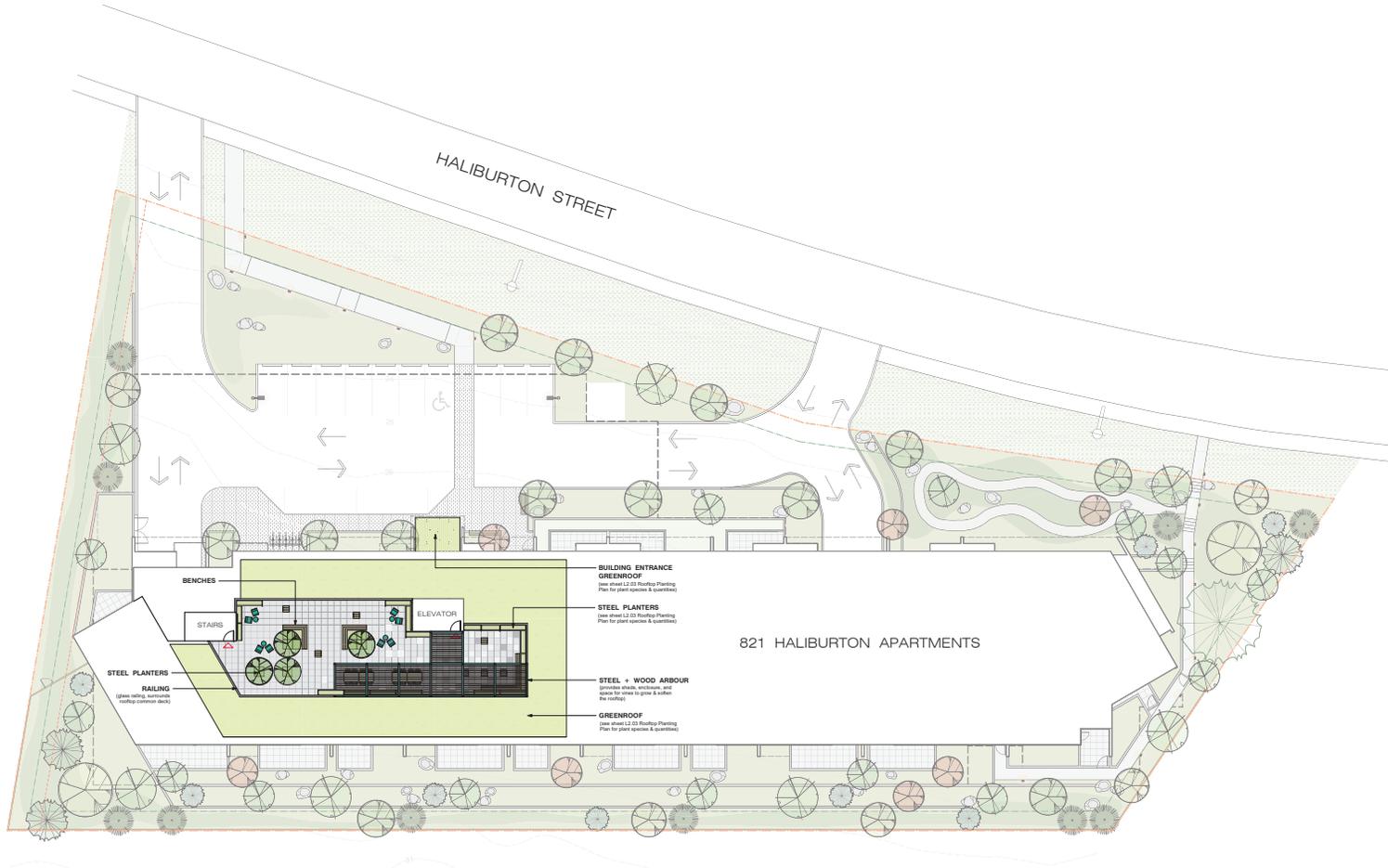
PROJECT ID 220009
DB CM **CB** KS
SCALE 1:200
DATE July, 2022

LANDSCAPE PLAN

L1.02

LANDSCAPE LEGEND

-  **BENCH TYPE 01**
Quantity: 2
-  **BENCH TYPE 02**
Quantity: 4
-  **BENCH TYPE 03**
Quantity: 7
-  **BICYCLE RACK**
Capacity: 5-7 bikes
-  **ENTRANCE**
-  **EXIT**
-  **LANDSCAPE BOULDER**
Quantity: 35
-  **LIGHTING BOLLARD**
Quantity: 13
-  **LIGHTING POLE TOP**
Quantity: 2
-  **PERIMETER FENCE**
Cedar board, 1.8m high fence
-  **STEEL PLANTER TYPE 01**
Quantity: 10
-  **STEEL PLANTER TYPE 02**
Quantity: 18
-  **CART CHIP PATH**
Area: 55m²
-  **CONCRETE WALKWAY**
Area: 116m²
-  **CONCRETE UNIT PAVER TYPE 01**
Area: 146m²
-  **CONCRETE UNIT PAVER TYPE 02**
Area: 427m²
-  **GRASS BOULEVARD**
Area: 635m²
Soil Depth: 150mm
-  **GREEN ROOF**
Area: 321m²
Soil Depth: 150mm
-  **PLANTED AREA**
Area: 1714m²
Soil Depth: 450mm
-  **PLANTED AREA OVER STRUCTURE**
Area: 35m²
Soil Depth: 300mm



ROOFTOP LANDSCAPE PLAN
SCALE 1:200

Refer to **Sheet L1.01** for Design Rationale
 Refer to **Sheet L1.02** for Landscape Plan
 Refer to **Sheet L1.04** for Landscape Elevation
 Refer to **Sheet L1.05** for Landscape Sections

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ROOFTOP LANDSCAPE PLAN

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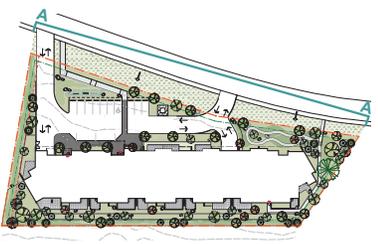


L1.03



A HALIBURTON STREET ELEVATION

SCALE 1:125



Refer to **Sheet L1.01** for Design Rationale
 Refer to **Sheet L1.02** for Landscape Plan
 Refer to **Sheet L1.03** for Rooftop Landscape Plan
 Refer to **Sheet L1.05** for Landscape Sections

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 250-733-8002
 kate.sterluk@kinshipdesign.ca
 chris.midgley@kinshipdesign.ca



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LANDSCAPE ELEVATION

PROJECT ID 220009
DB CM **CB** KS
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DATE July, 2022

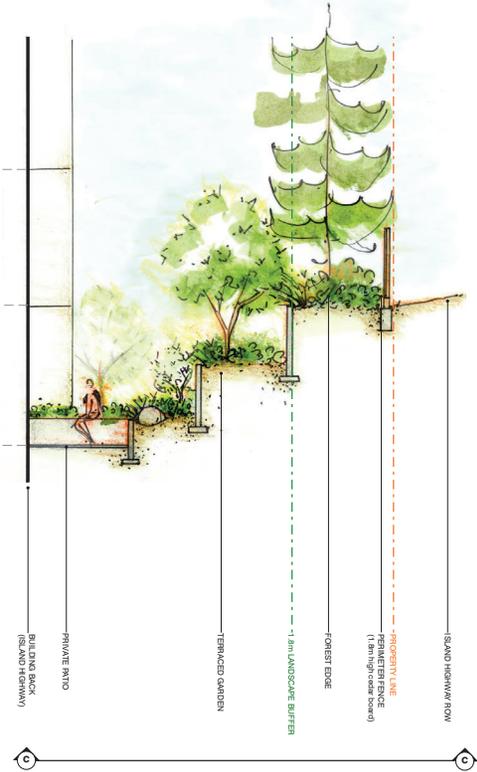
L1.04



B SECTION

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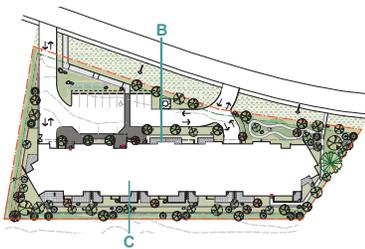
B



C SECTION

SCALE 1:50

C



Refer to **Sheet L1.01** for Design Rationale
 Refer to **Sheet L1.02** for Landscape Plan
 Refer to **Sheet L1.03** for Rooftop Landscape Plan
 Refer to **Sheet L1.04** for Landscape Elevation

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PROJECT
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 821 Haliburton Street
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LANDSCAPE SECTIONS

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DB CM **CB** KS

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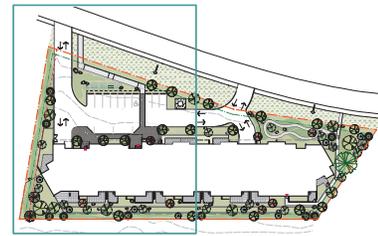
L1.05

TREE LEGEND

- Ac (14) *Acer circinatum*
- Ag (5) *Acer griseum*
- A (2) *Acer macrophyllum*
- Aps (8) *Acer palmatum* 'Shindeshojo'
- Ap (17) *Acer palmatum* 'Osakazuki'
- Ce (7) *Cornus edulis* white wonder
- Ck (7) *Cornus kousa*
- Po (8) *Picea omorika* bruns
- Pc (10) *Pinus contorta*
- P (3) *Pseudotsuga menziesii*

PLANT LEGEND

- At *Achlys triphylla*
 - A *Arbutus unedo*
 - Au *Arctostaphylos uva-ursa*
 - Ck *Calanogrostis* Karl Forester
 - Ca *Clematis emandii*
 - Cs *Cornus sericea*
 - Fc *Fragaria chiloensis*
 - Gs *Gaultheria shallon*
 - GI *Gaura lindheimeri*
 - Gd *Gymnocarpium dryopteris*
 - Hi *Hamamelis x intermedia* 'Diane'
 - Hm *Hakonechloa macra*
 - Lc *Lonicera ciliosa*
 - Ln *Luzula nivea*
 - Mn *Mahonia nervosa*
 - My *Miscanthus yaku jima*
 - Np *Nepeta droppmore blue*
 - Pa *Pennisetum alopecuroides*
 - Pm *Pinus mugo* 'var. pumilio' glycyrrhiza
 - Pg *Polypodium glycyrrhiza*
 - Pm *Polystichum munifolium*
 - Rb *Ribes sanguineum*
 - Sn *Salvia nemorosa* 'Cardinal'
 - Sa *Symphoricarpos albus*
 - Tg *Tellima grandiflora*
 - Ts *Thymus serpyllum*
 - V *Vaccinium*
 - Vo *Vaccinium ovatum*
- GRASS BOULEVARD**
Area: 635m²
Soil Depth: 150mm
Premier Pacific Seeds Ltd. Drought Smart
Lawn mix or equivalent.
- GREEN ROOF**
Area: 321m²
Soil Depth: 150mm
Plant with a mix of:
1. Allium cernuum
2. Ameria maritima
3. Festuca roemeri
4. Fragaria chiloensis
5. Sedum album
6. Sedum rupestre
- BIOSWALE BOTTOM**
Area: 7.2m²
Soil Depth: 450mm
Plant bottom with a mix of:
1. Carex obovata
2. Iris missouriensis



Refer to Sheet L2.02 for Planting Plan South
Refer to Sheet L2.03 for Rooftop Planting Plan
Refer to Sheet L2.04 for Plant List + Notes

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PLANTING PLAN NORTH

L2.01

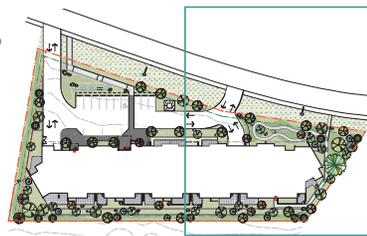
TREE LEGEND

- Ac (14) *Acer circinatum*
- Ag (5) *Acer griseum*
- A (2) *Acer macrophyllum*
- Aps (8) *Acer palmatum* 'Shindeshoji'
- Ap (17) *Acer palmatum* 'Osakazuki'
- Ce (7) *Cornus edulis* white wonder
- Ck (7) *Cornus kousa*
- Po (8) *Picea omorika* bruns
- Pc (10) *Pinus contorta*
- P (3) *Pseudotsuga menziesii*

PLANT LEGEND

- At *Achlys triphylla*
- A *Arbutus unedo*
- Au *Arctostaphylos uva-ursa*
- Ck *Calamagrostis* Karl Forester
- Ca *Clematis armandii*
- Cs *Cornus sericea*
- Fc *Fragaria chiloensis*
- Gs *Gaultheria shallon*
- Gl *Gaura lindheimeri*
- Gd *Gymnocarpium dryopteris*
- Hl *Hamamelis x intermedia* 'Diane'
- Hm *Hakonechloa macra*
- Le *Lonicera ciliosa*
- Ln *Luzula nives*
- Mn *Mahonia nervosa*
- My *Miscanthus yaku jima*
- Np *Nepeta droppmore blue*
- Pa *Pennisetum alopecuroides*
- Pim *Pinus mugo* 'var. pumilio' glycyrrhiza
- Pg *Polypodium glycyrrhiza*
- Pm *Polydichum munilum*
- Rb *Ribes sanguineum*
- Ss *Salvia nemorosa* 'Cardonna'
- Sa *Symphoricarpos albus*
- Tg *Tellima grandiflora*
- Ts *Thymus serpyllum*
- V *Vaccinium*
- Vo *Vaccinium ovatum*

- GRASS BOULEVARD**
Area: 635m²
Soil Depth: 150mm
Premier Pacific Seeds Ltd. Drought Smart
Lawni mix or equivalent.
- GREEN ROOF**
Area: 321m²
Soil Depth: 150mm
Plant with a mix of:
1. Allium cernuum
2. Ameria maritima
3. Festuca roemerii
4. Fragaria chiloensis
5. Sedum album
6. Sedum rupestre
- BIOSWALE BOTTOM**
Area: 7.2m²
Soil Depth: 450mm
Plant bottom with a mix of:
1. Carex obovata
2. Iris missouriensis



Refer to **Sheet L2.01** for Planting Plan North
 Refer to **Sheet L2.03** for Rooftop Planting Plan
 Refer to **Sheet L2.04** for Plant List + Notes

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PROJECT
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 821 Haliburton Street
 Nanaimo, BC, V9R 4V9

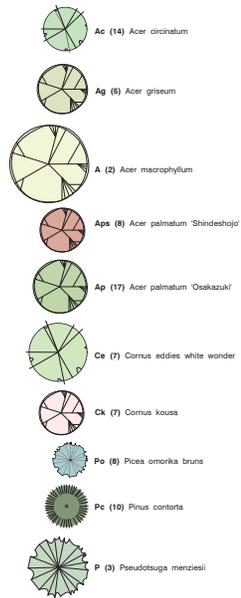
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DATE July, 2022

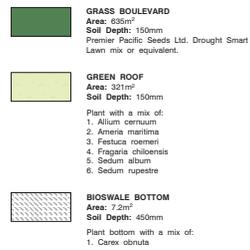
PLANTING PLAN SOUTH

L2.02

TREE LEGEND



PLANT LEGEND



Refer to **Sheet L2.01** for Planting Plan North
 Refer to **Sheet L2.02** for Planting Plan South
 Refer to **Sheet L2.04** for Plant List + Notes

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PROJECT
HALIBURTON APARTMENTS
 821 Haliburton Street
 Nanaimo, BC, V9R 4V9

PROJECT ID 220009
DB CM **CB** KS

SCALE 1:150
DATE July, 2022

ROOFTOP PLANTING PLAN

L2.03

PLANT LIST

Key	Qty	Botanical Name	Common Name	Pot Size	Spacing
Coniferous Trees					
Pc	8	Pinus amabilis bruns	Serbian Spruce	1.5m ht	
Pc	10	Pinus contorta var. contorta	Shore Pine	1.5m ht	
P	3	Pseudotsuga menziesii	Douglas Fir	#15	
Deciduous Trees					
Ac	14	Acer circinnatum	Vine Maple	#7	Multistem
Ag	5	Acer griseum	Paper Bark Maple	1.5m ht	
A	2	Acer macrophyllum	Big Leaf Maple	#20	
Ap	17	Acer palmatum 'Osakazuki'	Japanese Maple	1.5m ht	
Apr	8	Acer palmatum 'Shindehaji'	Japanese Maple	1.5m ht	
Ce	7	Cornus 'Eddie's White Wonder'	White Flowering Dogwood	#20	
Ck	7	Cornus kousa	Red Flowering Dogwood	1.5m ht	
Coniferous Shrubs					
P	6	Pinus mugo 'var. pumilio'	Dwarf Mountain Pine	#5	2m o.c.
Deciduous Shrubs					
Cs	14	Cornus sericea	Red Twig Dogwood	#1	2m o.c.
H	4	Hamelis x intermedia	Witch Hazel	#5	2m o.c.
Rs	107	Ribes sanguinum	Red Flowering Currant	#1	1.2m o.c.
Sa	129	Symphoricarpos albus	Cannon Strawberry	#1	1.2m o.c.
V	16	Vaccinium	Blueberries	#1	1.2m o.c.
Evergreen Shrubs					
A	6	Abutilo unedo 'Compacta'	Compact Strawberry Tree	#7	2m o.c.
Vo	167	Vaccinium ovatum	Evergreen Huckleberry	#1	1m o.c.
Groundcovers & Ferns					
Au	582	Arctostaphylos uva-ursi	Kinnikinnick	10cm	45cm o.c.
Fc	272	Fragaria chiloensis	Coastal Strawberry	10cm	45cm o.c.
Gs	579	Gaultheria shallon	Sallal	#1	60cm o.c.
Gd	78	Gymnocarpium dryopteris	Oak Fern	10 cm	30cm o.c.
Mn	1006	Mahonia nervosa	Dull Oregon Grape	#1	60cm o.c.
Pg	290	Polypodium glycyrrhiza	Licorice Fern	10cm	45cm o.c.
Pm	1158	Polystichum munifolium	Sweet fern	#1	60cm o.c.
Ts	18	Thymus serpyllum	Creeping Thyme	10cm	30cm o.c.
Ornamental Grasses					
Ck	34	Calamagrostis Karl Forester	Feather Reed Grass	#1	60cm o.c.
Hm	333	Hakonechloa macra	Japanese Forest Grass	#1	60cm o.c.
Lh	69	Luzula nivea	Snowy Woodrush	#1	45cm o.c.
My	16	Miscanthus yaku jima	Maiden Grass	#1	1m o.c.
Ps	92	Pennisetum alopecuroides 'Nameh'	Dwarf Fountain grass	#1	60cm o.c.
Perennials					
At	103	Achys triphylla	Vanilla Leaf	10cm	45cm o.c.
Gl	139	Gaura lindheimeri 'Santam White Improved'	Bee blossom	#1	45cm o.c.
Np	38	Nepeta x faassenii 'Drogmore'	Catmint	#1	60cm o.c.
Sn	51	Salvia x sylvestris 'Caradonna'	Purple Wood Sage	#1	60cm o.c.
Tg	93	Tellima grandiflora	Fringecup	10cm	45cm o.c.
Greenroof Plants					
Ac	500	Allium cernuum	Nodding Onion	10cm	30cm o.c.
Ar	500	Artemisia maritima	Sea Thrift	10cm	30cm o.c.
Fr	500	Festuca roemerii	Roemer's Fescue	10cm	30cm o.c.
Fc	500	Fragaria chiloensis	Coastal Strawberry	10cm	30cm o.c.
Sa	500	Sedum album	Sedum	10cm	30cm o.c.
Sr	500	Sedum rupestre	Sedum Angelina	10cm	30cm o.c.
Bloswale					
Co	15	Carex obnupta	Slough Sedge	10cm	45cm o.c.
Im	15	Iris missouriensis	Western Blue Flag Iris	10 cm	45cm o.c.
Vines					
Ce	4	Clematis armandi 'Snowflake'	Evergreen Clematis	#1	1.2m o.c.
Lc	5	Lonicera ciliosa	Western Trumpet Honeysuckle	#1	60cm o.c.

PLANTING NOTES

- All landscape installation and maintenance to meet or exceed the current edition of the Canadian Landscape Standards as a minimal acceptable standard.
- Growing medium to meet or exceed the properties outlined in the Canadian Landscape Standard per Section 6 Growing Medium, Table T-6.3.5.3. Properties of Growing Media Level 2 'Groomed' - 2P.
- Growing Medium Depths:
Tree Planting Areas: 1 cu. m. per tree
Shrub & Ground Cover Areas: 450mm (18") depth
Seeded Areas: 150mm (6") depth
- Mulch to be Compost per Section 10 Mulching of the Canadian Landscape Standard. Match depth to be 75mm minimum depth per all tree, shrub, and groundcover planting areas.
- Plant material quality, transport and handling shall comply with the CNLA standards for Nursery Stock.
- All plant material shall match type and species as indicated on the planting plan. Contact the Landscape Architect for approval of substitutions. No substitutions will be accepted without prior written approval of the Landscape Architect.
- Check for locations of water lines and other underground services prior to digging tree pits. Excavated plant pits shall have positive drainage. Plant pits when fully footed with water shall drain within one hour after filling.
- No plants requiring pruning or major branches due to disease, damage or poor form will be accepted.
- All tree, shrub, groundcover and lawn areas shall be watered via an underground automatic irrigation system utilizing Smart (ET/Weather-based) irrigation control. Irrigation emission devices to be high efficiency low volume rotary nozzles or drip irrigation equipment.

Refer to **Sheet L2.01** for Planting Plan North
Refer to **Sheet L2.02** for Planting Plan South
Refer to **Sheet L2.03** for Rooftop Planting Plan

NOT FOR CONSTRUCTION

PROJECT: HALIBURTON APARTMENTS
LOCATION: 821 Haliburton Road
DATE: 2023/06/15
SUBMISSION: Development Permit

Note: Prices include supply and installation

SOFT LANDSCAPING

ITEM	QUANTITY	UNIT PRICE	SUBTOTAL
Growing Medium			
Topsoil - 450mm (18"), Planted areas	1050 cu. yds	\$ 27.00 per cu. yd.	\$ 28,350.00
Topsoil - 300mm (12"), Planted area over structure	24 cu. yds	\$ 27.00 per cu. yd.	\$ 648.00
Topsoil - 150mm (6"), Grass Boulevard	125 cu. yds	\$ 27.00 per cu. yd.	\$ 3,375.00
Mulch - 100mm (4"), all planted areas	19,891 sq. ft.	\$ 1.00 per sq. ft.	\$ 19,891.00
Irrigation			
Irrigation - all planted areas	26,726 sq.ft.	\$ 3.00 per sq.ft.	\$ 80,178.00
Plants			
Coniferous Tree (#20)	18 trees	\$ 250.00 per tree	\$ 4,500.00
Coniferous Tree (#15)	3 trees	\$ 150.00 per tree	\$ 450.00
Deciduous tree (#20)	46 trees	\$ 250.00 per tree	\$ 11,500.00
Deciduous trees (#7)	14 trees	\$ 125.00 per tree	\$ 1,750.00
Shrubs #2	9 shrubs	\$ 25.00 per plant	\$ 225.00
Shrubs #1	3700 shrubs	\$ 10.00 per plant	\$ 37,000.00
Groundcovers (10cm, 18" o.c.)	1194 plants	\$ 4.00 per plant	\$ 4,776.00
Grass Seed	635 m ²	\$ 2.00 m ²	\$ 1,270.00
Soft Landscape Subtotal			\$ 193,913.00

HARD LANDSCAPING & FURNISHING

Surfacing Materials			
Granular base course (150mm depth)	25 cu. yds	\$ 30.00 per cu. yd.	\$ 750.00
Concrete surfacing (100mm)	11.6 cu. m.	\$ 290.00 per cu. m.	\$ 3,364.00
Boulders	35 boulders	\$ 150.00 each	\$ 5,250.00
Concrete Unit Pavers (Type 01)	1577 sq. ft.	\$ 18.00 per sq. ft.	\$ 28,386.00
Concrete Unit Pavers (Type 02)	500 pavers	\$ 30.75 each	\$ 15,375.00
Fencing, Lighting and Furnishing			
Cedar board fencing (1.8m ht.)	142 lin. m.	\$ 100.00 per lin. m.	\$ 14,200.00
Bollard Lighting	14 lights	\$ 700.00 per bollard	\$ 9,800.00
Benches	2 benches	\$ 750.00 per bench	\$ 1,500.00
Bike rack (with mounting kit)	1 bike racks	\$ 1,500.00 per rack	\$ 1,500.00
Hard Landscape Subtotal			\$ 80,125.00

GREEN ROOF

Topsoil - 150mm (6"), Green Roof	59 cu. yds	\$27.00 per cu. yd.	\$ 1,593.00
Groundcovers (10cm, 18" o.c.)	3000 plants	\$ 4.00 per plant	\$ 12,000.00
Rooftop Arbour	1 allowance	\$ 15,000.00 allowance	\$ 15,000.00
Benches (Type 02)	6 benches	\$ 1,000.00 per bench	\$ 6,000.00
Benches (Type 03)	7 benches	\$ 500.00 per bench	\$ 3,500.00
Steel Planter Box (Type 01)	17 boxes	\$ 1,000.00 per box	\$ 17,000.00
Steel Planter Box (Type 02)	10 boxes	\$ 1,000.00 per box	\$ 10,000.00
Glass Railing	76 feet	\$ 150.00 per lin. Ft	\$ 11,400.00
Metal Picket Railing	40 m	\$ 150.00 per lin. m	\$ 6,000.00
Green Roof Pavers	2368 sq. ft.	\$ 10.50 per sq. ft.	\$ 24,864.00
Green Roof Subtotal			\$ 107,357.00

TOTAL			\$ 381,395.00
GST (5%)			\$ 19,069.75
GRAND TOTAL			\$ 400,464.75



**NEWCASTLE
ENGINEERING LTD.**

#3-3179 BARONS ROAD, NANAIMO, B.C. V9T 5W5

PHONE: (250) 756-9553 FAX: (250) 756-9503

1229-001

March 3, 2023

Raymond de Beeld Architect Inc.,
Attn.: Mr. Raymond de Beeld, AIBC, LEED BC + C,
755 Terminal Avenue North,
Nanaimo, B.C., V9S 4K1

Dear Sir:

**Re: Proposed 105-Unit Multi-Family Residential Development
821 Haliburton Street, Nanaimo, B.C.
Preliminary Servicing Review for Development Permit Application**

As requested, we have reviewed the services available to the above referenced property from the perspective of their ability to accommodate the proposed development as indicated on the preliminary Architectural information provided to us by your office dated December 6, 2022.

The preliminary development plans prepared by Raymond de Beeld Architect Inc. indicate a 104-unit residential development consisting of a 5-storey residential structure over two levels of parking and associated surface parking accessed off Haliburton Street.

The subject property is currently vacant.

The servicing comments have been separated by service type as detailed below.

Watermains

There is a 250Ø DI watermain in Haliburton Street within the frontage of the subject property.

There is a 200ØAC watermain along the Island Highway within the frontage of the subject property.

There is a 150ØAC watermain along the northerly boundary of the subject property connecting the watermain in Island Highway South with the watermain in Haliburton Street. According to our review of the available record drawings it is our understanding

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that this watermain provides water service to the property to the north (809 Haliburton Street). It is our expectation that the City of Nanaimo will require that this watermain remain in service and that a Statutory Right of Way meeting current City of Nanaimo Manual of Engineering Standards and Specifications (MOESS) requirements be registered over the corridor containing this watermain.

CityMap also indicates the presence of a 150ØAC water service to the subject property off the main in Island Highway South. This water service does not meet current City of Nanaimo MOESS requirements due to its material so it will not be suitable for use as a water service for the proposed development even if future design calculations indicate that its size is adequate to serve the proposed development. Decommissioning or replacement of this water service will be completed by City of Nanaimo forces at the Owner's cost, at building construction stage.

There is a fire hydrant on the east (far) side of Haliburton Street approximately 19m. from the south-easterly corner of the subject property and another on the east (far) side of Haliburton Street approximately 21 m. from the north-easterly corner of the subject property. The above noted hydrants are approximately 118 metres apart and therefore do not comply with the City of Nanaimo MOESS which indicates a maximum fire hydrant spacing within multi-family residential zones of 90 metres.

CityMap indicates that the average working pressure between the two hydrants referenced above is approximately 117 psi.

Based upon our review of the Architectural Site Plan dated December 6, 2022, it is our expectation that a Fire Department Connection located at or near the south-easterly corner of the proposed building would be less than 45 metres away from the nearest existing fire hydrant.

Given current City of Nanaimo policies we have not been able to confirm the fire flow available from the City of Nanaimo watermain network fronting the subject property but it is our understanding that the City will confirm the available fire flow as part of their review of the Development Permit and/or the Building Permit application required to advance this project.

We have prepared and attached a preliminary fire flow calculation for the proposed building based upon the Fire Underwriters' Survey Guidelines and the building information currently available to us. Our preliminary fire flow calculation indicates a theoretical fire flow for the proposed building of 3,556 IGPM (269.4 l/s). This value exceeds the fire flow stipulated to be available at the watermain for the R8 zone in the City of Nanaimo MOESS (240 l/s).

In conjunction with the proposed development replacement of the existing water service with a water service sized to provide domestic flows to the proposed development will be required. The new water service will be provided with metering and backflow prevention in accordance with City of Nanaimo requirements. The water service replacement will be completed at building construction stage by City of Nanaimo forces at the Developer's cost.

Sanitary Sewer

There is a 200Ø AC sanitary sewer in Haliburton Street fronting the majority of the subject property. There is a 1200Ø sanitary sewer in Haliburton Street fronting the most south-easterly 23 metres of the frontage of the subject property on Haliburton Street. The information available on CityMap indicates the possible existence of two sanitary sewer service connections to the subject property off the main in Haliburton Street but we have not been able to confirm the diameter of either of these services. At design stage, the diameters and locations of the existing sanitary sewer service connections will be confirmed and at building construction stage any redundant and/or undersized services will be replaced with a single service sized to serve the proposed development.

Based upon unit count and the population density stipulated in the City of Nanaimo MOESS the anticipated design population for calculation of sanitary sewer flow would be 177 persons. Using that design population, and applying the required peaking factor and infiltration allowance our preliminary calculations indicate a design sanitary sewage flow of 2.1 l/s.

It is our expectation that, as part of the application review, the City of Nanaimo will complete a model run to confirm whether there are any downstream capacity constraints resulting from the preliminary design sanitary sewer flows emanating from the proposed development. In addition, the current version of the City of Nanaimo MOESS requires that the sanitary sewer fronting the development be upgraded if the theoretical post-development flows exceed 50% of the capacity of the main fronting the development site. The scope of any required sanitary sewer upgrading will be confirmed by the results of the City of Nanaimo sanitary sewer model run during the review of the Development Permit Application.

Drainage

There is a 375Ø PVC storm sewer in Haliburton Street terminating opposite the north-easterly property corner. According to our review of CityMap and the available record drawings there is no storm sewer in Haliburton Street within the limits of the frontage of the subject property. We have not been able to confirm the existence of a storm sewer service to the subject property.

As a condition of development, the subject property will require a storm sewer service sized in accordance with City of Nanaimo requirements, and a storm sewer will be required within the Haliburton Street frontage of the subject property, sized to serve the tributary area and the upgraded road.

The drainage from the subject property flows into the Ocean partially in storm sewer mains and partially in open channels. The City of Nanaimo will require confirmation that all storm sewer mains and open channels between the subject property and the outlet be verified in order to alleviate the requirement to provide on-site storage of stormwater. Should the theoretical flows exceed the capacity of any of the downstream drainage infrastructure either upgrading of any inadequate infrastructure or introduction of storage of on-site stormwater storage into the site servicing design would be required. Our preliminary calculations indicate that, if on-site storage of runoff is necessary, the

required storage volume would be approximately 21.5 cubic metres of water (65 cubic metres of rock, if a rock pit or raingarden is used).

Our preliminary calculations indicate that a 200Ø storm sewer service at a gradient of 2.0% would have adequate capacity to convey the 5-year post development flow from the proposed development.

In addition to provision of on-site storage of stormwater, treatment of the runoff from the parking area will be required to achieve compliance with the City of Nanaimo MOESS. Details of proposed treatment of parking lot runoff will be provided at detailed design stage in conjunction with the project Landscape Architect.

Given the relative elevations of the existing storm sewer infrastructure, the proposed parkade slab elevation, and our preliminary 100-year hydraulic grade line calculations, the parkade drainage from the proposed development will be connected to the sanitary sewer, the parkade footing drains will be directed to a sump pump discharging into the storm sewer service, and the parkade access will be graded in such a way as to prevent intrusion of surface runoff into the parkade.

Roadways and Access

There is currently no driveway access to the subject property off either Haliburton Street or the Island Highway.

Based upon our review of the Architectural plans prepared in support of the Development Permit Application, it is our understanding that vehicular access to the proposed development will be provided off Haliburton Street only.

Our review of the information available to us with respect to road standards indicates that the ultimate road section for Haliburton Street fronting the subject property will be Urban Collector (UC-XS1 or XS2 depending upon whether a turn lane is required). It is our understanding that the scope of required reconstruction of the existing pavement structure on Haliburton Street will be confirmed by the City of Nanaimo in advance of completion of detailed design based upon staff review of the results of the required Benkelman Beam testing on Haliburton Street. We further understand that, at a minimum removal and replacement of the pavement to centreline of road dedication within the limits of the frontage of the subject property on Haliburton Street will be required, in addition to the works indicated above and on the applicable road section for Haliburton Street.

We have not been able to confirm whether any alterations to the Island Highway will be required within the limits of the frontage of the subject property however it is our understanding that the Development Permit Application will be referred to the Ministry of Transportation and Infrastructure for review and any requirements will be confirmed during that referral process.

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B.C. Hydro/Telus/Shaw Communications/FortisBC Gas/Streetlighting

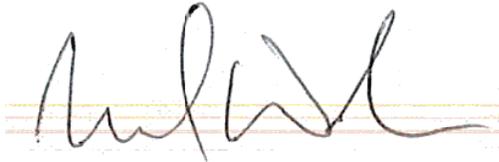
There is overhead B.C. Hydro (3 phase), plant along the east (near) side of the Island Highway and along the west (near) side of Haliburton Street fronting the subject property. There is overhead Telus, and Shaw Communications servicing along the east (far) side of Haliburton Street fronting the subject property. Design for the servicing of the proposed development will be completed by B.C. Hydro, Telus, and Shaw Communications during design of the site servicing for the proposed development.

There is no ornamental streetlighting along either the Haliburton Street or the Island Highway frontages of the subject property. Based on the applicable City of Nanaimo road standards construction of ornamental street and sidewalk lighting will be required along the Haliburton Street frontage of the subject property as a condition of development.

FortisBC Gas service is available from a 60Ø gas main running along the west (near) side of Haliburton Street within the frontage of the subject property. Design for any FortisBC Gas servicing required in conjunction with the proposed development will be provided by FortisBC Gas at design stage for the building development.

Should you require any further information to complete your review of the foregoing, please contact the undersigned.

Yours truly,
Newcastle Engineering Ltd.

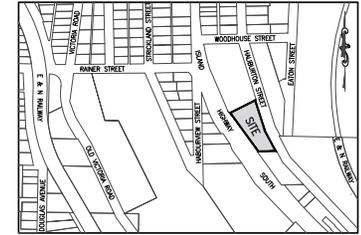
A handwritten signature in black ink, appearing to read 'Mark Warbrick', is written over a set of horizontal lines. The signature is fluid and cursive.

Mark Warbrick, P.Eng.

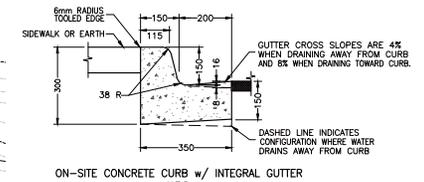
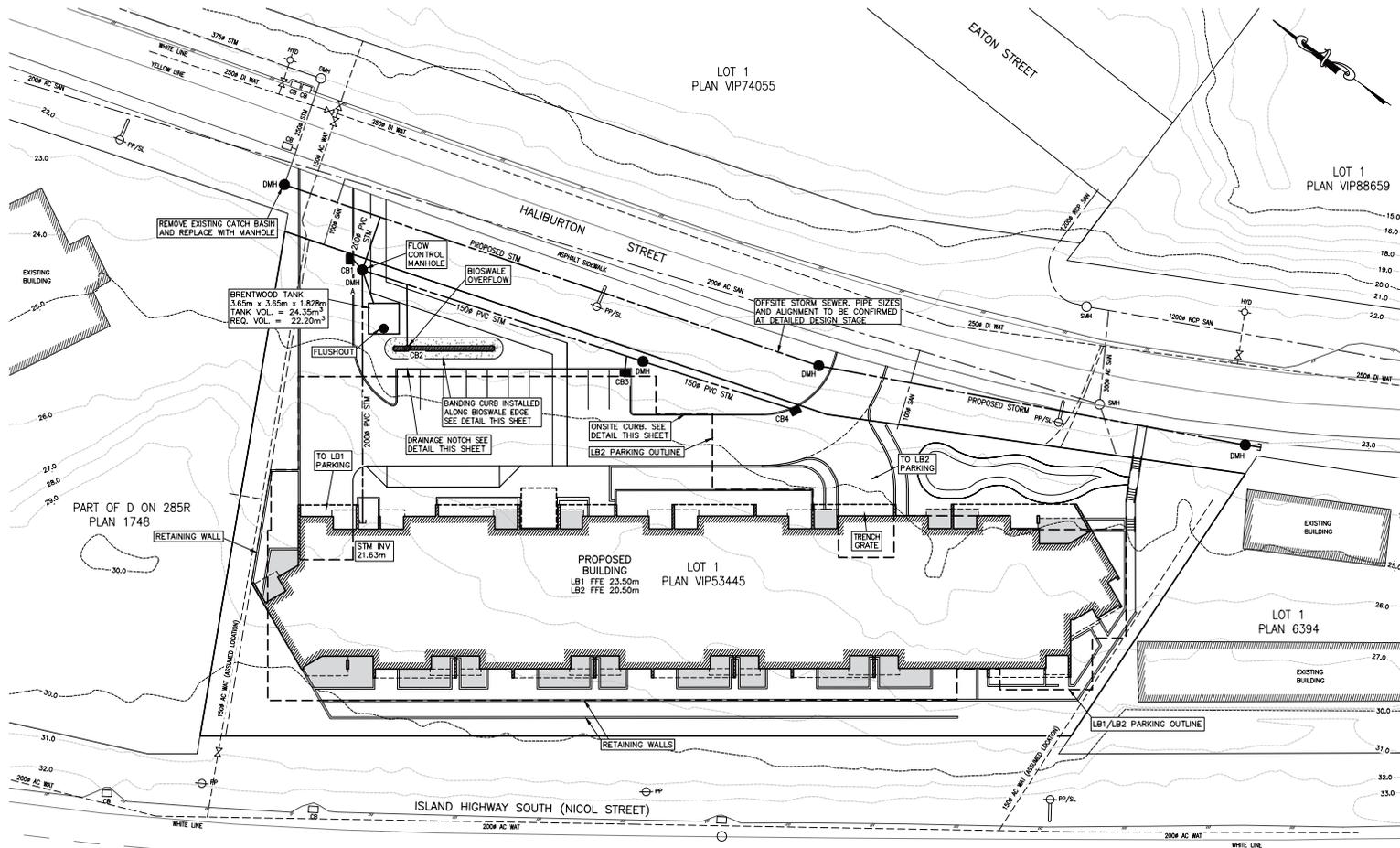
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DRAWING SCHEDULE

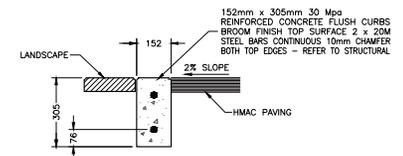
CITY DWG No.	NEL DWG No.	REVISION	TITLE
	1229-001-100	REV02	SITE PLAN AND PRELIMINARY DRAINAGE MANAGEMENT PLAN
	1229-001-101	REV02	PRELIMINARY SITE GRADING PLAN AND STORAGE VOLUME CALCULATIONS



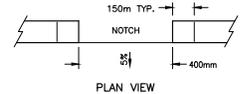
LOCATION PLAN
N.T.S.



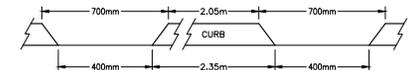
ON-SITE CONCRETE CURB w/ INTEGRAL GUTTER
N.T.S.



CONCRETE BANDING DETAIL
N.T.S.



PLAN VIEW



ON-SITE NON-MOUNTABLE CURB
DRAINAGE NOTCH DETAIL
N.T.S.

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THE LOCATIONS OF EXISTING SERVICES ARE SHOWN APPROXIMATELY AND SHALL BE CONFIRMED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORK. EXISTING & PROPOSED SERVICES MAY REQUIRE ADJUSTMENT WHERE A CONFLICT OCCURS. THE ENGINEER SHALL BE NOTIFIED OF ANY CONFLICT.



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PURPOSES ONLY

Rev. No.	DATE	BY	REVISION DESCRIPTION	ENG	LEGEND	SITE LEGAL DESCRIPTION	ENGINEER'S SEAL	DESIGN	MIW	CLIENT NAME	DRAWING TITLE		
00	12/08/22	JTD	SUBMITTED TO ARCHITECT FOR REVIEW - NOT FOR CONSTRUCTION	MIW	PROG. WATERMAIN	LOT 1, SECTION 1, NANAIMO DISTRICT, PLAN VIP53445		DRAWN	JTD	DAYS INN WYNDHAM NANAIMO HALIBURTON APARTMENTS	SITE PLAN AND PRELIMINARY DRAINAGE MANAGEMENT PLAN		
01	03/03/23	JTD	ADDRESSED REVISED ARCHITECTURAL PLANS - NOT FOR CONSTRUCTION	MIW	EXIST. STORM SEWER	BENCHMARK DESCRIPTION ELEVATIONS ARE GEODETIC AND ARE REFERRED TO MONUMENT		CHECKED				PROJECT NAME HALIBURTON APARTMENTS	PROJECT No. 1229-001
02	06/16/23	JTD	ADDRESSED REVISED ARCHITECTURAL PLANS - NOT FOR CONSTRUCTION	MIW	PROG. SANITARY SEWER			HORIZONTAL SCALE 1:250	PLOT DATE 06-16-23				



ABSORBENT LANDSCAPE CALCULATIONS

PROJECT: 821 Haliburton Street DATE: 2023-06-16
 FILE: 1229-001 ENGINEER: Mark Warbrick

1.) I/P Ratio: I/P Ratio = Impervious Tributary Area / Absorbent Landscape Area

ITA = 2981.0 Impervious Tributary Area (m²)
 ALA = 1895.0 Absorbent Landscape Area (m²)
 I/P = 1.57 I/P Ratio
 Min. ALA = 1490.5 Minimum Absorbent Landscape Area for 2:1 I/P Ratio (m²)

2.) Depth of soil: $D_s = R \times (I/P + 1) - K_s \times 24$
 $D_s = 290.8$ Depth of soil (mm)
 R = 31 Rainfall capture (mm)
 $K_s = 0.9$ Saturated hydraulic conductivity (mm/hr)
 I/P = 1.57 I/P Ratio
 Note: Minimum required absorbent soil depth is 300mm.

44-3179 BARONS ROAD, NANAIMO, B.C. V9T 7P5
 PHONE: (250) 756-6953 FAX: (250) 756-6959

Project: 821 Haliburton Street
 File: 1229-001
 Date: 07-Dec-22
 Engineer: Mark Warbrick

Pre and Post Development Calculations

Developed Area (Access and Landscape)

5 Year Pre and Post Development Flows

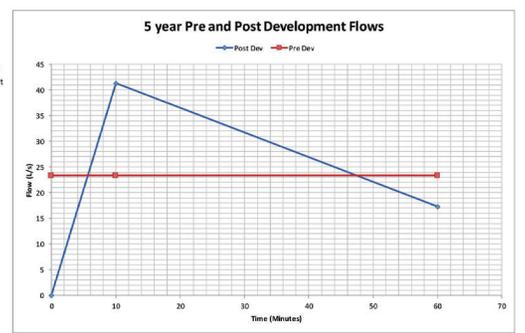
A = 0.4876 Area (ha)
 C_{pre} = 0.40 Runoff coefficient - Pre development
 C_{post} = 0.71 Runoff coefficient - Post development
 T_c = 10.0 Time of concentration (minutes)
 I_{5yr} = 43.1 Rainfall intensity (mm/hr)
 Q_{pre} = 23.4 Flow - Pre development (l/s)
 Q_{post} = 23.4 Flow - Pre development (l/s)
 Q_{post} = 41.3 Flow - Post development (l/s)

Post Development 1 Hour Flow

T_c = 60.0 Time of concentration (minutes)
 I_{1hr} = 18.0 Rainfall intensity (mm/hr)
 Q_{post} = 17.3 Flow - Post development (l/s)

Storage required to detain post development flows

Storage = 22.2 Volume of water (m³)
 n = 0.33 Drains rock void ratio
 V = 67.3 Volume of rock (m³)



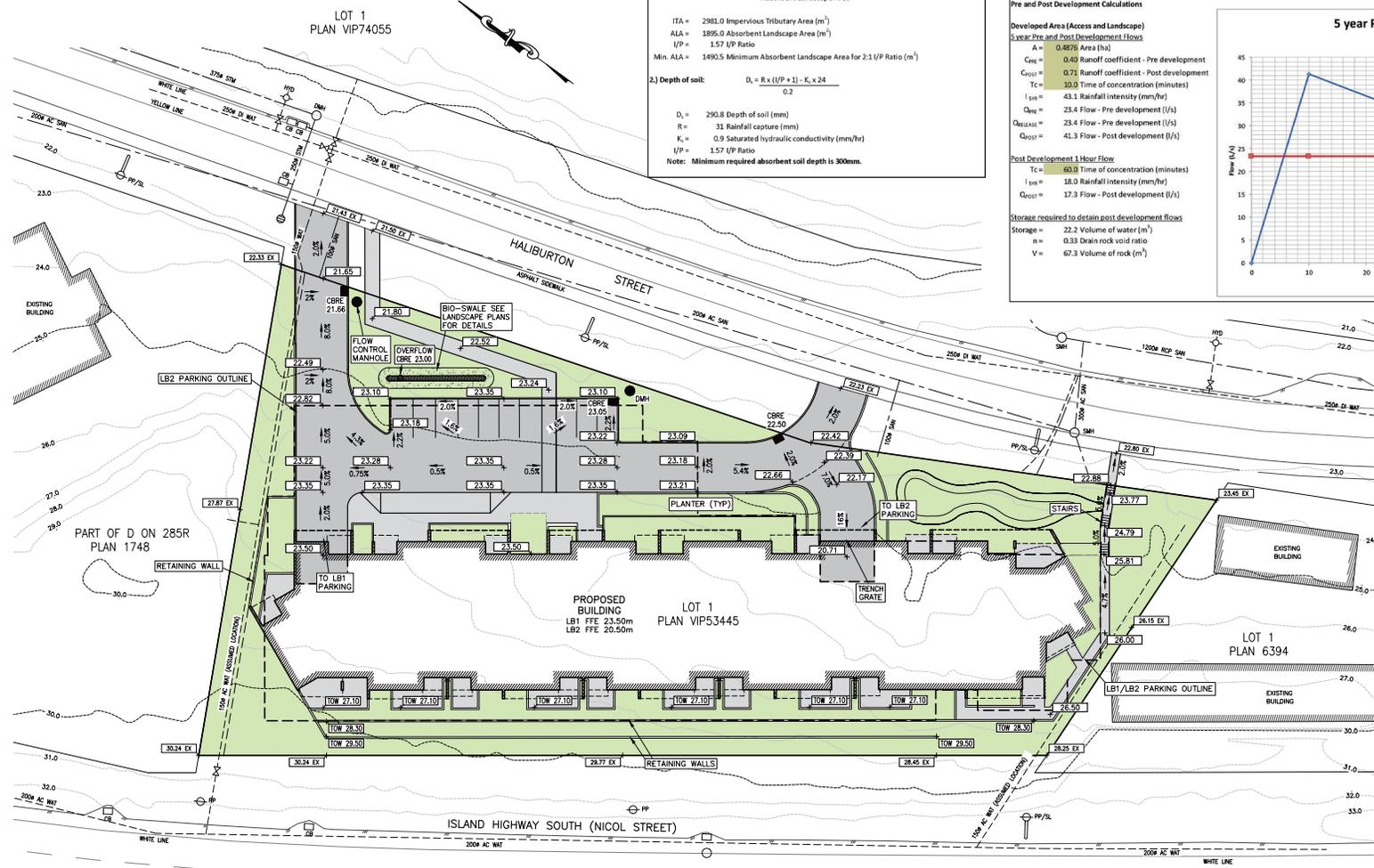
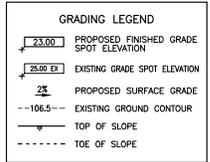
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 PHONE: (250) 756-6953 FAX: (250) 756-6959

Weighted Average Post Development Runoff Coefficient Calculation

Total Site Area (m²): 4876
 Impermeable Site Area (m²): 2981
 Permeable Site Area (m²): 1895
 Area Check: 4876
 Permeable Area Runoff Coefficient: 0.4
 Impermeable Area Runoff Coefficient: 0.9
 Weighted Post Development Runoff Coefficient: 0.705

AREA SUMMARY:

PERMEABLE AREA: 1895 m²
 IMPERMEABLE AREA: 2981 m²
 TOTAL SITE AREA: 4876 m²



AREA OF PROPOSED CONCRETE c/w BASE AND SUB-BASE
 AREA OF PROPOSED PAVEMENT c/w BASE AND SUB-BASE
 AREA OF PROPOSED PERMEABLE SURFACE (LANDSCAPE OR PAVERS)



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NOTES:
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02	06/16/23	JTD	ADDRESSED REVISED ARCHITECTURAL PLANS - NOT FOR CONSTRUCTION	MIW	PROG. SANITARY SEWER			CHECKED			
					PROG. GAS MAIN			PLOT DATE			
					PROG. ELECTRICAL DUCT			PRINT DATE	06-16-23		
					PROG. INLET/OUTLET HEADWALL			EGBIC PERMIT TO PRACTICE NUMBER:	1000856		
					PROG. DITCH INLET/OUTLET			HORIZONTAL SCALE	1:250		
					PROG. SINGLE			VERTICAL SCALE			
					PROG. EDGE OF PAVEMENT						
					PROG. MANHOLE						
					PROG. HYDRO POLE						
					PROG. VALVE BOX						
					PROG. LIMIT OF CONSTRUCTION						
					PROG. STREETLIGHT						
					PROG. FENCE						

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ENGO1 /DP /BP

PROJECT No. 1229-001 DRAWING No. 101 REVISION No. 02 CITY PLAN FILE No.