CITY OF NANAIMO
THE HARBOUR CITY
COMMUNITY DEVELOPMENT

2016-JUL-18

Our File: DP001001

via Email: iniamath@shaw.ca

Mr. Ian Niamath
IAN NIAMATH ARCHITECTURE
143 McKinnon Place
Nanaimo BC V9T 1L8

Dear Mr. Niamath:

RE: DEVELOPMENT PERMIT NO. DP001001 - 2589 KENWORTH ROAD - APPROVED DEVELOPMENT PERMIT

Please find attached a copy of the development permit approved by City Council on 2016-JUL-11 for the above-noted property. Please note the following:

- Prior to occupancy, the architect must confirm compliance with the development permit approved drawings. Any changes to the approved design must be submitted to the City for review and re-evaluation. An amendment to the approved development permit may be required if the changes are deemed significant.

- The landscape architect is required to confirm that the development permit approved landscape plan has been installed and submit a letter of substantial completion. Any change to the landscape plan must be identified by the landscape architect and submitted to the City for review. An amendment to the approved development permit may be required if changes are deemed significant.

- Please be aware that any tree cutting or removal requires a Tree Removal Permit application, which can be obtained from Community Development, 411 Dunsmuir Street. If you have any questions with respect to tree cutting or removal, please contact Alan Kemp, Urban Forestry Coordinator, at (250) 755-4460, local 4357.

As noted above, the City reserves the right to review any change to the site, building, or landscape designs. Please note that an amendment to the approved development permit, if deemed necessary, will require an application fee of $750, review by the Design Advisory Panel and Council approval.

Please note that the development permit is valid for a two year period. In the event that the works, as described within the permit, are not acted upon within this time frame, the permit will lapse.

For your information, the development permit will be registered at the Victoria Land Titles Office and will appear on your property title as a legal notation indefinitely. If; however, the permit lapses and the works, as described within the approved permit, were not undertaken, please inform the City so the necessary documentation can be prepared to remove the legal notation from your title.

If you have any questions with respect to the development permit, please do not hesitate to contact me at (250) 755-4429.

Yours truly,

Gary Noble, RPP
Development Approval Planner
Current Planning
Community Development

GN/ln

ATT.

ec: *MAPLEWOOD PROPERTIES LTD, E. sirri@telus.net*
CITY OF NANAIMO, T. Weinrich, Manager, Building Inspections Section
CITY OF NANAIMO, B. Corsan, Manager, Real Estate Section
CITY OF NANAIMO, S. Ruthven, Supervisor, Building Inspections
CITY OF NANAIMO, P. McIntosh, Urban Forestry Coordinator
BC Assessment Authority, via email: centralvanisl@bcassessment.ca

\\\PROSPERO\PLANNING\DEVPERMIT\DP001001\Ltr, Fwd Approved Development Permit dp1001.docx

CITY OF NANAIMO
THE HARBOUR CITY

DEVELOPMENT PERMIT NO. DP001001

MAPLEWOOD PROPERTIES LTD.
Name of Owner(s) of Land (Permittee)

2589 KENWORTH ROAD
Civic Address

1. This development permit is issued subject to compliance with all of the bylaws of the municipality applicable thereto, except as specifically varied or supplemented by this permit.

2. This development permit applies to and only to those lands within the municipality described below, and any and all building structures and other developments thereon:

   Legal Description:

   LOT 3, SECTION 20, RANGE 6, MOUNTAIN DISTRICT, PLAN 2815 EXCEPT THAT PART OF SAID LOT LYING TO THE EAST OF THE ROAD AS SHOWN ON SAID PLAN AND EXCEPT THOSE PARTS IN PLANS 25211, 22499 AND 33089

   PID No. 006-396-267

3. The land described herein shall be developed strictly in accordance with the following terms and conditions and provisions of this permit and any plans and specifications hereto which shall form a part thereof.

   Schedule A Location Plan
   Schedule B Site Plan & Project Data
   Schedule C Designated Environmental Zones
   Schedule D QEP Executive Summary
   Schedule E Landscape Plan
   Schedule F Green Roof
   Schedule G Coloured Building Elevations
   Schedule H Building Elevations
   Schedule I Building Sections
   Schedule J Building Perspectives

a) If the applicant does not substantially commence the development permitted by this permit within two years of the date of this permit, the permit shall lapse.

4. This permit is not a building permit nor does it constitute approval of any signage. Separate applications must be made for a building permit and sign permit.

5. The City of Nanaimo "ZONING BYLAW 2011 NO. 4500" is varied as follows:

- *Watercourse Leave Strip Setback (Diver Lake):*

  Part 6.3.1.1 requires a watercourse leave strip for Diver Lake of 15.0m, between the water's edge and a perpendicular line inland 15.0m from the wetland boundary (see Schedule C). The proposed watercourse setback is varied to 5.5m.

- *Front Yard Setback:*

  Part 13.4.1 – Siting of Buildings
  The required front yard setback for the building siting is 4.5m. The proposed front yard for the building is varied to 0.0m.

- *Maximum Allowable Building Height:*

  Part 13.6.1 – Size of Buildings
  The maximum allowable building height is 12.0m. The proposed maximum allowable building height is varied to 18.44m.

The City of Nanaimo "DEVELOPMENT PARKING REGULATIONS BYLAW 2005 NO. 7013" is varied as follows:

- *Loading Spaces:*

  Part 14.8 - Parking Bylaw

  The industrial building gross floor area requires 3 loading spaces. The number of proposed loading spaces is varied to 2 loading spaces.

AUTHORIZING RESOLUTION PASSED BY COUNCIL
THE 11TH DAY OF JULY, 2016.

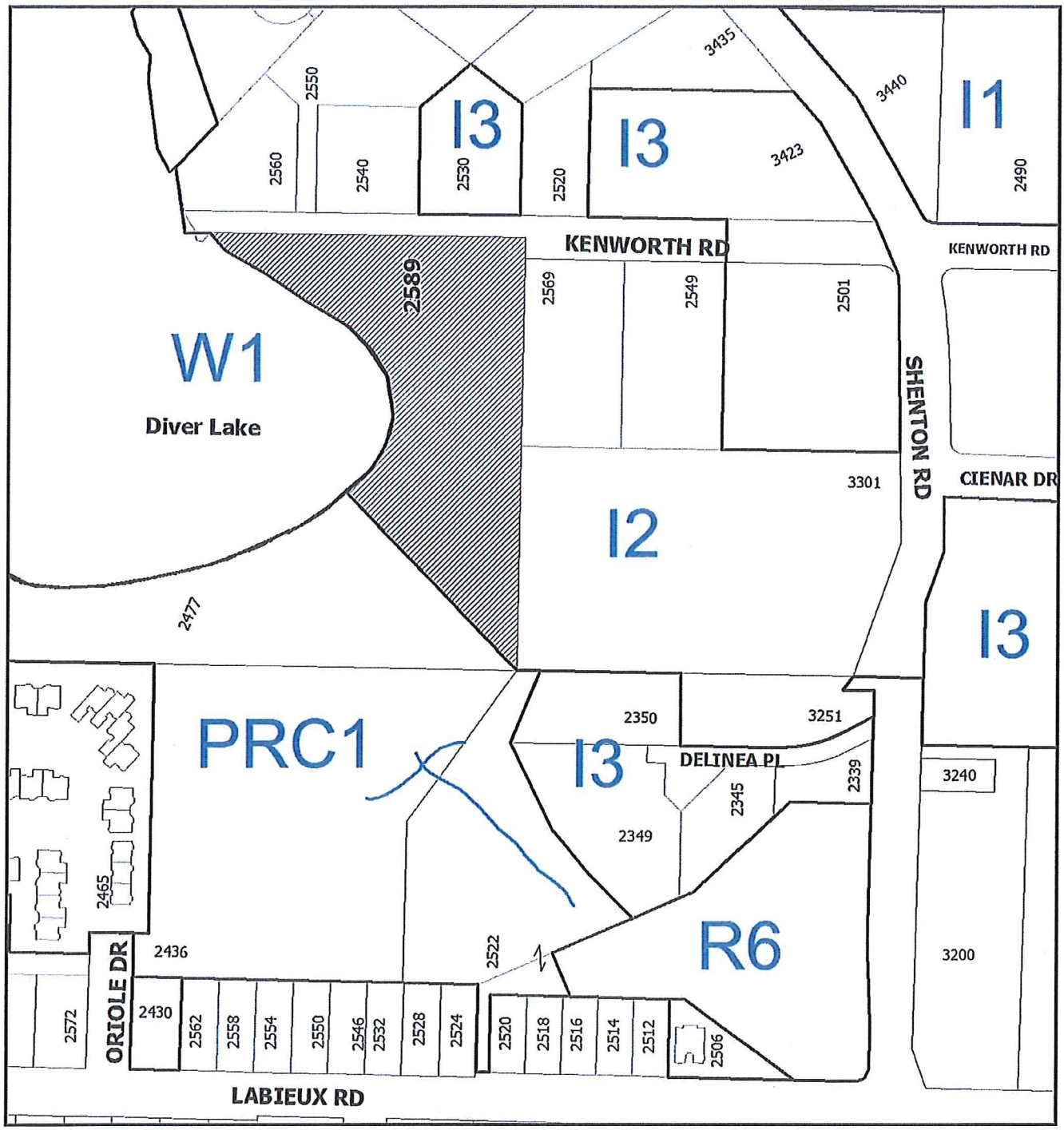
Sheila Gurrie
Corporate Officer

2016-JUL-14
Date

GN/ln
Prospero attachment: DP001001

Development Permit DP001001 **Schedule A**
2589 Kenworth Road

LOCATION PLAN



DEVELOPMENT PERMIT NO. DP001001

N

LOCATION PLAN

Civic: 2589 Kenworth Road
Lot 3, Section 20, Range 6, Mtn District, Plan 2815
Except Part of said Lot lying to the East of the Road
as shown on said Plan and Except those parts in
Plans 25211, 22499 and 33089

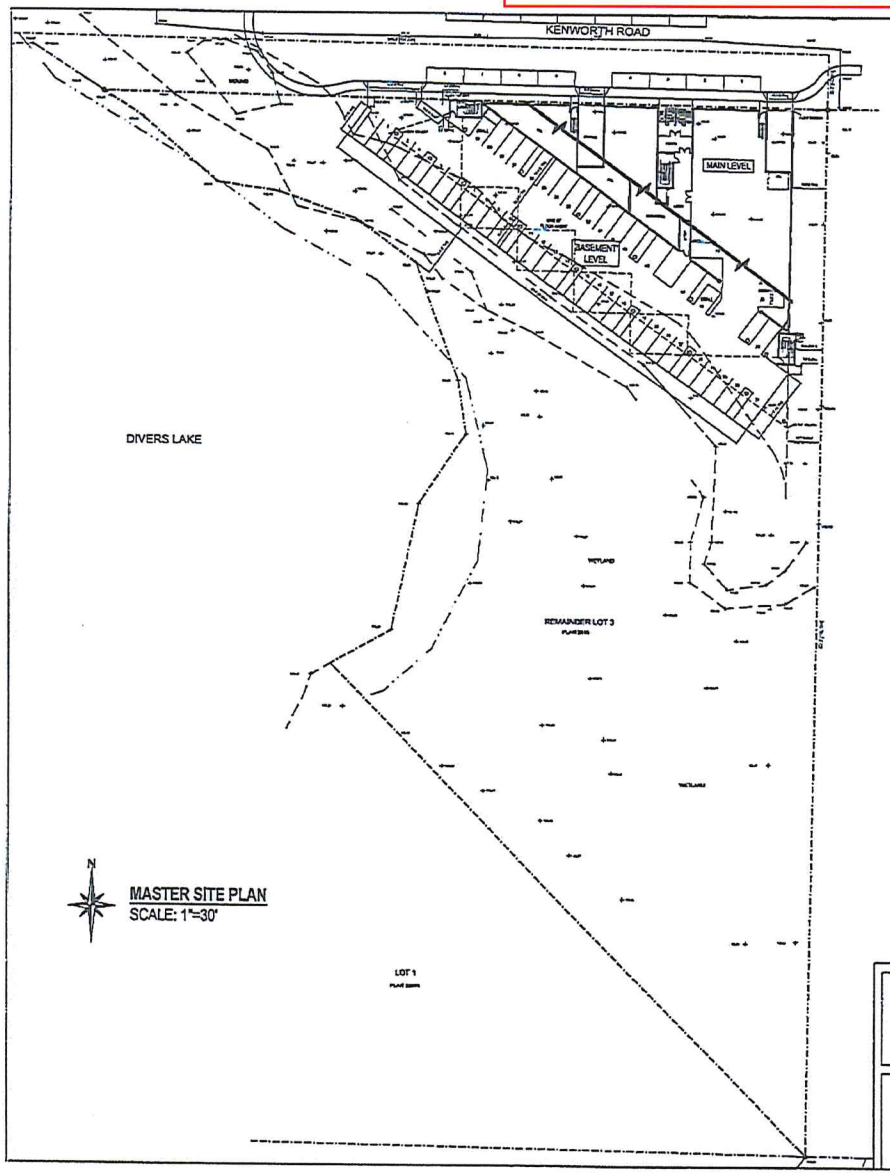
Subject Property

Development Permit DP001001 **Schedule B**

2589 Kenworth Road

1/2

SITE PLAN & PROJECT DATA



MASTER SITE PLAN
SCALE: 1"=30'

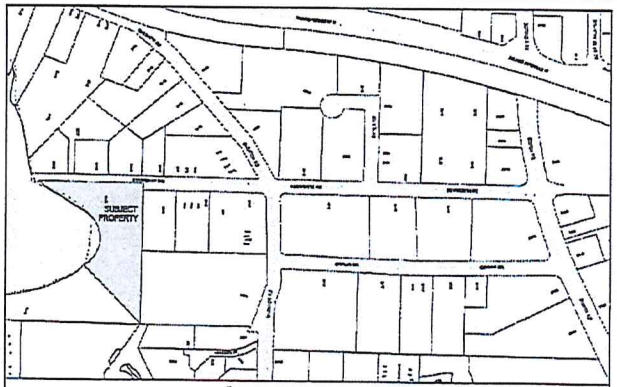
SITE PARTICULARS

CIVIC ADDRESS:	2589 Kenworth Road
LEGAL ADDRESS:	Lot 3, Section 20, Range 6, Mountain District, Plan 2815 Except That Part of Said Lot Lying to The East of The Road As Shown On Said Plan And Except Those Parts In Plans 25211, 22499, And 33069
SITE AREA:	2.9968 Acres (1.2128 Ha) 130,541.83 sq.ft. (12,127.73 m2)
ZONING:	I2 Light Industrial
DEVELOPEMENT PERMIT AREA:	DPA1

PROJECT DATA

DESCRIPTION	ALLOWED / REQUIRED	PROPOSED
USE	Principle Uses: LIGHT INDUSTRY Accessory Uses: Office	Principle Uses: LIGHT INDUSTRY Accessory Uses: Office
LOT AREA	12,917 sq.ft. (1,200.00 m2) Min.	130,541.8 sq.ft. (12,127.73 m2)
LOT COVERAGE	40% = 52,216.7 sq.ft. (4,851.09 m2) An additional 15% can be added when development provides sufficient amenity to meet minimum required points for one category in Schedule D of Bylaw 4500.	29.2% = 38,230 sq.ft. (3,439.78 m2)
BUILDING GROSS FLOOR AREA		Third Floor 14,158 sq.ft. (1,315.31 m2) Second Floor 22,458 sq.ft. (2,086.64 m2) Main Floor 18,467 sq.ft. (1,715.64 m2) * Basement 5,148 sq.ft. (478.26 m2) TOTAL 60,233 sq.ft. (5,572.74 m2) * Excludes 719 sq.ft. (66.80 m2) main floor lobby.
DENSITY	n/a	
SETBACKS	FRONT: 24.6' (7.5 m) Min. FRONT (no front parking): 14.8' (4.5 m) Min. SIDE 1: 16.7' (5.0 m) Min. SIDE 2: 0' (0 m) Min. SIDE (Flanking): 14.8' (4.5 m) Min. REAR: 14.8' (4.5 m) Min.	FRONT: 0.2' (0.05 m) *** SIDE: 15' (4.6 m) REAR: 25' (7.76 m)
HEIGHT OF BUILDINGS	39.37' (12.00m) Max	58.4' (17.82 m) +/- ***
OFF-STREET PARKING	Industrial: 1 per 1,076.4 sq.ft.(100 m2) gross area 37,629 sq.ft. div by 1,076.4 sq.ft. = 35 stalls Office: 1 per 237 sq.ft.(22 m2) net area 8,334 sq.ft. div by 237 sq.ft. = 42 stalls TOTAL REQUIRED: 77 spaces 2 Spaces are required to be for handicapped use.	43 Large spaces 10 Small spaces 2 HC spaces TOTAL 60 spaces ***
LOADING	If total gross area of building is between 25,027 - 50,054 sq.ft. (2,325 - 4,650 m2), then 3 spaces are required.	2 spaces ***

*** Variance required



LOCATION PLAN
NOT TO SCALE

NO.	REVISION	DATE
1.		

NO.	ISSUED FOR	DATE

NOTES

ARCHITECT
ian a. niamath
arch. sect. pdy. e.a.l.t.c.
5-1400 ARBUTUS STREET, NANAIMO, B.C. V9S 3L7
TEL: 250 729 7311, FAX: 250 729 7211

PROJECT
LIGHT INDUSTRIAL DEVELOPMENT
2589 KENWORTH ROAD
NANAIMO, BC

SHEET TITLE
SITE PLAN
SITE PARTICULARS
& PROJECT DATA

SCALE	DATE
AS SHOWN	MAR 7, 2014
DRAWN	CHECKED
EK	

DRAWING NO.
A1.0

PROJECT DATA

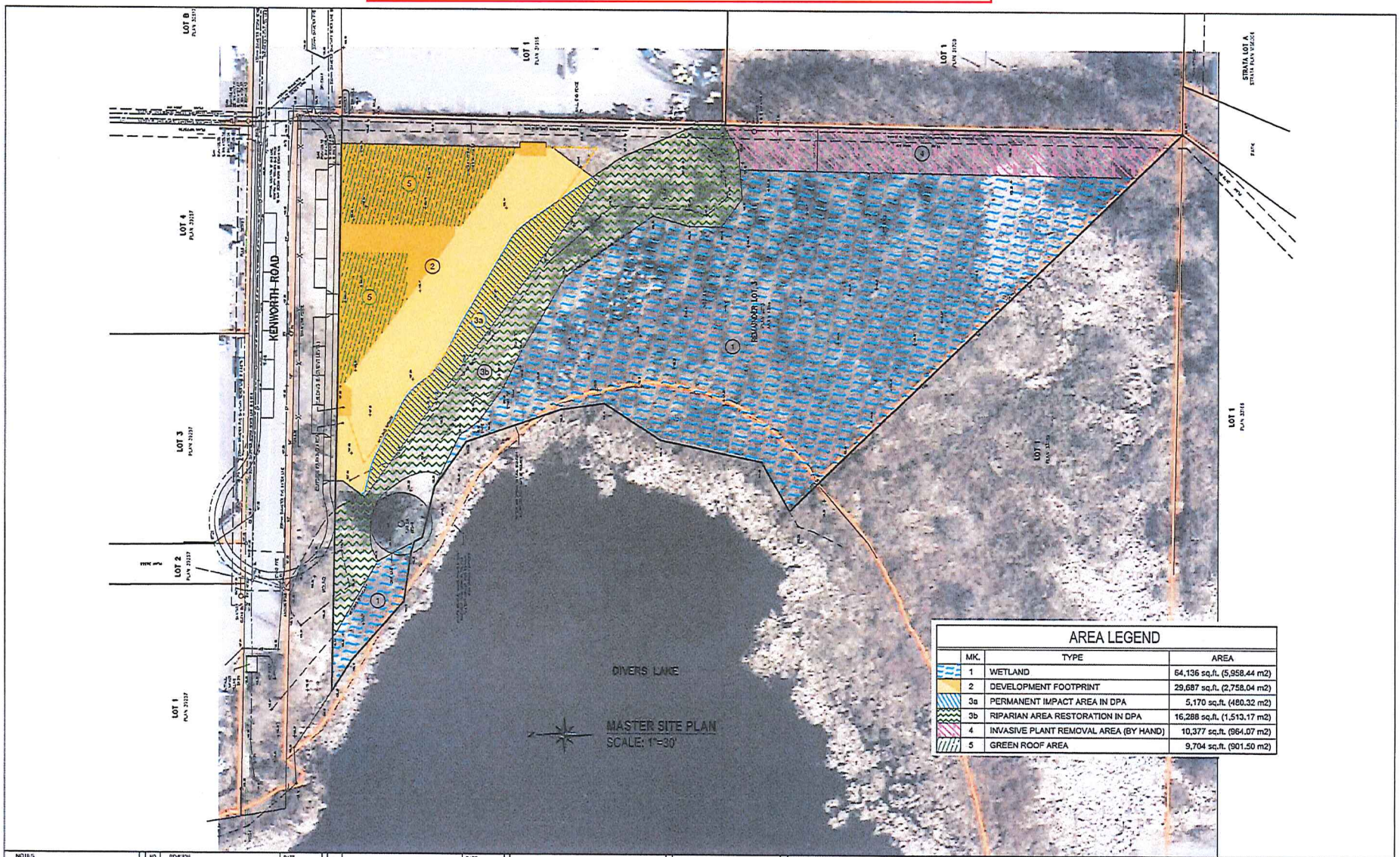
DESCRIPTION	ALLOWED / REQUIRED	PROPOSED
USE	Principle Uses: LIGHT INDUSTRY Accessory Uses: Office	Principle Uses: LIGHT INDUSTRY Accessory Uses: Office
LOT AREA	12,917 sq.ft. (1,200.00 m2) Min.	130,541.8 sq.ft. (12,127.73 m2)
LOT COVERAGE	40% = 52,216.7 sq.ft. (4,851.09 m2) An additional 15% can be added when development provides sufficient amenity to meet minimum required points for one category in Schedule D of Bylaw 4500.	20.2% = 26,380 sq.ft. (2,450.78 m2)
BUILDING GROSS FLOOR AREA		Third Floor 14,158 sq.ft. (1,315.31 m2) Second Floor 22,459 sq.ft. (2,086.54 m2) Main Floor 18,467 sq.ft. (1,715.64 m2) * Basement 5,148 sq.ft. (478.26 m2) TOTAL 60,232 sq.ft. (5,595.74 m2) * Excludes 719 sq.ft. (66.80 m2) main floor lobby.
DENSITY	n/a	
SETBACKS	FRONT: 24.6' (7.5 m) Min. FRONT (no front parking): 14.8' (4.5 m) Min. SIDE 1: 19.7' (6.0 m) Min. SIDE 2: 0' (0 m) Min. SIDE (Flanking): 14.8' (4.5 m) Min. REAR: 14.8' (4.5 m) Min.	FRONT: 0.2' (0.06 m) *** SIDE: 16' (4.86 m) REAR: 32' (9.76 m)
HEIGHT OF BUILDINGS	39.37' (12.00m) Max	58.4' (17.82 m) +/- ***
OFF-STREET PARKING	Industrial: 1 per 1,076.4 sq.ft.(100 m2) gross area 37,629 sq.ft. div by 1,076.4 sq.ft. = 35 stalls Office: 1 per 237 sq.ft.(22 m2) net area 9,934 sq.ft. div by 237 sq.ft. = 42 stalls TOTAL REQUIRED: 77 spaces 2 Spaces are required to be for handicapped use.	48 Large spaces 10 Small spaces 2 H/C spaces TOTAL 60 spaces ***
LOADING	If total gross area of building is between 25,027 - 50,054 sq.ft. (2,325 - 4,650 m2), then 3 spaces are required.	2 spaces ***

*** Variance required

Development Permit DP001001 **Schedule C**

2589 Kenworth Road

DESIGNATED ENVIRONMENTAL ZONES



AREA LEGEND

MK.	TYPE	AREA
1	WETLAND	64,136 sq.ft. (5,958.44 m2)
2	DEVELOPMENT FOOTPRINT	29,687 sq.ft. (2,758.04 m2)
3a	PERMANENT IMPACT AREA IN DPA	5,170 sq.ft. (480.32 m2)
3b	RIPARIAN AREA RESTORATION IN DPA	16,288 sq.ft. (1,513.17 m2)
4	INVASIVE PLANT REMOVAL AREA (BY HAND)	10,377 sq.ft. (964.07 m2)
5	GREEN ROOF AREA	9,704 sq.ft. (901.50 m2)

NOTES

NO.	REVISION	DATE
1.		

NO.	ISSUED FOR	DATE

NO.	ISSUED FOR	DATE

ARCHITECT
ian a. niamath
dip. arch. poly. m.a.i.b.c.
3-1400 WINCHROVE STREET, NANAIMO, B.C. V9S 3L7
TEL. 250 729 7311, FAX 250 729 7311

PROJECT
LIGHT INDUSTRIAL DEVELOPMENT
2589 KENWORTH ROAD
NANAIMO, BC

SHEET TITLE
SITE PLAN
W/ ENVIRONMENTAL ZONES

SCALE	DATE
AS SHOWN	MAR 12, 2014
DRAWN	CHECKED
EK	
DRAWING NO.	
A1.2	

Development Permit DP001001 **Schedule D**
2589 Kenworth Road

QEP EXECUTIVE SUMMARY

AQUAPARIAN
Environmental Consulting Ltd.

May 12, 2014

City of Nanaimo
411 Dunsmuir Street
Nanaimo, BC V9R 0E4

RE: 2589 KENWORTH ROAD
VARIANCE EXECUTIVE SUMMARY

1.0 BACKGROUND

The Science and Technology Building proposed to be constructed at 2589 Kenworth Road overlooking Diver Lake is designed to be an innovative and unique development for Nanaimo. The purpose of the building is to provide high-end commercial space for a science and technology business; the Nanaimo branch of Inuktun Services Ltd; an international company that designs world class remotely operated systems. As such, the building design is intended to reflect the technical creativity of the business which it will house. The design incorporates development Best Management Practices such as solar panels, a green roof, a rain garden and extensive riparian habitat restoration. Road design has included a turnaround that is reduced in size with a modified shape to avoid encroachment into the lake's setback area.

The site is currently undeveloped and shows evidence of historical impacts including fill placement and invasive plant species. Once the development is complete, the site will be significantly improved over its current degraded condition. Seen from above, the impermeable surface will be restricted to a series of small angular roof sections covered by solar panels and a small portion of the parking area.

2.0 RIPARIAN IMPACT SUMMARY

The property is 1.165ha (2.88 acres) in size located on the east side of Diver Lake surrounded by long established commercial and light industrial developments. The developable area of the site is restricted to a small, triangular upland area covering 24% of the lot as the remainder of the site is comprised of wetland and riparian habitat.

The building covers 2758m^2 of which 480m^2 (approx. 6m x 80m) lies within DPA1. In order to offset the impact and exceed the "no net loss" of habitat, 1,513m^2 of riparian habitat fronting the building will be replanted with native species – it is currently dominated by Himalayan

503 COMOX ROAD NANAIMO, BC V9R 3J2, 250-591-2258
CELL SARAH BONAR 250-714-8446 CHRIS ZAMORA 250-714-8864

blackberry; 964m^2 of riparian habitat along the east boundary will have invasive species removed; and a Green Roof covering 901m^2 will be installed. The total area of habitat restoration/creation is 3378m^2. The following table summarizes the riparian habitat impact as shown in Figure A1.2 by Ian A. Niamath:

Description	Area	Before	After
3a. Building area in setback	480m^2	Poor value, invasive dominant	Permanent impact area
3b. Riparian restoration area	1513m^2	Marginal value, invasive dominant, few trees	Temporary impact area to remove invasive sp and prep soil. High value, multi-canopy multi-species, native trees, shrubs.
4. Invasive removal area	964m^2	Moderate value, invasive species in ground cover.	High value, invasive species removed.
5. Green Roof	901m^2	Fill pad dominated by scotch broom, few cottonwood regeneration.	High value, herbaceous dominant.
NET BENEFIT	**3378m^2 restored, high quality habitat**		

3.0 GREEN ROOF HABITAT CONNECTION

The green roof has been designed to integrate with the ecology of the Diver Lake ecosystem. The design includes a variety of shrub, grass and flowering plants to support birds and insects (bees, spiders, beetles) typical in the Diver Lake riparian area. Summer and fall-flowering herbaceous plants on the roof will extend the insect and bird foraging season and adds to overwintering habitat for beetles, spiders and bees, as well as nesting habitat for solitary bees. In other words, it will add an additional dimension of habitat diversity that would otherwise not exist in a typical riparian tree/shrub dominant zone.

Insects do very well on green roofs and are integral to lake habitats as a food supply and as pollinators. Many insects have aquatic larval or nymph stages and then metamorphose into flying adults (e.g. dragonflies). The lake edge and upland habitats are critical to both. Increasing the diversity of plants supports a wider variety of insects that live on them. Insects are food for fish, birds and bats that live and forage in these edge habitats.

A wide variety of plants creates microhabitats with height diversity and structure of the plants themselves i.e. leaf and flower shapes, stem shape, height etc. Seasonal changes from spring to fall attract a diverse population of insects and birds. Flying insects are food for aerial

insectivores such as swallows and bats flying over the lake in the evening. Fish also eat insects and can be seen surfacing during a larval hatch. The green roof will become more connected with the existing and new riparian vegetation over time as the surrounding trees and shrubs mature and gain in height.

The green roof will also connect to the lake via rainwater which will be captured in the roof garden and will be retained and absorbed by the soils and plants; some will evaporate and the excess will slowly flow off the roof into the rain garden where it will enter the lake. This design avoids typical storm water diversion though pipes and provides clean runoff.

4.0 REGULATORY TRIGGERS

No other regulatory review is triggered by this project. The 15m DPA from the edge of wetland is the same as the Riparian Areas Regulation (RAR) setback for lakes and wetlands. A RAR report was completed and submitted to the Province for this project.

Changes to the *Fisheries Act 2012* are significant and rely on the Professional Reliance Model. The DFO no longer reviews projects if the QEP determines there will be no *Serious Harm to Commercial, Aboriginal or Recreational Fisheries*. As a result, this has created a change to the RAR process for encroachment cases. If the project can be carried out with sufficient protection measures in place to prevent *Serious Harm*, the QEP signs off on the last page of the report as follows: 7a) there will be no Harmful Alteration Disruption or Destruction to the Features Functions or Conditions provided the proponent follows QEP recommendations.

5.0 MONITORING

The construction phase of this project is to be monitored by a suitably qualified Environmental Monitor to ensure that the protection and restoration measures identified in the report are carried out. Under the new *Fisheries Act* there is a *duty to notify* if Serious Harm does occur by accident or intent.

Annual monitoring of the site is to be completed to ensure survival of the plantings and invasive species removal areas. Any areas with more than 10% die-off are to be replanted. After a period of five years the site should be well established. Removal of invasive species over time will be on-going as part of the overall landscape management.

6.0 TRAIL

The developer is agreeable to the idea of a public trail or boardwalk through the property as part of the City Park's future plan of a public trail system to circumnavigate Diver Lake. Interpretive signage would provide educational opportunities for the public to learn about Divers Lake and its ecology.

Sincerely,

AQUAPARIAN ENVIRONMENTAL CONSULTING LTD

Sarah Bonar, R.P.Bio.
Principal

KENWORTH ROAD GREEN ROOF HABITAT CONNECTION:

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A wide variety of plants creates microhabitats with height diversity and structure of the plants themselves i.e. leaf and flower shapes, stem shape, height etc. Seasonal changes from spring to fall attract a diverse population of insects and birds. Flying insects are food for aerial insectivores such as swallows and bats flying over the lake in the evening. Fish also eat insects and can be seen surfacing during a larval hatch. The green roof will become more connected with the existing and new riparian vegetation over time as the surrounding trees and shrubs mature and gain in height.

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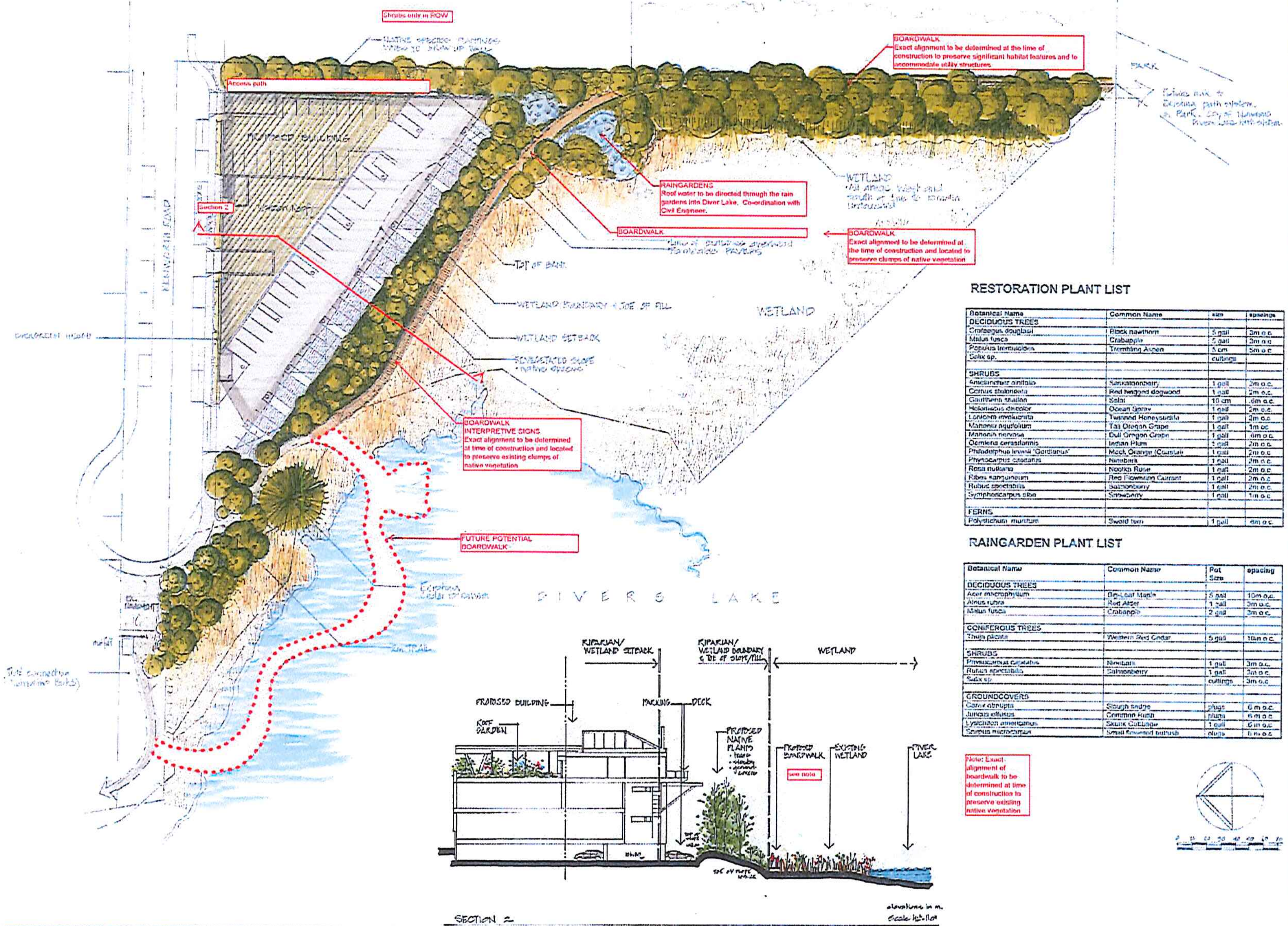
Development Permit DP001001 **Schedule E**

2589 Kenworth Road

LANDSCAPE PLAN



RESTORATION PLANT LIST

Botanical Name	Common Name	size	spacings
DECIDUOUS TREES			
Crataegus douglasii	Black hawthorn	5 gall	3m o.c.
Malus fusca	Crabapple	5 gall	3m o.c.
Populus tremuloides	Trembling Aspen	5 cm	5m o.c.
Salix sp.		cuttings	
SHRUBS			
Amelanchier alnifolia	Saskatoonberry	1 gall	2m o.c.
Cornus stolonifera	Red twigged dogwood	1 gall	2m o.c.
Gaultheria shallon	Salal	10 cm	.6m o.c.
Holodiscus discolor	Ocean Spray	1 gall	2m o.c.
Lonicera involucrata	Twinned Honeysuckle	1 gall	2m o.c.
Mahonia aquifolium	Tall Oregon Grape	1 gall	1m oc
Mahonia nervosa	Dull Oregon Grape	1 gall	.6m o.c.
Oemleria cerasiformis	Indian Plum	1 gall	2m o.c.
Philadelphus lewisii 'Gordianus'	Mock Orange (Coastal)	1 gall	2m o.c.
Physocarpus capitatus	Ninebark	1 gall	2m o.c.
Rosa nutkana	Nootka Rose	1 gall	2m o.c.
Ribes sanguineum	Red Flowering Currant	1 gall	2m o.c.
Rubus spectabilis	Salmonberry	1 gall	2m o.c.
Symphoricarpus alba	Snowberry	1 gall	1m o.c.
FERNS			
Polystichum munitum	Sword fern	1 gall	.6m o.c.

RAINGARDEN PLANT LIST

Botanical Name	Common Name	Pot Size	spacing
DECIDUOUS TREES			
Acer macrophyllum	Big-Leaf Maple	5 gall	10m o.c.
Alnus rubra	Red Alder	1 gall	3m o.c.
Malus fusca	Crabapple	2 gall	3m o.c.
CONIFEROUS TREES			
Thuja plicata	Western Red Cedar	5 gall	10m o.c.
SHRUBS			
Physocarpus capitatus	Ninebark	1 gall	3m o.c.
Rubus spectabilis	Salmonberry	1 gall	3m o.c.
Salix sp.		cuttings	3m o.c.
GROUNDCOVERS			
Carex obnupta	Slough sedge	plugs	.6 m o.c.
Juncus effusus	Common Rush	plugs	.6 m o.c.
Lysichiton americanus	Skunk Cabbage	1 gall	.6 m o.c.
Scirpus microcarpus	Small flowered bulrush	plugs	.6 m o.c.

Note: Exact alignment of boardwalk to be determined at time of construction to preserve existing native vegetation

DATE | REV | DESCRIPTION

CONSULTANT

VICTORIA DRAKEFORD B.Sc. M.PLS. BCSLA CSLA

LANDSCAPE ARCHITECT

256 Pine Street Nanaimo British Columbia V9R 2B6 Phone/Fax: (250) 754 4333

PROJECT

LIGHT INDUSTRIAL DEVELOPMENT

2589 KENWORTH RD NANAIMO BC

SHEET TITLE

CONCEPTUAL LANDSCAPE PLAN

SCALE | DATE

DRAWN VJD | CHECKED

PROJECT NUMBER KENWORTH 4

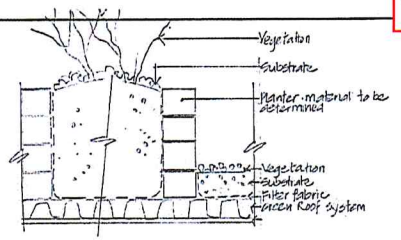
DRAWING NUMBER L2

Development Permit DP001001 **Schedule F**

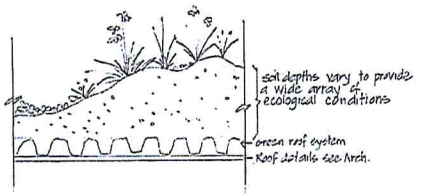
2589 Kenworth Road

1/2

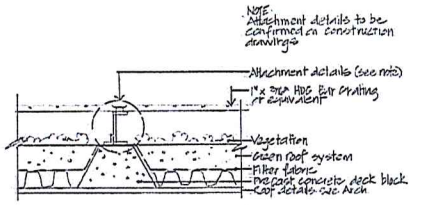
GREEN ROOF



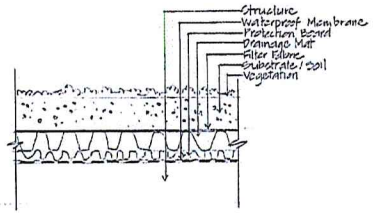
TYPICAL SECTION · 24' DEPTH / PLANTERS NTS



TYPICAL SECTION 4" - 16" SOIL DEPTH NTS



TYPICAL SECTION · GRATING/PAVING NTS



TYPICAL SECTION 4" SOIL DEPTH NTS

SECTIONS

HABITAT VALUES

The design of the green roof has been driven by the need to maximize the biodiversity of plants and animals on the roof:

Substrate/soil:
Soil depth is limited on a green roof due to weight considerations. However in some areas, where the structural design of the building allows, the soil depth can be increased to provide the ability to grow a wider variety of plants. Plants and seeds are more likely to survive temperature fluctuations in deeper soil, providing a more stable plant community which can be sustained over time.

Soil depth variety creates more habitat for invertebrates. For example, spiders and beetles are more likely to be able to over winter in deeper substrates. Burrowing insects such as native bees will be able to nest in the deeper soils.

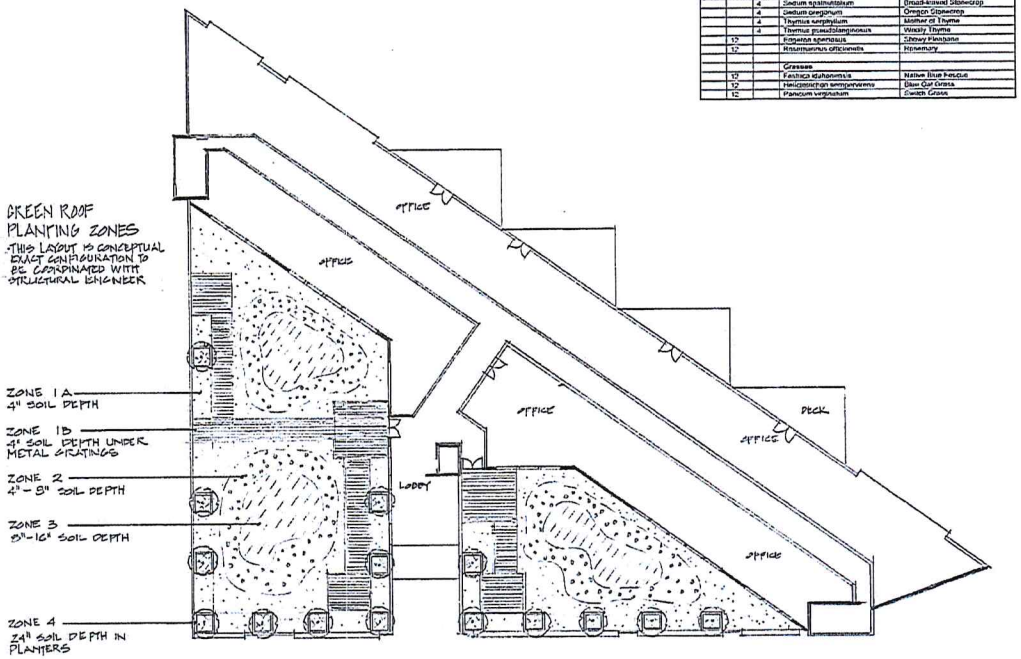
Deeper soils allow for mounding, creating variations in aspect and therefore temperature and moisture. These small changes to the microclimates result in a variation of ecosystems on the roof.

Plants:
The greater diversity of plants means that we can provide a forage source for a wide range of wildlife throughout the seasons. A wide selection of herbs, grasses and sedums have been selected to provide nectar from spring until the fall for birds, bees, butterflies and other insects. For example, spring bulbs provide an early spring nectar source for native solitary bees. Yarrow provides a summer nectar source for butterflies. The early flush of growth on grasses provides habitat for songbirds and insects.

Plants with different growth habits will be planted to provide a variety of habitats. For example, grasses provide shelter and food for beetles, spiders and songbirds. Insects can over winter in the hollow grass stems.

People:
Metal gratings have been placed over the green roof in places to provide places for people to sit, relax and enjoy the roof.

These gratings allow light to penetrate to the plants below as well as provide a shady and comparatively sheltered habitat for the plants, thereby resulting in an additional protected habitat.



PLAN

PLANT PALETTE

Soil Depth Req'd (in inches)			Botanical Name	Common Name
			Trees	
24			Amelanchier grandiflora	Serviceberry
24			Corylus avellana	Hazel
			Evergreen Shrubs(native)	
24			Mahonia nervosa	Dull Oregon Grape
24			Vaccinium ovatum	Evergreen Huckleberry
			Deciduous Shrubs(native)	
24			Amelanchier alnifolia	Saskatoon berry
24			Oemleria cerasiformis	Indian Plum
24			Philadelphus lewisii 'Cardinalis'	Mock Orange
24			Vaccinium parvifolium	Red Huckleberry
24			Viburnum edule ssp.	Lingonberry

Soil Depth Req'd (in inches)			Ground Cover and Perennials	
	12"		Achillea millefolium	Yarrow
	12"		Alchemilla mollis	Lady's mantle
	12"		Allium cernuum	Nodding Onion
	12"		Campanula lasiocarpa	Bellflower
	12"		Centranthus ruber	Red Valerian
	12"		Crassula sciabrica	Greater Knotweed
	12"		Coreopsis tinctoria	Tickseed
		4	Dianthus deltoides	Maiden Pink
	12"		Echinacea purpurea	Echinacea
	12"		Erisphyrum	Woolly sunflower
	12"		Euphorbia cyparissias	Cypress Spurge
	12"		Helianthemum nummularium	Rock rose
		4	Iris reticulata	
		4	Geum vernum	Lady's Bedstraw
	12"		Geranium sanguineum	Hardy Geranium
	15"		Geranium sanguineum	Hardy Geranium
	12"		Lavendula angustifolia	Lavender
	12"		Nepeta grandiflora blue	Catnip
		4	Origanum vulgare	Oregano
		4	Phlox subulata	Moss Phlox
		4	Phlox douglasii	
	12"		Prunella vulgaris	Selfheal
	12"		Rudbeckia glaucum	Black-eyed Susan
	12"		Salvia nemorosa May Night	Sage
	12"		Salvia officinalis	Sage
		4	Sedum spathulifolium	Broad-leaved Stonecrop
		4	Sedum oregonum	Oregon Stonecrop
		4	Thymus serpyllum	Mother of Thyme
		4	Thymus pseudolanuginosus	Woolly Thyme
	15"		Rosmarinus officinalis	Shrubby Rosemary
	12"		Rosmarinus officinalis	Rosemary
			Grasses	
	12"		Festuca idahoensis	Native Blue Fescue
	12"		Helictotrichon sempervirens	Blue Oat Grass
	12"		Panicum virgatum	Switch Grass

NOTES:
1. NOT FOR CONSTRUCTION
2. ALL LAYOUTS TO BE CONFIRMED BY STRUCTURAL ENGINEER
3. REFER TO ARCHITECTURAL DRAWINGS FOR ROOF DETAILS & SECTIONS.

DATE	REV.	DESCRIPTION
12.11.14	1	FINAL

CONSULTANT

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PROJECT

LIGHT INDUSTRIAL DEVELOPMENT
2589 KENWORTH RD
NANAIMO BC

SHEET TITLE

CONCEPTUAL LANDSCAPE PLAN
GREEN ROOF

SCALE	1/8"=1'-0"
DATE	12.11.2014
DRAWN	VJD
CHECKED	
PROJECT NUMBER	KENWORTH 14
DRAWING NUMBER	L3

KENWORTH ROAD GREEN ROOF HABITAT CONNECTION:

The green roof has been designed to integrate with the ecology of the Diver Lake ecosystem. The design includes a variety of shrub, grass and flowering plants to support birds and insects (bees, spiders, beetles) typical in the Diver Lake riparian area. Summer and fall-flowering herbaceous plants on the roof will extend the insect and bird foraging season and adds to overwintering habitat for beetles, spiders and bees, as well as nesting habitat for solitary bees. In other words, it will add an additional dimension of habitat diversity that would otherwise not exist in a typical riparian tree/shrub dominant zone.

Insects do very well on green roofs and are integral to lake habitats as a food supply and as pollinators. Many insects have aquatic larval or nymph stages and then metamorphose into flying adults (e.g. dragonflies). The lake edge and upland habitats are critical to both. Increasing the diversity of plants supports a wider variety of insects that live on them. Insects are food for fish, birds and bats that live and forage in these edge habitats.

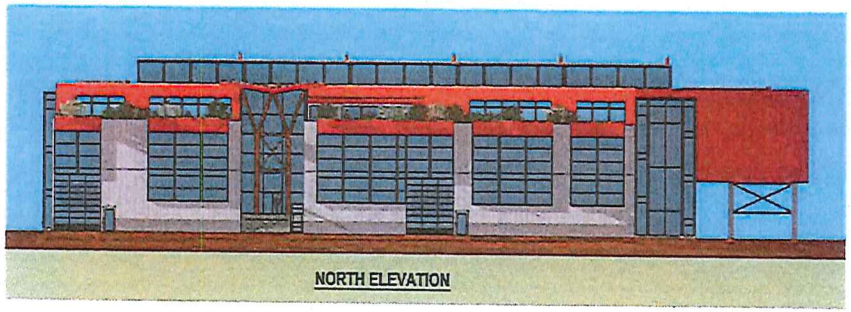
A wide variety of plants creates microhabitats with height diversity and structure of the plants themselves i.e. leaf and flower shapes, stem shape, height etc. Seasonal changes from spring to fall attract a diverse population of insects and birds. Flying insects are food for aerial insectivores such as swallows and bats flying over the lake in the evening. Fish also eat insects and can be seen surfacing during a larval hatch. The green roof will become more connected with the existing and new riparian vegetation over time as the surrounding trees and shrubs mature and gain in height.

The green roof will also connect to the lake via rainwater which will be captured in the roof garden and will be retained and absorbed by the soils and plants; some will evaporate and the excess will slowly flow off the roof into the rain garden where it will enter the lake. This design avoids typical storm water diversion though pipes and provides clean runoff.

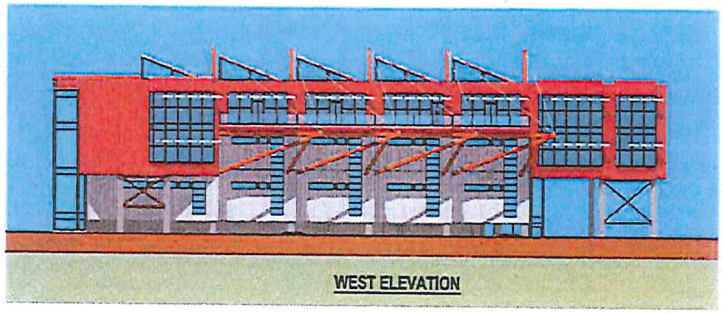
Development Permit DP001001 **Schedule G**

2589 Kenworth Road

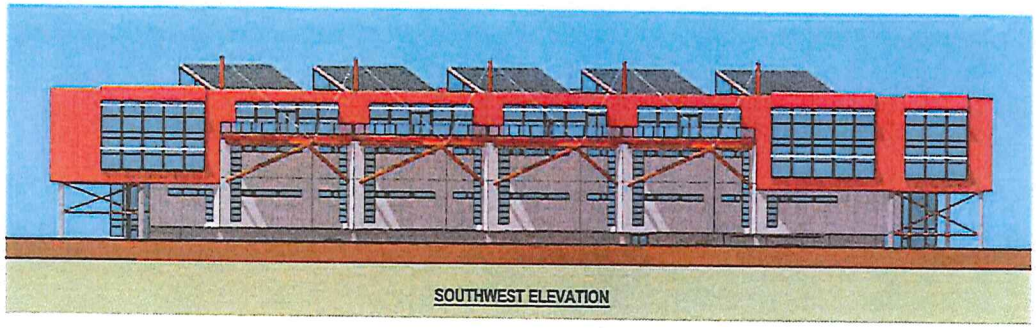
COLOURED BUILDING ELEVATIONS



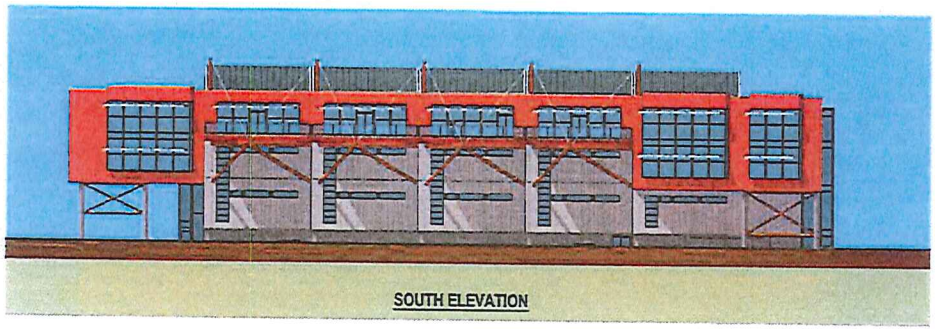
NORTH ELEVATION



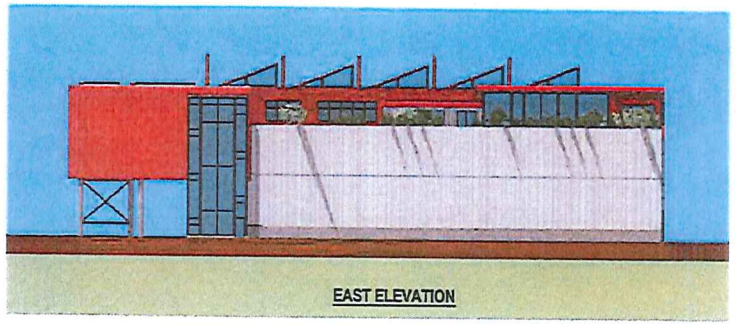
WEST ELEVATION



SOUTHWEST ELEVATION



SOUTH ELEVATION



EAST ELEVATION

NOTES

NO.	REVISION	DATE

NO.	ISSUED FOR	DATE

NO.	ISSUED FOR	DATE

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PROJECT
LIGHT INDUSTRIAL DEVELOPMENT
2589 KENWORTH ROAD
NANAIMO, BC

SHEET TITLE
COLOUR BUILDING ELEVATIONS

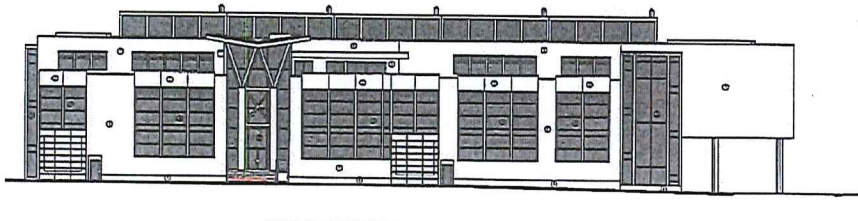
SCALE	DATE
AS SHOWN	MAR 18, 2014
DRAWN	CHECKED
BK	

DRAWING NO.
A4.1

Development Permit DP001001 **Schedule H**

2589 Kenworth Road

BUILDING ELEVATIONS



NORTH ELEVATION
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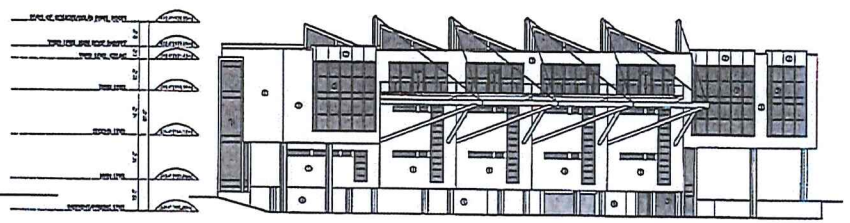
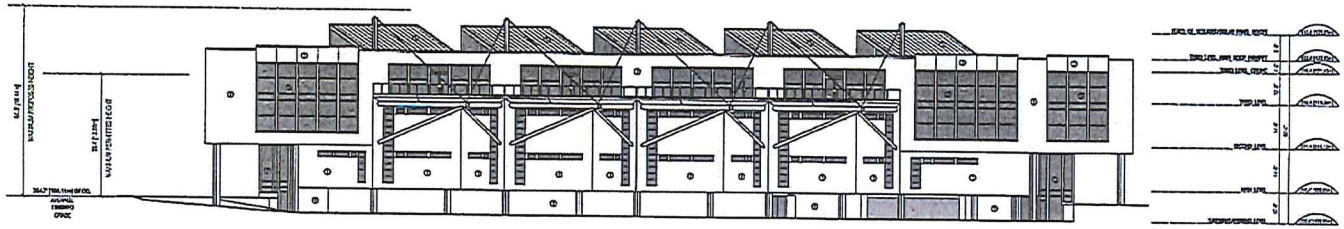


WEST ELEVATION
SCALE: 1/16"=1'-0"

LEGEND
1. VERTICAL METAL SIDING
2. METAL PANELS
3. GLASS CURTAIN WALL
4. CONCRETE
5. SOLAR PANELS



SOUTHWEST ELEVATION
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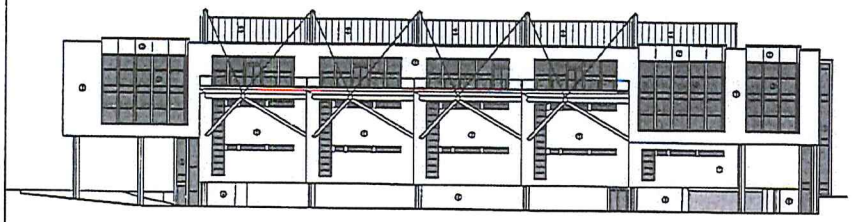

SOUTH ELEVATION
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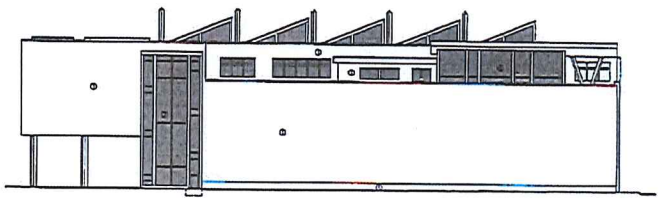

EAST ELEVATION
SCALE: 1/16"=1'-0"

NOTES

NO.	REVISION	DATE

NO.	ISSUED FOR	DATE

ARCHITECT
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arch. sch. mraic.
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TEL. 250 729 7314, FAX 250 729 7311

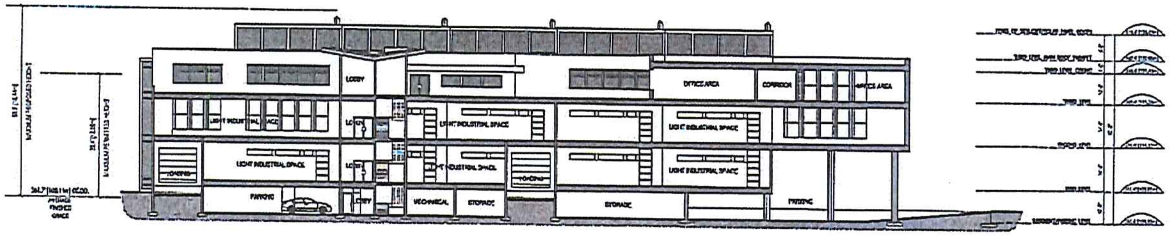
PROJECT
LIGHT INDUSTRIAL DEVELOPMENT
2589 KENWORTH ROAD
NANAIMO, BC

SHEET TITLE
BUILDING ELEVATIONS

SCALE: AS SHOWN
DATE: MAR 7, 2014
DRAWN: GK
CHECKED:
DRAWING NO. A4.0

Development Permit DP001001 **Schedule I**
2589 Kenworth Road

BUILDING SECTIONS



1 A2.0-2 **BUILDING CROSS-SECTION**
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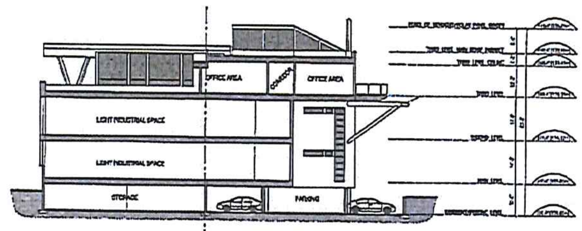

2 A2.0-2 **BUILDING CROSS-SECTION**
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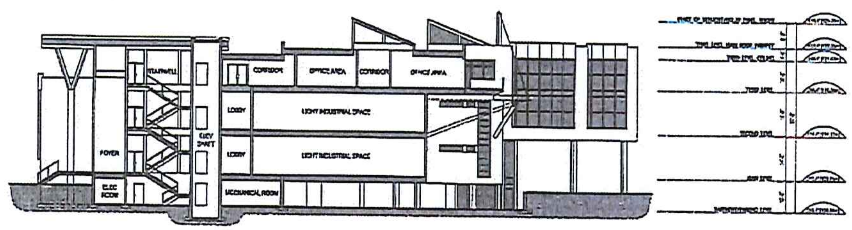
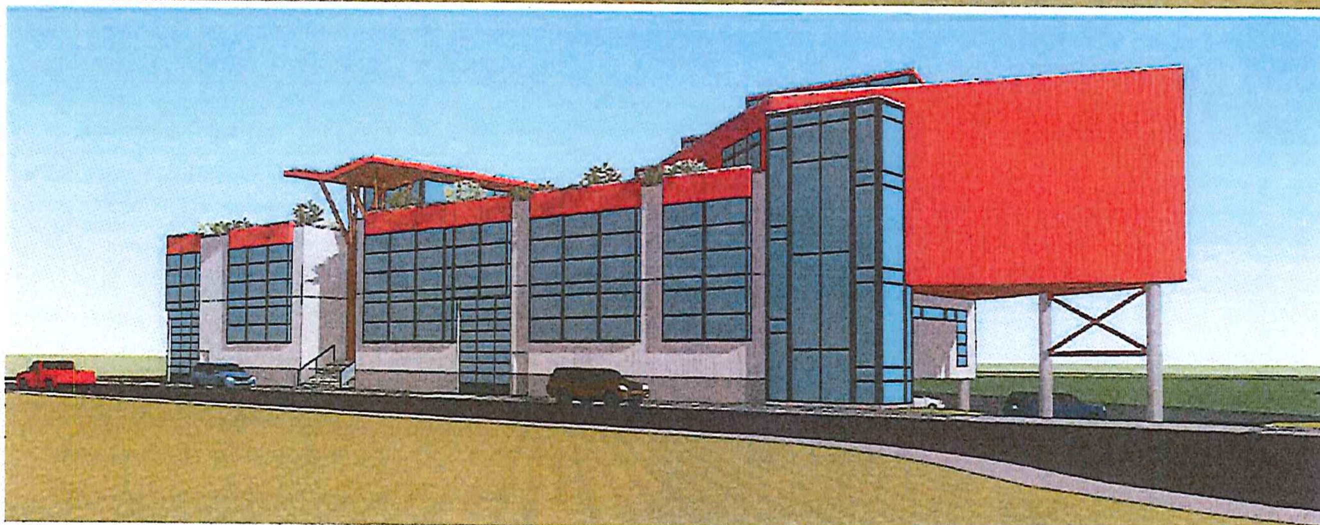


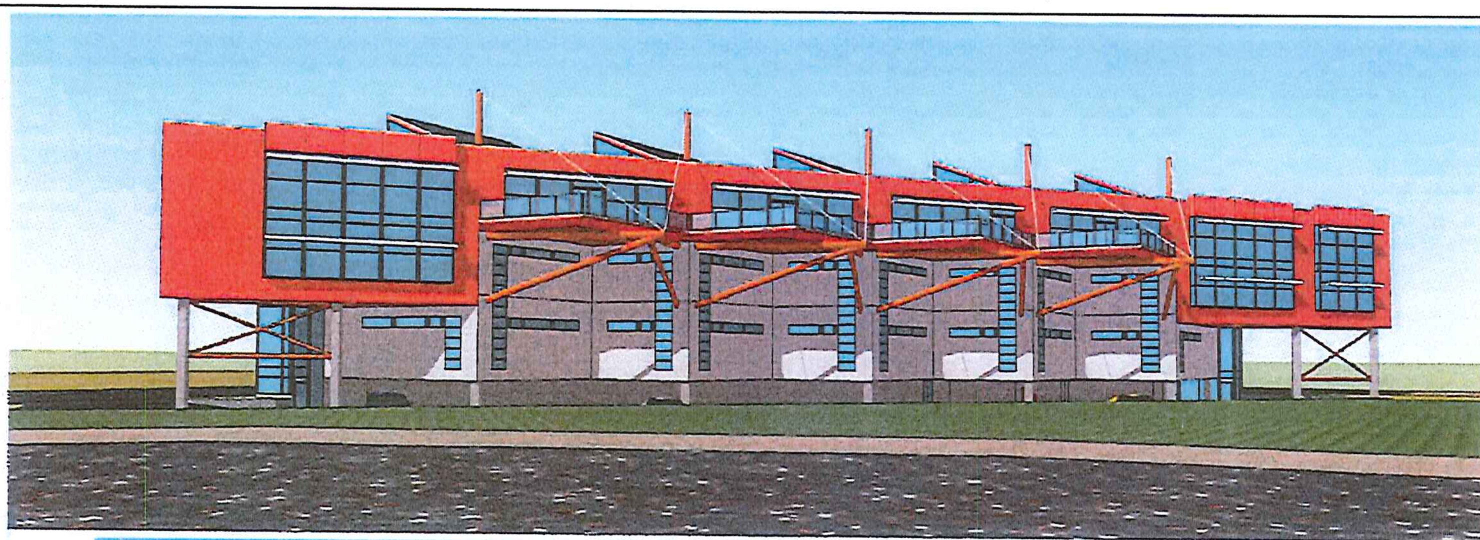
3 A2.0-2 **BUILDING CROSS-SECTION**
SCALE: 1/16"=1'-0"

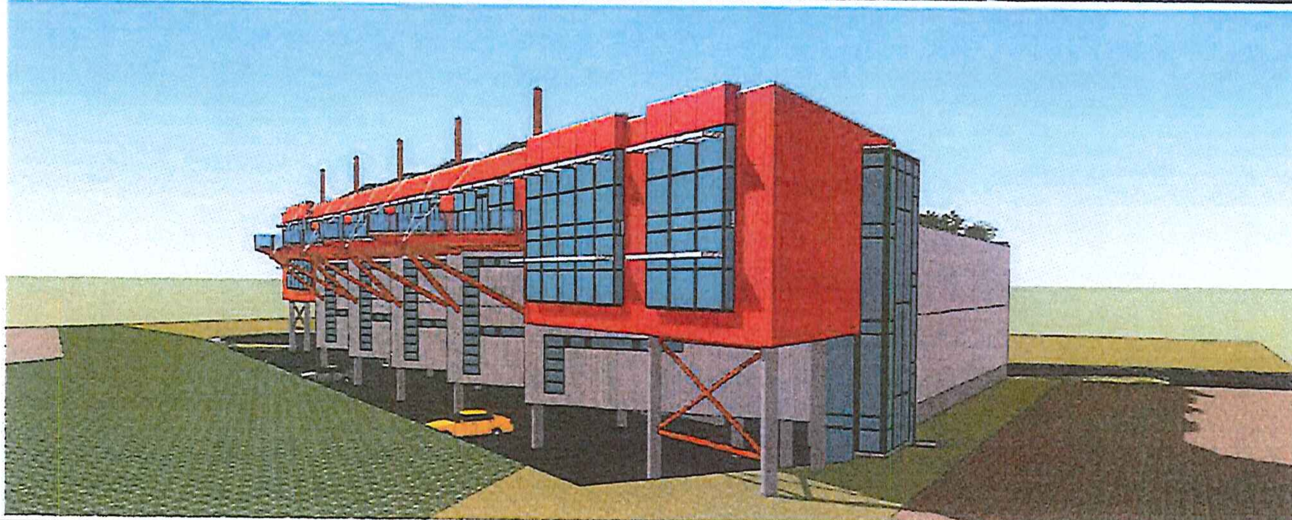
NOTES	NO.	REVISION	DATE	NO.	ISSUED FOR	DATE	ARCHITECT	PROJECT	SHEET TITLE	SCALE / DATE / DRAWN / DRAWING NO.
							ian a. niamath	LIGHT INDUSTRIAL DEVELOPMENT 2589 KENWORTH ROAD NANAIMO, BC	BUILDING CROSS-SECTIONS	SCALE: AS SHOWN; DATE: MAR 7, 2014; DRAWN: EK; DRAWING NO.: A3.0

Development Permit DP001001 **Schedule J**
2589 Kenworth Road
1/2 **BUILDING PERSPECTIVES**



NOTES	NO.	REVISION	DATE	ARCHITECT	PROJECT	SHEET TITLE	SCALE	DATE
				ian a. niamath	LIGHT INDUSTRIAL DEVELOPMENT 2589 KENWORTH ROAD NANAIMO, BC	COLOUR BUILDING PERSPECTIVES		MAR 13, 2014
	NO.	ISSUED FOR	DATE				DRAWN: BK	CHECKED
							DRAWING NO. A4.2	





NOTES	NO.	REVISION	DATE	NO.	ISSUED FOR	DATE

ARCHITECT

ian a. niamath

PROJECT

LIGHT INDUSTRIAL DEVELOPMENT
2580 KENWORTH ROAD
NANAIMO, BC

SHEET TITLE

COLOUR BUILDING PERSPECTIVES

SCALE	DATE
-	MAR 13, 2014
DRAWN	CHECKED
EK	

DRAWING NO.

A4.3