REGIONAL DISTRICT OF NANAIMO

ELECTORAL AREA PLANNING COMMITTEE
TUESDAY, NOVEMBER 12, 2013
6:00 PM

(RDN Board Chambers)

A G E N D A

PAGES

CALL TO ORDER

DELEGATIONS

3 **Syd Lee,** re Development Variance Permit Application No. PL2013-108.

MINUTES

4-5 Minutes of the regular Electoral Area Planning Committee meeting held Tuesday, October 8, 2013.

BUSINESS ARISING FROM THE MINUTES

COMMUNICATIONS/CORRESPONDENCE

DEVELOPMENT PERMIT APPLICATIONS

6-12 Development Permit and Site Specific Exemption Application No. PL2013-099 – Jim Hamm – 6161 Island Highway West, Electoral Area 'H'.

DEVELOPMENT PERMIT WITH VARIANCE APPLICATIONS

13-19 Development Permit with Variance & Site Specific Exemption Application No. PL2013-106 – Fern Road Consulting Ltd. – 168 Cochrane Road, Electoral Area 'H'.

20-26 Development Permit with Variance Application No. PL2013-103 – Whittall – 960 Woodpecker Place, Electoral Area 'G'.

27-35 Development Permit with Variance Application No. PL2013-110 – Manhas – 5469 Island Highway West, Electoral Area 'H'.

DEVELOPMENT VARIANCE PERMIT APPLICATIONS

36-58 Development Variance Permit Application No. PL2013-108 – Syd Lee – 1266 Marina Way, Electoral Area 'E'.

59-64 Development Variance Permit Application No. PL2013-072 – Ashton – 1965 Stewart Road, Electoral Area 'E'.

65-71 Development Variance Permit Application No. PL2013-111 – Rakowski – 1716 Vowels Road, Electoral Area 'A'.

OTHER

72-81 Regulatory Amendments to Address Marihuana for Medical Purposes Regulations.

82-267 Zoning Amendment Applications No. PL2012-096 & PL2012-097 – Lakes District & Schooner Cove – Electoral Area 'E' – Amendment Bylaws 500.384, 500.385, 500.388.

ADDENDUM

BUSINESS ARISING FROM DELEGATIONS OR COMMUNICATIONS

NEW BUSINESS

ADJOURNMENT

Re: Development Variance Permit Application No. PL2013-108.

From: Syd and Sharon
Sent: Monday, October 21, 2013 11:05 AM

Please slot me in for the Nov 12 meeting of the EPC. I will likely have some photos

Regards
Syd Lee

REGIONAL DISTRICT OF NANAIMO

MINUTES OF THE ELECTORAL AREA PLANNING COMMIITTEE MEETING
OF THE REGIONAL DISTRICT OF NANAIMO HELD ON
TUESDAY, OCTOBER 8, 2013 AT 6:30 PM IN THE
RDN BOARD CHAMBERS

In Attendance:

Director G. Holme	Chairperson
Director A. McPherson	Electoral Area A
Director M. Young	Electoral Area C
Director J. Fell	Electoral Area F
Director J. Stanhope	Electoral Area G
Director B. Veenhof	Electoral Area H

Also in Attendance:

P. Thorkelsson	Chief Administrative Officer
J. Harrison	Director of Corporate Services
R. Alexander	Gen. Mgr. Regional & Community Utilities
G. Garbutt	Gen. Mgr. Strategic & Community Development
J. Hill	Mgr. Administrative Services
C. Golding	Recording Secretary

CALL TO ORDER

The Chairperson called the meeting to order.

ELECTORAL AREA PLANNING COMMITTEE MINUTES

MOVED Director McPherson, SECONDED Director Fell, that the minutes of the Electoral Area Planning Committee meeting held Tuesday, September 10, 2013, be adopted.

CARRIED

DEVELOPMENT PERMIT APPLICATIONS

Development Permit Application No. PL2012-078 – Kevin and Wendy May – 863 Cavin Road, Electoral Area 'G'.

MOVED Director Stanhope, SECONDED Director McPherson, that Development Permit Application No. PL2012-078 to permit the construction of a dwelling unit be approved subject to the conditions outlined in Attachment 2.

CARRIED

DEVELOPMENT PERMIT WITH VARIANCE APPLICATIONS

Development Permit with Variance Application No. PL2013-096 – Will Melville – 962 Surfside Drive, Electoral Area 'G'.

MOVED Director Stanhope, SECONDED Director Young, that Development Permit with Variance Application No. PL2013-096 to permit the construction of a dwelling unit and accessory building be approved subject to the conditions outlined in Attachment 2.

CARRIED

DEVELOPMENT VARIANCE PERMIT APPLICATIONS

Development Variance Permit Application No. PL2013-094 – Borden – 790 Wildgreen Way, Electoral Area 'G'.

MOVED Director Stanhope, SECONDED Director McPherson, that Development Variance Permit Application No. PL2013-094 to relax the side lot line setback from 8.0 metres to 7.3 metres to legalize the siting of an existing accessory building be approved subject to the conditions outlined in Attachment 2.

CARRIED

OTHER

Request for Relaxation of the Minimum 10% Perimeter Frontage Requirement – Shepherd – 853 Miller Road, Electoral Area 'G'.

MOVED Director Stanhope, SECONDED Director Fell, that the request to relax the minimum 10% perimeter frontage requirement for proposed Lot A be approved.

CARRIED

ADJOURNMENT

MOVED Director Stanhope, SECONDED Director Fell, that this meeting terminate.

CARRIED

TIME: 6:41PM

CHAIRPERSON

CORPORATE OFFICER

REGIONAL DISTRICT OF NANAIMO

RDN REPORT
CAO APPROVAL ✓
EAP ✓
COW
NOV 05 2013
RHD
BOARD

MEMORANDUM

TO: Jeremy Holm
Manager, Current Planning

DATE: October 31, 2013

FROM: Kristy Marks
Planner

FILE: PL2013-099

SUBJECT: **Development Permit and Site Specific Exemption Application No. PL2013.099 – Jim Hamm**
Lot 1, District Lot 33, Newcastle District and Part of the Bed of the Strait of Georgia, Nanaimo District, Plan VIP72052 – 6161 Island Highway West
Electoral Area 'H'

PURPOSE

To consider an application for a Development Permit and Site Specific Exemption to allow the construction of an accessory building on the subject property.

BACKGROUND

The Regional District of Nanaimo (RDN) has received an application from Jim Hamm in order to permit the construction of an accessory building (studio) on the subject property in the general location of an existing elevated platform. The subject property is 0.179 ha in area and is zoned Residential 2 (RS2) pursuant to "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987" (see Attachment 1 for location of subject property).

The subject property is relatively flat and currently contains a dwelling unit and a platform which is the unfinished floor of a building construction initiated by a previous property owner approximately seven years ago. The property is vegetated with lawn, gardens, and several trees and is bound by the Strait of Georgia to the east, developed residential parcels to the north, Sunnybeach Road/beach access to the south and the Island Highway to the west.

The proposed development is subject to the Environmentally Sensitive Features for Coastal Protection Development Permit Area as per the "Regional District of Nanaimo Electoral Area 'H' Official Community Plan Bylaw No. 1335, 2003".

Proposed Development and Site Specific Exemption

The applicant is requesting Site Specific Exemption from "Regional District of Nanaimo Floodplain Management Bylaw No. 1469, 2006" (Floodplain Bylaw) in order to permit the construction of a studio closer than 15.0 metres to the natural boundary of the sea. The proposed studio and deck would be located 8.2 metres from the present natural boundary according to the site plan prepared by Peter T. Mason (see Attachment 2 for site plan and Attachment 3 for proposed building elevations). Given that Section 922 of the *Local Government Act* does not permit variances to a floodplain specification the

applicant must instead apply for a Site Specific Exemption. There are no variances to other RDN Bylaws requested as part of this application.

ALTERNATIVES

1. To approve the Development Permit and Site Specific Exemption Application No. PL2013-099 subject to the conditions outlined in Attachments 2 to 4.

2. To deny the Development Permit and Site Specific Exemption Application No. PL2013-099.

LAND USE IMPLICATIONS

Development Implications

In order to address the Environmentally Sensitive Features Development Permit Area guidelines the applicant has provided an Environmental Review prepared by Toth and Associates Environmental Services Ltd. dated October 21, 2013. This report notes that the existing platform is currently situated in the proposed studio location and there will only be minor removal of vegetation to allow for the construction of the studio. The applicant intends to salvage and replant existing native vegetation within the property and to enhance the vegetation in the foreshore area to provide additional privacy. In order to support the growth of existing and new shrub and herb species the report recommends pruning of lower branches of the evergreen trees in order to increase the amount of sunlight around the base of the trees. The report concludes that the proposed development does not represent a new or significant footprint within the Environmentally Sensitive Features DPA and will not negatively impact the features, functions and conditions that support aquatic life within the DPA. Development of the property in accordance with the recommendations contained in this report is included in the Conditions of Approval set out in Attachment 4.

Additionally, the applicant has submitted a Project Notification and Review Application Form also prepared by Toth and Associates Environmental Services Ltd. This form is to be submitted to the Department of Fisheries and Oceans (DFO) and outlines the applicants' intention to place several logs along the high tide line in front of the residence in order to replace logs that were lost due to storms over the past few years and prevent further loss of foreshore vegetation. Placement of these logs would involve a back-hoe accessing the beach via the adjacent beach access to move the logs into place. Submission of the Project Notification Form to DFO prior to commencing these works is included in the Conditions of Approval outlined in Attachment 4.

In order to address the Site Specific Exemption application requirements of the Floodplain Bylaw, the applicant has submitted a Geotechnical Hazards Assessment prepared by Lewkowich Engineering Associates Ltd. dated October 30, 2013. This report recommends a minimum flood construction level of 1.9 metres above the natural boundary of the sea taking into account anticipated global climate change and future sea level rise. This calculation is based on an expected lifespan for the proposed studio of 50 years. The report concludes that the site is considered safe and suitable for the proposed development provided the recommendations in the report are followed and that protection from a 1 in 200 year flood event can be achieved. In accordance with the Site Specific Exemption Application requirements, staff recommends that the applicant be required to register a Section 219 covenant that registers the Geotechnical Hazards Assessment prepared by Lewkowich Engineering Associates Ltd., and

includes a save harmless clause that releases the Regional District of Nanaimo from all losses and damages as a result of potential flood hazard. Development of the property in accordance with the recommendations of this report is included in the Conditions of Approval set out in Attachment 4.

Sustainability Implications

In keeping with Regional District of Nanaimo Board policy, staff reviewed the proposed development with respect to the "Regional District of Nanaimo Sustainable Development Checklist" and note that the proposed development involves the construction of an accessory building on an existing residential parcel does not represent a new or significant development foot print within the Coastal Environmentally Sensitive Development Permit Area.

SUMMARY/CONCLUSIONS

This is an application for a Development Permit and Site Specific Exemption from the Floodplain Bylaw to allow the construction of a studio on the subject property.

The applicant has submitted a site plan, building elevations, Environmental Review and Geotechnical Hazards Assessment in support of the application. In staff's assessment, this proposal is consistent with the guidelines of the "Regional District of Nanaimo Electoral Area 'H' Official Community Plan Bylaw No. 335, 2003" Environmentally Sensitive Features Development Permit Area and the Site Specific Exemption Application requirements of the "Regional District of Nanaimo Floodplain Management Bylaw No. 1469, 2006".

RECOMMENDATION

That Development Permit and Site Specific Exemption Application No. PL2013-099 to allow the construction of a studio on the subject property be approved subject to the conditions outlined in Attachments 2 to 4.

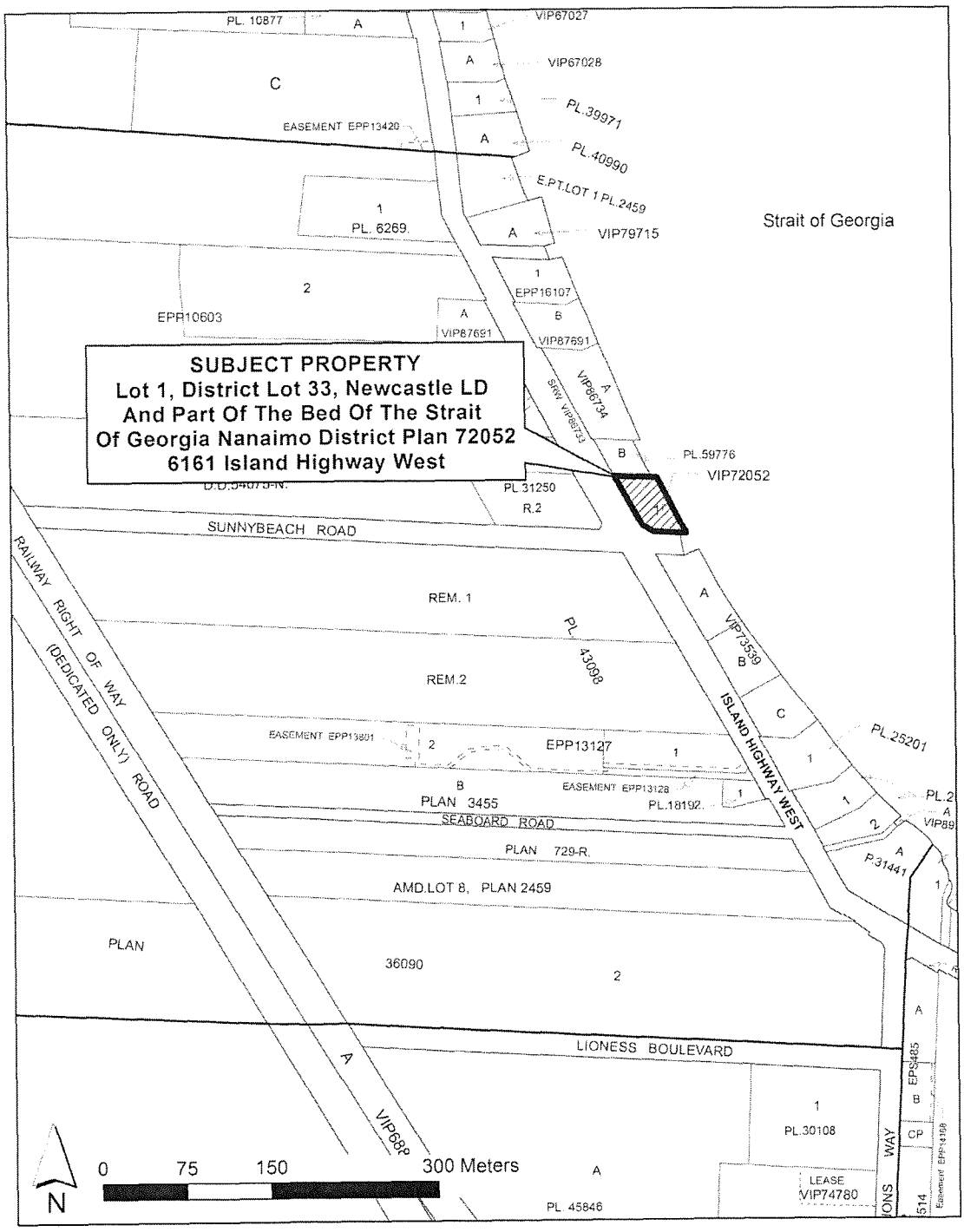
Report Writer

General Manager Concurrence

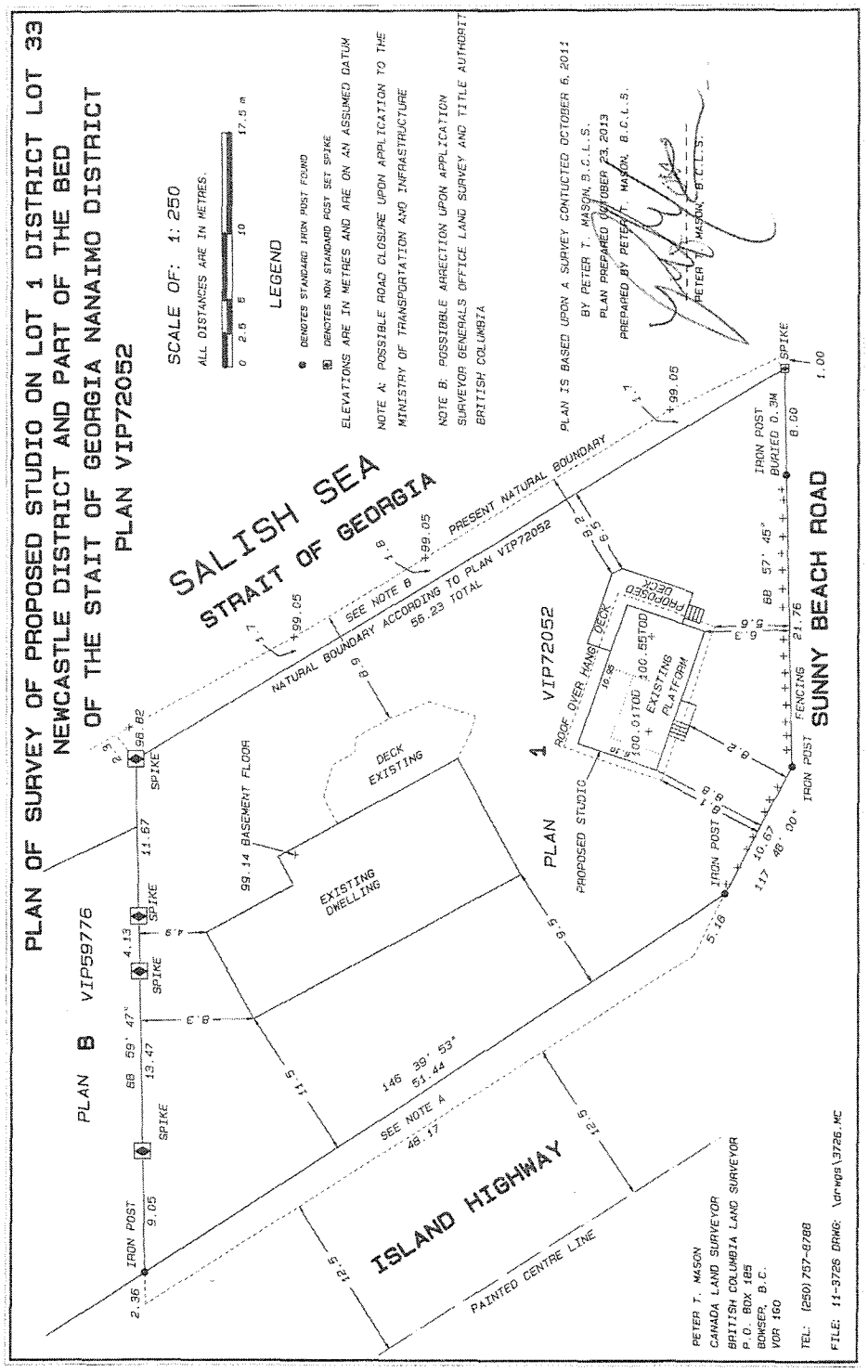
Manager Concurrence

CAO Concurrence

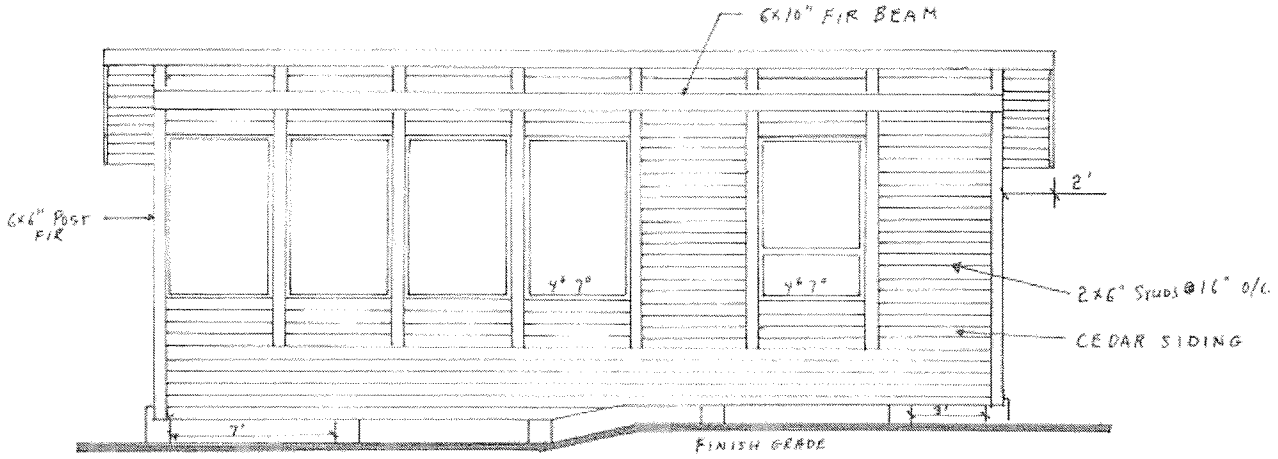
Attachment 1
Subject Property Map



Attachment 2
Site Plan

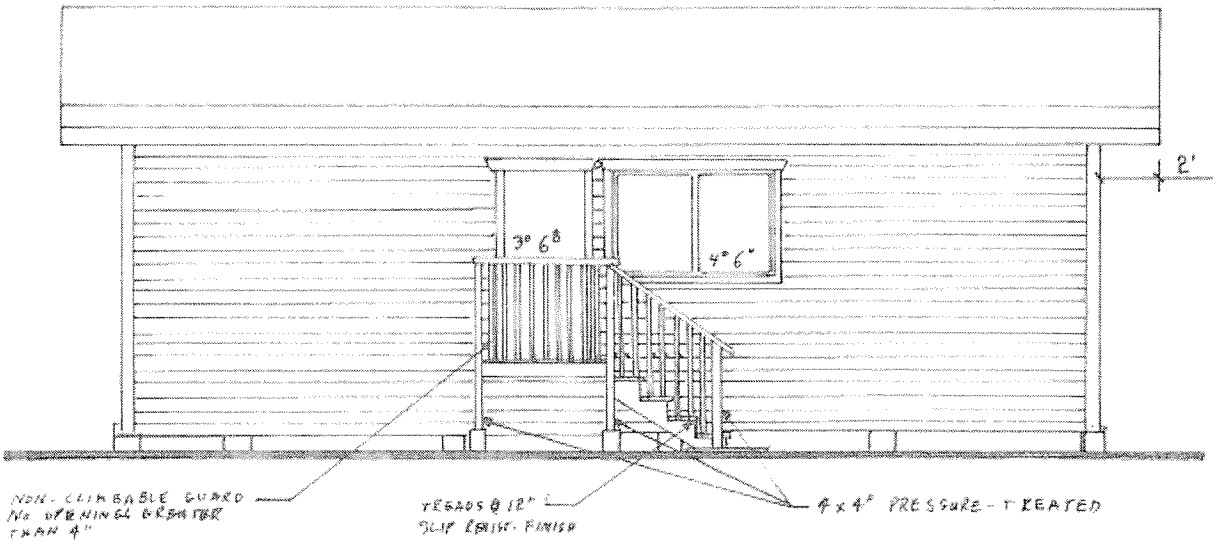


Attachment 3
Building Elevations



FRONT ELEVATION
SCALE: ¼" = 1'0"

JIM HAMM 778-424-1110
6161 W. IS HWY, QUALICUM BAY, B.C.



REAR ELEVATION
SCALE: ¼" = 1'0"

JIM HAMM 778-424-1110
6161 W. IS. HWY., QUALICUM BAY, B.C.

Attachment 4
Terms and Conditions of Development Permit and
Site Specific Exemption Application No. PL2013-099

The following sets out the terms and conditions of Development Permit and Site Specific Application No. PL2013-099:

Conditions of Approval

1. The studio shall be sited in accordance with the Site Plan prepared by Peter T. Mason dated October 23, 2013.

2. The studio shall be constructed in general accordance with the elevation plans prepared by the property owner and submitted September 24, 2013.

3. The property shall be developed in accordance with the recommendations of the Environmental Review prepared by Toth and Associates Ltd. dated October 21, 2013. These recommendations include the following measures to be taken prior to construction:

   - Temporary fencing of the shoreward edge of the lawn,
   - Salvage of native plants and replanting within the Coastal DPA,
   - Pruning of any overhanging tree limbs; and,
   - Removal of several bitter cheery trees.

4. The property owner shall submit the Project Notification and Review Application Form to Department of Fisheries and Ocean (DFO) prior to commencing any works, including the placement of logs, along the foreshore.

5. The property shall be developed in accordance with the recommendations of the Geotechnical Hazards Assessment prepared by Lewkowich Engineering Associates Ltd. dated October 30, 2013.

6. Staff shall withhold the issuance of this Permit until the applicant, at the applicant's expense, registers a Section 219 covenant that registers the Geotechnical Hazards Assessment prepared by Lewkowich Engineering Associates Ltd. dated October 30, 2013 and includes a save harmless clause that releases the Regional District of Nanaimo from all losses and damages as a result of the potential hazard.

7. The property owner shall obtain the necessary buildings permit for construction in accordance with Regional District of Nanaimo Building Regulations.

REGIONAL DISTRICT OF NANAIMO

MEMORANDUM

TO: Jeremy Holm
Manager, Current Planning

DATE: October 31, 2013

FROM: Robert Stover
Planning Technician

FILE: PL2013-106

SUBJECT: **Development Permit with Variance & Site Specific Exemption Application No. PL2013-106**
Fern Road Consulting Ltd.
Lot 1, District Lot 20, Newcastle District, Plan 11520 – 168 Cochrane Road
Electoral Area 'H'

PURPOSE

To consider an application for a Development Permit with Variance and Site Specific Exemption to "Regional District of Nanaimo Floodplain Management Bylaw No. 1469, 2006" to reduce the setback to a watercourse in order to permit the construction of a dwelling unit on the subject property.

BACKGROUND

The Regional District of Nanaimo (RDN) has received an application from Fern Road Consulting Ltd. on behalf of William Erickstad to facilitate the construction of a dwelling unit. The subject property is approximately 0.287 ha in area and is zoned Residential 2 (RS2) pursuant to "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987" (see Attachment 1 for location of subject property).

The subject property currently contains an accessory building, a pond near the center of the lot, and spring fed drainage along the southern property boundary. The previous dwelling unit on the property burned down, and is proposed to be replaced with a new home in approximately the same location. The subject property is surrounded by developed residential properties to the west, north, and south; Cochrane Road lies to the east. The proposed development is subject to the Fish Habitat Protection Development Permit Area (DPA) as per "Electoral Area 'H' Official Community Plan Bylaw No. 1335".

Proposed Development and Variance

The applicants have applied for a Development Permit with Variance and Site Specific Exemption to "Regional District of Nanaimo Floodplain Management Bylaw No. 1469, 2006" (RDN floodplain management bylaw) to permit the construction of a dwelling unit (see Attachments 3 and 4 for site plan and building elevations). The proposed dwelling unit is proposed to be sited 10.1 metres from a pond that sits near the center of the subject property. In keeping with the Fish Habitat DPA guidelines, the applicant has supplied a Riparian Areas Regulation Assessment report, prepared by Toth and Associates Environmental Services dated September 17, 2013 in support of the application.

As the proposed dwelling unit is proposed to be sited within 15.0 metres of the pond, the applicant is requesting a variance to relax the watercourse setback requirement from "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987" (Bylaw No. 500) from 15.0 metres to 10.1 metres. The applicant is requesting that the house be placed in the proposed location to utilize the existing driveway access.

The proposed house is subject to the watercourse setback provision of 15.0 metres as required by the RDN floodplain management bylaw. While the proposed house will meet the 1.5 metre flood construction level required by the floodplain bylaw, the proposed house is to be sited within the 15.0 metre floodplain bylaw setback; as such, an exemption to the floodplain management bylaw is required. The applicant has supplied a Geotechnical Engineer's Report prepared by Base Geotechnical Inc. and dated November 2, 2013 in support of the application to address the floodplain bylaw site specific exemption requirements.

ALTERNATIVES

1. To approve the Development Permit with Variance Application No. PL2013-106 subject to the terms and conditions outlined in Attachments 2 to 4.

2. To deny the Development Permit with Variance Application No. PL2013-106.

LAND USE IMPLICATIONS

Development Implications

The Riparian Areas Assessment Report supplied by the applicant addresses the proposed house in relation to the pond on the subject property. The report establishes a Streamside Protection and Enhancement Area (SPEA) of 10.0 metres from the pond. The report concludes that the proposed construction will not result in any negative impacts to fish habitat, and no specific measures for protecting the SPEA during construction were recommended.

The Geotechnical Hazards Assessment provided by the applicant addresses the proposed house in relation to the proposed Site Specific Exemption to the floodplain management bylaw. The report concludes that the construction of a dwelling unit is considered safe for the intended use provided the recommendations in the report are followed; recommendations of the report include constructing the house to an elevation of at least 1.5 metres above the natural boundary of the pond and the use of a sump pump system in the crawlspace. The applicant will be required to register on title a Section 219 covenant that registers the Geotechnical Hazards Assessment, and includes a save harmless clause that releases the Regional District of Nanaimo from all losses and damages as a result of the potential flood hazard.

Environmental Implications

Staff have reviewed the proposal in relation to environmental implication on the property. The proposed house is to be sited outside of the 10.0 metre SPEA identified in the applicant's Riparian Areas Assessment Report, and will not result in detrimental impacts to fish habitat.

Sustainability Implications

In keeping with Board policy, staff reviewed the application in relation to sustainability implications. Staff note that the proposed house is intended to replace a house on the subject property that burned down, and will not lead to further impacts on the property than previously existed.

Public Consultation Process

Pending the Committee's recommendation and pursuant to the *Local Government Act* and the "Regional District of Nanaimo Development Approvals and Notification Procedures Bylaw No. 1432, 2005", property owners and tenants of parcels located within 50.0 metres of the subject property will receive a direct notice of the proposal and will have an opportunity to comment on the proposed variance prior to the Board's consideration of the application.

SUMMARY/CONCLUSIONS

This is an application for a Development Permit with Variance and Site Specific Exemption to the RDN Floodplain Management Bylaw to permit the construction of a dwelling unit on the subject property. The applicant has supplied a site plan, building plans, Riparian Areas Assessment Report and Geotechnical Hazards Assessment in support of the application to address the requisite floodplain bylaw and development permit area guideline requirements.

The professionals' reports supplied by the applicant conclude that the location of the proposed house will not result in any detrimental impacts to fish habitat, and is considered safe in relation to the Floodplain Management Bylaw considerations. As such, staff recommend approval of this development permit with variance application and Site Specific Exemption to the Floodplain Management Bylaw.

RECOMMENDATIONS

1. That staff be directed to complete the required notification.

2. That Development Permit with Variance and Site Specific Exemption to the Floodplain Management Bylaw Application No. PL2013-106 to reduce the required setback to a watercourse for construction of a dwelling unit be approved subject to the terms and conditions outlined in Attachments 2 to 4.

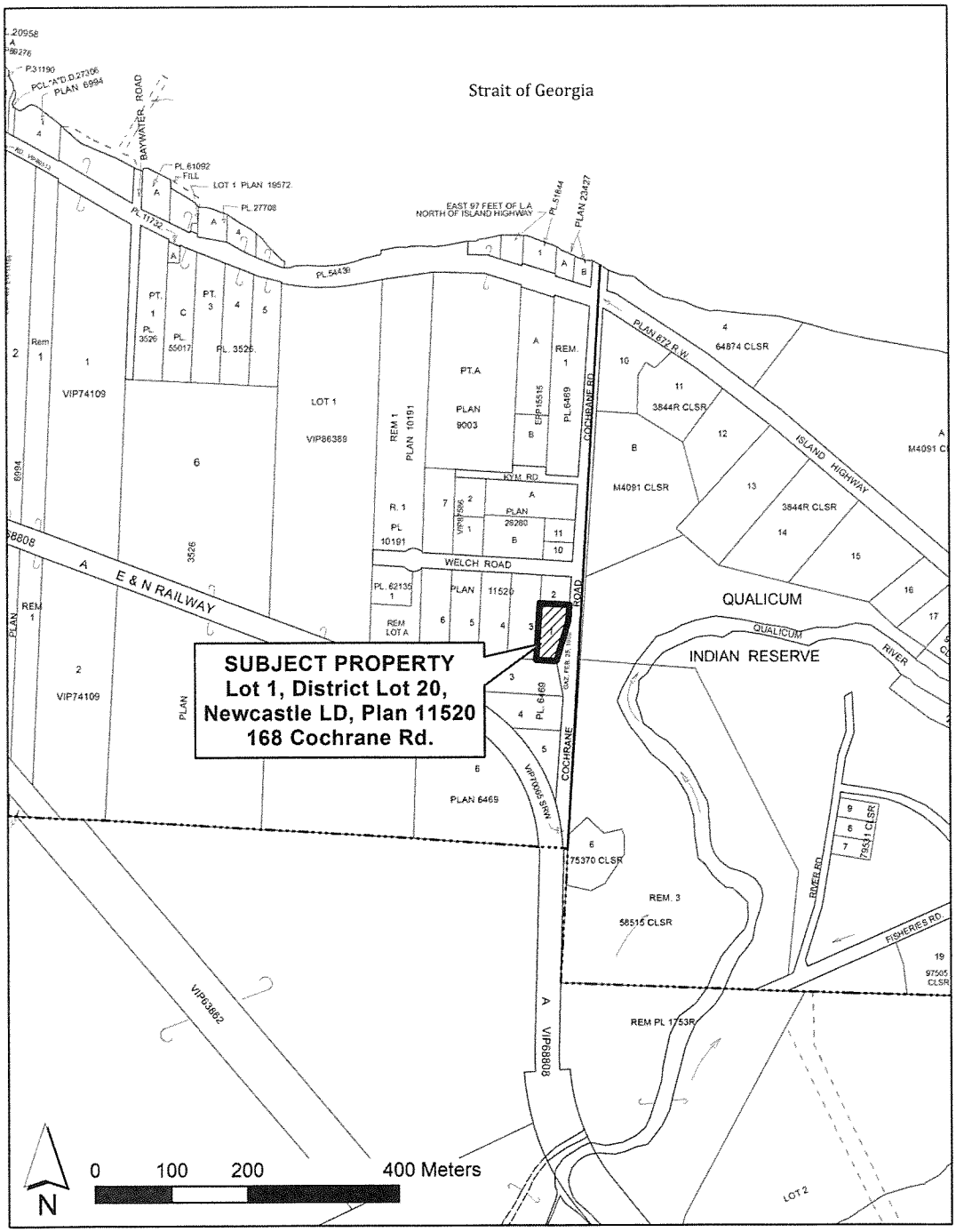
Report Writer

General Manager Concurrence

Manager Concurrence

CAO Concurrence

Attachment 1
Location of Subject Property



Attachment 2
Terms and Conditions of Development Permit with Variance and Site Specific Exemption

The following sets out the terms and conditions of Development Permit with Variance and Site Specific Exemption No. PL2013-106:

Bylaw No. 500, 1987 Variances:

With respect to the lands, "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987" is varied as follows:

1. **Section 3.3 8) a) i)** to reduce the minimum required setback from the natural boundary of a watercourse excluding the Sea from 15.0 metres to 10.1 metres for a proposed dwelling unit as shown on Attachment 3.

Conditions of Approval:

1. The proposed dwelling shall be sited in accordance with the site plan prepared by Sims Associates Land Surveying Ltd. dated October 9, 2013.

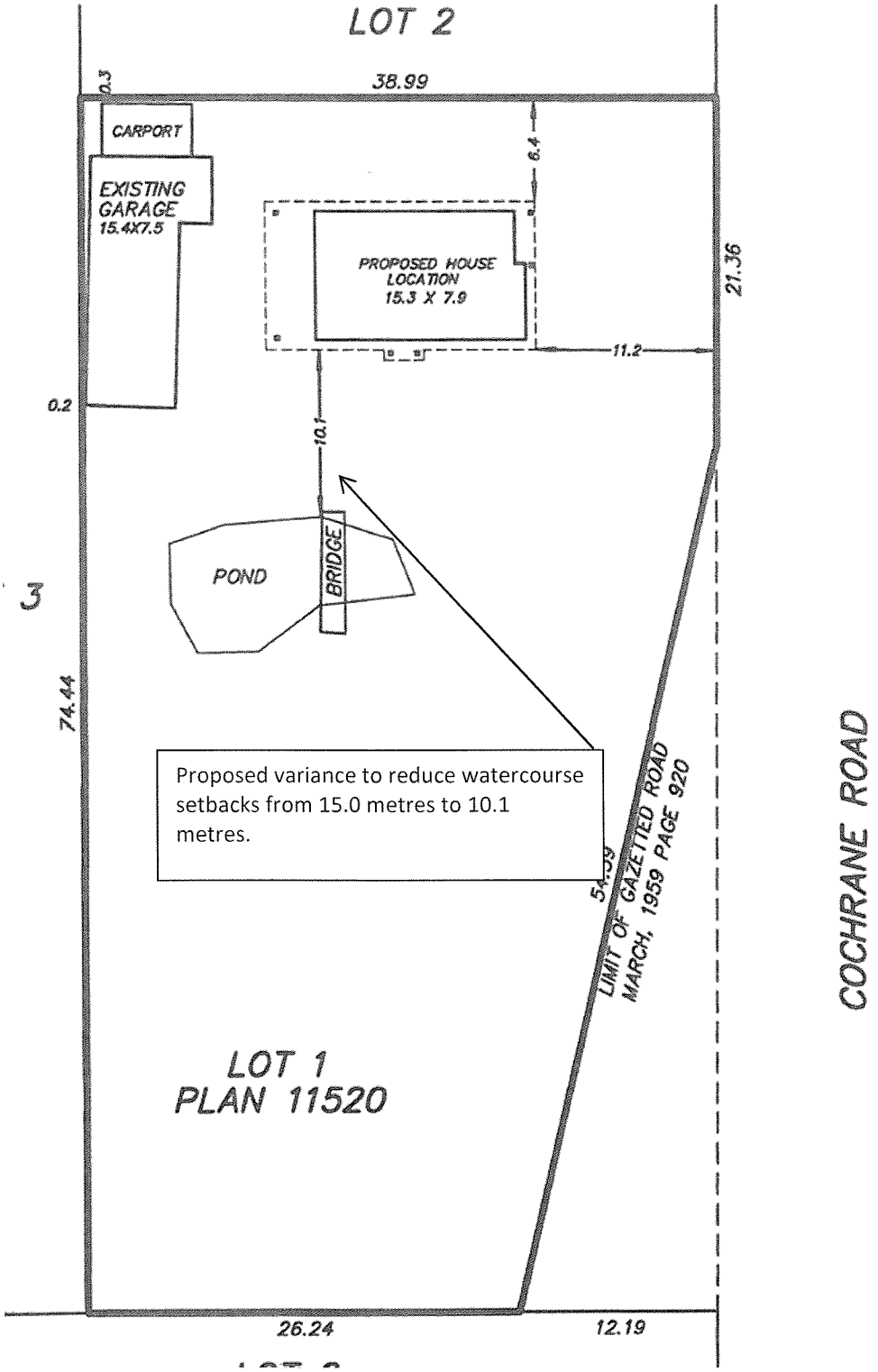
2. The lands shall be developed in accordance with the Geotechnical Hazards Assessment prepared by Base Geotechnical Inc. dated November 2, 2013.

3. The dwelling unit shall be constructed in general compliance with the elevation drawings prepared by Sea Swan Enterprises dated October 7, 2013 as shown on Attachment 4.

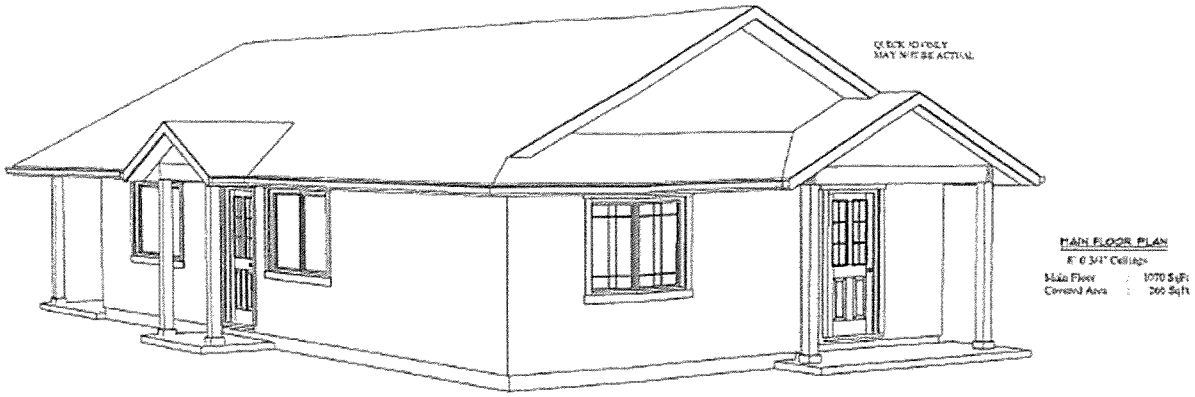
4. Staff shall withhold the issuance of the Permit until the applicant, at the applicant's expense, registers a Section 219 covenant that registers the Geotechnical Hazards Assessment prepared by Base Geotechnical Inc. dated November 2, 2013, and includes a save harmless clause that releases the Regional District of Nanaimo from all losses and damages as a result of the potential hazard.

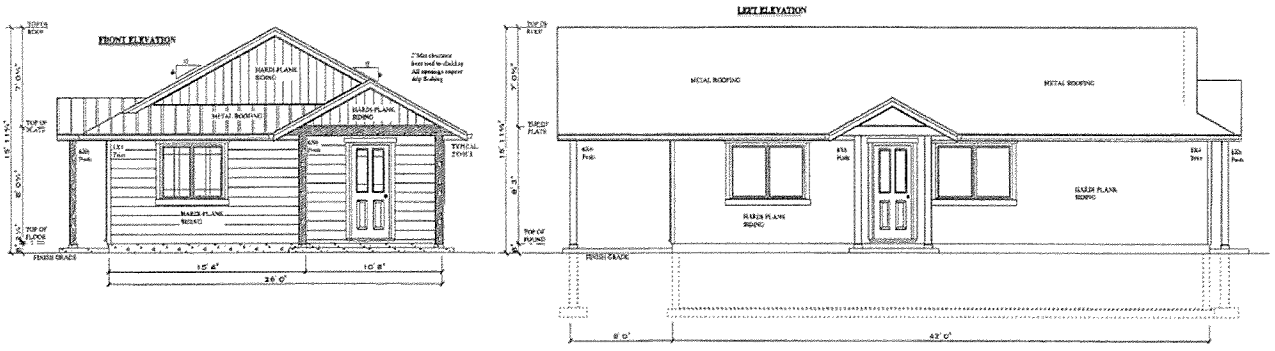
5. "The property owner shall obtain the necessary permits for construction in accordance with Regional District of Nanaimo Building Regulations."

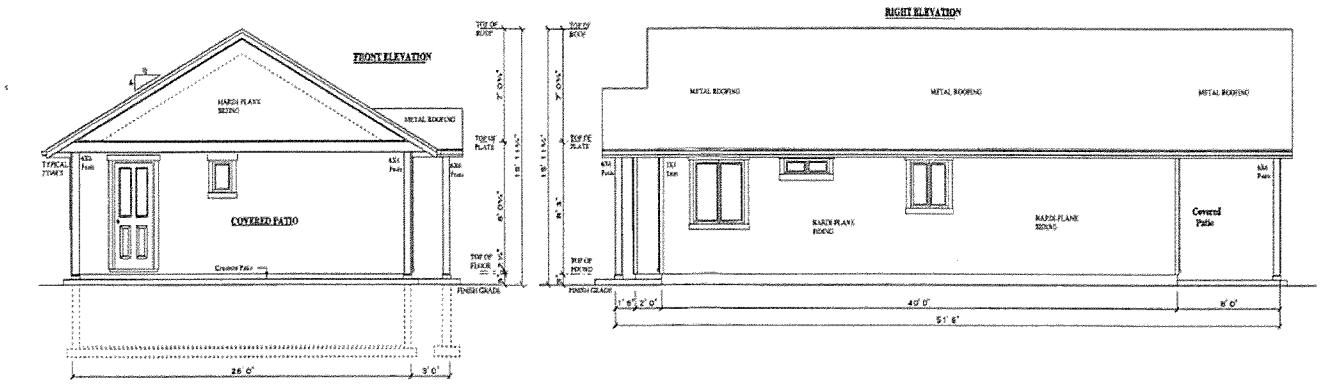
Attachment 3
Proposed Site Plan and Variances



Attachment 4
Building Elevations







REGIONAL DISTRICT OF NANAIMO

MEMORANDUM

TO: Jeremy Holm
Manager, Current Planning

DATE: October 31, 2013

FROM: Robert Stover
Planning Technician

FILE: PL2013-103

SUBJECT: **Development Permit with Variance Application No. PL2013-103 – Whittall Lot 90, District Lot 1, Nanoose District, Plan 30958 – 960 Woodpecker Place Electoral Area 'G'**

PURPOSE

To consider an application for a Development Permit with Variance to allow for the construction of an accessory building on the subject property.

BACKGROUND

The Regional District of Nanaimo (RDN) has received an application from Robin and Donna Whittall in order to permit the construction of an accessory building on the subject property. The subject property is approximately 1685.8 m^2 in area and is zoned Residential 1 (RS1) pursuant to "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987" (see Attachment 1 for location of subject property).

The property currently contains a dwelling unit, and is surrounded by developed residential properties to the north, east, and west; Woodpecker Place lies to the south. The applicants had previously been granted a Development Permit with Variance (PL2011-127) for a proposed accessory building in 2011 which varied the permitted building height from 6.0 metres to 6.7 metres. The applicants have subsequently altered the building plans for the accessory building from the previous Development Permit with Variance approval to the extent that a new application is required, as a greater proportion of the structure's roof will exceed the maximum permitted height of 6.0 metres for accessory buildings than what was approved through previous application PL2011-127.

The proposed development is subject to the Hazard Lands development permit area (DPA) as per "Regional District of Nanaimo Electoral Area 'G' Official Community Plan Bylaw No. 1540, 2008" due to its proximity to the Englishman River Floodplain.

Proposed Development and Variances

The applicant proposes to construct a detached garage with a bonus room above on the northeast portion of the property (see Attachments 3 and 4 for site plan and elevation drawings). The entire property is located within the Englishman River Floodplain based on the 1 in 200 year flood event. The minimum flood plain construction level for the location is 4.1 m GSC (Geodetic Survey of Canada datum) to address both ocean and river flooding potential as recommended by the applicant's Engineer.

Though the applicant is not proposing to meet the flood construction level from which garages are exempt under the floodplain bylaw, they have requested raising the elevation of the accessory building to the same elevation of the existing house (3.65 GSC). The applicant requests a height relaxation from 6.0 m to 6.7 m to accommodate the accessory building at this elevation.

ALTERNATIVES

1. To approve the Development Permit with Variance Application No. PL2013-103 subject to the terms and conditions outlined in Attachments 2 to 4.

2. To deny the Development Permit with Variance Application No. PL2013-103.

LAND USE IMPLICATIONS

Development Implications

Requirements of the development permit area are for the applicant to provide a report by a professional engineer to confirm that the proposed construction is considered safe for its intended use, and that the development will not harm adjacent property and the natural environment. The applicant submitted a geotechnical engineering report by Ground Control Geotechnical Engineering dated July 21, 2011, to satisfy this requirement. The applicant has also provided a letter from Ground Control Geotechnical Engineering and dated October 8, 2013 confirming that the findings of the July 2011 geotechnical report have not changed as a result of changes to assessment methodology that have been adopted by the Association of Professional Engineers and Geoscientists of BC in the past two years. The Engineer concludes that the proposed construction is safe for its intended use. No site specific exemption is required from the Floodplain Management Bylaw No. 1469 as garages and unoccupied structures are exempted from the requirements to meet the flood construction levels.

As part of the original Development Permit with Variance approval, a covenant was registered on the title to the property recognizing the flood risk associated with the construction below the flood construction level and holding harmless the Regional District of Nanaimo from damages caused by the potential hazard. Staff do not recommend amending the existing covenant given that the proposed changes to the building are largely limited to the roof structure and as such is otherwise consistent with the garage previously approved under Development Permit with Application No. PL2011-127 as it relates to the flood hazards.

Sustainability Implications

In keeping with Board policy, staff have reviewed the application in relation to sustainability implications that may result as a result of this development. Staff note that the development is to occur on an existing serviced lot.

Public Consultation Process

Pending the Committee's recommendation and pursuant to the *Local Government Act* and the "Regional District of Nanaimo Development Approvals and Notification Procedures Bylaw No. 1432, 2005", property owners and tenants of parcels located within a 50.0 metres of the subject property will receive a direct notice of the proposal and will have an opportunity to comment on the proposed variance prior to the Board's consideration of the application.

SUMMARY/CONCLUSIONS

This is a Development Permit with Variance application to allow for the construction of an accessory building on the subject property. The applicants had previously been granted approval for a Development Permit with Variance for a proposed accessory building in 2011; however, changes made to the building plans submitted with the 2011 application are substantive such that a new Development Permit with Variance application is necessary to address additional structure that is proposed to be constructed above the 6.0 metre maximum permitted accessory building height. The applicant is requesting the variance to keep the accessory building at the same flood construction elevation as the existing house.

The proposed development is also subject to the Hazard Lands DPA. The applicant has submitted a surveyed site plan and a letter from Ground Control Geotechnical Engineering confirming that the findings and conclusion of the geotechnical report submitted with the 2011 application remain unchanged. Staff recommend approval of this Development Permit with Variance application as it satisfies the requirements of the Hazard Lands DPA requirements, and is generally consistent with what was proposed with the previously approved application from 2011.

RECOMMENDATIONS

1. That staff be required to complete the required notification.

2. That Development Permit with Variance Application No. PL2013-103 to permit the construction of an accessory building on the subject property be approved subject to the terms and conditions outlined in Attachments 2 to 4.

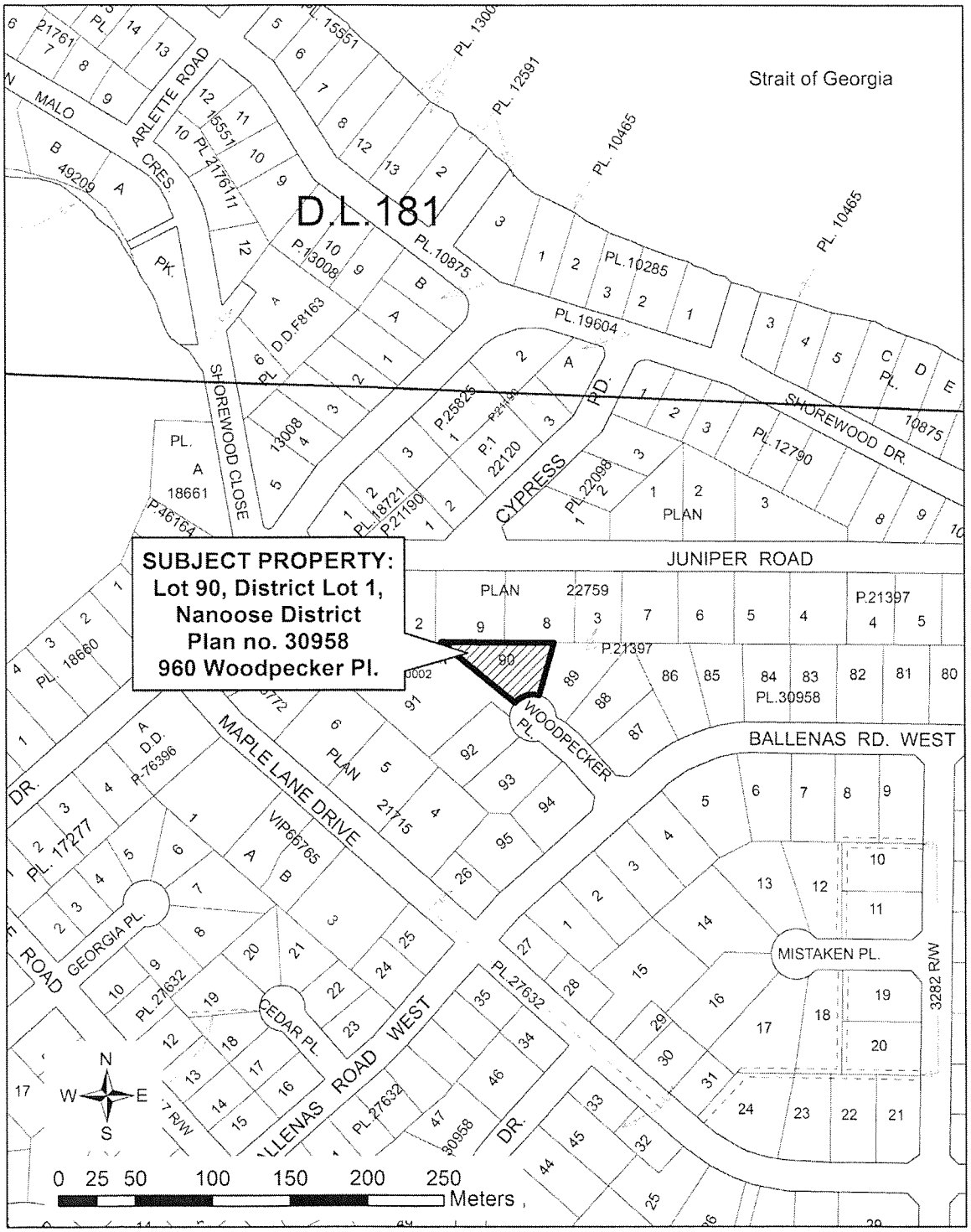
Report Writer

General Manager Concurrence

Manager Concurrence

CAO Concurrence

Attachment 1
Subject Property Map



Attachment 2
Terms and Conditions of Development Permit with Variance

The following sets out the terms and conditions of Development Permit with Variance No. PL2013-103:

Bylaw No. 500, 1987 Variance:

With respect to the lands, "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987" is varied as follows:

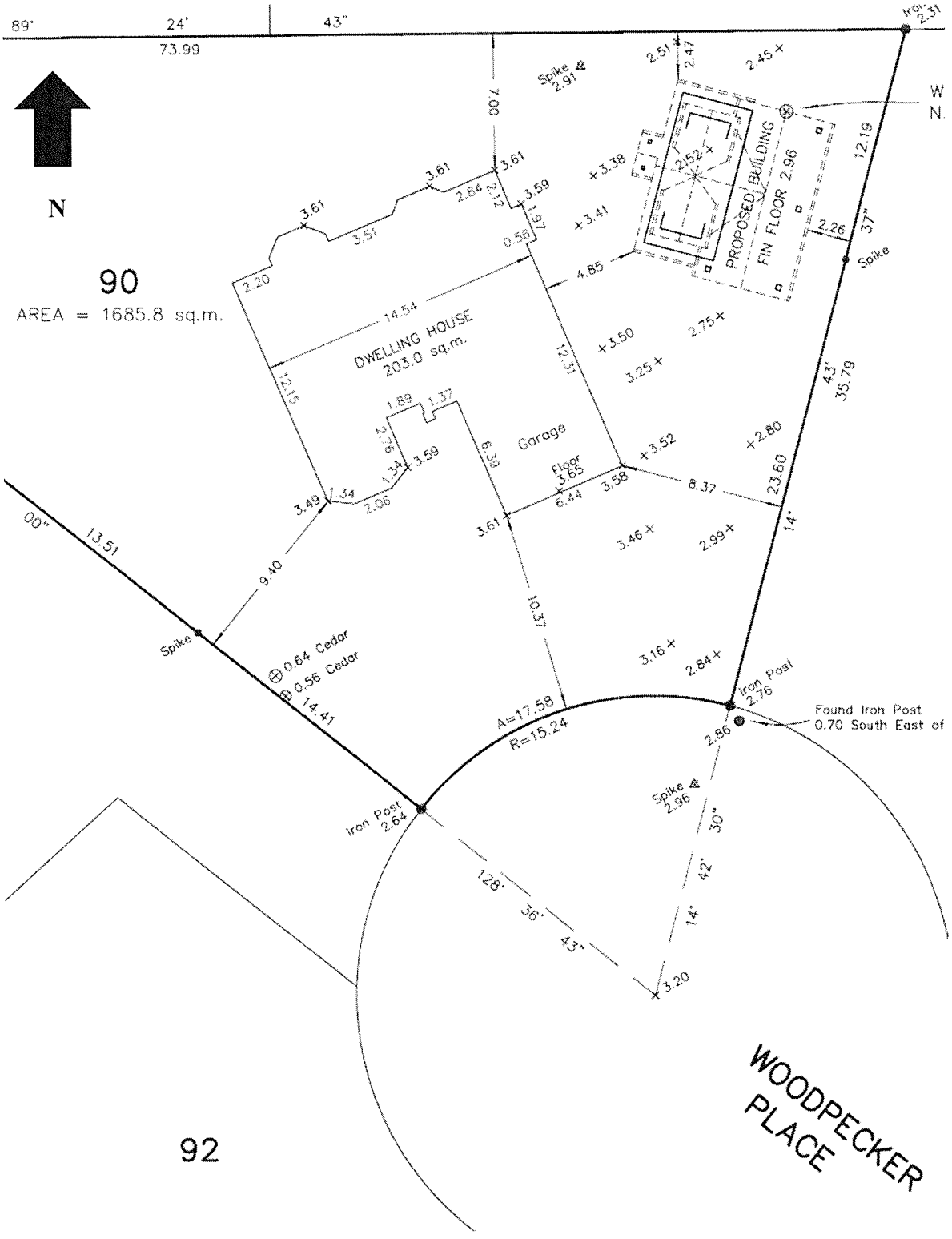
1. **Section 3.4.61 – Maximum Number and Size of Buildings and Structures** is requested to be varied by increasing the maximum accessory building height from 6.0 metres to 6.7 metres, as shown on Attachments *3 and 4.*

Conditions of Approval:

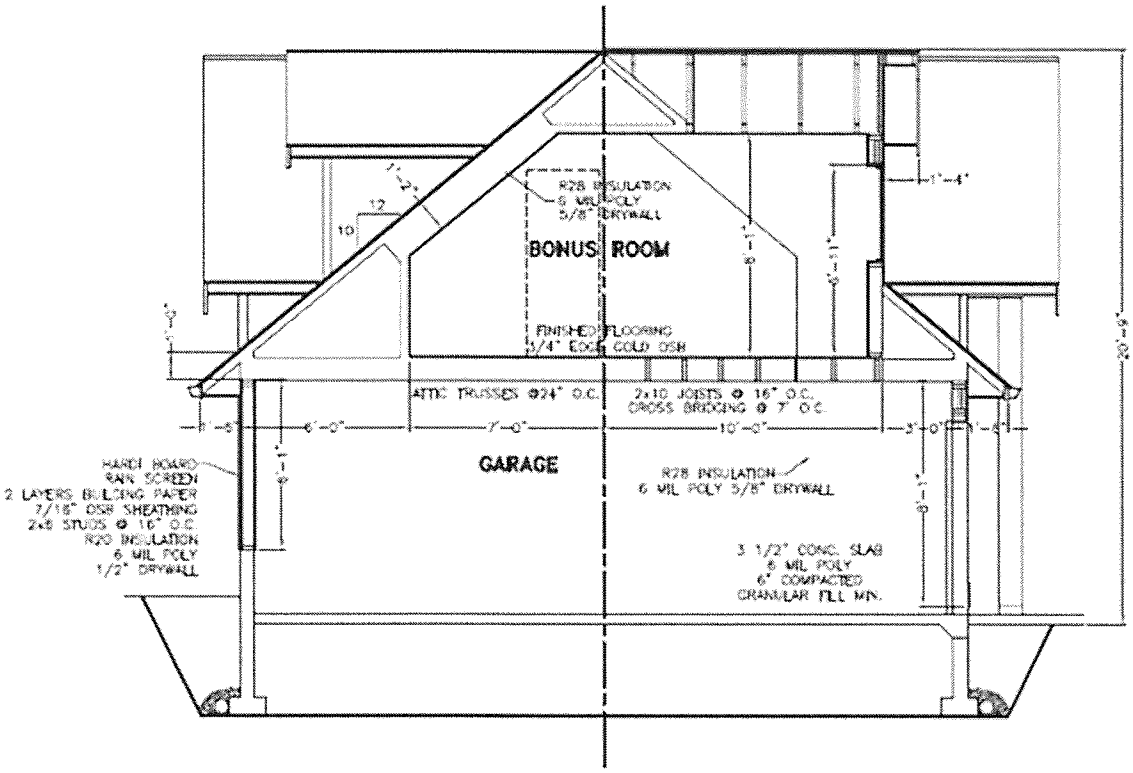
1. The proposed development is sited in accordance with the Survey Plan prepared by JE Anderson & Associates dated September 11, 2013 and attached as Attachment 3.

2. The proposed development is in general compliance with the plans and elevations provided by the applicant attached as Attachment 4.

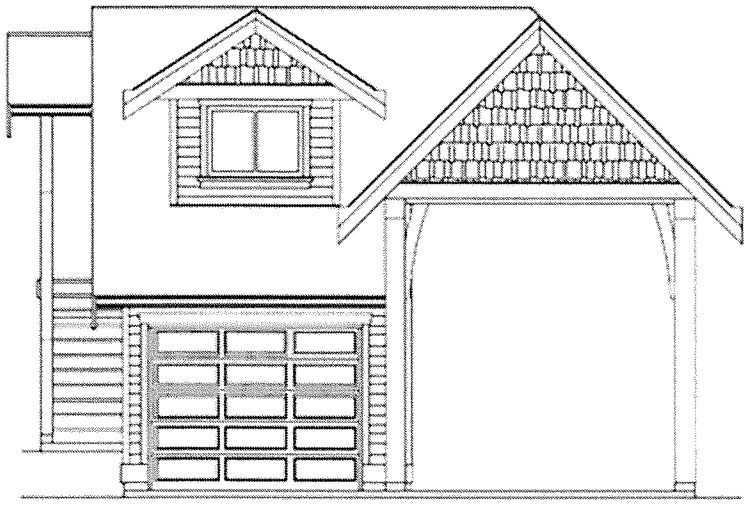
Attachment 3
Site Plan – Detail



Attachment 4
Building Elevations



CROSS SECTION B-B



FRONT ELEVATION

REGIONAL DISTRICT OF NANAIMO

RDN REPORT
CAO APPROVAL
EAP ✓
COW
NOV 04 2013
RHD
BOARD

MEMORANDUM

TO: Jeremy Holm
Manager of Current Planning

DATE: October 31, 2013

FROM: Angela Buick
Planner

FILE: PL2013-110

SUBJECT: **Development Permit with Variance Application No. PL2013-110 – Manhas**
Lot 1, District lot 16, Newcastle District, Plan 15105
5469 Island Highway West - Electoral Area 'H'

PURPOSE

To consider an application for a Development Permit with Variance to legalize the siting of an existing garage and permit the construction of a deck and fire escape within the Hazard Lands Development Permit Area on the subject property.

BACKGROUND

The Regional District of Nanaimo (RDN) has received an application from Ian Niamath on behalf of Paul Manhas in order to reduce the setback of a recently constructed garage, and proposed construction of a deck and fire escape on the subject property. The subject property is approximately 0.2 ha in area and is zoned Residential 2 (RS2) pursuant to "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987" (see Attachment 1 for subject property map). The subject property currently contains a dwelling unit and is bound by the Strait of Georgia to the north, unconstructed road right-of-way to the west, the Inland Island Highway to the south and residential parcels to the east.

The proposed development is subject to the Hazard Lands Development Permit Area as per "Regional District of Nanaimo Electoral Area 'H' Official Community Plan Bylaw No. 1335, 2003".

Proposed Development

The proposed development includes a garage that was recently constructed without a building permit to replace an old carport on the western portion of the lot, a proposed deck on the northern portion of the lot and a proposed fire escape to be located between the existing dwelling unit and garage. (see Attachments 3 and 4 for site plan and building plans). In addition, the garage has been constructed within the required setback of the RS2 zoning.

Proposed Variance

The applicant proposes to reduce the 'other lot line' setback for the western lot line adjacent to the unconstructed road access to the ocean from 5.0 metres to 1.6 metres in order to legalize the siting of a recently constructed garage. (see Attachment 2 for site plan). The construction of the garage will be addressed through building permit should the Board choose to support the request.

ALTERNATIVES

1. To approve Development Permit with Variance Application No. PL2013-110 subject to the terms and conditions outlined in Attachments 2-4.
2. To deny Development Permit with Variance Application No. PL2013-110.

LAND USE IMPLICATIONS

Development Implications

In order to address the Hazard Lands Development Permit Area (DPA) guidelines, the applicant has submitted a Geotechnical Hazards Assessment report prepared by Simpson Geotechnical Ltd. and dated October 30, 2013.

The Engineer's report concludes that the proposed development is considered safe and suitable for the intended use and will not have a detrimental impact on the environment or adjoining properties. The report provides recommendations for the protection of the property from erosion including:

- Retention of the existing large conifer trees on the subject property;
- Maintenance of the existing vegetation on the transition slope from the lawn to the beach.

The garage is exempt from the required flood construction levels of RDN Floodplain Bylaw No. 1469 provided the building is not used for the storage of goods damageable by flood waters, toxic materials, or materials that may contaminate the environment.

Staff recommends that the applicant be required to register a Section 219 restrictive covenant that registers the Geotechnical Hazards Assessment prepared by Simpson Geotechnical Ltd., and includes a save harmless clause that releases the Regional District of Nanaimo from all losses and damages as a result of potential flood hazard.

Sustainability Implications

In keeping with Regional District of Nanaimo Board policy, staff reviewed the proposed development with respect to the "Regional District of Nanaimo Sustainable Development Checklist". The proposal is replacing existing structures which includes safety measures for the protection of human life in case of a fire. According to the applicants Engineer this development will not have a detrimental impact the environment or surrounding properties.

Inter-governmental Implications

The applicant has obtained a permit from MOTI to authorize a reduced setback from the highway right-of-way from 4.5 metres to 1.6 metres for the garage.

Public Consultation Process

Pending the Committee's recommendation and pursuant to the *Local Government Act,* property owners and tenants located within a 50.0 metre radius, will receive a direct notice of the proposal and have an opportunity to comment on the proposed variance, prior to the Board's consideration of the application.

SUMMARY/CONCLUSIONS

This is an application for a Development Permit with Variance to legalize the construction of a garage, and to permit the construction of a deck and fire escape on the subject property within the Hazard

Lands Development Permit Area Guidelines. The applicant provided a site plan, building plans and a Geotechnical Hazards Assessment report prepared by Simpson Geotechnical Ltd., which are consistent with the Hazard Lands Development Permit Area. Staff recommends that the requested Development Permit with Variance be approved subject to the terms and conditions outlined in Attachments 2-4.

RECOMMENDATION

1. That Staff be directed to complete the required notification.

2. That Development Permit with Variance Application No. PL2013-110 to reduce the minimum required setback from the western lot line from 5.0 metres to 1.6 metres to legalize the siting of a garage, and to permit the construction of a deck and fire escape be approved subject to the conditions outlined in Attachments 2-4.

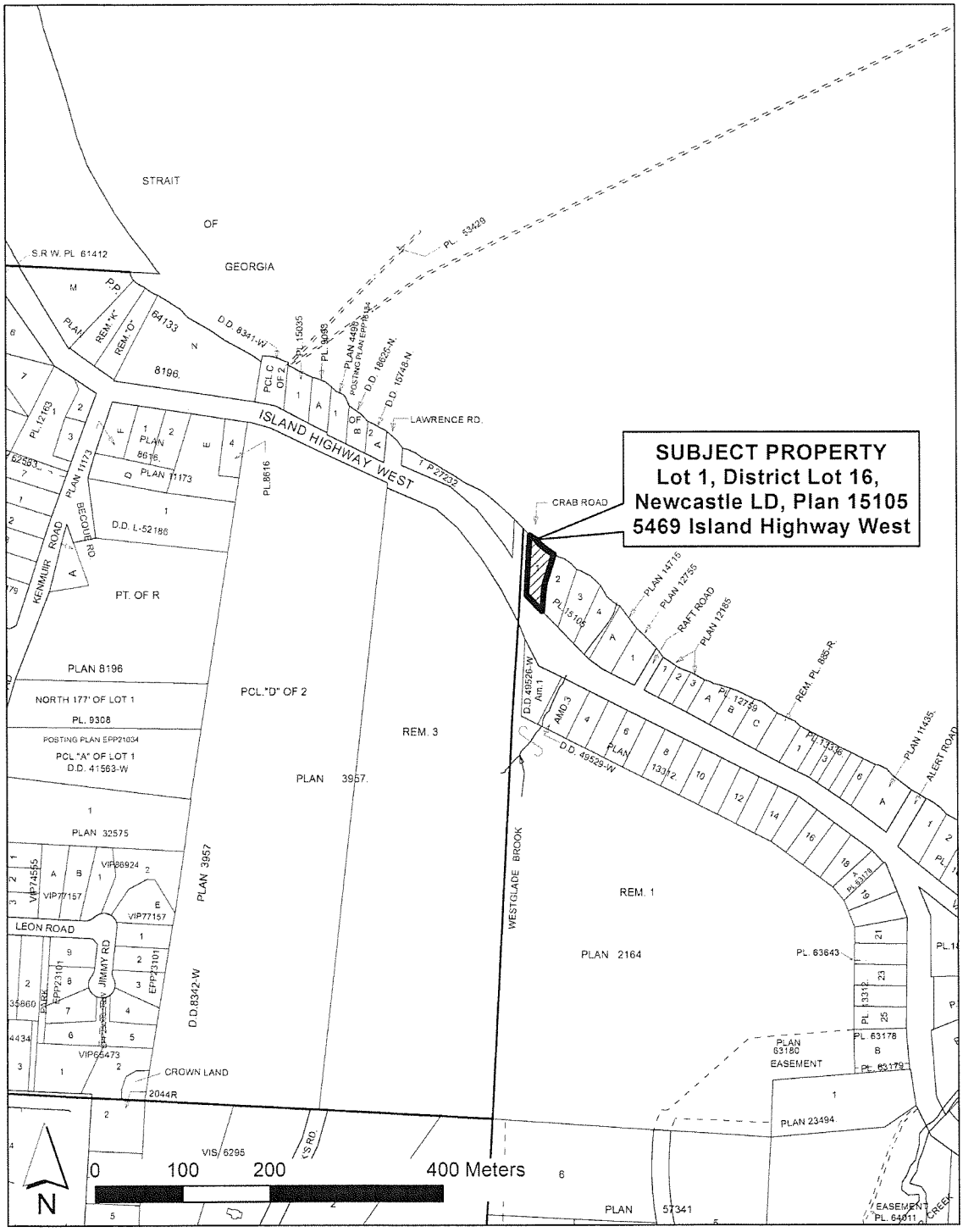
Report Writer

General Manager Concurrence

Manager Concurrence

CAO Concurrence

Attachment 1
Subject Property Map



Attachment 2
Terms and Conditions of Development Permit

The following sets out the terms and conditions of Development Permit PL2013-110:

Bylaw No. 500, 1987 - Variances

With respect to the lands, "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987" is varied as follows:

Section 3.4.62 – Minimum Setback Requirements to reduce the Other Lot Lines from 5.0 metres to 1.6 metres.

Conditions of Approval

1. The deck and fire escape shall be sited generally in accordance with the site plan prepared by Andre McNicol of Harbour City Land Surveying Ltd., dated October 28, 2013 included as Attachment 3.

2. The deck and fire escape shall be constructed generally in accordance with the building elevation drawings included as Attachment 4.

3. The Lands shall be developed in accordance with the recommendations of the Geotechnical Hazards Assessment prepared by Simpson Geotechnical Ltd. and dated October 30, 2013. As follows:

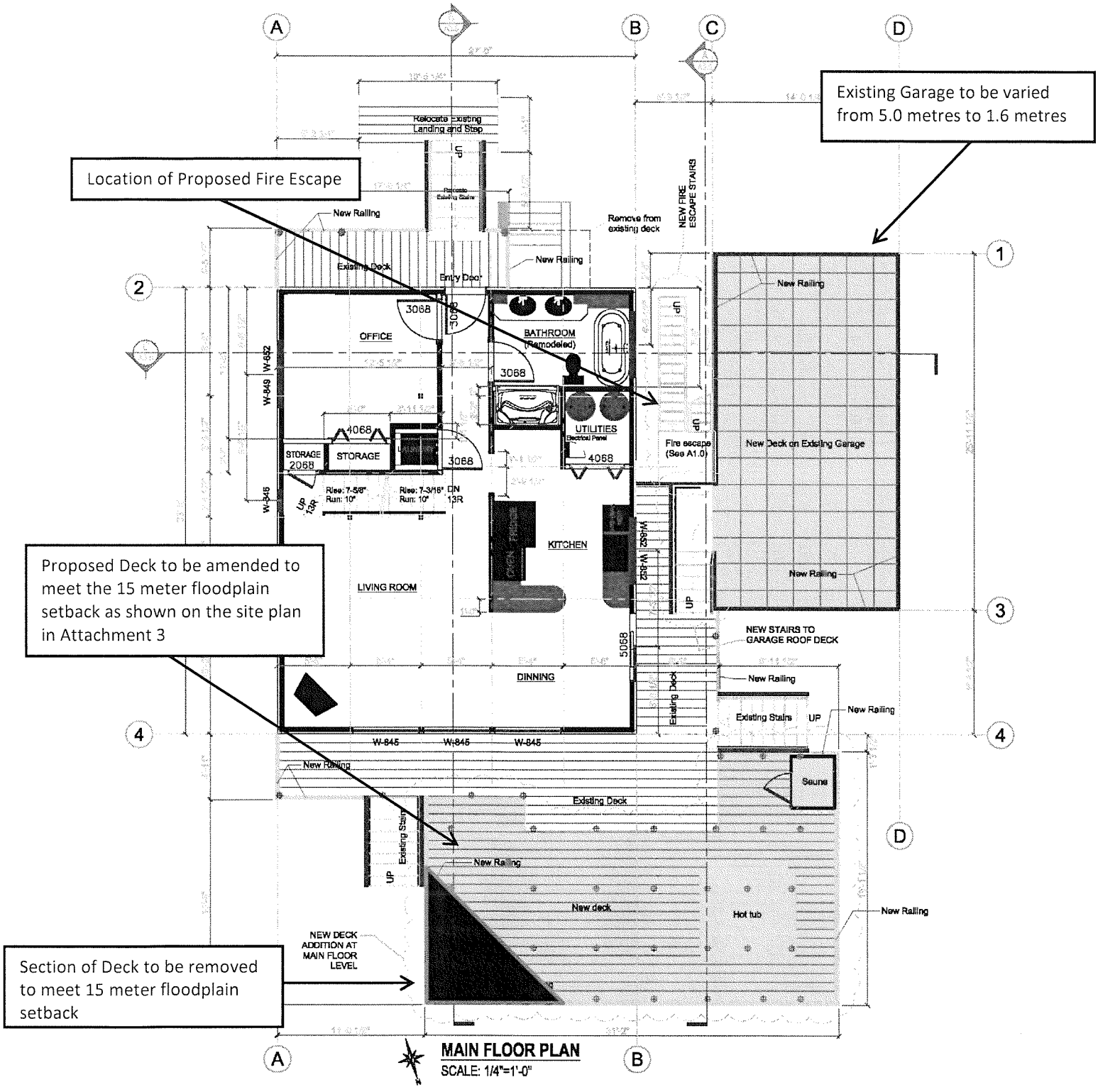
    - Retention of the existing large conifer trees on the subject property;

    - Maintenance of the existing vegetation on the transition slope from the lawn to the beach.

4. Staff shall withhold the issuance of this Permit until the applicant, at the applicant's expense, registers a Section 219 restrictive covenant containing the Geotechnical Hazards Assessment prepared by Simpson Geotechnical Ltd. and dated October 16, 2013, and includes a save harmless clause that releases the Regional District of Nanaimo from all losses and damages as a result of the potential flood hazard and includes the floodplain exemption provision.

Attachment 3
Site Plan

Attachment 4 (Page 1 of 3)
Building Plans – Deck and Garage



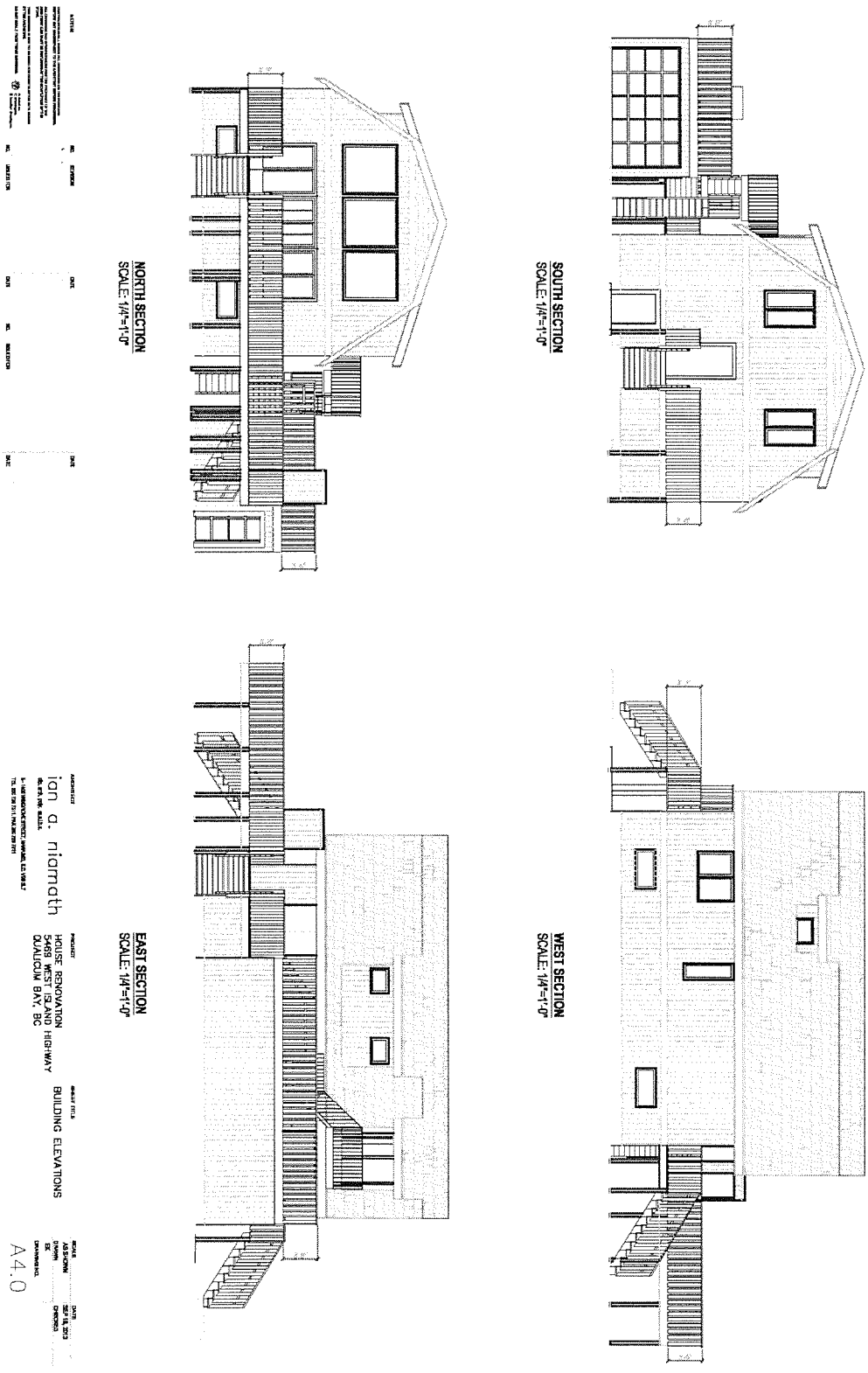
ARCHITECT
ian a. niamath
dip. arch. poly. m.a.i.b.c.
5 - 1400 WINGROVE STREET, NANAIMO, B.C. V9S 6L7
TEL 250 729 7311, FAX 250 729 7311

PROJECT
HOUSE RENOVATION
5469 WEST ISLAND HIGHWAY
QUALICUM BAY, BC

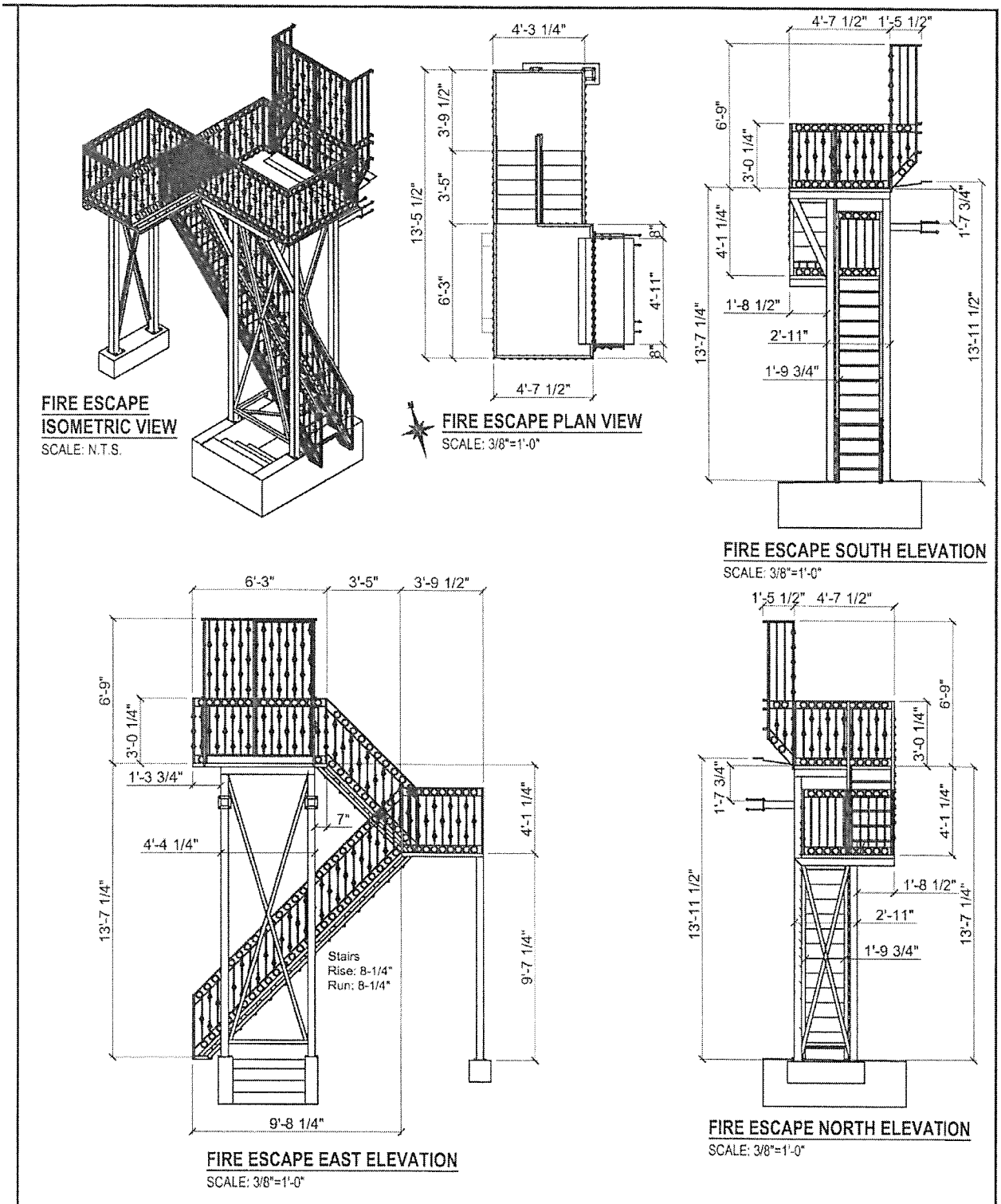
SHEET TITLE
BASEMENT FLOOR PLAN
MAIN FLOOR PLAN

SCALE: AS SHOWN
DATE: SEP 18, 2013
DRAWN: EK
CHECKED:
DRAWING NO.: A2.0

Attachment 4 (Page 2 of 3)
Building Plans – Cross Section of Garage and Deck



Attachment 4 (Page 3 of 3)
Building Plans – Fire Escape



REGIONAL DISTRICT OF NANAIMO

RDN REPORT
CAO APPROVAL
EAP ✓
COW
NOV 04 2013
RHD
BOARD

MEMORANDUM

TO: Jeremy Holm
Manager, Current Planning

DATE: October 31, 2013

FROM: Robert Stover
Planning Technician

FILE: PL2013-108

SUBJECT: **Development Variance Permit Application No. PL2013-108 – Sydney Lee**
Lot 18, Block C, District Lot 38, Nanoose District, Plan 12496 – 1266 Marina Way
Electoral Area 'E'

PURPOSE

To consider an application for a Development Variance Permit to reduce the setback to the sea and to increase the maximum permitted accessory structure height to legalize the siting of a residential scale wind turbine that has been placed on the subject property.

BACKGROUND

The Regional District of Nanaimo (RDN) has received an application from Sydney Lee to legalize the siting of a 300 watt, residential scale wind turbine on the subject property. The subject property is approximately 926 m^2 in area and is zoned Residential 1 (RS1) pursuant to "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987" (Bylaw 500). See Attachment 1 for location of subject property.

The subject property currently contains a cabin and wind turbine that is located near the foreshore. The property is surrounded by residential properties to the east and west, Marina Way to the south, and the Strait of Georgia to the north. The RDN received a complaint from a neighbour when the turbine was erected, citing concerns about the impacts to their ocean view. The applicant made an application to the Board of Variance in October of 2013 to legalize the siting of the turbine structure, which was subsequently turned down. The applicant has applied for a Development Variance Permit seeking relaxations to maximum permitted height and setbacks from the sea for accessory structures to legalize the siting of the turbine.

Proposed Development and Variances

The applicant is requesting variances to relax the setback and height requirements for accessory structures to legalize the siting of a residential scale wind turbine on the subject property (see attachments 2 and 3 for site plan detail and turbine drawings). The applicant proposes to reduce the setback from the sea for accessory structures from 15.0 metres to 1.0 metre, and is requesting to increase the maximum permitted height for accessory structures from 6.0 metres to 6.55 metres to accommodate the turbine.

The wind turbine is considered a structure as defined by Bylaw 500, and must therefore meet the requisite setback and height requirements for accessory structures in the RS1 zone. However, a building permit is not required for the turbine, as the BC Building Code offers exemptions for these types of structures.

ALTERNATIVES

1. To approve the Development Variance Permit Application No. PL2013-108 subject to the terms and conditions outlined in Attachments 2 to 4.

2. To deny the Development Variance Permit Application No. PL2013-108.

LAND USE IMPLICATIONS

Development Implications

The applicant has stated that the purpose of the wind turbine is to provide an alternative source of energy for radio equipment in the event of a natural disaster, as Mr. Lee is a member of an emergency communications team organized by the City of Parksville and the RDN. Additionally, Mr. Lee has stated that locating the turbine near the natural boundary was necessary for its proper operation, as moving the turbine inland would result in trees and structures obstructing the flow of wind for its use.

The applicant has provided a letter of rationale, surveyed site plan, and several letters of support from surrounding properties in support of the application (see Attachments 5 and 6 for copies of these letters).

Strategic Plan Implications

Approval of Development Variance Permit Application No. PL2013-108 to allow for a wind turbine in its current location on the subject property is consistent with the Board's established Strategic Plan. As noted above, the intent of the turbine is to provide renewable energy to ensure HAM radio equipment remains operable when grid power is unavailable, for example in the event of a natural disaster.

The 2013-2015 RDN Board Strategic Plan identifies regional resilience as an overarching theme for the current term, noting the importance of strength and adaptability in face of inevitable change, and an openness to innovation to enable creative problem solving. In addition, self-sufficiency is included as one of the Board's four strategic priorities with the objective to support efficiency measures, and develop innovative, clean and renewable energy supplies throughout the region.

The Board Strategic Plan also articulates the Mission of the RDN, which involves facilitating the development of collaborative plans and strategies to guide the provision of RDN services, including the RDN Emergency Preparedness Plan; as well as delivering the services to support the implementation of these plans, including providing emergency services, and exploring alternative and innovative energy supplies within the region.

Sustainability Implications

Beyond the Board Strategic Plan, the Regional District of Nanaimo offers high level support for renewable energy systems through the Green Building Action Plan and the Community Energy and Emissions Plan. In some circumstances, this high level support for community sustainability projects is at odds with established regulatory tools such as zoning bylaws. Such is the case for wind turbines, which

are an emerging, viable alternative energy source which are tall structures that require access to an adequate wind resource, but were not contemplated when zoning Bylaws 500 and 1285 were drafted.

Public Consultation Process

Pending the Committee's recommendation and pursuant to the *Local Government Act* and the "Regional District of Nanaimo Development Approvals and Notification Procedures Bylaw No. 1432, 2005", property owners and tenants of parcels located within 50.0 metres of the subject property will receive a direct notice of the proposal and will have an opportunity to comment on the proposed variance prior to the Board's consideration of the application.

SUMMARY/CONCLUSIONS

This is an application for a Development Variance Permit to reduce the setback to the sea and to increase the maximum permitted accessory structure height to legalize the siting of a residential scale wind turbine that has been placed on the subject property. The applicant is a member of an emergency communications team, and has stated that the placement of the turbine near the natural boundary is necessary for its proper operation. The purpose of the turbine is to provide an alternative source of energy for HAM radio equipment that would aid in emergency response coordination in the event of a natural disaster.

The applicant has provided a surveyed site plan, letter of rationale, and letters of support from several surrounding property owners in support of the application. As the application is consistent with the Board Strategic Plan, staff support the application as submitted.

RECOMMENDATIONS

1. That staff be directed to complete the required notification.

2. That Development Variance Permit Application No. PL2013-108 to reduce the minimum required setback to the sea and increase the maximum permitted accessory structure height to legalize the siting of a residential scale wind turbine on the subject property be approved subject to the terms and conditions outlined in Attachment 2.

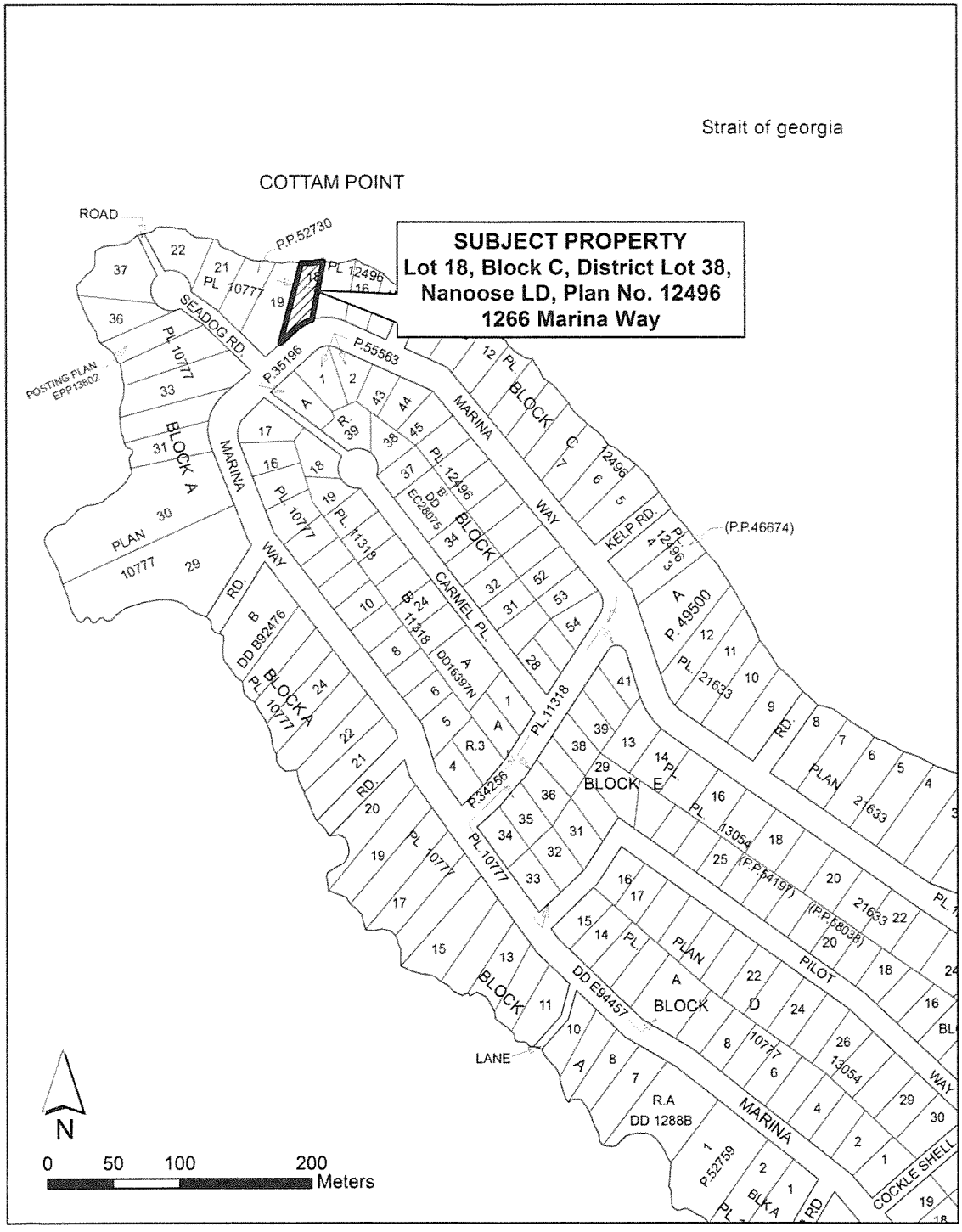
Report Writer

General Manager Concurrence

Manager Concurrence

CAO Concurrence

Attachment 1
Location of Subject Property



Attachment 2
Terms and Conditions of Development Variance Permit

The following sets out the terms and conditions of Development Variance Permit Application No. PL2013-108:

Bylaw No. 500, 1987:

With respect to the lands, "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987" is varied as follows:

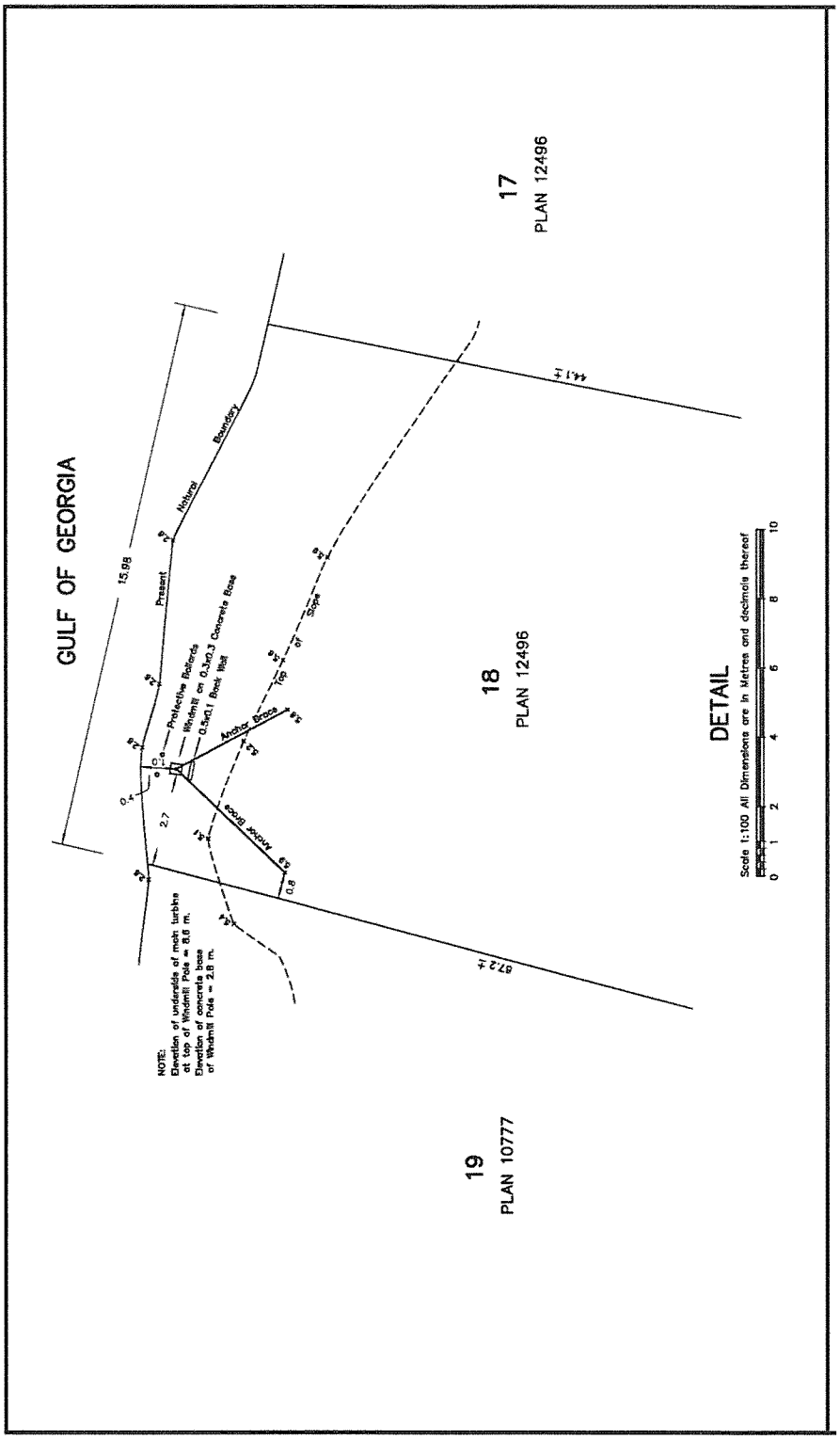
1. **Section 3.1 9) b) ii)** to reduce the minimum required setback from the natural boundary from 15.0 metres to 1.0 metre for an existing wind turbine as shown on Attachment 3.

2. **Section 3.4.61 Maximum Number and Size of Buildings and Structures** to increase the maximum permitted Accessory Structure Height from 6.0 metres to 6.55 metres for an existing wind turbine as shown on Attachment 4.

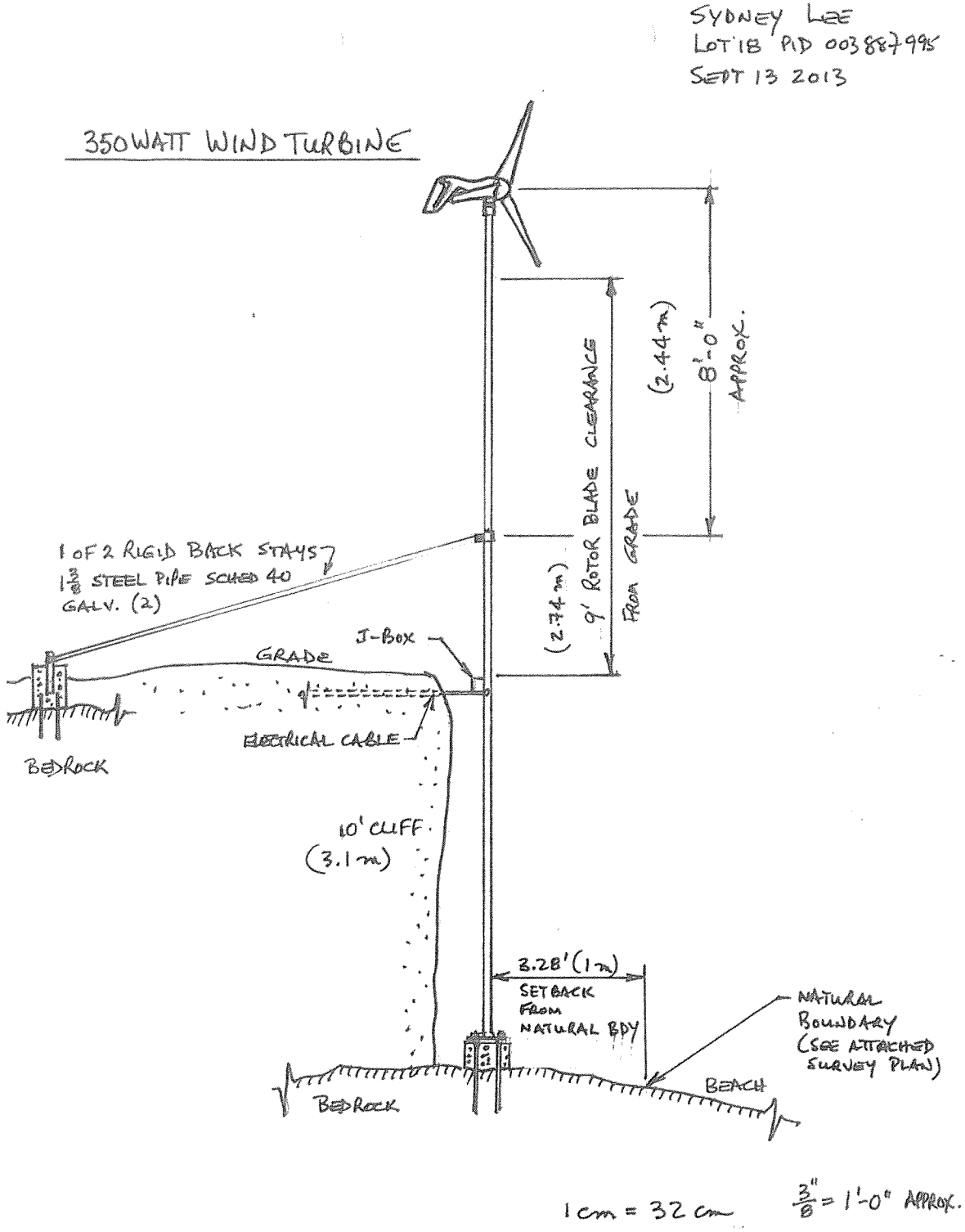
Conditions of Approval:

1. The wind turbine shall be sited in accordance with the site plan detail prepared by JE Anderson & Associates dated August 23, 2013, attached as Attachment 3.

Attachment 3
Site Plan Detail and Variance



Attachment 4
Turbine Elevations



Attachment 5
Letters of Support from Properties within 50 Metres of Subject Property

The Mann Family
1270 Seadog Road
Nanoose Bay, B.C.
August 21, 2013

To Whom It May Concern

Our immediate neighbour at 1268 Seadog, Mr. Sid Lee has recently erected a very small windmill for emergency power generation on his property. Our family has no objections at all to the presence or location of this windmill, and support the concepts of green energy, self-sufficiency and emergency communications that this windmill represent. I have been shown the windmill by Mr. Lee, and it looks like the same kind that many yachts have mounted for charging batteries.

Our extended family shares the use of our property, and over the decades we have always had good relations with Mr. Lee. He is a very good neighbour, and the main intention of the backup power generated by the windmill is for community communication services in case of a major disaster.

Even though we live right next door to the windmill, it is only possible to see it from our lower deck near the water. We have never heard any noise at all from the machine. I understand that mounting the windmill further inland would reduce the wind velocity due to interference from trees and buildings, making it far less efficient.

In summary, we support the presence of the windmill at the current location, and have absolutely no objections to having the windmill next door to us. I am amazed that anyone could find anything objectionable about this very small and quiet windmill.

Please feel free to contact me if you have any questions in this matter.

Sincerely,

William Mann

phone: 867-667-7409

email: munman@klondiker.com

Vivian Haist
1262 Marina Way
Nanoose Bay, B.C. V9P 9C1
Canada

August 31, 2013

Planning Department
Nanaimo Regional District
6300 Hammond Bay Road
Nanaimo, BC V9T 6N2

To Whom It May Concern:

Re: Wind turbine at 1268 Seadog Place, Nanoose Bay

I am writing at the request of my neighbor, Syd Lee, who has informed me that he may have to remove the wind turbine that he has installed on his property.

My property is two houses down from the Lee residence, and the wind turbine is visible from my deck and back yard. The wind turbine is quite small and I do not find it offensive in any way. In fact, as a supporter of green energy, I enjoy seeing the turbine as it represents a clean renewable energy source.

Syd had told me that the primary purpose for his wind turbine is to provide energy for his HAM radio in the event of a natural disaster where our power grid may be down. I am comforted to know that our neighborhood has a means of outside communication in the event of a natural disaster, as the Beachcomber community is relatively isolated.

Please let me know if there is any additional information I can provide (250-468-9141).

Yours sincerely,

V. Haist

Vivian Haist

Syd and Sharon

From: <don.thiessen@gmail.com>
To: "Sid Lee" <seadog1268@shaw.ca>
Sent: August 26, 2013 9:24 PM
Subject: Wind turbine generator

To Whom It May Concern:

Re: Sid Lee's Wind Turbine Generator

My name is Don Thiessen and I am writing this email at the request of Sid Lee. I live at 1272 Seadog Road, Nanoose Bay and am Sid's neighbor.

I can see Sid's wind turbine generator from my deck and do not consider it unsightly or noisy. I think it is great that Sid is seeking alternative green energy.

15/09/2013

August 22/2013.

1305 Seadog Rd.
Nanoose Bay.
V9P 9G1.

To whom it may concern,

I am writing in support of my neighbor, Mr. Syd Lee in his desire to install a wind driven green energy system at his home.

I believe Mr. Lee is to be commended + encouraged in his intent to become reliant on BC Hydro for 100% of his power needs.

It should be mentioned that Mr. Lee is just one of our district's amateur radio operators who, in the event of an emergency, form a network, so that essential communications can be maintained. An independent power source for this purpose should be considered to be desirable, if not essential.

I have visited the site of the wind turbine installation at Mr. Lee's invitation, and did not find sound from the turbine to be in any way obtrusive, indeed at a distance of approx.

100 feet, I found it to be virtually soundless.

The wind turbine is very small and in my opinion, does not spoil the view of the water and landscape in any significant way.

In closing, I earnestly ask the NRD to allow Mr. Lee to complete his green energy project.

Sincerely,

Georgia Rhodes.

Oct 7 201

Appeal No: BoV PL 2013-097
owner: Sydney Lee
Location: Legal Lot 18 Block C
District Lot 38
Nanoose District Plan VIP 1249
Civic 1206 Marina Way

To: Board of Variance RDN

Civic 1303 Douglas Brown
Marina Way Barbara Costyk

We are in favor of this mini wind Turbi
with a height of 6.55 m. mounted on a
5.1 cm. dia. mast.

BJ Costyk

Regional District of Nanaimo

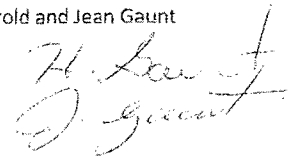
Board of Variance

October 4 2013

Re. Appeal No. BOV PL2013-097 – Sydney Lee

We live at 1299 Marina Way directly across the street from Mr. Lee's property. The installed wind turbine and mast does not affect our property in any way. We have seen the installation and feel that the variance Mr. Lee has requested is reasonable, and that the use of alternative energy sources should be encouraged by the Regional District.

Harold and Jean Gaunt



Cy A. Corp
1266 Marina Way
Nanoose Bay B.C.

October 6/2013

Regional District
of Nanaimo
Attn.
Board of Variance

Dear Sirs

I am the principle resident of the above noted property.

I have, on occasion visited one of my neighbours, namely. Sydney Lee at 1266 Marina Way.

I have seen the subject 350 Watt Wind Turbine and from my observation, I have no objection to its present location on site or, to its present height above grade.

Yours truly.

C A. Corp

Farkas, Bev

From: Robert Henry <[redacted]>
Sent: Saturday, October 05, 2013 6:15 PM
To: Farkas, Bev
Cc: <Robert.Henr[redacted]
Subject: Board of variance, appeal BQV PL2013-097

This email is in response to subject Board of Variance.

I'm the home owner of the property at Block A, lot 33 (1309 Seadog Road). Please be advised that mini-wind turbine erected at the home of Sydney Lee does not impact us in any way, and I have no concern with its present setback from the sea. I would like to add that it is my understanding that this mini-turbine turbine is used in support of emergency weather reporting. Mr Lee is very active in this area, and engaged in an emergency world-wide radio warning system - - to report such things as impending dangerous weather systems in mid-VI, including such events as earthquakes and tsunamis.

We (including the RDN, writ large) are indeed very fortunate to have such a publically-inclined neighbour in the local area. In short, I am all for this!

thank you,
Rob Henry

1

October 4, 2013

To the Board of Variance, Nanaimo Regional District

I have received a variance notification concerning the wind turbine installed by Mr. Syd Lee at 1266 Marina Way and I would like to make a few comments.

I am unable for health reasons to visit Mr. Lee to see his turbine but he has explained it to me and shown me photographs. I have no problem with the position of the turbine even though it is closer to the sea and higher than allowed.

I am encouraged to have someone in the area who would be able to help the residents in time of disaster with his ability to relay messages over radio. This would be a comfort to us all.

I am very much in favor of green energy.

Sincerely Jean M Fowler

Jean Fowler
1295 Marina Way
Nanoose Bay

Attachment 6
Letters of Support from Outside 50 Metres of Subject Property

August 24, 2013

Regional District of Nanaimo

To whom it may concern: Re: 1268 Seadog Road

Sydney Lee, my neighbour, is a 21st century visionary. In the interest of contributing to our community in the event of an emergency, Syd has had the foresight to erect a wind turbine on his property in order to facilitate communication should the region be beset by either an earthquake or a tsunami. To function appropriately the turbine must be mounted where it is exposed to the most wind and to move it would greatly compromise its effectiveness, and clearly would greatly reduce/eliminate the ability to communicate with others during an emergency.

I applaud Syd for volunteering his expertise to the community Emergency Communications Team and hope that the RDN recognizes and commends his initiative.

Yours truly,

M. E. A. Patterson, 1287 Seadog Road, Nanoose Bay, B. C. V9C 9P1

R.A. (Bob) Longmore
Deputy Municipal Emergency Radio Coordinator
District 69 Vancouver Island
89 Bridgewater Lane, Parksville, BC V9P 2V9

Dear Sirs,

I am the former Municipal Emergency Radio Communication Coordinator for District 69 Vancouver Island and at the present time, serve as the deputy to that position for my successor. This organization is supported by the RDN, the City of Parksville and the Town of Qualicum Beach.

I also serve as the ground air communications person for the Nanaimo section of the Civil Air Search and Rescue Association (CASARA). We work closely with the Military, Ground Search and Rescue and the Royal Canadian Marine Search and Rescue organizations.

The only reason I mention the above is to submit that my following comments are made with a degree of technical knowledge, as well as the value to emergency communications related to the following subject.

It has come to my attention that Mr. Sydney Lee, of 1268 Sea Dog Road, Nanoose Bay, BC V9P 9C1, an extremely knowledgeable and valued member of our emergency communications group, has a neighbour who has submitted a complaint to the authorities regarding a wind generator Mr. Lee has installed on his own property to power his personal communications equipment. This installation will be invaluable to the community in the event of an emergency that compromises normal electronic communications.

One of the primary personal goals for many of our Emergency Communications Team members is to augment the expensive communications equipment the RDN and its partners have so wisely invested in to provide communication for Reception Centres and Emergency Operations Centres. A number of our licensed operators who live within the District maintain and develop expensive alternatives to "off the grid" power sources to provide their local areas with emergency communications. In other jurisdictions this has proven invaluable in the time of catastrophic emergency situations.

It is interesting to note that the erection of communications antennas are protected against complaints such as the one against Mr. Lee's equipment by the Radio Communications Act of the Federal Government's in North America and other areas around the globe, as they recognise the value of these installations. I only indicate this to emphasize the importance with which these auxiliary communications services are given by federal governments.

It is my sincere hope that you will consider my remarks above when adjudicating the issue before you.

Sincerely,

R.A. (Bob) Longmore,
Deputy Municipal Emergency Radio Coordinator District 69, Vancouver Island
Member CASARA (PEP AIR)

Suzanne & Graham Rush
1301 Seadog Rd.
Nanoose, B.C. V9P 9C1

October 5, 2013

Regional District of Nanaimo
6300 Hammond Bay Road
Nanaimo, B.C. V9T 6N2

Attention: Board of Variance
Appeal # PL 2013
Mr Sidney Lee
1266 Marina Way
Nanoose B.C.

To Whom it May Concern.

We are writing in support of Mr. Lee's Board of Variance Appeal with regards to the power-generating windmill he has erected on his property. We are neighbours around the point from Mr. Lee and even though we did not receive a letter with reference to the Variance application we would still like to offer our support of this kind of alternate energy source being used in our neighbourhood.

We understand that the District of Nanaimo has started a strong initiative to encourage alternate energy sources such as solar, geothermal exchange, photovoltaic, etc. Surely wind generated energy falls in the same category.

Our understanding is that Mr. Lee's windmill is regarded as a structure in the category of large out-buildings such as garages. Here is where the problem lies, as new by-laws will be necessary for the District to move forward with future structures. We understand that if the variances Mr. Lee is asking for are not granted his structure would be unable to work at it's optimum capacity.

Mr. Lee's structure is very narrow – much like a flag pole – which we understand would be allowed. I cannot see how a simple structure like this can affect someone's view or interfere with the coastal life in anyway.

We commend Mr. Lee in his efforts to be GREEN. Our environment depends on these kinds of initiatives and we feel the District of Nanaimo and the neighbourhood should support Mr. Lee in his efforts whole-heartedly.

Sincerely,

Suzanne & Graham Rush

Syd and Sharon

From: "Joseph Ringwald" [redacted]
To: [redacted]
Sent: October 3, 2013 4:28 PM
Subject: Wind Turbine Variance - 1266 Marina Way, Nanoose Bay

To Whom It May Concern

We are the owners of the waterfront property at 1321 Marina Way, Nanoose Bay.

I have inspected the small wind turbine installed at 1266 Marina Way in Nanoose Bay and affirm our support for the granting of a variance in favour of the current installation. Furthermore, we encourage the RDN to view this installation as a favourable example of alternative green energy sources when considering a future revision to bylaws governing such structures.
Regards,

JOSEPH RINGWALD, P.ENG., FCIM
President & CEO

SELWYN RESOURCES LTD.
700 – 509 Richards Street
Vancouver, BC V6B 2Z6

604-801-7242 (work)
604-347-7661 (mobile)
604-689-8355 (fax)
1-888-989-9188 (toll-free)

Email: jringwald@selwynresources.com

To Whom It May Concern,
Board of Variance,
Regional District of Nanaimo.

Dear Board Members,

Re: Wind turbine constructed by Mr. Sydney Lee, at 1266 Marina Way, Nanoose Bay

We the undersigned would like to state that as neighbours of Mr. and Mrs. Lee, we have examined the structure in question, and find it in no way obtrusive. The visual effect is negligible, it produces hardly any noise, and its height doesn't affect the environment at all.

In our opinion, Mr. Lee has given considerable thought to all of the above points, and has built the wind turbine in the best and most practical way possible. We urge you to reconsider any objections to this most unobtrusive structure, and ask you to allow the variance.

Thank you.

George and Patricia Smekal

1391 Marina Way
Nanoose Bay, B.C.

October 4, 2013

To the Board of Variance, Nanaimo Regional District

I have received a variance notification concerning the wind turbine installed by Mr. Syd Lee at 1266 Marina Way and I would like to make a few comments.

I am unable for health reasons to visit Mr. Lee to see his turbine but he has explained it to me and shown me photographs. I have no problem with the position of the turbine even though it is closer to the sea and higher than allowed.

I am encouraged to have someone in the area who would be able to help the residents in time of disaster with his ability to relay messages over radio. This would be a comfort to us all.

I am very much in favor of green energy.

Sincerely Jean M Fowler

Jean Fowler
1295 Marina Way
Nanoose Bay

REGIONAL DISTRICT OF NANAIMO

RDN REPORT
CAO APPROVAL
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NOV 04 2013
RHD
BOARD

MEMORANDUM

TO: Jeremy Holm
Manager, Current Planning

DATE: October 30, 2013

FROM: Tyler J. Brown
Planner

FILE: PL2013-072

SUBJECT: **Development Variance Permit Application No. PL2013-072 – Ashton**
Lot 1, District Lot 84, Nanoose District, Plan VIP72972 – 1965 Stewart Road
Electoral Area 'E'

PURPOSE

To consider an application for a Development Variance Permit to reduce the setback from the interior lot line from 8.0 metres to 0.3 metres to legalize the siting of an existing shop.

BACKGROUND

The Regional District of Nanaimo (RDN) has received an application from Cliff Walker of Timbersmith Log Construction Ltd. on behalf of Paul and Fatima Ashton to legalize the siting of a shop on the subject property. The subject property is approximately 2.12 ha in area and is zoned Rural 5 (RU5) pursuant to "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987" (see Attachment 1 for location of subject property). The applicants are proposing an addition to the existing dwelling unit that will comply with setbacks.

The subject property currently contains an existing dwelling unit, shed, woodshed and shop. The applicants are proposing to construct an addition to the existing dwelling unit that will comply with zoning setbacks. The applicants plan on relocating the existing shed to conform with zoning setbacks. Furthermore, the applicant will either relocate or demolish the existing woodshed which does not comply with setbacks. Each of the three structures will require building permits for demolition, relocation or to legalize the building in its current location depending on the outcome of this development variance application. Although the property was within a building inspection service area the previous property owners constructed the three buildings without a permit. The subject property is bound by a rural lot to the north, a resource management zone to the south, Claudet Road to the west and Stewart Road to the east. Access to the subject property is from Stewart Road.

Proposed Development and Variance

The applicants have applied for a variance to Section 3.4.85 – Minimum Setback Requirements – from the "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987" from 8.0 metres to 0.3 metres (measured to the eaves) to legalize the siting of an existing shop (see Attachment 3 for site plan). The applicants have applied for a building permit for the shop. If this Development Variance Permit is approved the shop will be required to satisfy the current British Columbia Building Code. Building staff have attended the site and have confirmed that the setback to the wall face of the shop is sufficient to satisfy the requirements of the British Columbia Building Code with regard to fire separation.

ALTERNATIVES

1. To approve the Development Variance Permit Application No. PL2013-072 subject to the conditions outlined in Attachment 2.

2. To deny the Development Variance Permit Application No. PL2013-072.

LAND USE IMPLICATIONS

Development Implications

The applicants have requested a variance to legalize an existing shop (see Attachment 3 for site plan). Due to the rural context of the area, no view implications for the adjacent properties are anticipated. Moreover, the property to the south of the subject parcel, which shares a common property line and is nearest to the shop, is zoned Resource Management 3 (RM3). A building or structure on the neighbouring RM3 property would be required to be set back 20.0 metres from the boundary shared with the subject property.

Sustainability Implications

Staff reviewed the application and note that the legalization of the shop will permit the continued use of existing building.

Public Consultation Process

As part of the required notification process, pursuant to the *Local Government Act* and the "Regional District of Nanaimo Development Approvals and Notification Procedures Bylaw No. 1432, 2005", property owners and tenants located within 50.0 metres of the subject property will receive a direct notice of the proposal and will have an opportunity to comment on the proposed variance prior to the Board's consideration of the application.

SUMMARY/CONCLUSIONS

To consider an application for a Development Variance Permit to reduce the setback from the interior lot line from 8.0 metres to 0.3 metres to legalize the siting of a shop. The applicants have submitted a site plan and letter of rationale in support of the application. Given that the requested variance would retain an existing constructed building and that there are no view implications or land use concerns for adjacent properties anticipated, staff recommends the Board approve the requested variance pending the outcome of public notification and subject to the conditions outlined in Attachment 2.

RECOMMENDATIONS

1. That staff be directed to complete the required notification.

2. That Development Variance Permit Application No. PL2013-072 to reduce the setback from the interior lot line from 8.0 metres to 0.3 metres to legalize the siting of a shop be approved.

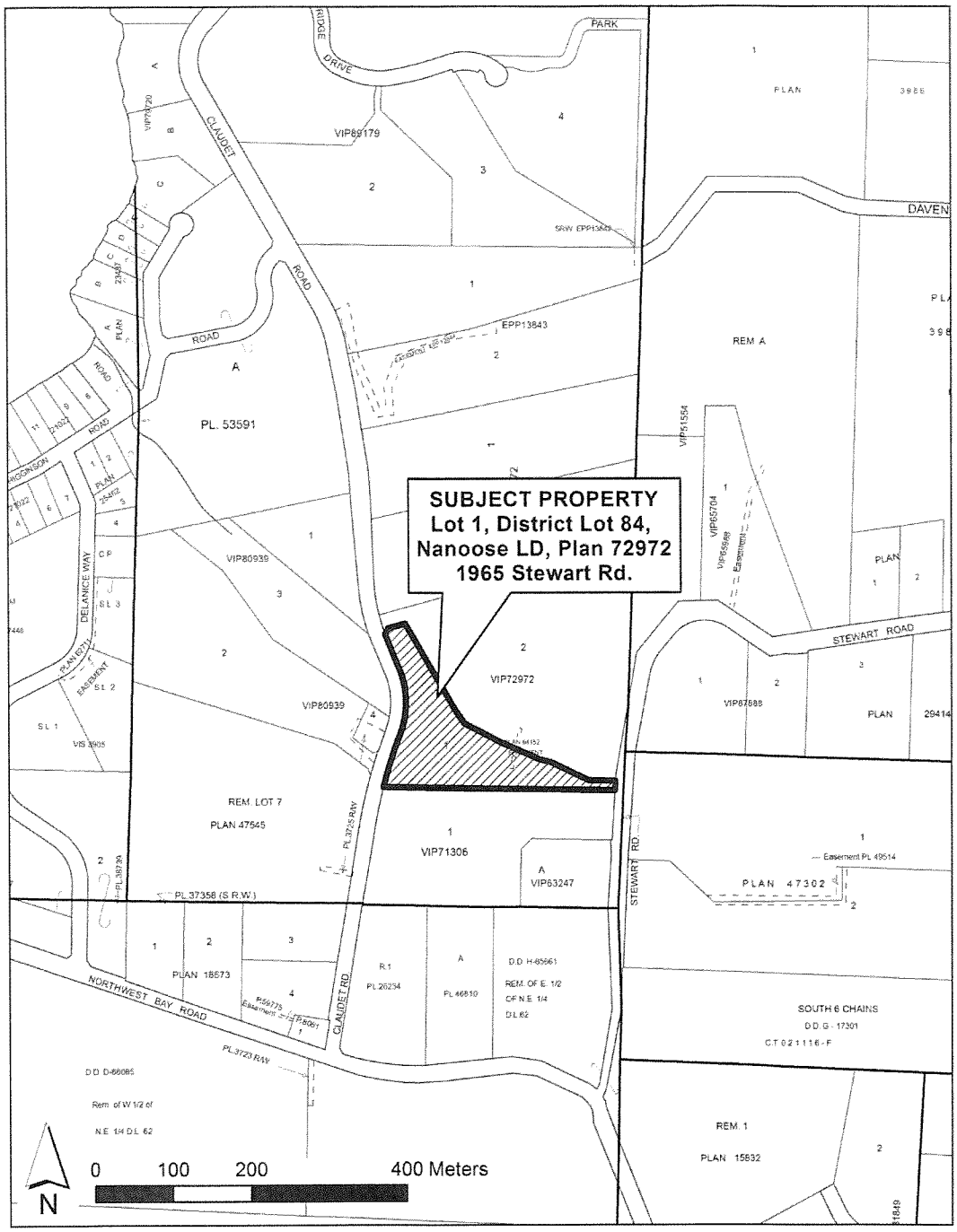
Report Writer

General Manager Concurrence

Manager Concurrence

CAO Concurrence

Attachment 1
Location of Subject Property



Attachment 2
Terms and Conditions of Permit

The following sets out the terms and conditions of Development Variance Permit Application No. PL2013-072:

Bylaw No. 500, 1987 Variances:

With respect to the lands, "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987" is varied as follows: "

1. Section 3.4.85 to reduce the minimum setback requirement from the interior lot line from 8.0 metres to 0.3 metres for an existing shop.

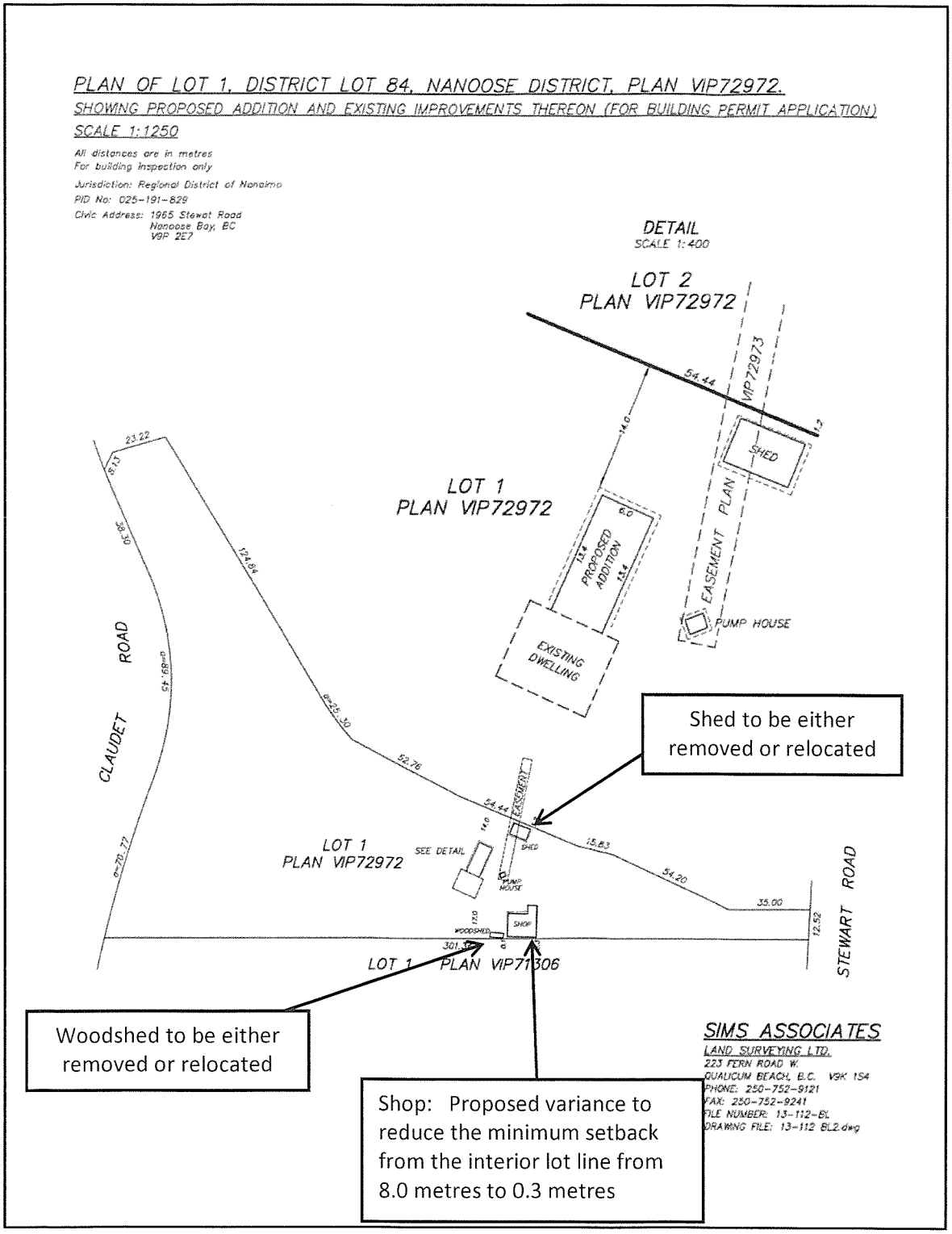
Conditions of Approval:

1. The proposed dwelling unit addition and existing shop shall be sited in general accordance with the site plan prepared by Sims Associates Land Surveying Ltd., attached as Attachment 3.

2. The existing shed and woodshed shall be either demolished or relocated to conform with zoning setbacks.

3. The property owner shall obtain the necessary permits in accordance with Regional District of Nanaimo Building Regulations.

Attachment 3
Proposed Site Plan and Variance



REGIONAL DISTRICT OF NANAIMO

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BOARD		

MEMORANDUM

TO:	Jeremy Holm Manager, Current Planning	**DATE:**	October 29, 2013
FROM:	Tyler J. Brown Planner	**FILE:**	PL2013-111
SUBJECT:	**Development Variance Permit Application No. PL2013-111 – Rakowski Lot 1, Section 1, Range 7, Cranberry District, Plan VIP88637 Electoral Area 'A'**		

PURPOSE

To consider an application for a Development Variance Permit to reduce the interior lot line setbacks from 8.0 metres to 7.0 metres to permit the construction of a dwelling unit on the subject property.

BACKGROUND

The Regional District of Nanaimo (RDN) has received a development variance application from Don Rakowski to permit the construction of a single family dwelling unit on the subject property. The subject property is approximately 0.65 ha in area and is zoned Rural 4 (RU4) pursuant to "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987" (see Attachment 1 for location of subject property).

The subject property, currently vacant, is bisected by Haslam Creek and is within the Agricultural Land Reserve (ALR). Development is proposed for the portion of the subject parcel to the south of the creek. The northern portion of the parcel is bordered by RU4 lots. A RU4 zoned parcel within the ALR borders the parcel's western lot line, a Public 1 zoned parcel borders the eastern lot line, and Vowels Road bounds the southern lot line. Access to the subject property is from Vowels Road.

A large Streamside Protection and Enhancement Area (SPEA) of 30.0 metres has recently been established for Haslam Creek. The proposed construction will occur outside of the established SPEA.

Proposed Development and Variance

The applicant has applied for a variance to Section 3.4.84 – Minimum Setback Requirements – from the "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987" from 8.0 metres to 7.0 to permit the construction of a dwelling unit on the subject property (see Attachment 3 for site plan). The subject property is of an irregular configuration and rather narrow for a RU4 zoned parcel. As such, the 8.0 metre interior lot line setback constrains the buildable area on the subject property to a considerably greater degree than similarly zoned adjoining lots.

When designing the proposed house, the applicant measured setbacks from the foundations whereas Bylaw 500 requires setbacks to be measured from the outermost point of the building. As a result, the applicant's proposed house has been designed in a manner that does not meet setback requirements and the applicant has requested a variance to address this.

ALTERNATIVES

1. To approve the Development Variance Permit No. PL2013-111 subject to the terms and conditions outlined in Attachment 2.

2. To deny the Development Variance Permit No. PL2013-111.

LAND USE IMPLICATIONS

Development Implications

The applicant has requested a variance to permit the construction of a dwelling unit (see Attachment 3 for site plan). Staff have reviewed the applicant's request and have not identified any view implications for neighbouring properties nor note any other negative implications that would be associated with the approval of Development Variance Permit No. PL2013-111.

Sustainability Implications

Staff have reviewed the application and have not identified any sustainability implications.

Public Consultation Process

Pending the Committee's recommendation and pursuant to the *Local Government Act* and the "Regional District of Nanaimo Development Approvals and Notification Procedures Bylaw No. 1432, 2005", property owners and tenants of parcels located within 50 metres of the subject property will receive a direct notice of the proposal and will have an opportunity to comment on the proposed variance prior to the Board's consideration of the application.

SUMMARY/CONCLUSIONS

To consider an application for a Development Variance Permit to reduce the interior lot line setback from 8.0 metres to 7.0 to permit the construction of a dwelling unit on the subject property. Due to the subject property's constrained building envelope, and given that the requested variance would have no anticipated view implications for adjacent properties and that no other land use concerns associated with the proposed variance have been identified, staff recommend the Board approve the requested variance, pending the outcome of public notification, subject to the terms and conditions outlined in Attachment 2.

RECOMMENDATIONS

1. That staff be directed to complete the required notification.

2. That Development Variance Permit Application No. PL2013-111 to reduce the interior lot line setback from 8.0 metres to 7.0 metres to permit the construction of a dwelling unit be approved.

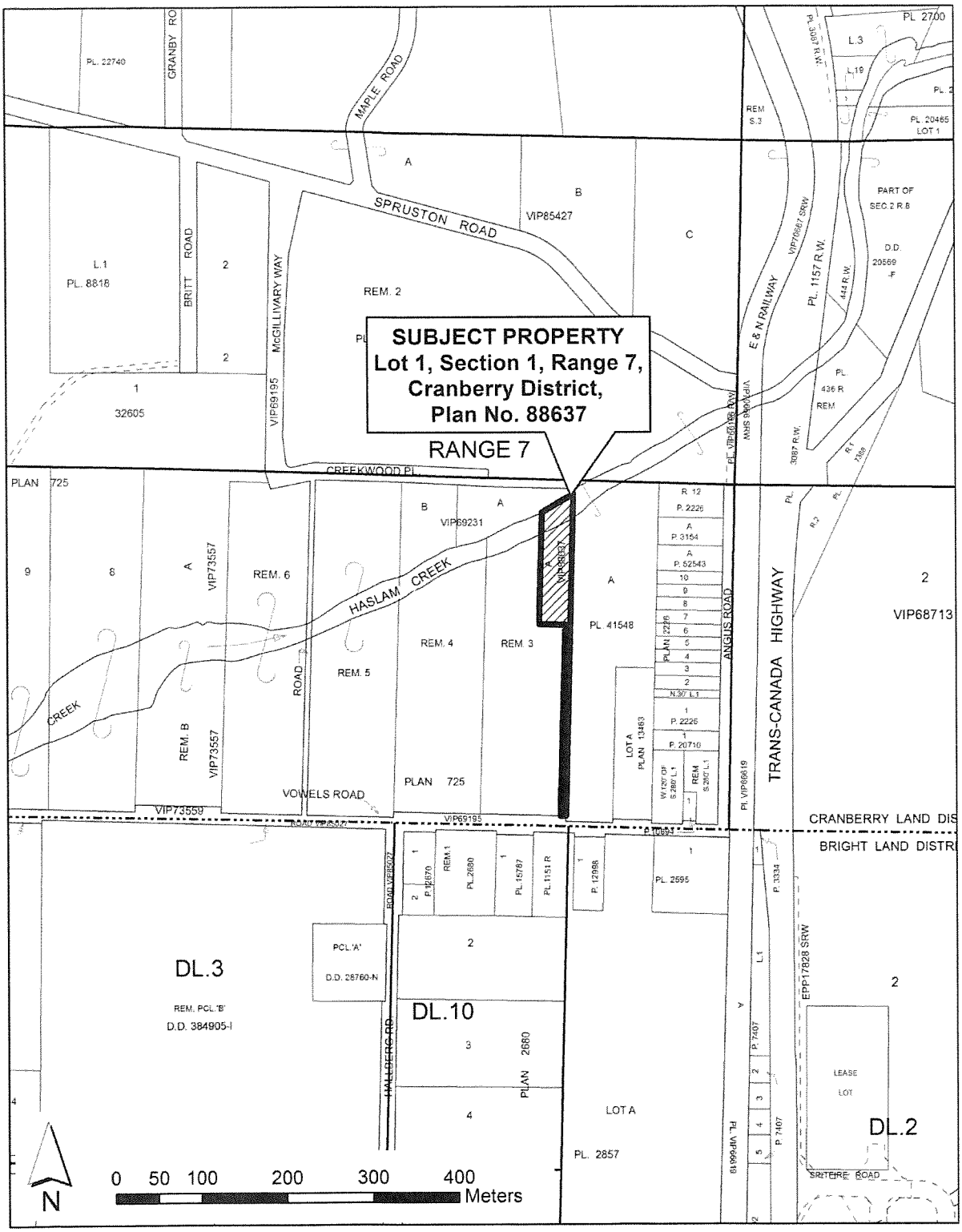
Report Writer

General Manager Concurrence

Manager Concurrence

CAO Concurrence

Attachment 1
Location of Subject Property



Attachment 2
Terms and Conditions of Permit

The following sets out the terms and conditions of Development Variance Permit No. PL2013-111:

Bylaw No. 500, 1987 Variances:

With respect to the lands, "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987" is varied as follows:

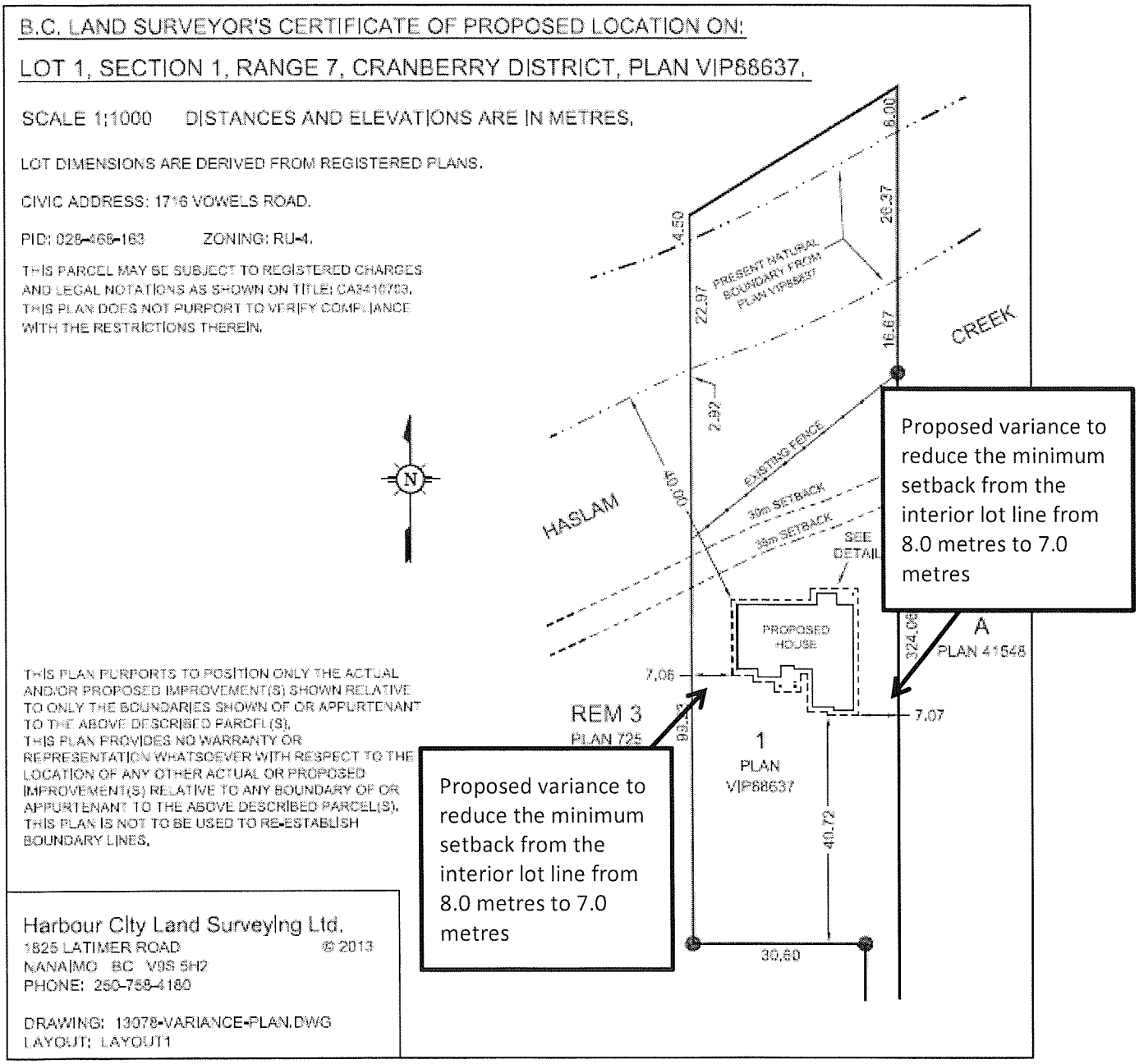
1. Section 3.4.84 to reduce the minimum setback requirement from the interior lot lines from 8.0 metres to 7.0 metres to permit the construction of a dwelling unit.

Conditions of Approval:

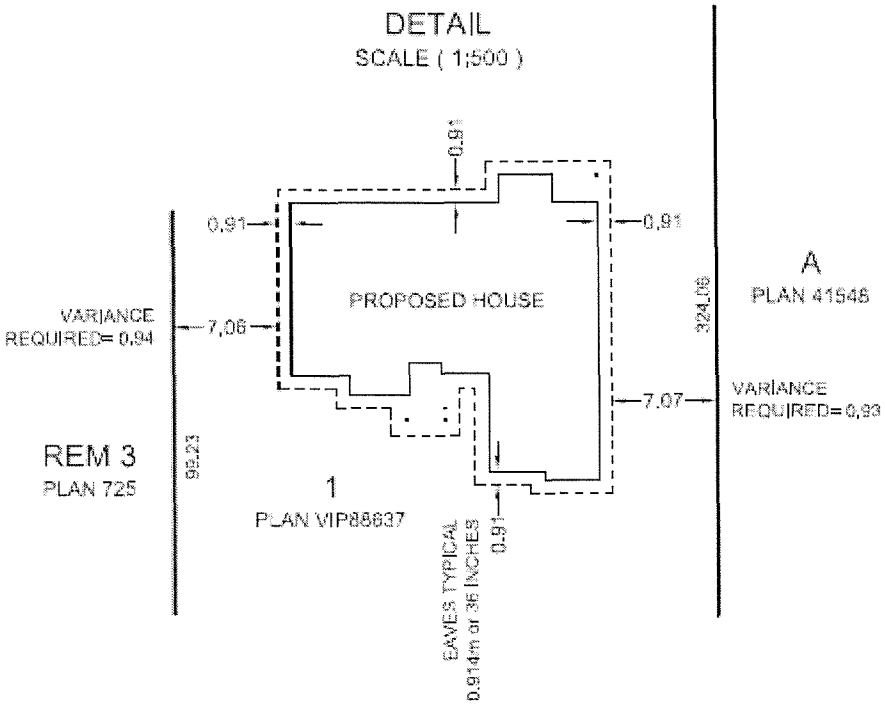
1. The proposed dwelling unit addition and existing shop shall be sited in general accordance with the site plan prepared by Harbour City Land Surveying Ltd., attached as Attachment 3.

2. The property owner shall obtain the necessary permits for construction in accordance with Regional District of Nanaimo Building Regulations.

Attachment 3
Proposed Site Plan and Variances
(page 1 of 2)



Attachment 3
Proposed Site Plan and Variances
(page 2 of 2)



REGIONAL DISTRICT OF NANAIMO

RDN REPORT		
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BOARD		

MEMORANDUM

TO: Jeremy Holm
Manager of Current Planning

DATE: October 31, 2013

FROM: Robert Stover
Planning Technician

FILES: 3900-20-500.387
3900-20-1285.18

SUBJECT: **Regulatory Amendments to Address Marihuana for Medical Purposes Regulations**

PURPOSE

To present to the Regional District of Nanaimo (RDN) Board a number of proposed zoning bylaw amendments to address the Marihuana for Medical Purposes Regulations (MMPR).

BACKGROUND

In response to concerns raised by a delegation regarding odour created by licensed medical marihuana grow operations at its June 25, 2013 meeting, the Board approved the following motion:

> *"MOVED Director Veenhof, SECONDED Director Young, that staff be directed to prepare a report on the zoning implications as it relates to the new regulations on the licensed production of medical marihuana for the Board's consideration."*

Following Board direction, staff prepared a background report which detailed the specifics of the Marihuana for Medical Purposes Regulations and included a number of proposed zoning bylaw amendments to accommodate medical marihuana production under the new MMPR. The report recommended amendments to Bylaws 500 and 1285 to permit medical marihuana production on lands within the Agricultural Land Reserve (ALR), to prohibit medical marihuana production as a home based business, and recommended 30.0 metre setbacks from property lines for structures used for medical marihuana production under MMPR. These proposed amendments were intended to provide immediate and clear land use regulatory direction with regard to medical marihuana production facilities operating under the new MMPR.

The Board considered the proposed zoning bylaw amendments at its meeting of September 24, 2013 and provided the following direction:

> *"MOVED Director Fell, SECONDED Director Young, that the regulatory amendments to address Marihuana for Medical Purposes Regulations – Bylaw No. 500.387, 2013 and Bylaw 1285.18, 2013 be referred back to staff, and that staff be directed to organize a seminar discussion for the Board on the topic."*

Following a Board seminar, which was held on October 22, 2013, staff have evaluated options for permitting medical marihuana production under the MMPR on industrial zoned properties. Options for increasing the minimum setback requirements for medical marihuana production facilities on ALR lands have also been examined.

ALTERNATIVES

1. To give first and second reading to the amendment Bylaws 500.387 and 1285.18 as presented.
2. To provide staff with alternative direction to prepare land use regulation amendments to Bylaws 500 and 1285 to address MMPR.

LAND USE IMPLICATIONS

While the new Marihuana for Medical Purposes Regulations do not permit the production of medical marihuana within residential dwellings, there are no specific provisions within the MMPR with respect to regulating the siting or scale of medical marihuana production facilities. As such, if a local government has concerns regarding the siting, scale, or location of medical marihuana production facilities, it is incumbent upon the local government to establish provisions within their respective zoning bylaws to regulate the use.

As the Agricultural Land Commission and the Provincial Ministry of Agriculture view the production of medical marihuana as being consistent with the definition of "farm use" as outlined in the *Agricultural Land Commission Act*, local government bylaws cannot prohibit medical marihuana production use on lands within the ALR. Notwithstanding this, local government bylaws may regulate the use on ALR land by establishing siting requirements for structures associated with the production of medical marihuana. However, a local government cannot regulate the use to the point of prohibition on ALR lands. Following discussion at the October 22, 2013 Board seminar, staff investigated the possibility of applying setbacks of greater than 30.0 metres for structures used for medical marihuana production on ALR lands.

After consulting with the Ministry of Agriculture regarding establishing setbacks of greater than 30.0 metres, Ministry staff indicated that they would not likely support establishment of setbacks that further restricts a farm use on ALR lands. The Ministry of Agriculture 'Guide for Bylaw Development in Farm Areas' establishes a range of property line setback options for a variety of farm activities. Medical marihuana production facilities are not explicitly detailed in this guide; however, none of the established setbacks for intensive agriculture uses exceed 30.0 metres with the exception of some forms of confined livestock operations. As the Ministry of Agriculture has indicated that it is not supportive of establishing setback restrictions of greater than 30.0 metres, staff are recommending a 30.0 metre setback requirement for medical marihuana production facilities on ALR lands as previously proposed.

Following discussion from the Board seminar held on October 22, 2013, staff have also evaluated options for including medical marihuana production use on industrial zoned properties. The MMPR requires the cultivation, processing, packaging and shipping associated with medical marihuana production to occur wholly indoors within secure production facilities. Given the potential scope and scale of these activities, staff have determined that lands zoned for medium and heavy industrial uses are most appropriate for medical marihuana production. Medium and heavy industrial lands are intended to accommodate more intensive forms of industrial use such as processing and manufacturing of goods.

Based on Director feedback staff propose to accommodate medical marihuana production on lands zoned Industrial 2 (I-2) in Bylaw 1285, as the majority of these properties are well situated for access along the Alberni Highway, and are located away from residentially zoned lands. The I-2 zone currently accommodates manufacturing and processing uses, which are consistent with the uses associated with medical marihuana production facilities. Staff are not recommending zoning amendments to Bylaw 500

to permit medical marihuana production on industrial lands at this time. The distribution of medium and heavy industrial lands within the scope of Bylaw 500 is less concentrated than those in Bylaw 1285, with some of the parcels abutting residentially zoned lands. Additionally, the medium and heavy industrial zoned parcels in Bylaw 500 vary widely by parcel size and are not equally well served by highway access.

Regardless of the land use regulatory direction chosen by the Board to address the use at this time, interested parties will still have the option to apply to rezone individual properties to accommodate medical marihuana production. Zoning amendment applications can be assessed on a case by case basis, and would allow for a clear evaluation of community interests when considering new proposed production facilities. The rezoning process would also allow the Board to consider factors such as the potential impacts on surrounding properties, servicing implications, and the form and character of these facilities through the course of the application. This would give the Board opportunity to assess each application to rezone on its individual merits.

In light of the recent influx in notices of intent to the RDN to pursue a Producer's License under MMPR, and the lack of clear regulation currently in place to accommodate the use, staff are proposing a series of amendments to RDN Zoning Bylaws to regulate the siting of medical marihuana production facilities ahead of the full implementation of MMPR in April of 2014.

Zoning Considerations

The new MMPR is intended to treat medical marihuana production in a similar manner to the manufacture of prescription drugs and prohibit the production of medical marihuana within residential dwellings. In order to be consistent with both the intent of the new MMPR and recognize the authority of the *Agricultural Land Commission Act*, staff are recommending the Board consider the following amendments to "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987" and "Electoral Area 'F' Zoning and Subdivision Bylaw No. 1285, 2002":

Bylaw 500 (see Attachment 1 for draft Bylaw 500.387):

- Define **Medical Marihuana Production:** *means the cultivation and production of medicinal marihuana wholly within a facility as permitted under the* ***Marihuana for Medical Purposes Regulations (MMPR)****, and any subsequent regulations or acts which may be enacted henceforth;*
- Amend the Home Based Business Guidelines to clarify that medical marihuana production is prohibited as a home based business use;
- Amend the definition of "Agriculture" to exclude medical marihuana production on lands not within the Agricultural Land Reserve;
- Amend Section 14 of the General Regulations to include medical marihuana production under farm use regulations;
- Establish a 30.0 metre setback from property lines for structures used for medical marihuana production use to be consistent with the Ministry of Agriculture's guide for bylaw development in farming areas with regard to intensive agriculture.

Bylaw 1285 (see Attachment 2 for draft Bylaw 1285.18):

- Define **Medical Marihuana Production:** *means the cultivation and production of medicinal marihuana wholly within a facility as permitted under the* ***Marihuana for Medical Purposes Regulations (MMPR)****, and any subsequent regulations or acts which may be enacted henceforth;*
- Amend the definition of "Farm Use" to exclude medical marihuana production;
- Amend the Home Based Business Guidelines to clarify that medical marihuana production is prohibited as a home based business use;
- Amend the General Regulations of Bylaw 1285 to prohibit medical marihuana production use on all lands except where expressly permitted;
- Amend the General Regulations of Bylaw 1285 to establish a 30.0 metre setback from property lines for structures associated with medical marihuana production use in the A-1 zone (existing setbacks within the I-2 zone would apply);
- Amend the A-1 zone to permit medical marihuana production use;
- Amend the I-2 zone to permit medical marihuana production use.

In order to ensure RDN regulations address the MMPR in a timely manner that will be clear to those interested in applying for production licenses under MMPR, staff have prepared draft amendment bylaws for the Board's consideration.

Policy Implications

While medical marihuana production as proposed under the MMPR does not fit the traditional idea of agriculture, it is acknowledged by the ALC as a "Farm Use" and serves to meet a legitimate commercial demand for a Federally recognized controlled substance. The Regional District of Nanaimo Agricultural Area Plan, Regional Growth Strategy, and Board Strategic Plans all support the creation of a diverse and vibrant economy and include specific policy support for the agricultural economy of the region.

Public Consultation Implications

Should the Board approve first and second reading of the proposed amendment bylaws a public hearing will be scheduled prior to the Board's consideration of third reading.

Inter-Governmental Implications

As noted previously the Ministry of Agriculture has advised that it is not supportive of establishing setbacks of greater than 30.0 metres for 'farm uses' as outlined in the Ministry's guidelines.

SUMMARY/CONCLUSIONS

Recent changes to Federal legislation surrounding the production and distribution of medical marihuana will have implications for local government from a land use perspective. The new regulation, Marihuana for Medical Purposes Regulations (MMPR), aims to address public health and safety concerns by moving medical marihuana production out of private dwellings and into more secure production facilities.

Following Board direction, staff held an information seminar on the new Marihuana for Medical Purposes Regulations on October 22, 2013. Following the seminar, staff reviewed options for increasing the minimum required setback for structures used for medical marihuana production on ALR lands, and considered options for accommodating the use on lands zoned for medium and heavy industrial uses.

With respect to setbacks, Ministry of Agriculture staff have indicated that they would not likely support the establishment of setbacks of greater than 30.0 metres for medical marihuana production facilities. As such, staff are recommending zoning bylaw amendments that will define medical marihuana production, prohibit the use as a home based business, and permit it as a use exclusively on lands within the Agricultural Land Reserve with Bylaw 500 and on lands zoned A-1 and I-2 within Bylaw 1285. Structures necessary for medicinal marihuana production would be subject to a 30.0 metre setback which is consistent with Ministry of Agriculture guidelines for establishment of bylaws for intensive agriculture.

With respect to permitting medical marihuana production on industrial zoned lands, staff are proposing amendments to Bylaw 1285 to permit medical marihuana production on Industrial 2 (I-2) zoned lands. The majority of I-2 zoned lands are situated away from residential properties and have good access to the Alberni Highway. The I-2 zoning currently permits product manufacturing and processing uses, which are generally consistent with the activities associated with medical marihuana production facilities under the MMPR. Staff are not recommending amendments to Bylaw 500 to permit medical marihuana production facilities on industrial lands at this time, as the distribution of these lands potentially places them within close proximity to developed residentially zoned properties. Additionally, the medium and heavy industrial zoned parcels in Bylaw 500 vary widely by parcel size and are not equally well served by highway access.

Interested parties that wish to establish a medical marihuana production facility on lands not zoned for the use can pursue a zoning amendment application. Zoning amendment applications would provide the Board and community with an opportunity to consider the individual merits of each proposal through public consultation and impact assessments.

In reviewing the proposed bylaw amendments, staff have determined that the recommended amendments are consistent with RDN policy. As such, staff support the proposed bylaw amendments as presented. Staff recommend the Board support the proposed bylaw amendments in order to address the MMPR in a timely manner which will provide clarity and certainty where medical marihuana production facilities are permitted. Should the Board choose to adopt zoning regulations related to MMPR, staff further recommend that a review be undertaken one year following the adoption of the regulation to allow the Board to consider whether further regulatory amendments are required following full transition to the MMPR from the current regime after March 31, 2014.

RECOMMENDATIONS

1. That the Board direct staff to prepare land use regulation amendments to address the Marihuana for Medical Purposes Regulations in order to limit the location of medical marihuana production facilities to parcels in the Agricultural Land Reserve (ALR) for Bylaw 500.

2. That the Board direct staff to prepare land use regulation amendments to address the Marihuana for Medical Purposes Regulations in order to limit the location of medical marihuana production facilities to parcels within the A-1 and I-2 zones for Bylaw 1285.

3. That "Regional District of Nanaimo Land Use and Subdivision Amendment Bylaw No. 500.387, 2013", be introduced and read two times.

4. That the Public Hearing on "Regional District of Nanaimo Land Use and Subdivision Amendment Bylaw No. 500.387, 2013", be chaired by Chairperson Stanhope or his alternate.

5. That "Regional District of Nanaimo Electoral Area 'F' Zoning and Subdivision Bylaw No. 1285.18, 2013", be introduced and read two times.

6. That the Public Hearing on "Regional District of Nanaimo Electoral Area 'F' Zoning and Subdivision Bylaw No. 1285.18, 2013", be chaired by Director Fell or his alternate.

Report Writer

General Manager Concurrence

Manager Concurrence

CAO Concurrence

Attachment 1

REGIONAL DISTRICT OF NANAIMO
BYLAW NO. 500.387

A Bylaw to Amend Regional District of Nanaimo
Land Use and Subdivision Bylaw No. 500, 1987

The Board of the Regional District of Nanaimo, in open meeting assembled, enacts as follows:

A. This Bylaw may be cited as "Regional District of Nanaimo Land Use and Subdivision Amendment Bylaw No. 500.387, 2013".

B. The "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987", is hereby amended as follows:

1. Under **PART 2, INTERPRETATION, DEFINITIONS** by inserting the following into the sixth line of the first paragraph of the definition of "agriculture" after "but excludes animal care":

   ", medical marihuana production except on lands located within the agricultural land reserve,"

2. By adding the following definition after the definition of "medical health officer":

   "medical marihuana production means the cultivation and production of medical marihuana wholly within a facility as permitted under the ***Marihuana for Medical Purposes Regulations (MMPR)***, and any subsequent regulations or acts which may be enacted henceforth."

3. Under **PART 3, LAND USE REGULATIONS, SECTION 3.3 GENERAL REGULATIONS** by adding the following new text to Section 3.3.12 b) xxviii):

   "xxix) medical marihuana production"

4. Under **PART 3, LAND USE REGULATIONS, SECTION 3.3 GENERAL REGULATIONS** by adding the following new text to Section 3.3.14:

   "14) Farm Use Regulations

   On lands located within the Agricultural Land Reserve the following activities are permitted farm uses in accordance with the Agricultural Land Reserve Use, Subdivision and Procedure Regulation and are subject to the following regulations:

   c) Medical Marihuana Production

   Medical Marihuana Production is permitted on land located within the Agricultural Land Reserve if:

   i) The production of medical marihuana is contained wholly within licensed facilities as permitted by the Marihuana for Medical Purposes Regulation (MMPR).

ii) The minimum setback for all structures associated with medical marihuana production is 30.0 metres from all property lines. "

Introduced and read two times this ___ day of _____ 20XX.

Public Hearing held this ___ day of _____ 20XX.

Read a third time this ___ day of _____ 20XX.

Approved by the Minister of Transportation and Infrastructure pursuant to the *Transportation Act* this ___ day of _____ 20XX.

Adopted this___ day of _____ 20XX.

_____ _____

Chairperson Corporate Officer

Attachment 2

REGIONAL DISTRICT OF NANAIMO
BYLAW NO. 1285.18

A Bylaw to Amend Regional District of Nanaimo
Electoral Area 'F' Zoning and Subdivision Bylaw No. 1285, 2002

The Board of the Regional District of Nanaimo, in open meeting assembled, enacts as follows:

A. This Bylaw may be cited as "Regional District of Nanaimo Electoral Area 'F' Zoning and Subdivision Amendment Bylaw No. 1285.18, 2013".

B. The "Regional District of Nanaimo Electoral Area 'F' Zoning and Subdivision Bylaw No. 1285, 2002", is hereby amended as follows:

1. Under **SECTION 2, GENERAL REGULATIONS, 2.4 Prohibited Uses** by adding the following text after Section 2.4 s):

   "t) medical marihuana production."

2. Under **SECTION 2, GENERAL REGULATIONS, 2.9 Setbacks** by adding the following text after Section 2.9 c):

   "d) All buildings and structures used for medical marihuana production on lands within the A-1 zone shall be setback a minimum of 30 metres from all lot lines."

3. Under **SECTION 2, GENERAL REGULATIONS, 2.15 Home Based Business – Regulations** by adding the following text after Section 5 p):

   "q) medical marihuana production."

4. Under **SECTION 4, ESTABLISHMENT OF ZONES, 4.1 A-1 – Agriculture 1** by adding the following text after Section 4.1.1 b) Farm Use:

   "c) Medical Marihuana Production"

5. Under **SECTION 4, ESTABLISHMENT OF ZONES, 4.1 A-1 – Agriculture 1** by inserting the following into Section 4.1.3 Regulation Table after "g) Minimum Setback of all buildings or structures":

   "used for medical marihuana production"

6. Under **Section 4, ESTABLISHMENT OF ZONES, 4.8 I-2 – Industrial 2** by inserting the following text after Section 4.8.1 o) Mini-storage:

   "p) Medical Marihuana Production"

7. Under **SECTION 5, DEFINITIONS** by inserting the following text at the end of the definition of "farm use":

   "and excludes medical marihuana production;"

8. Under **SECTION 5, DEFINITIONS** by adding the following definition after the definition of "Marshalling Yard":

   "**Medical Marihuana Production** means the cultivation and production of medical marihuana wholly within a facility as permitted under the ***Marihuana for Medical Purposes Regulations (MMPR)***, and any subsequent regulations or acts which may be enacted henceforth."

Introduced and read two times this ___ day of _____ 20XX.

Public Hearing held this ___ day of _____ 20XX.

Read a third time this ___ day of _____ 20XX.

Approved by the Minister of Transportation and Infrastructure pursuant to the *Transportation Act* this ___ day of _____ 20XX.

Adopted this___ day of _____ 20XX.

_____ _____

Chairperson Corporate Officer

REGIONAL DISTRICT OF NANAIMO

RDN REPORT
CAO APPROVAL
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BOARD

MEMORANDUM

TO: Jeremy Holm
Manager, Current Planning

DATE: November 5, 2013

FROM: Lainya Rowett
Senior Planner

FILE: PL2012-096 / PL2012-097

SUBJECT: **Zoning Amendment Applications No. PL2012-096 & PL2012-097**
Lakes District & Schooner Cove
Electoral Area 'E'
Amendment Bylaws 500.384, 500.385, 500.388

PURPOSE

To consider two Zoning Amendment Applications to rezone the subject properties in Lakes District from Residential 1 Zone to Comprehensive Development Zone (CD44) and to rezone the subject properties in Schooner Cove from Commercial 5 Zone, Residential 5 Zone, and Water 2 Zone to Comprehensive Development Zone (CD45), and to amend the subdivision servicing standards in Zoning Bylaw No. 500 in order to permit development in accordance with the Lakes District and Schooner Cove Neighbourhood Plans.

BACKGROUND

As outlined in Attachment 1 of this report, the Regional District of Nanaimo (RDN) received two zoning amendment applications in July 2012 for the rezoning of lands within the Lakes District and Schooner Cove Plan Neighbourhood Plan areas. A comprehensive technical review and agency referrals were completed by staff, and subsequently in July and August 2013, staff provided progress reports to the Board highlighting the key points of on-going discussion with the applicant. These included: the phasing of development; provision of community amenities; servicing requirements (water, wastewater, sidewalks, stormwater management); zoning regulations; the terms which would inform the draft Phased Development Agreement (PDA); and, a tentative timeline for the applications review.

A Public Information Meeting (PIM) was held on September 23, 2013 and members of the public had an opportunity to view and comment on the proposed developments, zoning regulations, and draft amendment bylaws for Lakes District and Schooner Cove (see Attachment 2 for a Summary of the Public Information Meeting). At the time of the PIM, it was anticipated that the PDA would be introduced in November 2013 and a Public Hearing scheduled to follow pending Board approval of first and second reading of the PDA Bylaw (see Attachment 1 for Tentative Timeline).

Staff have reviewed and provided detailed comment on the draft PDA submitted by the applicant in October 2013. However, given the complexity of the PDA and the timing of submission of the document, the PDA is not ready for Board consideration at this time. Staff and the developer are continuing to work towards resolution of the remaining PDA issues as outlined in the Applications Review and PDA Implications Section of this report. With the progress made to date, it is anticipated that the PDA could be introduced for Board consideration on November 26, 2013.

The following report discusses the proposed land use and servicing amendment bylaws, which are being introduced, and provides commentary on the draft Phased Development Agreement and the next steps in the applications review process. Introduction of the zoning amendment bylaws represents a significant milestone in the on-going development approvals process.

ALTERNATIVES

1. To proceed with Zoning Amendment Applications No. PL2012-096 & PL2012-097 in consideration of first and second reading of Amendment Bylaws 500.384, 500.385 and 500.388.
2. To not proceed with the Bylaw readings.

LAND USE IMPLICATIONS

Lakes District Comprehensive Development Zone (Amendment Bylaw 500.384)

In accordance with the neighbourhood plan, the intent of proposed Amendment Bylaw 500.384 is to rezone the subject properties from Residential 1 Zone (RS1), Subdivision District 'P' to Lakes District Comprehensive Development Zone (CD44) in order to allow the development of a diversity of land uses including residential, in a range of densities and housing types, waterfront boardwalk and trails, locally serving commercial uses, and infrastructure improvements in accordance with Schedule 'B' – Lakes District Neighbourhood Plan in the Nanoose Bay Official Community Plan Bylaw No. 1400, 2005 (see Attachment 3 - Amendment Bylaw No. 500.384).

The site specific zoning in the proposed CD44 Zone is consistent with Schedule A1 Land Use Designations Plan and policies in the neighbourhood plan and would regulate new development within eight sub-zoning areas as summarized in Table 1 below:

Table 1: Lakes District Comprehensive Development Zone (CD44) Sub-Zoning Areas

CD44 Sub-Zoning Area	Zone Abbreviation
Regional Park	CD44 – PR1
Community Park	CD44 – PR2
Residential Single Dwelling	CD44 – RS
Residential Single Dwelling & Duplex	CD44 – RSD
Residential Multiple Dwelling	CD44 – RMD
Neighbourhood Mixed Use	CD44 – MU
Lakehouse Centre	CD44 – LC
Civic Infrastructure	CD4– CI

Schooner Cove Comprehensive Development Zone (Amendment Bylaw 500.385)

In accordance with the neighbourhood plan, the intent of proposed Amendment Bylaw 500.385 is to rezone the subject properties from Commercial 5 (CM5) Zone, Subdivision District 'J', Residential 5 (RS5) Zone, Subdivision District 'J', and Water 2 (WA2) Zone, Subdivision District 'Z' to Schooner Cove Comprehensive Development Zone (CD45) in order to allow the development of a mixed-use waterfront village with neighbourhood-oriented commercial shops and services, a marina, a range of multiple dwelling housing types, and a publicly accessible network of waterfront boardwalks, plazas, and pathways in accordance with Schedule 'C' – Schooner Cove Neighbourhood Plan in the Nanoose Bay Official Community Plan Bylaw No. 1400, 2005 (see Attachment 4 - Amendment Bylaw No. 500.385).

The site specific zoning in the proposed CD45 Zone is consistent with Schedule A1 Land Use Designations Plan and policies in the neighbourhood plan and would regulate new development within three sub-zoning areas as summarized in Table 2 below:

Table 2: Schooner Cove Comprehensive Development Zone (CD45) Sub-Zoning Areas

CD45 Sub-Zoning Area	Zone Abbreviation
Village Mixed Use	CD45 – MU
Marina	CD45 – MA
Residential Multiple Dwelling	CD45 –RMD

Servicing Standards (Amendment Bylaw 500.388)

In addition to the land use amendments, the applicant also proposes to amend the community servicing standards for water and sewer for the subject properties, which would apply to new development within the plan areas. These amendments are intended to reflect current day best practices for infrastructure design as well as the site specific constraints (e.g., topography) which will dictate the most efficient designs for community water and sewer systems in this part of the Region (see Attachment 5 - Amendment Bylaw No. 500.388).

Development Implications

The regulations of the proposed amendment bylaws 500.384, 500.385 and 500.388 would apply to the subject properties in addition to all other regulations contained in "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987". Where there is a conflict between the site-specific zoning and servicing standards and the regulations contained elsewhere in Bylaw 500, the site-specific zoning and servicing standards would apply to the subject properties.

As part of the requirements for rezoning, and in accordance with the neighbourhood plan water servicing policies (Sections 4.3.1 and 4.3.2) and Board Policy B1.21, the applicant has addressed the following policies:

- The proposed development has identified adequate potable water supply (initially through groundwater supply via Wallbrook well field with future considerations through the Englishman River Water Service system);

- At the time of subdivision, the development must provide a proof of a proven and sustainable potable water supply in accordance with "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987";

- The proposed development has demonstrated how water supply will be provided in a phased manner and may include groundwater sources and Englishman River Water Service supply.

Additional information concerning the phasing of development will be provided at the time of introducing the Phased Development Agreement Bylaw.

Applications Review & PDA Implications

It was anticipated that the amendment bylaws and the Phased Development Agreement would be introduced concurrently in November of 2013, pending the submission and review of the PDA and related legal instruments. At this time, there remain some critical items under discussion with regard to the PDA terms as drafted. The following highlights some of the key issues to be resolved:

- The timing of dedication of regional park;
- Securing amenity contributions as contemplated in the neighbourhood plans; and,
- Legal mechanisms for amendments to the PDA, expiry of the PDA, and transfer of title.

Further negotiations and review of the PDA are required to resolve these matters and ensure the PDA includes clear and certain milestones for the provision of amenities and the advancement of development phasing. Staff are actively working with the applicant to negotiate these terms and finalize the PDA for public consumption and Ministerial consideration in accordance with the neighbourhood plan policies and statutory requirements. Since the draft PDA was submitted staff have met three times with the applicant and provided detailed comments on the PDA and have made significant progress towards resolution on the PDA. We anticipate these items will be resolved shortly which would facilitate the Board's consideration in December 2013.

Public Consultation Implications

A Public Information Meeting was held on September 23, 2013 at Nanoose Place Community Centre and approximately 230 members of the public were in attendance. The applicant provided an overview presentation of the proposed developments and the public had an opportunity to view display materials, read the draft amendment bylaws and ask questions about the proposals (see Attachment 2 - for a Summary of the Public Information Meeting). The majority of comments were supportive of the proposed development.

At the PIM, staff informed the public of correspondence received by the Board at its August 27, 2013 from the Ministry of Transportation and Infrastructure (MOTI) confirming its commitment to maintain, repair and rehabilitate constructed sidewalks that are situated, with MOTI approvals, in the road rights-of-way within existing Fairwinds and the proposed Lakes District and Schooner Cove neighbourhoods.

A public hearing for the proposed amendment bylaws will be scheduled concurrently with the Public Hearing for the Phased Development Agreement which is also proposed in relation to these developments. Staff will continue to work with the applicant to resolve the remaining issues to be negotiated in order to finalize the PDA and proceed with scheduling the statutory hearing.

Sustainability Implications

The proposed land use and servicing standards amendments reflect the vision of the Lakes District and Schooner Cove neighbourhood plans and address many sustainability objectives of these plans including:

- Directing new development to an existing urban growth centre;
- Providing a range of housing types and densities;
- Providing opportunities for locally-serving commercial services and places of employment;
- Providing recreational, educational and community facilities;
- Establishing parks, trails and open space to meet the long term needs of the community;
- Planning for a compact neighbourhood (in Schooner Cove) where residential uses are located in close proximity to commercial services;
- Encouraging walking with an interconnected system of sidewalks, pathways, parks and trails;
- Protecting environmentally sensitive areas and features in the local landscape.

Inter-governmental Implications

Staff will continue to work with the Ministry of Transportation and Infrastructure to collaboratively review any matters in the PDA which pertain to both Regional District and MOTI jurisdictions, such as stormwater management, for which the RDN intends to establish a service area to reflect the rainwater management policies of the neighbourhood plan. The applicant is also proposing project specific street standards as envisioned in the neighbourhood plans. These standards are characteristic of a more urban type development and they reflect sustainable principles in road design such as minimizing the paved portions within road rights-of-ways and including sidewalks for safer pedestrian mobility. The street standards will be formally considered and approved through the subdivision process by the Ministry of Transporation and Infrastructure.

Once the PDA draft has been finalized it will require approval from the Inspector of Municipalities for the proposed twenty year term, which exceeds the term (ten years) for which the Reigonal Board may approve a Phased Development Agreement.

SUMMARY/CONCLUSIONS

In August 2013, staff provided an update to the Board on the progress of the zoning amendment application reviews for Lakes District and Schooner Cove. Following this update, a Public Information Meeting was held on September 23, 2013 and approximately 230 members of the public attended. The proposed zoning amendment bylaws for Lakes District and Schooner Cove (500.384 and 500.385) and the community servicing standards amendment bylaw (500.388) are being introduced for first and second reading in accordance with the tentative applications timeline provided to the Board in August 2013.

It was anticipated that the amendment bylaws and Phased Development Agreement would be introduced concurrently in November of 2013, pending the submission and review of the PDA and related legal instruments. Further negotiations and review of the PDA are required to resolve the remaining issues regarding the project phasing and the provision of community amenities such as regional park dedication. Staff have reviewed and provided detailed comments on the draft PDA and are actively working with the applicant to negotiate the terms of the Agreement in order to finalize the PDA Bylaw for public consumption and Ministerial consideration in accordance with the Neighbourhood

Plan policies and statutory requirements. It is anticipated that these items will be finalized shortly and the PDA is tentatively scheduled to be considered at the November 26, 2013 Board meeting. Should the Board give readings to the PDA bylaw, the public hearing for the zoning amendments and the PDA will be scheduled concurrently. It is anticipated the public hearing will be scheduled in December 2013.

RECOMMENDATION

1. That the Summary of the Public Information Meeting held on September 23, 2013, be received.
2. That "Regional District of Nanaimo Land Use and Subdivision Amendment Bylaw No. 500.384, 2013" be introduced and read two times.
3. That "Regional District of Nanaimo Land Use and Subdivision Amendment Bylaw 500.385, 2013" be introduced and read two times.
4. That "Regional District of Nanaimo Land Use and Subdivision Amendment Bylaw 500.388, 2013", be introduced and read two times.
5. That the Public Hearing on "Regional District of Nanaimo Land Use and Subdivision Amendment Bylaws No. 500.384, 500.385, and 500.388", be scheduled concurrently with the Public Hearing for the Regional District of Nanaimo/Fairwinds Phased Development Agreement, and that the Public Hearing be chaired by Director Holme or his alternate.

Report Writer

General Manager Concurrence

Manager Concurrence

CAO Concurrence

Attachment 1 - Tentative Timeline for Zoning Amendment Applications

Project Task	Tentative Timeframe	Resources
Initial Application Submission & Review	July – October 2012	Applicant/RDN
Revised Application Submission & Review	December 2012 – May 2013	Applicant/RDN
Agency Referrals	October 2012 – June 2013	RDN/External Agencies
First Nations Outreach	May – July 2013 (On-going in November 2013)	Applicant/RDN
Public Open House	June 26, 2013	Applicant-led
Progress Report to RDN Board	July 2013	RDN
Integrated Stormwater Management Plan and Service Area Implications Review	July – August 2013 (Completed Oct. 31, 2013)	Review by Independent Consultant
Progress Report to RDN Board	August 2013	RDN
Phased Development Agreement (PDA) Draft & Review	PDA submitted on Oct. 8, 2013	Applicant/RDN
Public Information Meeting	Meeting held on Sept. 23, 2013	RDN-led
Zoning Amendment Bylaws introduced for 1st and 2nd Reading	November 12, 2013	RDN
PDA Bylaw introduced for 1st and 2nd Reading	November 26, 2013	RDN
Public Hearing on Zoning Amendment Bylaws and PDAs	December 2013	RDN
Zoning Amendment Bylaw considered for 3rd Reading	Subject to Board approval	RDN
Legal & Statutory Approvals by Provincial Ministries	Ministerial approval process 2014 (the proposed twenty year PDA term requires Provincial approval)	RDN/Provincial Ministries
Zoning Amendment Bylaw considered for 4th Reading/Adoption & PDA signed	Subject to Board approval	RDN

Attachment 2 – Summary of the Public Information Meeting

Summary of the Public Information Meeting
Held at Nanoose Place Community Centre
2925 Northwest Bay Road, Nanoose Bay on September 23, 2013 at 6:30 pm
Zoning Amendment Applications No. PL2012-096 & PL2012-097 Lakes District & Schooner Cove

Note: this summary of the meeting is not a verbatim recording of the proceedings, but is intended to summarize the comments and questions of those in attendance at the Public Information Meeting.

There were approximately 230 members of the public in attendance at this meeting.

Present for the Regional District of Nanaimo:

Director George Holme, Electoral Area 'E' (the Chair)
Director Stanhope, Chairperson for the Regional District of Nanaimo
Geoff Garbutt, General Manager of Strategic & Community Development
Tom Osborne, General Manager of Recreation and Parks
Jeremy Holm, Manager of Current Planning
Mike Donnelly, Manager of Water Services
Lainya Rowett, Senior Planner
Tyler Brown, Planner
Robert Stover, Planning Technician
Nicole Hewitt, Recording Secretary

Present for the Applicant:

Paul Fenske, Agent, Ekistics Town Planning
Jeanette Elmore, Ekistics Town Planning
Russell Tibbles, Bentall Kennedy, representing the property owner
Rob Warren, Kerr Wood Leidel Consulting Engineers

The Chair opened the meeting at 6:42 pm, outlined the evening's agenda, and introduced the RDN staff and the applicant's agents in attendance.

The Chair stated the purpose of the Public Information Meeting and asked the Senior Planner to provide background information concerning the development applications.

The Senior Planner, Lainya Rowett, provided a brief summary of the proposed zoning amendments, supporting documents provided by the applicant, and the application process. She noted that a tentative Public Hearing date had been set for November 25, 2013.

The Chair invited the applicant to give a presentation of the development proposal.

The applicant's agent, Paul Fenske of Ekistics Town Planning, provided an overview of the proposals for the phased development of Lakes District and Schooner Cove.

Following the presentation, the Chair invited questions and comments from the audience.

Peter Law, 3370 Redden Road, asked where the water supply will be coming from and who will be paying for it.

Mike Donnelly, Manager of Water Services stated that the first phase of water supply will come from property owner's well field, and the subsequent phases of development will be supplied by the Englishman River Watershed System (ERWS). The first phase of water supply will be paid for by the developer, and in subsequent phases the developer will pay for their portion through development cost charges (DCCs).

Mr. Law also asked what the RDN will do to monitor environmental concerns.

Geoff Garbutt, General Manager of Strategic & Community Development explained that environmental monitoring will be addressed in accordance with the policies in Section 6.4 of the Neighbourhood Plan.

Douglas Babcook, 3439 Simmons Place, expressed his frustration that the project is taking too long. He supports the development and feels that it will stimulate the economy and should be allowed to proceed.

Bruce McKnight, 3820 Amberwood Lane, supports the plan and wants the application process completed.

Gerry Thompson, 3265 Huntington Place, President of Fairwinds Community Association, said the FCA has reviewed the proposed zoning regulations and supports them. He acknowledged the efforts of the Regional District and the applicant, and expressed the FCA's desire to conclude the public process and obtain approvals in 2013. He provided a written submission in support of the application.

Bill Crarer, 2107 Scottvale Place, expressed frustration with the length of the application process and said he supports the proposed development.

Jean Candey, 3548 Goodrich Road, said she supports the proposed development and would like to see the application process expedited.

Mary Ellen Campbell, 3568 Goodrich Road, said she supports the proposed development and is pleased to see progress with the applications review.

Diane Michelin, 2511 Andover Road, expressed her support for the proposed development.

Sharon Seibt, 2230 Foxrun Place, expressed her support for the development proposal and applauded the applicant's efforts to keep the community informed about their development plans. She is concerned that older people are leaving the Fairwinds community because they are worried that there are no amenities to help them 'age in place'.

Ted Hornick, 2612 Andover Place, said he supports the development and wants to see the application process move quicker.

Patrick Murray, 3362 Rockhampton Road, asked for clarification on two items: 1) why there is an unpleasant odour around Dolphin Lake in relation to sewage treatment; and 2) how the existing sewage treatment plant will manage with additional development as proposed.

Mike Donnelly, Manager of Water Services, explained that the existing plant is underutilized and is therefore not operating efficiently which results in the odour problems. When the capacity will be utilized more, the odours will be more effectively handled. Also, the plant is currently operating at a primary treatment level but will be upgraded to secondary treatment which will result in improvements.

Mr. Murray also expressed interest in golf cart access from the Fairwinds Clubhouse, as it is not currently legal to drive golf carts on the road. He said he would like to see golf cart lanes in the new development.

Barb Giese, 3484 Simmons Place, said she has resided in Fairwinds for twenty-one years and would like to stay in the community rather than move to Nanaimo or Victoria. She supports the proposed development.

Ken Carey, 2394 Green Isle Place, said he moved to the community three years ago and supports the proposed development. He submitted a letter of support.

Cathy Carey, 2394 Green Isle Place, said she supports the proposed development and requests the application process be expedited.

Ian Maxwell, 3442 Sinclair Place, said he has enjoyed living in Fairwinds for thirteen years and supports the proposed development.

Pam Straka, 2064 Radford Place, said the community has been in limbo for five years since the neighbourhood planning process began. She supports the proposed development and wants to see it move forward to create a complete community in Fairwinds.

Shirley Vaux, 3230 Huntington Place, said she is a Board member of the Fairwinds Community Association, and she encourages the Regional District to move forward with these applications.

Wayne Newhouse, 2252 Chelsea Place, said he completely supports the applications.

Clifford Hinton, 2524 Andover Road, said he moved to Fairwinds to 'age in place' and he supports the proposed development. He is pleased the project is moving forward but worries it will take too long.

Tony Ransom, 2460 Ainsley Place, said he has lived in the community for thirteen years and he supports the development plans. He is concerned about implementation of the neighbourhood plan objectives and how the Phased Development Agreement (PDA) will enforce implementation.

Geoff Garbutt, General Manager of Strategic & Community Development, explained that the PDA will include specific information and reflect negotiations with the applicant. The Regional District is in discussions with the applicant to address enforcement and resolution in the PDA, which is proposed to be a twenty-year agreement. The specific details of the PDA will be finalized prior to a Public Hearing.

Mel Spotswood, 3240 Huntington Place, explained that he owns two properties in Fairwinds and feels that the Fairwinds community has been negatively impacted by changes in the economy and the slow pace of the application process. He indicated his support for the proposed development. He also asked why the water supply in Englishman River gets shorter this time of year and what the Regional District's contingency plan is for water supply.

Mike Donnelly, Manager of Water Services, explained that the long term water supply is built to store water during the dry times, it also supports the fisheries. Climate change may affect water supply, so this has been factored into storage capacity. He explained how the RDN's aquifer storage and recovery test project is the 2nd one in Canada; treated water is injected into the aquifer in winter months to enhance water supply in the summer.

Randy Dunville, 3361 Rockhampton Road, expressed his support for the proposed development. He asked what issues remained to be resolved.

Geoff Garbutt, General Manager of Strategic & Community Development, explained that the main issues have been addressed and the remaining issues such as servicing standards and park phasing are being discussed and the details are yet to be finalized in the PDA. One item that has been resolved, the RDN Board has received correspondence from the Ministry of Transportation and Infrastructure confirming that the Ministry will take on maintenance of sidewalks within existing Fairwinds community and within the new development. At UBCM, RDN Directors met with Ministry staff to confirm responsibility of sidewalks within Fairwinds.

David Hall, 3061 Anchor Way, said he is a new resident in Fairwinds, and to new Canada. He is asked why the Lakes District land use plan shows mixed use development to be zoned adjacent to a residential area. He lives across the street from the mixed use site and is concerned about the height of the buildings and the types of commercial uses that will be permitted.

Paul Fenske, Ekistics Town Planning, explained how the previous community plan, OCP, identified the site for town centre development but it was never developed, and Red Gap is now the commercial centre in Nanoose. The majority of the proposed commercial development is located in Schooner Cove and the Lakes District site has been scaled back to locally-serving commercial services and mixed use. The mixed use site is also located within Phase 4 which likely won't be developed for ten to fifteen years. The maximum permitted height is five storeys, and there may be opportunity for public notification at the development stage.

Geoff Garbutt, General Manager of Strategic & Community Development, clarified that if no variances are proposed at the time of Development Permit then there should not be public notification at that time.

Peter Law, 3417 Carmichael Road, commented on the neighbourhood plan policy concerning the transfer of stormwater authority to local government, and asked what impact this would have on taxpayers.

Geoff Garbutt, General Manager of Strategic & Community Development, explained that a stormwater management service area would be established for Lakes District and Schooner Cove and funded by the owners of the new development who benefit from the service, not the existing Fairwinds owners.

Mr. Law also asked about the implementation of the plan policies concerning the protection of hydrology in Lakes District, in particular, if there will be monitoring objectives established for Enos Basin.

Rob Warren, Kerr Wood Leidel Consulting Engineers, explained that a monitoring program, an adaptive management system, will be outlined in the Integrated Stormwater Management Plan (ISMP) with the intent that if monitoring shows the system is not working it will be adapted. The final document of the ISMP has not yet been provided to the RDN or made publicly available.

Bob Rogers, 1578 Arbutus Lane, said he is not a resident of Fairwinds but lives in Nanoose and fully supports the proposed development.

John Logan, 3324 Rockhampton Road, explained that he previously lived within a phased development which did not succeed or complete, and he doesn't want to see the same result here. He supports the proposed development and wants to see it move forward.

Parker Hedges, 3483 Tyee Crescent, expressed his support for the proposed development and he asked if it would be possible for existing properties (Tyee/Blueback residents) on septic systems to connect to the community sewer system which will be extended for the proposed development.

Geoff Garbutt, General Manager of Strategic & Community Development, said he would have to refer his question to Sean DePol, Manager of Wastewater Services, who was not in attendance, and that staff could provide his contact information.

The Chair asked if there were any further questions or comments.

There being no further submissions, the Chair thanked those in attendance and announced that the

Public Information Meeting was closed.

The meeting was concluded at 8:00 pm.

Certified true and accurate this 22nd day of October, 2013.

_____
Nicole Hewitt
Recording Secretary

Zoning Amendment Applications No. PL2012-096 & PL2012-097

Lakes District & Schooner Cove

Electoral Area 'E'

Amendment Bylaws 500.384, 500.385, 500.388

Attachments 3, 4 & 5

November 8th, 2013

Attachment 3 - Amendment Bylaw 500.384

REGIONAL DISTRICT OF NANAIMO
BYLAW NO. 500.384

A Bylaw to Amend Regional District of Nanaimo
Land Use and Subdivision Bylaw No. 500, 1987

The Board of the Regional District of Nanaimo, in open meeting assembled, enacts as follows:

A. This Bylaw may be cited as "Regional District of Nanaimo Land Use and Subdivision Amendment Bylaw No. 500.384, 2013".

B. "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987", is hereby amended as follows:

1. Under **PART 3 LAND USE REGULATIONS, Section 3.1 Zones** by adding the following Zone Classification and corresponding short title after Section 3.4.143 Schooner Bay Manor Seniors Mobile Home Park Comprehensive Development Zone (CD43):

   Lakes District Comprehensive Development Zone (CD44)

2. By adding Section 3.4.144 (CD44) as shown on Schedule '3' which is attached to and forms part of this Bylaw.

3. By rezoning the lands shown on the attached Schedule '1' and legally described as

   a. Lot 1, District Lots 30 and 78, Nanoose District, Plan 26219, except those parts in Plans 28246, 29574, 30072, 30262, 34675, 36514, 48548 and VIP53001;

   b. Lot 8, District Lot 78, Nanoose District, Plan 30262;

   c. District Lot 11, Nanoose District, Except that part outlined in red on Plan 1567 OS, 48548 and VIP59496;

   d. A portion of the lands legally described as District Lot 7, Nanoose District, Except that part outlined in red on Plan 1567 OS, 48548, VIP59496 and VIP80856;

   e. A portion of the lands legally described as District Lot 30, Nanoose District, Except those parts in Plans 15193, 26219, 48585, VIP51706, VIP51707, VIP52451, VIP53134, VIP57407, VIP60049, VIP60602 and VIP88308; and,

   f. A portion of the lands legally described as District Lot 78, Nanoose District, Except that part shown outlined in red on Plan deposited under DD 19579I; Except Parcels A and B (DD 7528N); and Except those parts in Plans 813R, 1567 OS, 14212, 14250, 14275, 15075, 15193, 22836, 24012, 25366, 26219, 27129, 27206, 29869, 34675, 47638, 48548, 48585, 49669, 50872, 51142, VIP51603, VIP51706, VIP51707, VIP53134, VIP57407, VIP59180, VIP59494, VIP60049, VIP60602, VIP71781, VIP73214, VIP78139, VIP80854, VIP80855, VIP80856, VIP85588 and VIP88308

from Residential 1 (RS1) Zone, Subdivision District 'P' to Lakes District Comprehensive Development Zone (CD44) as shown on Schedule '1', and with the following CD44 Sub-Zoning Areas as shown on Schedule '2', which is attached to and forms part of this Bylaw:

Regional Park	CD44 – PR1
Community Park	CD44 – PR2
Residential Single Dwelling	CD44 – RS
Residential Single Dwelling & Duplex	CD44 – RSD
Residential Multiple Dwelling	CD44 – RMD
Neighbourhood Mixed Use	CD44 – MU
Lakehouse Centre	CD44 – LC
Civic Infrastructure	CD44 – CI

Introduced and read two times this ___ day of _____ 20__.

Public Hearing held this ___ day of _____ 20__.

Read a third time this ___ day of _____ 20__.

Adopted this___ day of _____ 20__.

Chairperson

Corporate Officer

Schedule '1' to accompany "Regional District of Nanaimo Land Use and Subdivision Amendment Bylaw No. 500.384, 2013"

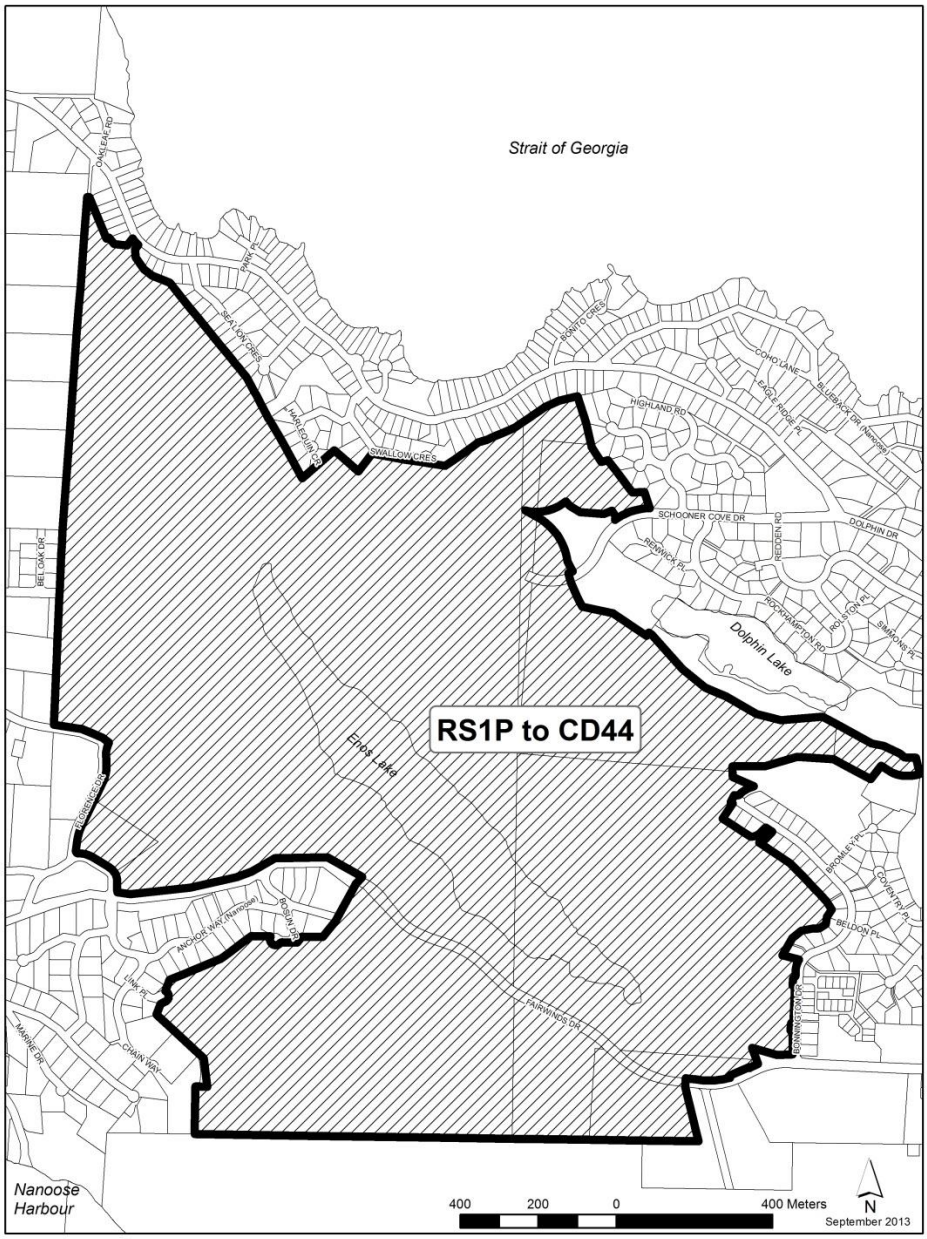
_____

Chairperson

_____

Corporate Officer

Schedule '1'
CD44 Zone Area



Schedule '2' to accompany "Regional District of Nanaimo Land Use and Subdivision Amendment Bylaw No. 500.384, 2013"

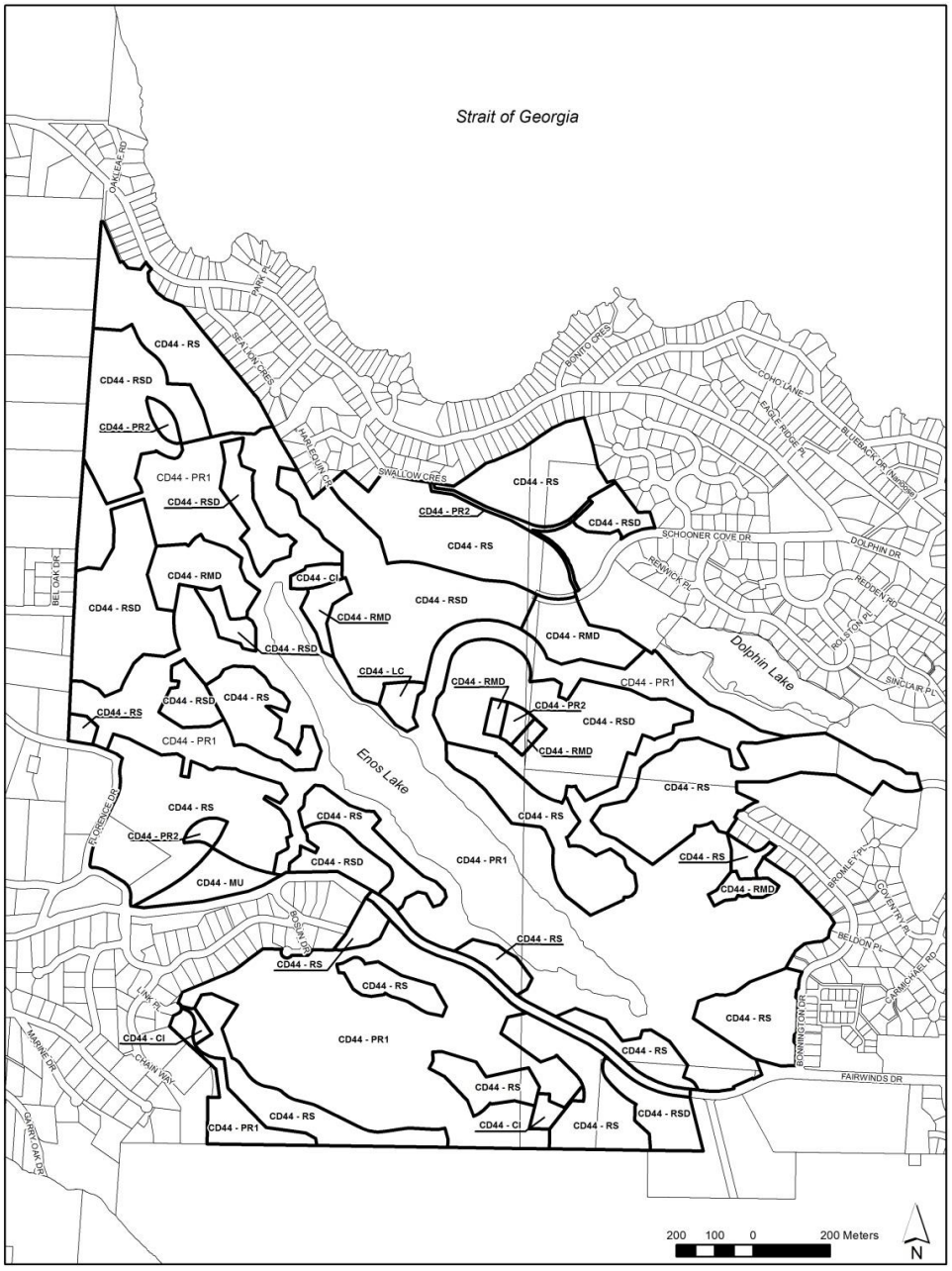
_____

Chairperson

_____

Corporate Officer

Schedule '2'
CD44 Sub-Zoning Areas



Schedule '3' to accompany "Regional District of Nanaimo Land Use and Subdivision Amendment Bylaw No. 500.384, 2013".

_____

Chairperson

_____

Corporate Officer

Schedule '3'
Lakes District Comprehensive Development Zone Regulations

Section 3.4.144

LAKES DISTRICT COMPREHENSIVE DEVELOPMENT ZONE CD44

3.4.144.1 APPLICABILITY OF THE BYLAW

The regulations of Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987 shall apply to the lands zoned CD44. In addition to these regulations, and where there is a conflict with these regulations, the regulations of the CD44 Zone shall apply.

3.4.144.2 PURPOSE

The purpose of the CD44 Zone is to allow a range of land uses and residential densities with diverse housing types, recreational opportunities, and locally serving commercial services in accordance with Schedule 'B' - Lakes District Neighbourhood Plan in the Nanoose Bay Official Community Plan Bylaw No. 1400, 2005.

The lands encompassed within the CD44 Zone are divided into eight sub-zoning areas including: Regional Park (CD44 - PR1), Community Park (CD44 - PR2), Residential Single Dwelling (CD44 – RS), Residential Single Dwelling & Duplex (CD44 – RSD), Residential Multiple Dwelling (CD44 – RMD), Neighbourhood Mixed Use (CD44 – MU), Lakehouse Centre (CD44 – LC), and Civic Infrastructure (CD44 – CI). Specific regulations apply to each zoning area, in addition to the Definitions and General Regulations as set out in the CD44 Zone.

The extent of each zoning area in the Lakes District Comprehensive Development Zone is shown on Schedule '3A' Zoning Maps of Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987.

3.4.144.3 DEFINITIONS

artisan workshop means production, service, repair or maintenance of an article, substance, material, fabric or compound, provided uses are not noxious or offensive to the immediate neighbourhood or the general public by reason of emitting odours, dust, gas, noise, effluent, or hazard; and having a gross floor area not exceeding 200 m^2 including retail sales accessory to the principal use;

bulk grade means the elevation of the surface of the ground at any point within a parcel as established on a parcel contour plan and which may not increase above natural grade by more than 2.0 m at any point;

commercial use means the occupancy or use of a building or land for the purpose of carrying out business, professional activities, artisan workshop, retail or personal service use;

community garden means a non-commercial facility for the cultivation of fruits, flowers, vegetables or ornamental plants;

community park means use of land, buildings or structures primarily for recreation, including playgrounds, band shells, skateboard parks, canoe and kayak docks, boathouses, playfields, field houses, multi-purpose courts and the like;

duplex means two self-contained dwelling units with separate ground level entrances, and which are adjoined by a common wall;

height means the elevation of a point directly below:

a) That part of the building or structure being measured above the land (or surface of water at high water), and;
b) On a line connecting the two intersections of the natural grade and the outermost exterior walls or supports as indicated on a plan showing any complete vertical section of that part of a building or structure where permitted in the applicable zone; or,
c) On a line connecting the two intersections of the bulk grade, as defined on a parcel contour plan, and the outermost exterior walls or supports as indicated on a plan showing any complete vertical section of that part of a building within a Residential Single Dwelling & Duplex, Residential Multiple Dwelling, Neighbourhood Mixed Use or Lakehouse Centre zoning area;

garden centre means the use of land, buildings, or structures for the purpose of retail sales of fruits, flowers, vegetables or ornamental plants, trees, and associated gardening and landscaping supplies and outdoor garden equipment;

impermeable surface area means the sum total horizontal area as measured from the outermost perimeter of all buildings or part thereof together with any ground covering that does not naturally exist on the site and cannot be readily penetrated by water, such as roads, paved parking areas, driveways, patios, games courts and the like, on the parcel expressed as a percentage of the total parcel area;

mobile food cart means a mobile cart from which food and/or drink is dispensed, and where the entire stock of goods offered for sale is carried and contained in the cart and which may change locations from time to time, and which is not located in a permanent building or structure, and is removed from public access when not in use;

multiple dwelling unit development means the establishment of three or more dwelling units within a building on a parcel;

natural grade means the elevation of the surface of the ground in its natural state prior to any human-made alterations as determined by a BC Land Surveyor;

nature park means the use of land, buildings or structures primarily for conservation and enjoyment of natural areas and may include boardwalks, trails, environmentally sensitive areas, nature sanctuaries and the like;

parcel contour plan means a survey plan prepared by a BC Land Surveyor or Professional Engineer at minimum 0.5 m contours and showing natural grade and bulk grade of the surface of the ground;

restaurant means an eating establishment providing for the sale of prepared foods and beverages to be consumed on or off the premises, and may include café, delicatessen, and take-out restaurant, but specifically excludes neighbourhood pub, drive-in and drive-thru establishment;

retail store means a sales outlet contained under one roof, having a gross floor area not exceeding 250 m^2, and providing for the retail sale and display of goods, but specifically excludes industrial uses and gasoline service station;

secondary suite means one or more habitable rooms, but not more than two bedrooms and one cooking facility, constituting a self-contained dwelling unit with a separate entrance, but which is clearly subordinate to the principal dwelling, and is limited to residential use;

seniors' congregate housing means a residential or institutional facility which provides for seniors' congregate housing units with common living facilities, one or more meals per day and housekeeping services, contains a common dining area with a capacity sufficient to accommodate all residents of the facility, and may contain accessory personal service use and accessory convenience store use;

seniors' congregate housing unit means a sleeping unit or a dwelling unit containing one or more sleeping units within a seniors' congregate housing facility;

sleeping unit means a bedroom or other area which is used or intended to be used for sleeping, or sleeping and living purposes, and which does not contain provisions for cooking;

storage means the use of the land, buildings or structures for the temporary storing of property or goods;

storey means that portion of a building situated between the top of any floor and the top of the floor next above it, and if there is no floor above it, that portion between the top of the floor and the ceiling above it;

temporary building means a building which is not supported on permanent foundations and which may or may not be connected to community water or sewer;

tourist accommodation means the rental of a lodging unit in a hotel, motel, or cabin for the temporary accommodation of the traveling public with continuous occupancy not exceeding ninety (90) calendar days and specifically excludes a manufactured home and residential use;

unit density means a measurement of development intensity on a parcel, represented by the total number of dwelling units on a parcel divided by the parcel area in hectares (units per hectare) but excludes dedicated road and dedicated park; and,

utility use means a system of works or services or a facility operated by or on behalf of a government or a utility company to provide or in connection with the provision of water, sewer, drainage, gas, electricity, surface transportation or communication services.

3.4.144.4: GENERAL REGULATIONS

1) Total Number of Dwelling Units

The total number of dwelling units within the lands zoned CD44 shall not exceed 1,675 dwelling units.

2) Uses Permitted in all Zones

The following uses are permitted in all zoning areas of the CD44 Zone:

a) *Community garden*

b) *Utility use*

3) Secondary Suites

Secondary suites are permitted in the *Residential Single Dwelling* and *Residential Single Dwelling & Duplex* zoning areas, provided that:

a) A *secondary suite* is permitted only within a principal single dwelling unit on a parcel and is not permitted within a *duplex*;

b) Not more than one *secondary suite* shall be permitted per single dwelling unit on a parcel;

c) The size of a *secondary suite* within the principal building shall not exceed 40% of the habitable floor space of the principal building to a maximum of 90 m^2;

d) Secondary suites are not counted as dwelling units for the purpose of calculating the Total Number of Dwelling Units in accordance with the General Regulations Section 3.4.144.4 1) in this Zone;

e) A principal dwelling unit may contain either a *secondary suite* or a bed and breakfast, but not both; and,

f) A minimum of one off-street parking space is required for a *secondary suite*, in addition to parking requirements for the principal dwelling unit set out in Schedule '3B' Off-Street Parking and Loading Spaces.

4) Rainwater Harvesting

Where a Building Permit is not required for rainwater harvesting structures, equipment and apparatus, including rain barrels and cisterns, they are excluded from the building setback requirements.

5) Seniors' Congregate Housing

Seniors' congregate housing, where permitted in the zone, is subject to the following regulations:

a) For the purposes of calculating unit density, each *sleeping unit*, and each *sleeping unit* within a dwelling unit within a seniors' congregate housing facility is equal to 0.2 units;

b) The gross floor area of a *seniors' congregate housing unit* shall not be less than 26 m^2 and not more than 50 m^2; and

c) Accessory personal service and convenience store uses, where provided, shall be contained within the seniors' congregate housing facility and shall be accessible only from an internal hallway or corridor. The combined total floor area of all accessory personal service and convenience store uses shall not exceed 150 m^2 per seniors' congregate housing facility.

6) Temporary Buildings, Structures and Uses for Seasonal Vending

Temporary buildings, structures, or *mobile food carts* for the purpose of seasonal vending on properties are permitted within any regional park, community park, and commercially zoned properties provided that:

a) The parking requirements of Schedule '3B' Off-Street Parking and Loading Spaces are met; and,
b) Potable water and washroom facilities are available on-site if food is served.

7) Tourist Accommodation

Temporary stays within *tourist accommodation* is limited to a maximum consecutive or non-consecutive stay of ninety (90) calendar days per visitor in any twelve (12) month period within any tourist accommodation unit on a parcel. The relocation of a visitor to another unit within the parcel does not constitute the start of a new stay.

8) Building Height

The following regulations apply to building height within all zoning areas of the CD44 Zone:

a) A *parcel contour plan* defining areas where natural grade has been disturbed shall be submitted to the Regional District upon the earlier of the submission of a development permit application or prior to registration of a subdivision plan.

b) Structures such as antennae, chimney stacks, steeples, elevator housings, roof stairway entrances, ventilating equipment or enclosures for such equipment, skylights, flagpoles and the like are exempt from the height requirement.

c) Structures for sustainable building technologies, such as wind turbines, solar panels and rain barrels, cisterns and the like are permitted to exceed the height requirement provided that:

i) No such structure covers more than 20% of the parcel area; or

ii) If located on a building, no such structure covers more than 10% of the roof area; and,

iii) No such structure shall exceed twice the maximum building height permitted by the zone.

9) Storage

Storage use, where permitted in the zone, is subject to the following regulations:

a) Boats, vehicles and recreational vehicles must be operational and capable of being licensed by the applicable licensing authority. Storage use excludes on-site fuel dispensing.

b) Storage is accessory to the principal use and is limited to 33% of a parcel area.

c) A continuous landscaping buffer with a minimum vegetation height of 2.0 m and width of 2.0 m shall be provided and maintained along all property lines adjacent to a storage use.

3.4.144.5 REGIONAL PARK CD44 – PR1

Purpose

The intent of the Regional Park zoning area is to provide recreational opportunities associated with passive outdoor activities, and to protect the natural features and wildlife habitat that form an integral part of the landscape in the Lakes District neighbourhood.

Permitted Principal Uses

a) nature park

Maximum Size of Buildings and Structures

Height	6.0 m within the setback area 9.5 m outside the setback area
Parcel coverage	10%

Minimum Setback Requirements

a) Buildings

Front lot line	4.5 m
Exterior side lot line	4.5 m
All other lot lines	3.0 m

b) Structures

Front lot line	0.0 m
All other lot lines	3.0 m

Off-Street Parking Requirements

Major staging area	10 spaces
Minor staging area	4 spaces
Bicycle parking	4 spaces per major or minor staging area

3.4.144.6 COMMUNITY PARK CD44 – PR2

Purpose

The intent of the Community Park zoning area is to provide programmed park spaces and recreational opportunities and amenities for social gathering and outdoor activities in close proximity to residential neighbourhoods.

Permitted Principal Uses

a) community park

Maximum Size of Buildings and Structures

Height	6.0 m within the setback area 9.5 m outside the setback area
Parcel coverage	20%

Minimum Setback Requirements

a) Buildings

Front lot line	4.5 m
Exterior side lot line	4.5 m
All other lot lines	3.0 m

b) Structures

Front lot line	0.0 m
All other lot lines	3.0 m

Off-Street Parking Requirements

Bicycle parking	6 spaces per parcel

3.4.144.7 RESIDENTIAL SINGLE DWELLING CD44 – RS

Purpose

The Residential Single Dwelling zoning area allows residential development on larger urban lots and provides flexibility in building siting for the retention of natural site features and a range of architectural forms.

Permitted Principal Uses

a) residential use

Accessory Uses

a) home based business

b) secondary suite

Maximum Density

Residential use	1 dwelling unit per parcel

Minimum Parcel Size

800 m² or 850 m^2 (corner parcel)

Maximum Size of Buildings and Structures

Height

Principal building	9.5 m
Accessory buildings & structures	6.0 m
Parcel Coverage	40%
Impermeable Surface Area	50% (excluding a driveway not exceeding 6.0 m in width and located within a panhandle)

Minimum Setback Requirements

Front lot line	4.5 m 6.0 m to any garage door or carport entrance way facing a highway.
Interior side lot line	2.0 m
Exterior side lot line	4.5 m
Rear lot line	4.0 m

except one accessory building is permitted to be 1.0 m from an interior or rear lot line provided the building does not exceed 10 m^2 in floor area and 3.0 m in height.

3.4.144.8 RESIDENTIAL SINGLE DWELLING & DUPLEX CD44 – RSD

Purpose

The intent of the Residential Single Dwelling & Duplex zoning area is to increase the range of housing types offered and provide transition between larger lot single dwelling residential land uses and low to medium density housing. The provision of smaller single dwelling units and duplex homes serves to facilitate cluster development to maintain high conservation and recreation value in the adjacent areas.

Permitted Principal Uses

a) residential use

b) duplex use

Accessory Uses

a) home based business

b) secondary suite

Maximum Density

Residential use	1 dwelling unit per parcel
Duplex use	2 dwelling units per parcel

Minimum Parcel Size

Residential use	400 m² or 450 m^2 (corner parcel)
Duplex use	750 m² or 800 m^2 (corner parcel)

Maximum Size of Buildings and Structures

Height	
Principal building	9.5 m
Accessory buildings & structures	6.0 m
Parcel Coverage	
Residential use	60%
Duplex use	65%
Impermeable Surface Area	
Residential use	70% (excluding a driveway not exceeding 6.0 m in width and located within a panhandle)
Duplex use	75% (excluding a driveway not exceeding 6.0 m in width and located within a panhandle)

Minimum Setback Requirements

a) Residential use

Front lot line	4.5 m 6.0 m to any garage door or carport entrance way facing a highway.
Interior side lot line	1.5 m
Exterior side lot line	4.5 m
Rear lot line	3.0 m

b) Duplex use

Front lot line	4.5 m 6.0 m to any garage door or carport entrance way facing a highway.
Interior side lot line	2.0 m
Exterior side lot line	4.5 m
Rear lot line	4.0 m for a duplex
Strata road	3.0 m

except one accessory building per principal dwelling unit is permitted to be 1.0 m from an interior or rear lot line provided the building does not exceed 10 m^2 in floor area and 3.0 m in height.

3.4.144.9 RESIDENTIAL MULTIPLE DWELLING CD44 – RMD

Purpose

The Residential Multiple Dwelling zoning area allows for the development of a range of multiple dwelling housing types including duplexes, ground-oriented rowhomes and townhomes, and low-rise condominium buildings. These smaller unit types are intended to provide opportunities for ageing-in-place.

Permitted Principal Uses

a) duplex use

b) multiple dwelling unit development use

Maximum Density

Density	75 units per hectare (uph)

Minimum Parcel Size

Duplex use	600 m² or 650 m^2 (corner parcel)
Multiple dwelling unit Development use	700 m² or 750 m^2 (corner parcel)

Maximum Size of Buildings and Structures

Height	
Duplex	9.5 m
Multiple dwelling unit development	21.0 m or 5 storeys, whichever is less
Accessory buildings & structures	6.0 m 8.5 m for one accessory building in a multiple dwelling unit development
Parcel Coverage	60% 70% where the required parking spaces are located directly beneath the principal building.
Impermeable Surface Area	70% 75% where the required parking spaces are located directly beneath the principal building (excluding a driveway not exceeding 6.0 m in width and located within a panhandle).

Minimum Setback Requirements

Front lot line	4.5 m 6.0 m to any garage door or carport entrance way facing a highway.
Interior side lot line	2.0 m
Exterior side lot line	4.5 m
Rear lot line	4.0 m
Strata road	3.0 m

except one accessory building per principal dwelling unit is permitted to be 1.0 m from an interior or rear lot line provided the building does not exceed 10 m^2 in floor area and 3.0 m in height.

Off-Street Parking Requirements

In addition to the requirements of Schedule '3B' Off-Street Parking & Loading Spaces, the following bicycle parking is required:

Use	Required Bicycle Parking Spaces
Multiple dwelling unit development use	1 secure interior space per 2 dwelling units, and 4 spaces adjacent to the primary building entrance.

3.4.144.10 NEIGHBOURHOOD MIXED USE CD44 – MU

Purpose

As a complement to the existing commercial centres at Red Gap and Schooner Cove, the Neighbourhood Mixed Use zoning area is intended to accommodate locally serving civic, commercial and residential uses at the entrance of the Lakes District neighbourhood. A mix of small scale retail, professional office use, live/work, compact housing and other compatible uses will provide community gathering spaces with flexibility to accommodate the future needs of the community.

Permitted Principal Uses

a) artisan workshop
b) garden centre
c) multiple dwelling unit development
d) office
e) personal care
f) personal service use
g) retail store
h) restaurant
i) school
j) seniors' congregate housing
k) tourist accommodation

Accessory Uses

a) storage

Maximum Density

Density	75 units per hectare (uph) for residential uses

Minimum Parcel Size

Commercial / Mixed use	2,500 m²
Multiple dwelling unit development use	700 m² or 750 m^2 (corner parcel)

Maximum Size of Buildings and Structures

Height	
Commercial use	10.0 m or 3 storeys, whichever is less
Mixed use or Multiple dwelling unit development	21.0 m or 5 storeys, whichever is less

Accessory buildings & structures	6.0 m 8.5 m for one accessory building in a multiple dwelling unit development
Parcel Coverage	70% 80% where the required parking spaces are located directly beneath the principal building.
Impermeable Surface Area	80% 85% where the required parking spaces are located directly beneath the principal building (excluding a driveway not exceeding 6.0 m in width and located within a panhandle). 75% for storage use only

Minimum Setback Requirements

a) Commercial

Lot lines fronting a highway	4.5 m
All other lot lines	0.0 m

b) Residential or Mixed use:

Front lot line	4.5 m 6.0 m to any garage door or carport entrance way facing a highway.
Interior side lot line	2.0 m
Exterior side lot line	4.5 m
Rear lot line	4.0 m
Strata road	3.0 m

except one accessory building is permitted to be 1.0 m from an interior or rear lot line provided the building does not exceed 10 m^2 in floor area and 3.0 m in height.

Off-Street Parking Requirements

Seniors' congregate housing 1 space per 2 employees and 1 per 5 beds

For other uses permitted in this zone, parking shall be provided as set out under Schedule '3B' Off-Street Parking & Loading Spaces.

In addition to the requirements of Schedule '3B' Off-Street Parking & Loading Spaces, the following bicycle parking is required:

Use	**Required Bicycle Parking Spaces**
Commercial use	1 space per 475 m^2 commercial floor area adjacent to primary building entrances.

Multiple dwelling unit development use	1 secure interior space per 2 dwelling units, and 4 spaces adjacent to the primary building entrance.
Seniors' congregate housing	1 secure interior space per 10 employees.

Other Regulations

a) No single use may occupy more than 80% of the total building floor area within a parcel.

b) Commercial use on the ground floor of a building is only permitted where an additional storey is provided above.

3.4.144.11 LAKEHOUSE CENTRE CD44 – LC

Purpose

The intent of the Lakehouse Centre zoning area is to allow a commercial recreational centre in the Lakes District community adjacent to Enos Lake park and trails. This privately operated facility may also be used to accommodate Lakes District regional park administration and limited programs for regional park staging as well as some tourist accommodation and other compatible accessory uses.

Permitted Principal Uses

a) assembly use

b) recreational facility

Accessory Uses

a) convenience store

b) inn

c) office

d) personal care

e) personal service use

f) restaurant

g) retail store

h) school

i) theatre

j) tourist accommodation

k) tourist information booth

l) tourist store

Maximum Density

Density	12 units per hectare (uph) for tourist accommodation

Minimum Parcel Size

9,000 m²

Maximum Size of Buildings and Structures

Height

Principal building	10.0 m
Accessory buildings & structures	6.0 m

Parcel Coverage	40%
Impermeable Surface Area	50%

Minimum Setback Requirements

All lot lines	6.0m

Off-Street Parking Requirements

In addition to the requirements of Schedule '3B' Off-Street Parking & Loading Spaces, the following parking is required:

Bicycle parking	1 space 95 m^2 floor area

3.4.144.12 CIVIC INFRASTRUCTURE CD44 – CI

Purpose

The Civic Infrastructure zoning area allows for community servicing infrastructure and utilities, specifically related the provision of potable water and sanitary sewer servicing and rainwater management.

Permitted Principal Uses

a) utility use

Maximum Size of Buildings and Structures

Height	10.0m
Parcel coverage	25%

Minimum Setback Requirements

All lot lines	6.0m

Other Regulations

Notwithstanding Schedule '3F' Landscaping Regulations and Standards, Section 3.2.1, a minimum 3.0m wide landscape buffer shall be provided within the setback area of a parcel adjacent to a highway or residential use where buildings or structures are proposed for utility use.

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The Board of the Regional District of Nanaimo, in open meeting assembled, enacts as follows:

A. This Bylaw may be cited as "Regional District of Nanaimo Land Use and Subdivision Amendment Bylaw No. 500.385, 2013".

B. "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987", is hereby amended as follows:

1. Under **PART 3 LAND USE REGULATIONS, Section 3.1 Zones** by adding the following Zone Classification and corresponding short title after Section 3.4.143 Schooner Bay Manor Seniors Mobile Home Park Comprehensive Development Zone (CD43):

   Schooner Cove Comprehensive Development Zone (CD45)

2. By adding Section 3.4.145 (CD45) as shown on Schedule '3' which is attached to and forms part of this Bylaw.

3. By rezoning the lands shown on the attached Schedule '1' and legally described as

   a. Lot 1, District Lot 78, Nanoose District, Plan 28544;

   b. Lot 1, District Lot 78, Nanoose District, and District Lots 2085, 2086, 2087, 2088 and 2089 Nanaimo District Plan VIP87121;

   c. Lot 1, District Lot 2090 Nanaimo District and District Lot 78 Nanoose District Plan VIP87122 and,

   d. District Lot 2084, Nanaimo District, (Commercial Marina) Licence 109021.

   from Commercial 5 (CM5) Zone, Subdivision District 'J', Residential 5 (RS5) Zone, Subdivision District 'J', and Water 2 (WA2) Zone, Subdivision District 'Z' to Schooner Cove Comprehensive Development Zone (CD45), as shown on Schedule '1', and with the following CD45 Sub-Zoning Areas as shown on Schedule '2', which is attached to and forms part of this Bylaw:

Village Mixed Use	CD45 – MU
Marina	CD45 – MA
Residential Multiple Dwelling	CD45 – RMD

Introduced and read two times this ___ day of _____ 20__.

Public Hearing held this ___ day of _____ 20__.

Read a third time this ___ day of _____ 20__.

Adopted this___ day of _____ 20__.

_____ _____

Chairperson Corporate Officer

Schedule '1' to accompany "Regional District of Nanaimo Land Use and Subdivision Amendment Bylaw No. 500.385, 2013"

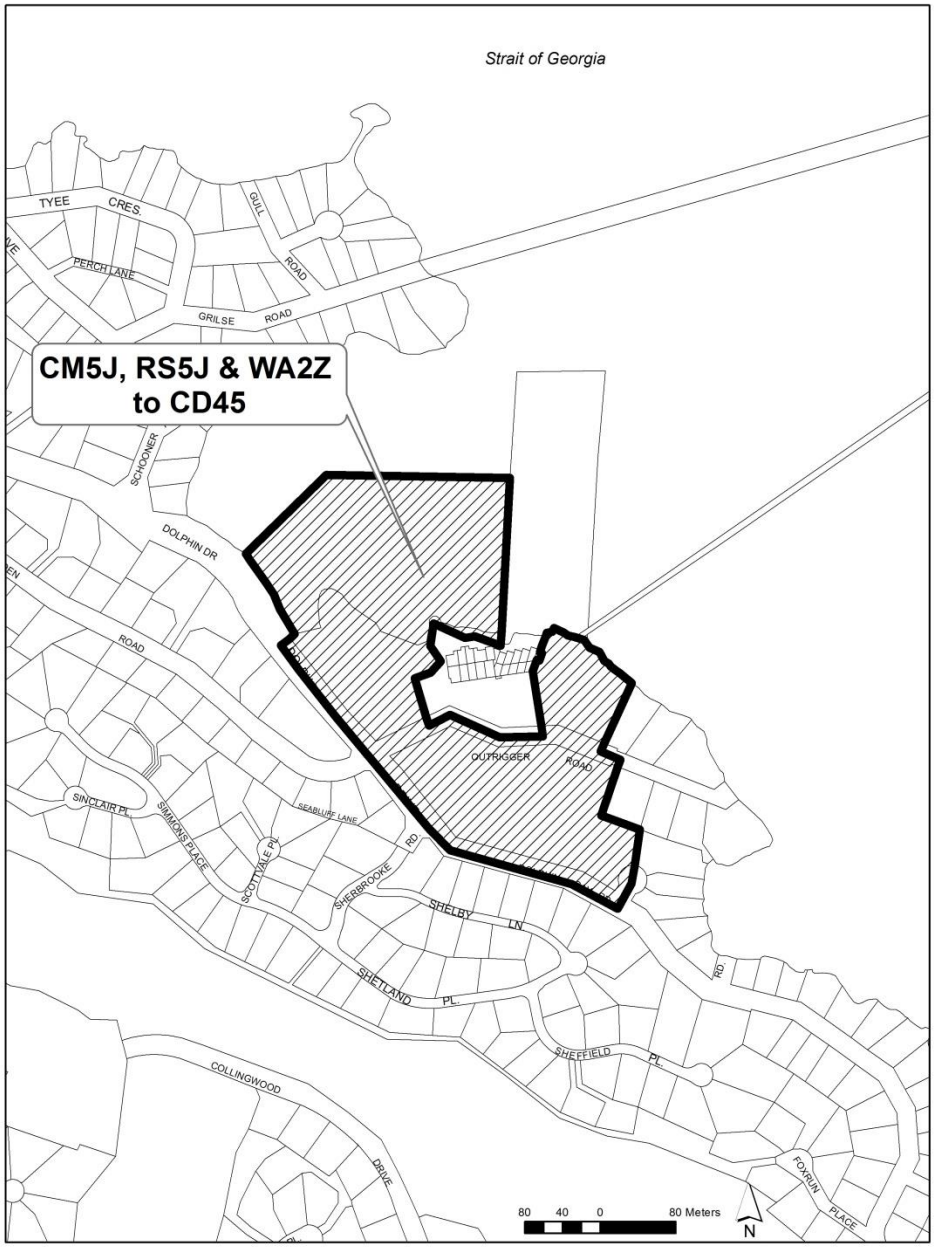
_____

Chairperson

_____

Corporate Officer

Schedule '1'
CD45 Zone Area



Schedule '2' to accompany "Regional District of Nanaimo Land Use and Subdivision Amendment Bylaw No. 500.385, 2013".

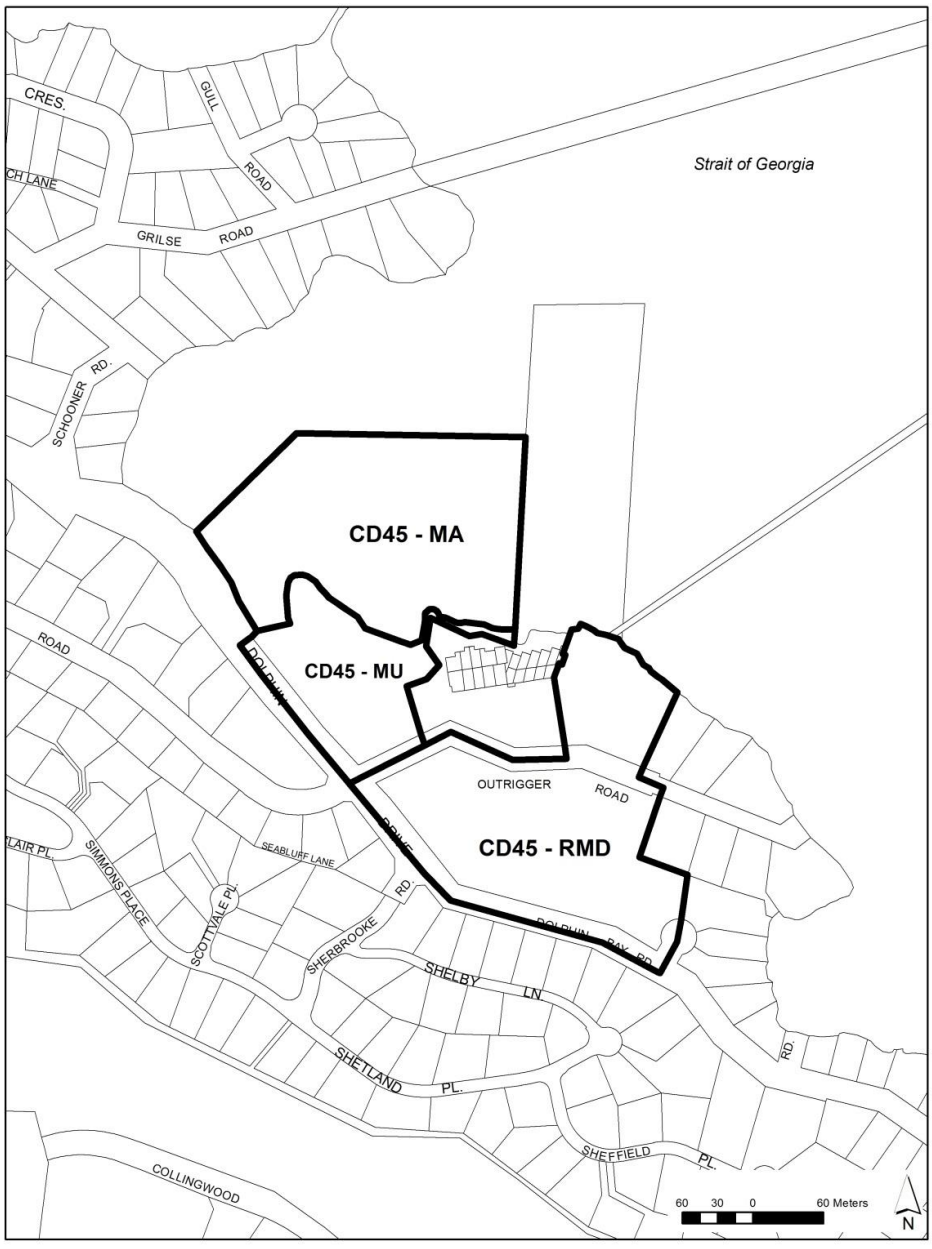
_____

Chairperson

_____

Corporate Officer

Schedule '2'
CD45 Sub-Zoning Areas



Schedule '3' to accompany "Regional District of Nanaimo Land Use and Subdivision Amendment Bylaw No. 500.385, 2013"

_____

Chairperson

_____

Corporate Officer

Schedule '3'
Schooner Cove Comprehensive Development Zone Regulations

Section 3.4.145

SCHOONER COVE COMPREHENSIVE DEVELOPMENT ZONE	**CD45**

3.4.145.1 APPLICABILITY OF THE BYLAW

The regulations of Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987 shall apply to the lands zoned CD45. In addition to these regulations, and where there is a conflict with these regulations, the regulations of the CD45 Zone shall apply.

3.4.145.2 PURPOSE

The purpose of the CD45 Zone is to allow a mixed-use waterfront village with neighbourhood-oriented commercial shops and services, a marina, a range of multiple dwelling housing types, and a publicly accessible network of waterfront boardwalks, plazas, and pathways in accordance with Schedule 'C' – Schooner Cove Neighbourhood Plan in the Nanoose Bay Official Community Plan Bylaw No. 1400, 2005.

The lands encompassed within the CD45 Zone are divided into three sub-zoning areas including: Village Mixed Use (CD45 – MU), Marina (CD45 – MA), and Residential Multiple Dwelling (CD45 – RMD). Specific regulations apply to each zoning area, in addition to the Definitions and General Regulations as set out in the CD45 Zone.

The extent of each zoning area in the Lakes District Comprehensive Development Zone is shown on Schedule '3A' Zoning Maps of Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987.

3.4.145.3 DEFINITIONS

assembly use means the use of land, buildings or structures to accommodate exhibits, special events or meetings and includes auditorium, church, museum, community hall, fraternal lodge, youth centre, theatre;

artisan workshop means production, service, repair or maintenance of an article, substance, material, fabric or compound, provided uses are not noxious or offensive to the immediate neighbourhood or the general public by reason of emitting odours, dust, gas, noise, effluent, or hazard; and having a gross floor area not exceeding 200 m^2 including retail sales accessory to the principal use;

boat launching facility means jib crane hoist, boat ramp or other means to launch and/or retrieve watercraft;

commercial parking means use of land, buildings and structures for the purpose of providing short-term commercial parking spaces;

commercial use means the occupancy or use of a building or land for the purpose of carrying out business, professional activities, artisan workshop, retail or personal service use;

community garden means a non-commercial facility for the cultivation of fruits, flowers, vegetables or ornamental plants;

geodetic elevation means the vertical elevation or height of a given point on land or above the surface of the water measured from the geodetic datum as determined by a BC Land Surveyor;

grocery store means a sales outlet contained under one roof, having a gross floor area not exceeding 750 m^2, and providing for the retail sale and display of food and related goods;

height means that part of a building or structure measured above the geodetic datum as determined by a BC Land Surveyor to the outermost exterior walls or supports as indicated on a plan showing any complete vertical section of that part of a building or structure where permitted in the applicable zone;

impermeable surface area means the sum total horizontal area as measured from the outermost perimeter of all buildings or part thereof together with any ground covering that does not naturally exist on the site and cannot be readily penetrated by water, such as roads, paved parking areas, driveways, patios, games courts and the like, on the parcel expressed as a percentage of the total parcel area;

liquor store means a retail store licensed under the Liquor Control and Licensing Act, and amendments thereto, for the sale of beer, wine and other alcoholic beverages;

live/work unit means the use of a building or portion thereof for an economic activity including artisan workshop, personal service use or office in combination with a dwelling unit;

marina means moorage, boat launching facilities, and outdoor recreation use, including the rental and maintenance of boats and seaplanes, and which may be equipped with administration facilities, washrooms, showers and refuse disposal facilities;

mobile food cart means a mobile cart from which food and/or drink is dispensed, and where the entire stock of goods offered for sale is carried and contained in the cart and which may change locations from time to time, and which is not located in a permanent building or structure, and is removed from public access when not in use;

multiple dwelling unit development means the establishment of three or more dwelling units within a building on a parcel;

neighbourhood pub means an establishment with a liquor primary licence issued pursuant to the Liquor Control and Licensing Act and amendments thereto;

resort condominium development means a hotel and includes hotel units subdivided pursuant to the Strata Property Act and amendments thereto, with continuous occupancy not exceeding ninety (90) calendar days and does not include residential use;

restaurant means an eating establishment providing for the sale of prepared foods and beverages to be consumed on or off the premises, and may include café, delicatessen, and take-out restaurant but specifically excludes neighbourhood pub, drive-in and drive-thru establishment;

retail store means a sales outlet contained under one roof, having a gross floor area not exceeding 250 m^2, and providing for the retail sale and display of goods, but specifically excludes industrial uses and gasoline service station;

seniors' congregate housing means a residential or institutional facility which provides for seniors' congregate housing units with common living facilities, one or more meals per day and housekeeping services, contains a common dining area with a capacity sufficient to accommodate all residents of the facility, and may contain accessory personal service use and accessory convenience store use;

seniors' congregate housing unit means a sleeping unit or a dwelling unit containing one or more sleeping units within a seniors' congregate housing facility;

sleeping unit means a bedroom or other area which is used or intended to be used for sleeping, or sleeping and living purposes, and which does not contain provisions for cooking;

storey means that portion of a building situated between the top of any floor and the top of the floor next above it, and if there is no floor above it, that portion between the top of the floor and the ceiling above it;

temporary building means a building which is not supported on permanent foundations and which may or may not be connected to community water or sewer;

tourist accommodation means the rental of a lodging unit in a hotel, motel, and cabin for the temporary accommodation of the traveling public with continuous occupancy not exceeding ninety (90) calendar days and specifically excludes a manufactured home and residential use; and,

unit density means a measurement of development intensity on a parcel, represented by the total number of dwelling units on a parcel divided by the parcel area in hectares (units per hectare) but excludes dedicated road and dedicated park.

3.4.145.4: GENERAL REGULATIONS

1) Total Number of Dwelling Units

The total number of dwelling units within the lands zoned CD45 shall not exceed 360 dwelling units.

2) Uses Permitted in all Zones

The following uses are permitted in all zoning areas of the CD45 Zone:

a) *Community garden*

3) Rainwater Harvesting

Where a Building Permit is not required for rainwater harvesting structures, equipment and apparatus, including rain barrels and cisterns, they are excluded from the building setback requirements.

4) Seniors' Congregate Housing

Seniors' congregate housing, where permitted in the zone, is subject to the following regulations:

a) For the purposes of calculating unit density, each *sleeping unit*, and each *sleeping unit* within a dwelling unit within a seniors' congregate housing facility is equal to 0.2 units;

b) The gross floor area of a *seniors' congregate housing unit* shall not be less than 26 m^2 and not more than 50 m^2; and

c) Accessory personal service and convenience store uses, where provided, shall be contained within the seniors' congregate housing facility and shall be accessible only from an internal hallway or corridor. The combined total floor area of all accessory personal service and convenience store uses shall not exceed 150 m^2 per seniors' congregate housing facility.

5) Temporary Buildings, Structures and Uses for Seasonal Vending

Temporary buildings, structures, or *mobile food carts* for the purpose of seasonal vending on properties are permitted within any commercially zoned properties provided that potable water and washroom facilities are available on-site if food is served.

6) Resort Condominium and Tourist Accommodation

Temporary stays within *resort condominium development* or *tourist accommodation* is limited to a maximum consecutive or non-consecutive stay of ninety (90) calendar days per visitor in any twelve (12) month period within any resort condominium or tourist accommodation unit on a parcel. The relocation of a visitor to another unit within the parcel does not constitute the start of a new stay.

7) Building Height

The following regulations apply to building height within all zoning areas of the CD45 Zone:

a) Structures such as antennae, chimney stacks, steeples, elevator housings, roof stairway entrances, ventilating equipment or enclosures for such equipment, skylights, flagpoles and the like are exempt from the height requirement.

b) Structures for sustainable building technologies, such as wind turbines, solar panels and rain barrels, cisterns and the like are permitted to exceed the height requirement provided that:

i) No such structure covers more than 20% of the parcel area; or

ii) If located on a building, no such structure covers more than 10% of the roof area; and,

iii) No such structure shall exceed twice the maximum building height permitted by the zone.

3.4.145.5 VILLAGE MIXED USE CD45 – MU

Purpose

The intent of the Schooner Cove Village Mixed Use zoning area is to establish a vibrant commercial and civic core with a pedestrian-oriented village on the waterfront and ground-oriented commercial uses such as restaurants, shops and services with residential uses above.

Permitted Principal Uses

a) artisan workshop
b) assembly use
c) grocery store
d) office
e) liquor store
f) live/work
g) multiple dwelling unit development use
h) neighbourhood pub
i) outdoor recreation
j) personal service use
k) recreation facility
l) resort condominium development use
m) restaurant
n) retail store
o) seniors' congregate care
p) tourist accommodation

Accessory Uses

a) commercial parking
b) marina sales
c) tourist information booth

Maximum Density

Maximum 50 dwelling units permitted in the CD45 – MU Zone.

Minimum Parcel Size

Commercial / mixed use	900 m²
Multiple dwelling unit development	2,000 m^2

Maximum Size of Buildings and Structures

The maximum permitted building height shall be as shown on **Schedule 1 Maximum Building Height Plan** in the CD45 Zone and as summarized below:

Height

Principal buildings

Area B	18.0 m geodetic elevation or 3 storeys, whichever is less
Area C	22.0 m geodetic elevation or 3 storeys, whichever is less
Area D	26.1 m geodetic elevation or 5 storeys, whichever is less
Area E	31.0 m geodetic elevation or 5 storeys, whichever is less

Accessory buildings

Area D	One accessory building is permitted to a height of 2 storeys, provided that a storey does not exceed 5.0 m.

Maximum Floor Area	Total combined floor area for non-residential uses shall not exceed 2,325 m^2.
Parcel Coverage	70% 80% where the required parking spaces are located directly beneath the principal building.
Impermeable Surface Area	80% 85% where the required parking spaces are located directly beneath the principal building.

Minimum Setback Requirements

a)	Lot lines fronting a highway	4.5 m
b)	Lot lines that are common with Lot B, District Lot 78, Nanoose District Strata Plan 745	4.5 m
c)	All other lot lines	0.0 m

d) Notwithstanding Section 3.3.9 b) Setbacks - Sea for Electoral Area 'E', a 0.0 m setback for buildings is permitted for up to a maximum of 35 percent of the length of the parcel boundary that is common to the sea.

e) Notwithstanding Section 3.3.9 b) Setbacks - Sea for Electoral Area 'E', a 0.0 m setback is permitted for structures.

Off-Street Parking Requirements

Seniors' congregate housing	1 space per 2 employees and 1 per 5 beds
Commercial use, restaurant use, neighbourhood pub use	74 spaces in total, plus 1 space per 3 seats where a restaurant or neighbourhood pub exceeds 100 seats.

For other uses permitted in this zone, parking shall be provided as set out under Schedule '3B' Off-Street Parking & Loading Spaces.

In addition to the requirements of Schedule '3B' Off-Street Parking & Loading Spaces, the following bicycle parking is required:

Use	**Required Bicycle Parking Spaces**
Commercial use, restaurant use, neighbourhood pub use	1 space per 475 m^2 commercial floor area adjacent to primary building entrances.
Multiple dwelling unit development use	1 secure interior space per 2 dwelling units, and 4 spaces adjacent to the primary building entrance.
Seniors' congregate housing	1 secure interior space per 10 employees.

Other Regulations

a) Non-residential uses shall comprise at least 20% of the total building floor area within a parcel.

b) A maximum of one grocery store is permitted within the Village Mixed Use Zone.

c) Notwithstanding Schedule '3F' Landscaping Regulations and Standards, Section 2.1.1 a landscape buffer is not required for a designated highway adjacent to a commercial use and multiple dwelling unit development.

3.4.145.6 MARINA CD45 – MA

Purpose

The intent of the Marina zoning area is to allow the operation of a marina business including a moorage, marina office, marine fuel supply station, and other ancillary marina services and facilities.

Permitted Principal Uses

a) assembly use

b) boat launching facility

c) marina use

Accessory Uses

a) convenience store

b) marina fuel supply station

c) marina sales

Maximum Size of Buildings and Structures

The maximum permitted building height shall be as shown on **Schedule 1 Maximum Building Height Plan** in the CD45 Zone and as summarized below:

Height	
Area A	11.0 m geodetic elevation or 3 storeys, whichever is less
Parcel Coverage	10% provided that no individual building covers more than 5% of a parcel.

Minimum Setback Requirements

Notwithstanding Section 3.3.9 b) Setbacks - Sea for Electoral Area 'E', a 0.0 m setback is permitted for buildings and structures.

Off-Street Parking Requirements

Marina use	1 parking space per 4 marina slips
Boat launching facility	20 boat trailer parking spaces

For other uses permitted in this zone, parking shall be provided as set out under Schedule '3B' Off-Street Parking & Loading Spaces.

A minimum of 25% of the parking required for marina use in the CD45 – MA Zone shall be provided within the lands zoned CD45 – MU and a maximum of 75% of the marina parking

may be provided within the lands zoned CD45 – RMD, provided that none of the required off-street parking is located within a highway.

The off-street parking required for a *boat launching facility* shall be provided within the lands zoned CD45 – RMD.

In addition to the requirements of Schedule '3B' Off-Street Parking & Loading Spaces, the following bicycle parking is required:

Use	**Required Bicycle Parking Spaces**
Marina use	8 spaces

3.4.145.6 RESIDENTIAL MULTIPLE DWELLING CD45 – RMD

Purpose

The Residential Multiple Dwelling zoning area allows for the development of multiple dwelling housing types including ground-oriented and low-rise condominium buildings. These smaller unit types are intended to provide opportunities for downsizing and ageing-in-place in close proximity to publically-accessible open space and village commercial uses.

Permitted Principal Uses

a) commercial parking

b) multiple dwelling unit development use

c) seniors' congregate housing

Maximum Density

Maximum 310 dwelling units permitted in the CD45 – RMD Zone

Minimum Parcel Size

Multiple dwelling unit development	2,000 m²

Maximum Size of Buildings and Structures

The maximum permitted building height shall be as shown on **Schedule 1 Maximum Building Height Plan** in the CD45 Zone and as summarized below:

Height

Principal buildings

Area D	26.1 m geodetic elevation or 5 storeys, whichever is less
Area F	37.0 m geodetic elevation or 5 storeys, whichever is less
Area G	42.0 m geodetic elevation or 5 storeys, whichever is less

Accessory buildings

Area D	One accessory building is permitted to a height of 2 storeys, and all other accessory buildings shall not exceed 1 storey, provided that a storey does not exceed 5.0 m.
Area F	One accessory building is permitted to a height of 2 storeys, and all other accessory buildings shall not exceed 1 storey, provided that a storey does not exceed 5.0 m.
Area G	One accessory building is permitted to a height of 2 storeys, and all other accessory buildings shall not exceed 1 storey, provided that a storey does not exceed 5.0 m.

Parcel Coverage	60% 70% where the required parking spaces are located directly beneath the principal building.
Impermeable Surface Area	80% 85% where the required parking spaces are located directly beneath the principal building.

Minimum Setback Requirements

All lot lines	5.0 m

Off-Street Parking Requirements

Seniors' congregate housing	1 space per 2 employees and 1 per 5 beds

For other uses permitted in this zone, parking shall be provided as set out under Schedule '3B' Off-Street Parking & Loading Spaces.

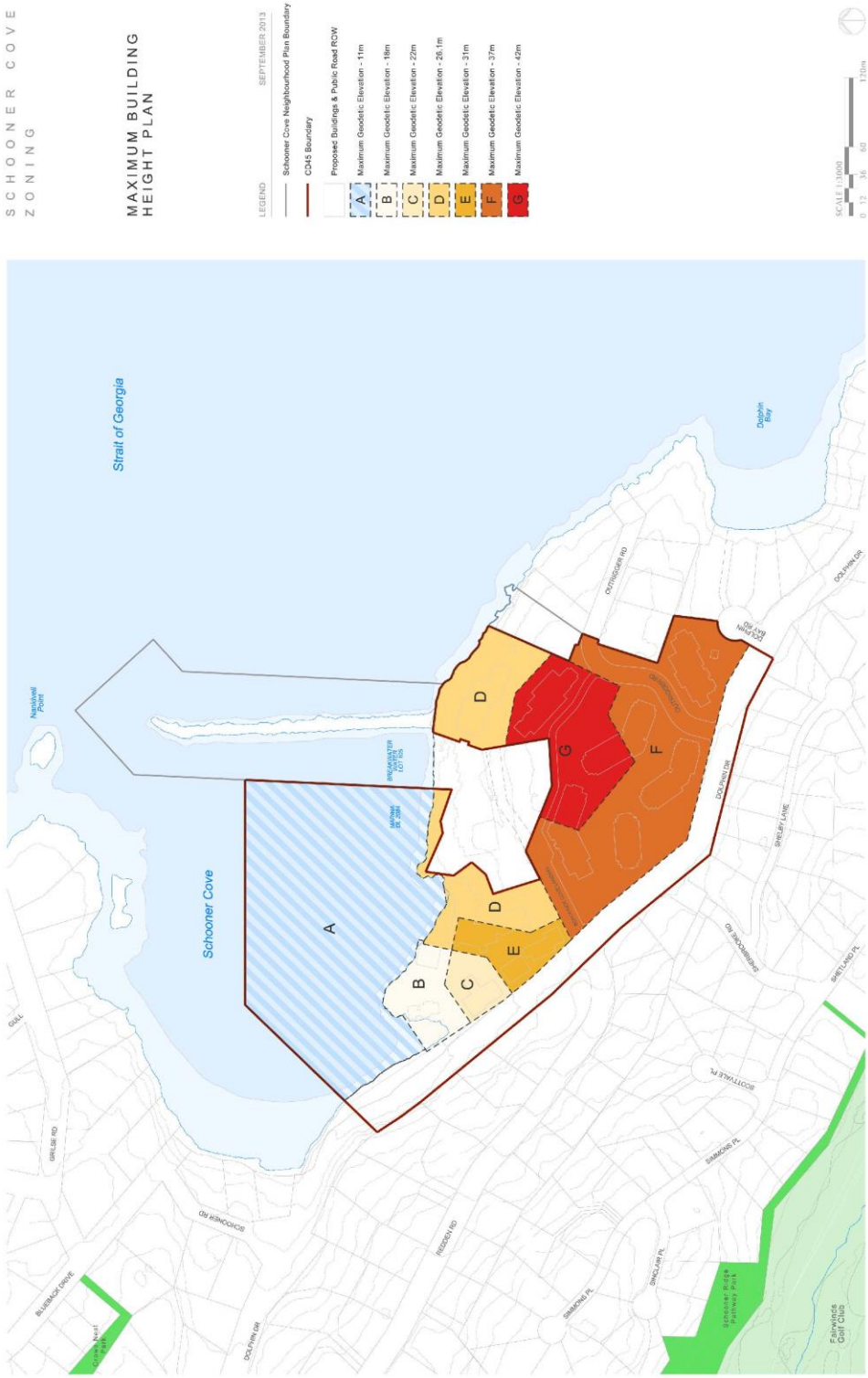
In addition to the requirements of Schedule '3B' Off-Street Parking & Loading Spaces, the following bicycle parking is required:

Use	**Required Bicycle Parking Spaces**
Multiple dwelling unit development use	1 secure interior space per 2 dwelling units, and 4 spaces adjacent to the primary building entrance.
Seniors' congregate housing	1 secure interior space per 10 employees.

Other Regulations

Notwithstanding Schedule '3F' Landscaping Regulations and Standards, Section 3.2.1, a minimum 3.0m wide landscape buffer shall be provided within the setback area of a parcel adjacent to a highway for a multiple dwelling unit development.

Schooner Cove Comprehensive Development Zone CD45
Schedule 1 Maximum Building Height Plan



Attachment 5 – Amendment Bylaw 500.388

REGIONAL DISTRICT OF NANAIMO
BYLAW NO. 500.388

A Bylaw to Amend Regional District of Nanaimo
Land Use and Subdivision Bylaw No. 500, 1987

The Board of the Regional District of Nanaimo, in open meeting assembled, enacts as follows:

A. This Bylaw may be cited as "Regional District of Nanaimo Land Use and Subdivision Amendment Bylaw No. 500.388, 2013".

B. "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987", is hereby amended as follows:

1. By adding Schedule 4C1 – Lakes District and Schooner Cove Community Water System Standards as shown on Schedule '1' which is attached to and forms part of this Bylaw.

2. By adding Schedule 4D1 – Lakes District and Schooner Cove Community Sewer System Standards as shown on Schedule '2' which is attached to and forms part of this Bylaw.

3. Under **PART 4 SUBDIVISION REGULATIONS, Section 4.7 Sewage Disposal** the following is added after Section 4.7 (2):

   3) Notwithstanding Section 4.7 (1), for lands within the Lakes District and Schooner Cove Community Water and Sewer Standards Area, all parcels shall be serviced by a community sewer system.

   4) Notwithstanding Section 4.7 (2), for lands within the Lakes District and Schooner Cove Community Water and Sewer Standards Area, any community sewer system, or part thereof, provided within the subdivision, to service the subdivision or to connect the sewage collection system within the subdivision to a Regional District trunk sewage main shall, be constructed and installed at the expense of the owner of the land being subdivided and shall be carried out in accordance with the standards and specifications set out in Schedule '4D1'.

4. Under **PART 4 SUBDIVISION REGULATIONS, Section 4.8 Water Supply** by inserting the following after Section 4.8 (2) and renumbering subsequent sections accordingly:

   3) Notwithstanding Section 4.8 (1), for lands within the Lakes District and Schooner Cove Community Water and Sewer Standards Area, all parcels shall be serviced by a community water system.

   4) Notwithstanding Section 4.8 (2), for lands within the Lakes District and Schooner Cove Community Water and Sewer Standards Area any community water system, or part thereof, provided within the subdivision, to service the subdivision or to connect the water distribution system within the subdivision to a Regional District trunk water main shall, be constructed and installed at the expense of the owner of the land being subdivided and shall be carried out in accordance with the standards and specifications set out in Schedule '4C1'.

5. The Lakes District and Schooner Cove Community Water System Standards and the Lakes District and Schooner Cove Community Sewer System Standards will apply to lands within the Lakes District and Schooner Cove Community Water and Sewer Standards Area as shown on the attached Schedule '3' and legally described as:

    a. Lot 1, District Lots 30 and 78, Nanoose District, Plan 26219, except those parts in Plans 28246, 29574, 30072, 30262, 34675, 36514, 48548 and VIP53001;
    b. Lot 8, District Lot 78, Nanoose District, Plan 30262;
    c. District Lot 11, Nanoose District, Except that part outlined in red on Plan 1567 OS, 48548 and VIP59496;
    d. A portion of the lands legally described as District Lot 7, Nanoose District, Except that part outlined in red on Plan 1567 OS, 48548, VIP59496 and VIP80856;
    e. A portion of the lands legally described as District Lot 30, Nanoose District, Except those parts in Plans 15193, 26219, 48585, VIP51706, VIP51707, VIP52451, VIP53134, VIP57407, VIP60049, VIP60602 and VIP88308;
    f. A portion of the lands legally described as District Lot 78, Nanoose District, Except that part shown outlined in red on Plan deposited under DD 19579I; Except Parcels A and B (DD 7528N); and Except those parts in Plans 813R, 1567 OS, 14212, 14250, 14275, 15075, 15193, 22836, 24012, 25366, 26219, 27129, 27206, 29869, 34675, 47638, 48548, 48585, 49669, 50872, 51142, VIP51603, VIP51706, VIP51707, VIP53134, VIP57407, VIP59180, VIP59494, VIP60049, VIP60602, VIP71781, VIP73214, VIP78139, VIP80854, VIP80855, VIP80856, VIP85588 and VIP88308;
    g. Lot 1, District Lot 78, Nanoose District, Plan 28544;
    h. Lot 1, District Lot 78, Nanoose District and District Lots 2085, 2086, 2087, 2088 and 2089 Nanaimo District Plan VIP87121;
    i. Lot 1, District Lot 2090 Nanaimo District and District Lot 78 Nanoose District Plan VIP87122 and,
    j. District Lot 2084, Nanaimo District, (Commercial Marina) Licence 109021.

Introduced and read two times this ___ day of _____ 20__.

Public Hearing held this ___ day of _____ 20__.

Read a third time this ___ day of _____ 20__.

Adopted this___ day of _____ 20__.

Chairperson

Corporate Officer

Schedule ‘1’ to accompany “Regional District of Nanaimo Land Use and Subdivision Amendment Bylaw No. 500.388,2013”

_____

Chairperson

_____

Corporate Officer

Schedule ‘1’

Schedule 4C1

Lakes District and Schooner Cove Community Water System Standards

REGIONAL DISTRICT OF NANAIMO

BYLAW NO. 500

SCHEDULE 4 C 1

2013 LAKES DISTRICT AND SCHOONER COVE

COMMUNITY WATER SYSTEM STANDARDS

REGIONAL DISTRICT OF NANAIMO

BYLAW NO. 500

SCHEDULE 4 C 1

LAKES DISTRICT AND SCHOONER COVE

COMMUNITY WATER SYSTEM STANDARDS

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APPENDICES

1. GENERAL

1.1 Requirement

The water standards for design and construction of the water system within the Lakes District and the Schooner Cove Community Water Standards Area are to be governed by Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987, and particular by this Schedule 4C1.

It is the intention of the RDN to enter into a phased development agreement under section 905.1 of the *Local Government Act* with the property owner of the lands within the Lakes District Comprehensive Development Zone CD44 and the Schooner Cove Comprehensive Development CD45 that will specify changes to specified subdivision servicing bylaw provisions that would not apply to the development contemplated under that agreement, unless agreed to in writing by the developer.

The RDN will require a Subdivision Service Agreement to be completed for any new water system or existing system extension, unless otherwise agreed to in writing by the RDN.

Water supply and distribution systems shall be designed, installed, extended, tested and maintained in accordance with the following standards and specifications.

1.2 Design

The engineering design of the water system shall be carried out by, and the preparation of drawings and specifications shall be sealed by a Professional Civil Engineer registered in the Province of British Columbia (the Design Professional), and shall conform to these Standards.

1.3 Definitions

Engineer means the Manager of Engineering Services for the Regional District of Nanaimo, or the person designated by the General Manager of Regional and Community Utilities.

Engineer of Record means a Professional Engineer registered with the Association of Professional Engineers and Geoscientists of BC who is responsible for the construction drawings and documents. The Engineer of Record will be the engineer that signs and seals the record drawings and Certification of Installed Works.

Facilities means water lines, water treatment plants, pumping stations and other works necessary thereto, and for carrying potable water and includes any and all works, structures, lands, conveniences, incidental to and necessary for a water system.

Member Municipality or Member means a municipality or improvement district within the Regional District of Nanaimo.

Regional District means in the document the Regional District shall refer to the Regional District of Nanaimo.

1.4 Application

All applications shall be made in two steps as follows:

1. Feasibility Review

All proposed construction of water supply and distribution facilities shall be submitted to the Regional District for a feasibility review prior to commencement of any detailed design or

construction. Such requests shall include a plan of the proposed construction and the area it will serve. The applicable feasibility review fee, in accordance with RDN Bylaw No. 1259.03 or most recent amendment, and the Letter of Assurance shall also be submitted at this time.

The Regional District will review the proposal, and reply in writing indicating approval or listiing the necessary amendments required.

To be addressed but not limited to, are the following items:

a) source of water
b) initial plan of the works showing equipment/pipe sizes, materials etc.
c) number of properties and population served
d) alignments/offsets of pipes etc.
e) any flow and/or pressure concerns

2. Detailed Design

The detailed design and specifications shall be submitted in duplicate to the Regional District for Design Stage Approval (DSA) prior to construction and is valid for up to 180 days from the date of issue. Attached to the submission shall be a Certificate of Design. The applicable engineering review fee, in accordance with RDN Bylaw No. 1259.03 or most recent amendment, shall also be submitted at this time, along with the Design Professional's certified cost estimate for the works upon which the fee amount is based.

The detailed plans will be returned either approved or with a request for re-submission. Re-submission will be carried out until the Regional District approves the detailed plans and specifications, and issues Design Stage Approval (DSA).

The Design Professional shall submit the RDN approved plans to the Provincial Ministry of Transportation & Infrastructure and Vancouver Island Health Authority for any approval permits that may be required. Receipt and submission of these permits to the RDN shall also be a prerequisite to the start of construction. Approval permits from other applicable agencies as required shall also be obtained.

1.5 Drawings and Specifications

All design drawings shall be ISO A1 size, 594 mm in depth and 841 mm in width. The following information shall be supplied:

1. **Location Plan** - showing the location of the proposed work. This may appear on the same sheet as the Key Plan.

2. **Key Plan** - showing a plan of the proposed work at a suitable scale such that the whole works are shown on one drawing, usually 1:5000, 1:2000 or 1:1000. The Key Plan shall show a general outline of the works, area covered and sheet numbers of the plan/profile drawings, and a legend showing existing and proposed works.

3. **Plans/Profiles** - showing detailed design of the proposed works. Profiles of mains 200 mm in size and under are not required unless otherwise specified by the Regional District.

Plans shall be drawn at a scale of 1:500 (1:250 is also acceptable), showing the location of the pipe centreline, pipe size and type and off-set from property line, hydrants, valves, fittings and all related appurtenances in relation to road, easement and adjacent property and lot lines. Existing or proposed underground utilities are to be indicated on

the plan in addition to the extent of work required in making connection to existing water main. Location of service connections are to be shown. Connections not conforming to the standard offset require a distance from an iron pin or lot line. In general, water services shall be installed two in a trench at property corners, 1200 mm from the lot line, and alternate with hydro and telephone poles.

Profiles shall be drawn at a horizontal scale of 1:500 and a vertical scale of 1:50 if more suited to specific conditions. The profile shall show the line of the existing and finished road grade on centreline, the invert of the pipe, location of fittings and hydrants, and location of sanitary and storm utilities. Where the pipe is not to be laid at a constant depth below the finished grade, the invert elevation shall be shown at pipe deflections and vertical bends.

Drawings detailing plans and elevations shall be prepared for wells and wellheads, supply intake works, pump stations, major valve chambers, and storage reservoirs. Suitable standard scales shall be chosen, being either 1:50, 1:20, 1:10, or 1:5.

4. **Specifications** - shall be prepared to further define materials of construction and shall specify methods of construction and workmanship.

5. **Record Drawings** - shall be prepared by correcting drawings on completion of construction in order to reflect "as-built" conditions for permanent records. The location of all individual lot water service connections shall be clearly shown. The drawings shall be signed and sealed by the Professional Civil Engineer, and shall be accompanied by a Certification of Installed Works. Final record drawings shall consist of:

   a) 2 full-size paper sets;
   b) one full size 3 mil Mylar set;
   c) 2 – 11” X 17” paper sets or 2 A3 half-size paper sets, as agreed by the RDN; and
   d) digital copies, one as AutoCAD or Civil 3D file as applicable to the current software, and one as TIFF files.

1.6 Variations from Standards

Where the applicant wishes to vary from these standards he shall submit a written request with adequate supporting data to the Regional District for review.

The Regional District shall make the final decision in writing as to the standard requirements which shall apply.

1.7 Permits

The applicant shall be responsible for obtaining all necessary approvals and permits required prior to commencing construction of the water system.

1.8 New Service Areas

Where a water system is to be constructed by an applicant within an area previously unserviced by a community water system, the design and construction for the system shall comply with the requirements of these Standards, unless otherwise agreed to in writing by the Regional District.

1.9 Existing Service Areas

Where a water system is to be constructed by an applicant within the existing or extended boundaries of an area already being served by a community water system, the design and construction of the system shall comply with the requirements of these Standards, with the

understanding that Sections 2.5 and 2.6 may not apply and will be determined by the RDN according to the project and available existing source capacity and water quality.

1.10 Inspection

The Manager of Engineering Services of the Regional District or his appointed deputies shall be allowed access and provided adequate facilities for access to any part of the works at all times for the purpose of inspection.

Any connections to or interruption of any existing system will be under the direct supervision of the Regional District. Adequate notice to the Regional District of any such interruption to service shall be provided in order that attendance by Regional District personnel can be arranged.

The design engineer appointed by the Developer/Owner shall be employed during construction of the works to confirm the project is/has been constructed according to the design drawings and specifications. At the end of the project the engineer shall provide a Certification of Installed Works indicating the works were constructed according to the plans and specifications and meet all applicable codes / regulations / bylaws.

2. DESIGN

2.1 Water Demand

Water sources and primary supply mains shall be designed to supply the maximum day's demand, while distribution mains and booster pump stations must be sized to handle the peak hourly or fire flows. The volume of water in storage acts as a cushion between these differing flows.

The water distribution system shall be designed according to the following minimum demands:

1. Residential

Replacement Section 2.1.1 Water Demand - Residential

Housing Unit	Max Litres per Day per Person	Max Imperial Gallons per Day per Person	Persons Per Household	IGPM per Housing Unit
		(A)	(B)	(A/24/60XB)
Single-Family/detached house	1,168	250	2.2	0.38
Townhouse (attached, semi-detached) unit	914	200	1.9	0.26
Apartment / condominium unit	424	90	1.4	0.09
Secondary suite (carriage house)	424	90	1.1	0.07
Seniors Living unit	424	90	1.1	0.07

2. Commercial and Industrial

Water demands for developments involving commercial or industrial zoned lands shall be in accordance with good engineering practice as determined by the Design Professional and approved in writing by the Regional District.

Replacement Section 2.1.2 Water Demand - Commercial

Non-residential uses			
Commercial – Retail	480	105	Per 1000 sf leasable
Commercial – Office	640	140	Per 1000 sf leasable
Commercial – Restaurant	3500	770	Per 1000 sf leasable
Commercial – Pub	3500	770	Per 1000 sf leasable
Fitness Centre	490	105	Per 1000 sf leasable

3. Fire

Required fire flows shall be in accordance with the "Water Supply for Public Fire Protection - A Guide to Recommended Practice" as published by Public Fire Protection Survey Services, but in no case shall be less than 4.55 m^3/min (1000 igpm) for 90 minutes unless approved in writing by the Regional District.

2.2 Water Pressure

Minimum design distribution pressure in all areas at peak demand shall be 276 kPa (40 psi) at the property line. The design engineer shall indicate any building sites where the pressure at the main floor of the building is expected to be less than 207 kPa (30 psi). The developer is expected to file covenants of low pressure on properties where the pressure at the main floor of the building is expected to be less than 207 kPa. With the combination of maximum daily demand and the specified fire flow, the minimum residual water pressure at the fire hydrant shall be 138 kPa (20 psi), and at the highest point in the system shall not fall below 69 kPa (10 psi). Where these minimum design pressures cannot be maintained due to an increase in elevation or distance from the point of connection, a booster pump station and emergency storage shall be provided as part of the distribution system.

The maximum allowable distribution line pressure is 900 kPa (130.5 psi) except where individual connections are permitted directly from trunk mains and where special precautions are taken. Otherwise, where distribution pressures will exceed 900 kPa due to a drop in elevation, a pressure reducing station shall be installed as part of the distribution system. Where distribution pressures exceed 550 kPa (80 psi), occupants in the area shall be required to install individual pressure reducing valves. This valve shall be of an approved design and manufacture.

2.3 Design Population

Design populations used in calculating water demand for residential properties shall be computed in accordance with the population predictions based on the total number of residential units and persons per unit (ppu) as determined by the Regional District from census data or with the persons/hectare (in 2011 an average single family detached home has 2.2 ppu*) :

Multiple dwelling unit development	125 persons/hectare
Dwelling unit	30 persons/hectare (12.5 homes/hectare)

Exceptions to these design population densities may be varied by the Regional District of Nanaimo with Board Approval.

2.4 Hydraulic Network

Depending on the complexity and extent of the proposed distribution system, the Regional District may require a hydraulic network analysis showing maximum design flows and minimum design pressures. If this information is required, it will be stated by the RDN in writing at the time of the **Feasibility Review** and shall be submitted by the applicant with the detailed design application. The hydraulic network shall be designed to provide the maximum design flows at or above the minimum required pressures specified in this Standard.

2.5 Water Quality

1. Water supplied to domestic consumers shall be of a quality meeting the guidelines for microbiological, chemical, and physical parameters listed in the "latest edition" of the Guidelines for Canadian Drinking Water Quality prepared by the Federal-Provincial-Territorial Subcommittee on Drinking Water. All new water source quality shall have parameters equal to or less than the aesthetic objectives (AO) listed in these guidelines. If necessary, treatment of the source water to reduce iron and manganese below AO shall be provided. Exceptions to these parameters may be approved in writing by the Regional District of Nanaimo with Board Approval.

2. All surface water supplies shall be suitably treated and disinfected as per provincial requirements/regulations. Disinfection will normally be solely by chlorination using proportional solution feed, but other approved methods will be considered, including ultraviolet (UV) units, provided residual chlorination is included.

3. Groundwater sources may require chlorination, either at the discretion of the Vancouver Island Health Authority (VIHA), or by the RDN to suit operational requirements such as integrating a new source into an existing chlorinated system. Space shall, as a minimum, be provided for all chlorine storage and associated equipment.

2.6 Supply Sources

1. Groundwater Source

Where groundwater is to be the source of supply, a copy of the well driller's log shall be submitted, together with a copy of a well completion report by a Design Professional or a professional geoscientist registered in the Province of British Columbia (The Design Professional). All new wells shall be constructed in accordance with the Groundwater Protection Regulations, November 1, 2005, or their most recent amendment or replacement legislation.

Wells shall be cased with a minimum 200 mm (8 inch) diameter steel casing having a minimum stickup of 300 mm (12 inches) above the proposed final ground surface. The well shall be completed with stainless steel screen(s) selected following sieve analysis of aquifer material, and shall have a surface casing of a minimum 250 mm (10 inch) diameter surrounding the 200 mm well casing (unless otherwise approved in writing by

the RDN). The length of the surface casing shall be designed by The Design Professional and shall not be less than 3 meters (10 feet). A surface seal of at least 4.5 meters (15 feet) shall be installed as per the standard contained in the BC Ground Water Protection Regulation. The ground surface around the well head shall be graded to slope away from the well head at 2% grade or greater.

Any wells which encounter bedrock and source water from within rock, shall have well casing driven into the rock to establish a seal and have a surface annular seal placed to the depth at which bedrock is encountered or to a minimum depth of 4.5 meters (15 feet), whichever is less. All wells completed in bedrock must be equipped with PVC liner with threaded joints to allow for removal of the PVC for periodic well maintenance.

Modifications to well casing to allow for shallow subsurface connection, i.e., pitless adapter units, will require that the surface annular seal be re-established. All new wells shall be equipped with a 25 mm (1 inch) diameter PVC monitoring tube for the installation of a standard water level measuring device without danger of being stuck in the well.

The new well shall have a Well Identification Plate as issued by the BC Ministry of Environment attached to the well casing exposed at surface and clearly visible. Copies of all information for the well including the drillers log, pumping test data, analysis and written reports shall be submitted to the BC Ministry of Environment, VIHA and RDN.

The well completion report shall record results of well pumping tests which shall only occur during the late summer or early fall (August, September, October as this time is generally the lowest ground water levels of the year), and contain conclusions as to the capability of the source with the standard MOE 30%percent drawdown safety factor under conditions of zero surface recharge for 120 days (this figure may be reduced 100 days if authorized in writing by the RDN). All interference effects from adjacent constructed wells, on the assumption that they are all fully operational on a continuous basis over the same 120 day period, shall be allowed for in addition to the 30% drawdown safety factor.

No safety factor is required to be added to the interference drawdown allowance although a 15% reduction will be applied as per current RDN bylaws but this will be reviewed internally within the RDN. The Design Professional shall recommend a rated pumping capacity for the well and all wells which will be reviewed by the RDN. The hydrogeoligist may require specific pump rates for proper testing.

The Design Professional shall also assess if and what interference effects the new well will have on any adjacent operating RDN system wells. He shall provide an assessment of the effect in total litres per second of capacity reduction which those operating wells are anticipated to have over the 120 day zero surface recharge condition with the new well operating. The new well pump will be required to be sized to the full long term design capacity, but the allowable new supply applicable to support new development will be lowered by any such capacity reduction which it may have on operating RDN wells.

The well pumping test shall be run for 48 hours continuous pumping (72 hours in bedrock wells) at a pumping rate at or above the projected long-term pumping capacity of the well or until the water level stabilizes, whichever is the longest time. Adjacent constructed wells shall be monitored during the test pumping period, to allow The Design Professional to assess interference effects. Well recovery measurements shall also be carried out immediately on completion of the test pumping period and shall

continue until the well has recovered to at least 95% of its initial level (the RDN may reduce this recovery to 80% but this must be authorized in writing by the RDN). A minimum long-term well design capacity rating of 3.8 l/s (50 igpm) is required for any individual well. The minimum standards for pumping test and well capacity can only be altered in writing by the RDN, where under special circumstances wells meeting all quality guidelines and a capacity rating between 2.3 l/s and 3.8 l/s may be considered by the RDN for acceptance. Well testing procedures shall be in accordance with information provided by the BC Government. In no case shall the pumping test be of less time than it takes to produce a relatively stable water level in the well for an adequate period of time, as approved by The Design Professional.

The well completion report shall include a water balance for the aquifer, which accounts for seasonal recharge and withdrawals by users both directly up-gradient and down-gradient of the existing and proposed subdivision lots. All assumptions incorporated into the water balance calculations shall be stated in the report. The well completion report shall also include an assessment of any risk of flooding around the well and indicate what measures have been taken or will be taken to protect the well or wellhead from entry of flood debris or flood waters or physical damage due to flood debris, ice or erosion. Flood proofing shall be in accordance with the Drinking Water Protection regulation, Section 14 and the Ground Water Protection Regulation, Section 11.

The Regional District may require a more extensive quantitative and qualitative report by the Design Professional where unusual conditions or results occur. Further, the RDN may require the information provided by The Design Professional to be reviewed/scrutinized by a third party Design Professional appointed/retained by the RDN and paid for by the developer/well provider.

All new sources of water shall be approved by the Vancouver Island Health Authority (VIHA) and a “source approval” must be issued by VIHA prior to the source being connected to the Regional District of Nanaimo’s public water system. VIHA must also approve the well for service in writing. The connection of new properties requiring a new approved source of water shall not be permitted/approved by the RDN until the source is approved by VIHA. A wellhead protection (WHPR) report suitable to the RDN and in the format shown as “Minimum Requirements” shall also be submitted along with the information provided for source approval. Any requirements imposed by VIHA in the source approval shall be completed by the Developer, unless agreed to otherwise in writing by the RDN.

The RDN shall have legal control over a sanitary control area extending from the well head to a radius of 30 to 60 metres based on a wellhead protection report and to the satisfaction of both VIHA and RDN. RDN shall own the property as fee simple around the well head. The sanitary setback areas preferred form of legal control is fee simple ownership, particularly for the first 30 metres, however, if and to the extent that such is not feasible, this may also take the form of a sanitary control easement satisfactory to both VIHA and the RDN.

New sources shall also include provision of a suitable monitoring well that shall be designed and placed near the production well as recommended and designed by the Design Professional. The monitoring well shall be suitably completed and secured at the surface with a Model Solonist Gold (or other model if approved in writing by the RDN) electronic data logger placed at a suitable depth in the monitoring well.

2. Surface Water Source

The proposed use of surface water as a potable water supply source shall be approved by the Board before being considered. Any surface water source shall meet all provincial government regulations and guidelines for siting, for licensing and for treatment etc.

3. Source Pump Stations and Controls

Due to the individual requirements for source pump stations, a standard detail drawing is not provided in these Community Water System Standards. Prior to completing the preliminary design, the design engineer shall request samples of typical recent acceptable source pump stations, and confirm conceptual design requirements. This will be further reviewed, and requirements confirmed by the RDN at the feasibility design review stage.

Wellhead piping shall consist (as a minimum) of a wye strainer, turbine flow meter, air release valves, check valve, gate valve to throttle flows to recommended output with pressure gauges upstream and downstream and mating flanges with adapter coupling to allow installation of an orifice plate to fine-tune pump output, and a 50 mm (2 inch) diameter valved outlet with 62 mm (2.5 inch) diameter fire hose adapter for flushing purposes. A hose bib shall be provided to permit periodic water sampling. The wellhead building or enclosure shall be designed such that future access to the well is available for pump removal or well redevelopment. This shall normally be achieved by installing a pitless adapter on top of the well, protected from vandalism by installation in a non-confined space concrete chamber with spring-assisted aluminum cover and locking lid. A Model Solonist Gold (or other model if approved in writing by the RDN) electronic data logger shall be installed in the well, with data recording equipment and software. Access to install a well-line into the well for periodic manual monitoring of static and pumping levels in the well shall also be provided. Flow recording instrumentation is required. Surface source piping shall be similar in general concept to wellhead piping, modified as agreed with the RDN and to suit the special site circumstances.

The source pump station building shall be designed to provide adequate heating and insulation, lighting and ventilation. The size of the building shall be discussed and determined at the time of the feasibility review. The building shall be of concrete and block work construction, with two isolated rooms, each having separate access doors. One room shall house mechanical piping and electrical controls, and the second room chlorine injection equipment and liquid chemical storage with built-in spill containment. In special circumstances only, the RDN may approve the use of enclosures in lieu of a building, due to site space or access agreement limitations.

Each pump shall have a variable frequency drive combination motor starter with a motor circuit protector, a "hand-off-auto" selector switch, a green "pump run" pilot light, a red "pump failed" pilot light and an elapsed time meter.

Motor starters for submersible well pumps shall be equipped with quick-trip overload relays. Low level draw-down protection shall be provided utilizing electrodes suspended in the well. Restart of the pump shall be automatic when the water level in the well has recovered sufficiently; however, a red alarm light on the control panel shall require manual reset.

If the system consists of more than one pump, supplied from the same service, the control circuits shall be subdivided into branch circuits in such a manner as not to shut down the entire system if one pump circuit develops a fault. Also, time delays shall be provided to permit staggered re-start of the pumps after a power failure.

The pump control panel shall have protection against single-phasing and a red pilot light which will stay on until manually reset after a power failure.

If the system consists of more than one pump, an automatic alternator or manual lead pump selector switch shall be provided.

A single-pole, double-throw (SPDT) contact shall be provided for remote alarm purposes, which will be activated in the event of pump failure, motor overload, and power failure of low well level. Connection of alarm signal outputs to the RDN answering service or alarm centre shall be provided. An external alarm light may also be required for some installations.

Signal cables for pump control shall be directly buried, either alongside connecting pipelines or in a separate trench, wherever feasible. Cable warning tape shall be installed in the trench over signal cables.

For well sources on new systems where very little water-use occurs during the initial operation period until sufficient new users are connected, the RDN may require installation of an approved automatic flushing device, to help in maintaining water quality.

Supervisory control and data acquisition (SCADA) shall be provided from all data outputs to a central location within the new system, normally at the source pump station. The RDN will be responsible for connection of local data to a centralized system, and for any offsite programming requirements which may be required to integrate the new system into the overall water systems SCADA system.

The RDN may require emergency power back-up on all new water sources. This will be determined at time of feasibility review by analyzing system vulnerability.

2.7 Storage

1. Sizing

Reservoirs shall be sized to provide usable water storage volume to meet the fire flow requirements (Section 2.2.1.3) plus 20 percent of a maximum day's demand for the tributary area, and shall be of at least 365 cu. m (80,000 imperial gallons) capacity. The RDN may agree in writing to reduce the reservoir minimum size requirement.

2. Design

The materials and designs used for finished water storage structures shall provide stability and durability as well as protect the quality of the stored water. Unless one or more reservoirs in the same or higher pressure zone within the system are already operational, the reservoir is to be constructed with two independent cells. This is to allow maintenance of one cell to occur, while the second cell remains in service. During the feasibility review, the reservoir design, security features, dimensions, layout and material of construction shall be discussed and agreed with the RDN. Where practical, concrete reservoirs are preferred (although other materials of construction will be considered for acceptance) provided they are designed in accordance with the Building Regulations of British Columbia and amendments thereto. When topography and pressure zone conditions allow, an in-ground reservoir with a minimum 500 mm gravel and soil covering is preferred, for improved seasonal water quality. Steel structures shall

also follow the current AWWA Standards concerning steel tanks, standpipes, reservoirs, and elevated tanks wherever they are applicable.

The foundation may be designed either with the bottom at ground level, bearing on a slab or ring beam or on legs with the bottom in an elevated position.

Foundation design shall be in accordance with Building Regulations of British Columbia and amendments thereto. A foundation or soils investigations report shall be submitted, prepared by a Geotechnical Engineer registered in the Province of British Columbia.

In addition to the seismic requirements of the Building Regulations of British Columbia due account shall be taken of the effects of both convective and impulsive forces generated by ground motion. Sufficient clearance shall also be provided between high water level and roof soffit to allow for wave generation.

The reservoir structure shall be designed to safely withstand all construction and operating loads.

Reservoirs shall be totally enclosed with adequate ventilation, screened and weather protected. Vents shall project above the highest anticipated depth of snow on the roof.

Concrete reservoirs shall be provided with a roof access hatch served by internal and external ladders. Steel reservoirs shall be provided with a roof access hatch served by internal and external ladders and low level access manhole. Roof access hatches shall be of aluminum with spring-assisted opening, and shall be lockable. A roof mounted plate shall be installed alongside the roof access hatch, to suit mounting of the RDN mobile safety winch mechanism, used during internal access operations.

Access ladders, safety cages, and platforms shall comply with the requirements of the Worker's Compensation Board. Chain link and barbed wire fencing of the reservoir site will be required by the RDN, unless otherwise approved in writing by the RDN for specific site location and security conditions.

An altitude gauge shall be provided at an elevation of 1.2 m above the reservoir foundation.

Inlet piping is to discharge into the reservoir above TWL elevation. An approved outlet set 100 mm above the reservoir floor, a valved drain set at floor level, and an overflow pipe with bell-mouth entry set at 200 mm above normal reservoir top water level with 300 mm clearance from underside of roof shall be provided.

Alarms requiring manual reset shall be provided to indicate reservoir high or low level. In a water system consisting of well or booster pumps, these alarms shall be transmitted along buried signal cables to a central location. Controls may utilize probes or transmitters. Where the reservoir is supplied via pumped water, pump start-stop controls will be required. The RDN may require individual start-stop levels for each pump, or staggered pump start-stop on a timer basis.

The Regional District will require the installation of flow meters with flow data transmission and recording from the reservoir outlet. Level monitoring and recording from a level transducer at the reservoir base, or in a chamber immediately on the outlet pipe, shall also be provided.

2.8 Water Distribution Piping

1. Materials

Unless otherwise permitted, the following pipe materials shall be used for water distribution:

Material	Specifications
Steel Pipe	AWWA C200
Ductile Iron Pipe	AWWA C151
PVC Pipe	AWWA C900 - Class 150, DR 18 maximum

All pipe shall be delivered to site with end caps for shipping and storage. Steel pipe shall be coated and lined in accordance with AWWA C203. Ductile iron pipe shall be cement mortar lined in accordance with AWWA C104. Joints shall be rubber gasket in accordance with AWWA C111. Where corrosive soil conditions exist and metal pipe materials are proposed for use, a soil corrosion survey shall be undertaken by an approved professional. The Regional District may require special protection for the pipe. All pipes shall be designed for the maximum pressures and earth loading to which the pipe will be exposed, but in no case shall the design working plus safety factor pressure or class be less than that providing an AWWA standard rating of 1030 kPa (150 psi). Lesser pressure class pipe may only be used when specifically approved otherwise by the RDN for large installations, where no possibility of pressure surges or pressure zone changes occurring, in which cases Class 100 or better rating pipe would be considered.

2. General Layout

Numerous trunk lines and secondary feeders shall be installed throughout the system. These mains must be large enough to deliver consumption and fire flow demands for the district served, and shall be spaced not more than 900 m apart and looped.

Minor distributors and pipes of the gridiron system shall be a minimum of 150 mm in diameter in residential districts with 150 mm diameter cross mains at intervals not exceeding 180 m. Where no longer lengths of pipe are necessary, 200 mm diameter or larger intersecting main shall be used unless initial pressures are unusually high. 200 mm diameter pipe shall be used where dead ends or poor gridironing are likely to exist for a considerable period, or where the layout of the streets and the topography are not adapted to the above arrangement. Lines furnishing domestic supply only, and not serving hydrants, may be 100 mm diameter. Mains in cul-de-sacs shall be looped wherever feasible by connecting through specifically created rights-of-way or parkland, or by twinning pipe installation and looping pipe ends, for improved water quality. Where a water main ends in a dead end, or a valve is normally closed, a fire hydrant or below ground flushout shall be provided for flushing purposes. Temporary above ground flushouts may only be used on those mains intended to be extended in the near future.

In the high value districts, the minimum size shall be 200 mm diameter. Pipe of minimum 250 mm or 300 mm diameter is to be used on major and network highways and roads as identified in the Official Community Plans of the Regional District and for long lines not cross-connected.

2.9 Service Connections

Unless otherwise permitted, only the following materials may be used for service connections:

Material	Specifications
Polyethylene, PE 3406 - N	Potable Series 160 B.137.1
Plastic	ASTM D2666
Soft Copper, Type K	ASTM B88

In general, polyethylene shall be used for new services, except in special approved circumstances, and copper for replacement of existing old service piping by trenchless "pipe splitting" methods.

The minimum size of service connection is 19 mm diameter. Where the length of service between the main and anticipated building frontage exceeds 30 m, the service connection shall be minimum 25 mm diameter. Corporation and curb stops shall be of the same diameter as the service piping. In the larger sizes of service connection piping, the materials specified in Section 2.8 for water distribution may also be used.

Drawing W-7 of this Schedule shows the general arrangement for water service connections. The minimum size of service connection is 20 mm diameter.

Water service connection locations shall be co-ordinated with B.C. Hydro, TELUS (Telephone Company), and Shaw Cablesystems to avoid any conflict with poles (or proposed underground facilities and service conduits for underground utility installations) at the property lines of parcels. Similarly, conflict with Terasen (gas) services shall also be reviewed and avoided.

1. Corporation Stops

Corporation stops shall be in accordance the following supplementary data:

a) Full port ball valve.
b) Minimum 150 psi rating.
c) AWWA x compression.
d) Compression nut machined to bottom out on valve body shoulder.
e) Saddle clamps shall be used as specified by the manufacturer.

2. Curb Stops

Curb stops shall be in accordance with the following supplementary data:

a) Full port ball valve.
b) Minimum 150 psi rating.
c) Compression x meter swivel nut.
d) Compression nut machined to bottom out on valve body shoulder.
e) Integral locking.
f) Drain holes not permitted.
g) Set on main side of meter box to facilitate meter installation when required.
h) Curb stops shall initially be set in a 100 mm diameter PVC riser pipe, with the meter box to be installed by the RDN on final connection when the building is under construction, unless agreed otherwise. Concrete meter boxes with full support lip

and steel lid drilled for touch-read meter pad shall be provided to the RDN for this purpose.

2.10 Fire Hydrants

Hydrants shall be in accordance with AWWA C502, compression type, factory-painted yellow. The minimum hydrant size shall be 150 mm diameter. The minimum depth of bury shall be 1.2 m. There shall be a minimum of two 65 mm house outlets and one pumper outlet 117.5 mm P4.23, outside diameter male outlet complete with caps per hydrant. One of the outlets shall have an independent shut-off. Opening for both the main hydrant valve and independent shut-off shall be to the left (counter-clockwise). Outlet threads shall conform to the British Columbia Fire Hose Thread Specification. Main valve spindle and outlet nuts shall be standard pentagon shape. Main valve spindle: pentagon in 45 mm circle. Independent spindle: square 16 mm x 16 mm. Drain outlets are to be provided.

Drawings W-12 and W-13 of this Schedule show the general arrangement for the installation of hydrants. Connections shall not be less than 150 mm diameter. A gate valve will be provided on all connections between the hydrant and the main. Installations shall be in general accordance with AWWA M17. The hydrant shall be installed vertical, with the pumper nozzle perpendicular to the priority access road centreline. Mechanical joint thrust restrainers shall be used on all leads up to 6 m length. For longer hydrant leads, approved joint restrainers shall be used at each pipe joint, or alternatively a thrust block shall be installed behind the hydrant 'boot' in accordance with Drawing W-9.

Hydrant distribution shall be in general conformance with the aforementioned Standard of Municipal Fire Protection, but in all cases spacing shall be such that the maximum distance from a hydrant to the centre of any property measured along the centreline of the street and at right-angles to the property is 75 m. Hydrants will be set in 6 m from the corner at any intersection to facilitate future widening or other street works.

2.11 Valves

Unless otherwise permitted, only the following valves shall be installed in the distribution system:

1. Gate Valves

Gate valves shall be in accordance with Drawing W-8, AWWA C500 and the following supplementary data:

a) Gate valves shall have an iron body, brass mounted.
b) Valves shall be the same size as the pipe in which they are installed, up to and including 300 mm diameter. In mains over 300 mm diameter, valves may be butterfly type.
c) Valve ends shall be provided to fit the pipe.
d) The position of the in line valve shall be vertical.
e) Stem seals shall be O-ring.
f) Valves shall open to the left (counter-clockwise).
g) Gears will be required on valves 400 mm and larger. Gear cases shall be totally enclosed.
h) Bypasses will be provided on valves 500 mm in diameter and larger.
i) Valves shall have a 50 mm square operating nut.

2. Rubber Seated Butterfly Valves

Rubber seated butterfly valves shall be in accordance with AWWA C504 and the following specifications:

a) Valves shall be the same size as the pipe in which they are installed. Valves shall be of wafer style or short body flanged.
b) Valve ends shall suit the pipe.
c) Maximum nonshock shutoff pressure shall be suitable for 1030 kPa, bubble tight.
d) Valves shall be designed for the extreme maximum flows for both opening and closing.
e) Shaft seals shall be O-ring type.
f) Valve disks shall be ductile iron.
g) Valve operators shall be suitable for buried installation and equipped with a standard operating unit.
h) Valves shall open to the left (counter-clockwise).
i) Operators are to be located on the side of the valve with the operating spindle in the vertical position.

In general, valves shall be located at intersections and shall be so positioned that no more than 150 m for high value district and 250 m for other areas are isolated in the case of line repairs. In larger trunk and feeder mains where no interconnections are made, the spacing of valves should not exceed 500 m.

Approved joint restraint fittings shall be provided on all valves.

Where valves are located in the roadway, valve boxes shall be Nelson Type of cast iron and telescoping so the surface loads are not transmitted to the valve body of pipeline. A minimum of 200 mm of future adjustment shall be available on all valve boxes for future raising of grade, by locating the top of PVC riser a maximum of 100 mm below the completed asphalt apron grade at the time of initial installation. Cast iron hoods shall be provided on all gate valves 250 mm diameter or larger. In areas where there is no traffic, valve boxes may be as approved by the Regional District.

Valve markers shall be installed to indicate the location of all valves. These markers shall be constructed of 50 mm metal pipe painted sky blue and set in a concrete base. They shall extend 1 m above the ground surface. The markers shall be located 2 m from the property line opposite the valve and the distance to the valve is to be marked in black figures on a flattened upper portion of the marker.

2.12 Fittings

Fittings shall be designed for a minimum of 1030 kPa working pressure and shall be in accordance with AWWA C110. Ends shall be flanged or belled to suit pipe ends. Flanges shall conform in dimension and drilling to ASA B16.1, Class 125. Flange gaskets shall be of natural rubber and shall be 3mm thick with a layer of cotton on both sides. Approved joint restraints shall be used at all fittings, including restraining of a suitable length of pipe each side of the fitting, except at fire hydrant leads over 6 m with unrestrained pipe joints and at main dead-ends, where thrust blocks shall be provided as shown on Drawing W-9 of this Schedule. Thrust calculations for joint restraints shall be carried out in accordance with the manufacturer's specifications, and shown on the design drawings. Length of pipe to be restrained at each fitting shall be clearly shown on each applicable plan drawing, for the varying pipe sizes and fitting configuration.

2.13 Trenching and Backfill

The standard trench section is shown in Drawings W-1, W-2, and W-3 of this Schedule for various conditions. The nominal minimum depth of cover shall be 1.2 m but in no case shall it be less than 1.0 m unless otherwise permitted by the Regional District. Water mains shall be located not less than 3 m centre-to-centre from all sanitary and storm sewer lines, unless otherwise permitted by the Regional District and the Vancouver Island Health Authority.

1. Bedding material shall conform to the following gradation limits:

Gradation Limits

(Percent by Weight Passing)

Sieve Designation	Type 1	Type 2
19.0 mm	100	90-100
12.5 mm		65-85
9.5 mm	85-100	50-75
4.750 mm	70-100	25-50
2.36 mm		10-35
1.18 mm	20-65	
0.850 mm		5-20
0.6 mm	0-45	
0.425 mm		0-15
0.18 mm		0-8
0.15 mm	0-10	
0.075 mm	0-5	0-5

2. Type 1 is the standard acceptable bedding material. Type 2 shall be used where specified by the design engineer to meet special design loading. Dry sieve analysis shall be carried out in checking material gradation.

3. Other acceptable bedding materials, for use only where shown on the construction drawings or as approved by the Engineer, are drain rock, pea gravel or native material. In rock, pipe zone shall have filter fabric between rock and bedding material. Filter fabric shall be non-woven, minimum grade Armtec 200 or equivalent.

4. The bedding material shall cover the full width of the trench bottom and have a minimum depth of 100 mm on completion of compaction. In rock excavation the minimum depth of bedding below the pipe shall be 150 mm after completion of compaction.

5. Bedding material shall be compacted in maximum 150 mm lifts to 95% of Modified Proctor Density (ASTM D1557). Side tamping shall be carried out with bedding material placed to the pipe springline, to provide haunch support.

6. Bedding material shall be placed in such a manner that the pipe is evenly supported throughout its length by the pipe bedding material.

7. Placement and compaction of the bedding material shall not damage or displace the pipe.

8. Bedding material shall be leveled across the full width of the trench to an elevation of 300 mm above the crown of the pipe.

2.14 Pressure Reducing Stations

General requirements for pressure reducing stations shall be as follows:

1. A valved bypass shall be provided.

2. A surge relief valve shall be provided to release pressure in the event of a failure of the pressure reducing valve(s). The surge relief valve may be incorporated into the pressure reducing station or may be located at some other suitable location within the distribution system.

3. Pressure reducing valves shall be sized to provide adequate pressure control through all ranges of design flows. If necessary, two or more pressure reducing valves of varying sizes will be provided in the one station.

4. Each pressure reducing and surge relief valve will be provided with isolating valves and be installed so that individual components may be easily removed for repair or replacement.

5. The whole of the pressure reducing stations shall be enclosed in a reinforced concrete vault with a standard manhole cover and other opening large enough to remove the largest single piece of equipment in the station. Floor drains sloped at 2 percent shall be provided to keep the station dry at all times and shall not be directly connected to any sanitary sewer, or to a storm sewer without a backwater valve in the storm service connection. Drains to the surface are permissible if there is no risk of flooding. Otherwise, underground absorption pits or sump pumps will be required depending on site condition. A permanent access ladder shall be installed.

6. Pressure gauges complete with snubbers shall be installed to register both upstream and downstream pressure.

7. Adequate strainers with dual cartridge filters shall be supplied on the water used for controlling and regulating valves.

2.15 Booster Pump Stations

General requirements for booster pump stations shall be as follows:

1. A valved bypass shall be provided.

2. There shall be sufficient capacity so that, with the most important pump out of service, the station will be capable of supplying the maximum design flow.

3. It may be requested that provision be made to provide the maximum design flow during a power failure. Normally this will be accomplished by means of an elevated storage tank. Where this is not possible, emergency standby internal combustion engines shall be installed either for direct drive or electric generation.

4. Where design flows are such that starting and stopping surges will cause water hammer in the inlet or discharge lines, pump control valves or other pressure control devices shall be provided. Relief valves will also be required to protect against surges caused by power failure.

5. Pumps shall be controlled by automatic devices satisfactory to the Regional District. Flow and pressure measurement shall be provided where required. Flow recording may be required for some installations. Signal cable for pump control shall be directly buried, either alongside connecting pipelines or in a separate trench, wherever feasible. Cable warning tape shall be installed in the trench over signal cables.

6. Pumps shall normally be housed in above ground buildings, designed to provide adequate insulation, heating, lighting and ventilation.

7. Each pump shall have a combination motor starter with a motor circuit protector, a "hand-off-auto" selector switch, a green "pump run" pilot light, a red "pump failed" pilot light and an elapsed time meter.

If the system consists of more than one pump, supplied from the same service, the control circuits shall be subdivided into branch circuits in such a manner as not to shut down the entire system if one pump circuit develops a fault. Time delays shall be provided to permit staggered re-start of the pumps after a power failure.

The pump control panel shall have protection against single-phasing and a red pilot light which will stay on until manually reset after a power failure.

If the system consists of more than one pump, an automatic alternator or a manual lead pump selector switch shall be provided. Time delays or other means suitable to prevent hunting on momentary pressure surges shall be provided.

The pumps shall be shut down and stay locked in the event of motor high temperature or motor overload. The pumps shall also shut down on low suction pressure, however, re-start shall be automatic when the section pressure recovers, except that a red pilot light shall stay on until manually reset.

A single-pole, double-throw (SPDT) contact shall be provided for remote alarm purposes, which will be activated in the event of pump failure, motor high temperature, motor overload, low suction pressure, power failure or standby engine failure (if applicable). Connection of alarm signal outputs to the RDN answering service or alarm centre shall be provided. An external alarm light may also be required for some installations.

2.16 Water Meter Chambers

General requirements for meter chambers on services of 37 mm diameter and larger shall be as follows:

1. An approved meter and double check backflow preventer shall be provided. The meter shall be touch-read style, conforming to the standard meter manufacturer and reading system used by the RDN.

2. Meters shall be sized to meet the anticipated maximum demand required, while providing accurate metering throughout the flow range. Compound meters, or large and small meters installed in parallel, may be required to meet these requirements, particularly where fire flows are to be metered. Pressure loss and maximum velocities shall also be examined. For systems supporting in-building wet fire sprinkler systems, available pressures during flow conditions shall be examined, to ensure adequate operating pressure is maintained at the sprinkler heads.

3. The meter shall be installed in a chamber or chambers, which are of non-confined space access design. Large lids shall be spring-assisted opening, suitable to carry traffic loading unless the location is totally isolated from existing or future traffic, of aluminum construction when feasible.

4. If a sidewalk location is unavoidable for the meter chamber, the box shall be situated to maximize the unobstructed walking corridor.

5. The meter shall be installed in a horizontal plane.

6. A valved by-pass shall be provided for meters 50 mm diameter and larger, to avoid service shutdown during meter maintenance. For combination domestic and fire flow meters, the by-pass shall be sized for the largest flow rate. By-pass and isolation valves may be installed external to the meter chamber.

7. Meter box lid shall be suitable for mounting a touch pit read pad.

3. CONSTRUCTION

3.1 General

1. Access Roads

Temporary roads shall be constructed as required for access to the working areas. Adequate drainage facilities in the form of ditches, culverts, or other conduits shall be installed as found necessary to maintain these roads. In the construction of access roads, existing drainage facilities, natural or otherwise, shall not be disturbed to the detriment of properties outside the working area and such facilities shall, unless otherwise provided elsewhere in the specifications, be restored to their original condition on completion of the work.

2. Sanitary Facilities

Clean, sanitary latrine accommodations shall be provided and shall be located and maintained in accordance with the regulations of VIHA.

3. Special Tools, Operating Manuals, Shop Drawings

With each piece of mechanical and electrical equipment or machinery having wearing parts and requiring periodical repair and adjustment, all special tools, wrenches, and accessories required for removing worn part, making adjustments, and carrying out

maintenance shall be supplied. All gauges, indicators, and lubricating devices necessary for the proper operation of the equipment shall be furnished.

With each piece of equipment, four sets of operating manuals and as-constructed shop drawings shall be supplied. The manuals shall provide the manufacturer's recommended maintenance schedules with the grades of lubricants required, and instructions as to how the equipment may be taken apart for periodical inspection and replacement.

4. Blasting

Blasting will be permitted only after securing the approval of the applicable authorities. Blasting will not be carried out without first verifying that insurance covers any loss of life or damage that may result from this work. The Regional District, in granting approval for blasting, does not in any way assume responsibility for injury, loss of life, or damage that results there from, and such approval shall not be construed as approval of the methods employed in blasting, the sole responsibility therefore being that of the applicant.

5. Site Maintenance and Clean Up

The working area shall be maintained in an orderly manner and shall not be encumbered with equipment, materials, or debris.

Clean up shall be a continuing process from the start of the work to final acceptance of the project. Property on which work is in progress shall at all times be kept free from accumulations of waste materials or rubbish. Accumulations of waste materials, which might constitute a fire hazard, shall not be permitted. Spillage from hauling vehicles on traveled public or private roads shall be promptly cleaned up. On completion of construction, all temporary structures, rubbish, and waste materials resulting from the operations, shall be removed.

6. Erosion and Sediment Control

An Erosion and Sediment Control Plan shall be submitted for review and approval seven days prior to the pre-construction meeting. The Erosion and Sediment Control Plan shall describe the proposed methodology to minimize potential impact on the surrounding environment. The Erosion and Sediment Control Plan shall indicate how the Contractor plans to control sediment discharges from the project and what measures will be put in place to prevent damage to aquatic habitat located downstream.

The work shall be carried out in compliance with the submitted and approved Erosion and Sediment Control Plan and all other environmental laws affecting the work and with the recommendations contained in the most recent edition of the “Land and Development Guidelines for the Protection of Aquatic Habitat” published jointly the Ministry of Environment and Fisheries and Oceans Canada.

For the erosion and sediment control plan, ‘environmental laws’ means all statutes, regulations, orders, and bylaws relating in any way to the natural environment or its ecosystems, public or occupational health, transportation, storage or handling of contaminants or hazardous materials.

3.2 Existing Structures and Utility Works

1. Scope

Existing structures shall be interpreted as being all existing pipes, ducts, ditches, or other works forming a part of sewerage, drainage, water, telephone, electrical, gas, or

other utility system, as well as sidewalks, curbs, poles, fences, buildings, and other man-made things that may be encountered during construction.

2. Material Supply

Unless specified otherwise, materials supplied for replacement of existing structures shall be at least equal to those being replaced.

3. Location of Structures

Drawings or descriptions, verbal or otherwise, of existing structures or their location that are supplied by the Regional District are intended only as an aid to locating these structures. Measurements and location of the existing underground structures shown on the drawings are not guaranteed to be accurate, and must be verified prior to proceeding with construction.

4. Protection of Structures

Unless authorization from the Regional District is received for their removal, underground and surface structures encountered during construction shall be protected from damage. In the event of damage resulting from the construction operation, structures shall be repaired or replaced to a condition, which is at least the equivalent of that which existed prior to construction.

5. Emergency Situations

In emergency situations resulting from the construction operation, where life or property are endangered, the applicant shall immediately take whatever action is possible to eliminate the danger, and shall also notify the Regional District of the situation.

6. Access Maintained

Existing hydrants, valve or control pit covers, valve boxes, curb stop boxes, fire or police call boxes, and all other utility controls, warning systems, and appurtenances thereof shall not be constructed or made inaccessible at any time by the construction work. Bridges, walks, or other temporary facilities shall be provided as may be necessary to ensure that these controls or warning systems are free for use in their normal manner at all times during construction.

7. Curtailment of Utility Service

Where existing utilities such as water, sewer, electricity, telephone, and gas are serving the public, work shall be planned and executed such that there is no curtailment of service provided by these utilities without prior receipt of approval of the authorities responsible for provision and maintenance of these utilities. The applicant shall obtain the above approvals from the recognized authorities controlling these utilities. If approval for such disruption of utility service is not granted, it may be possible to establish temporary facilities to provide continuous utility service during the course of construction. Such temporary facilities shall only be implemented after receiving the approval of the utility authority.

If approval is received to temporarily shut off an existing utility, individual users of the utility shall be notified at least one hour prior to the time of shut-off.

If there is going to be a shut-off, the Fire Department shall be notified at least one hour prior to shut-off time.

8. Support of Structures

Existing structures shall be protected against damage from settlement by means of timber support of compaction of backfill as required. Where necessary, timber support shall remain in place following backfill of excavations.

Backfill which is placed under or adjacent to the existing structures, which have been undermined during excavation, shall be compacted in a manner which will prevent damage of the structure from settlement. Such backfill shall be of approved granular material suitable for compaction.

On existing piping, this material shall extend horizontally a minimum distance of 600 mm on both sides of the pipe at a level 300 mm above the pipe, and shall slope down from this point at 1-1/2 horizontal to 1 vertical to meet the bottom of the excavation.

9. Drainage Facilities

Existing culverts, enclosed drains, flumes and ditches, and other drainage structures affected by the work but left in place shall be kept clear of excavated material at all times during construction. When it is necessary to temporarily remove an existing drainage structure, suitable temporary ditches or other approved means of handling the drainage shall be provided during construction.

3.3 Clearing

Prior to clearing, the exact limits of the areas on which clearing may take place and whether or not there are restrictions placed on clearing which would result in leaving certain trees, structures, or other existing items in place shall be ascertained.

Prior to trenching, the right-of-way shall be cleared of all standing or fallen brush, timber, stumps, or other debris, which may obstruct the construction operation, damage the completed installation, or detract from the appearance of the site on completion of construction. This material shall be burned or otherwise disposed of to the satisfaction of the Regional District.

The restrictions of all authorities established to control burning in the area shall be complied with. If burning cannot be done on the clearing site, the material shall be hauled to an approved location for burning or disposal. Burning permits, as required, shall be obtained by the applicant.

3.4 Trench Alignment and Depth

Following clearing and prior to excavation of the trench, the location at which the pipe shall be installed shall be established by setting stakes at 20.0 m intervals along a line offset from the centre of the proposed pipeline.

Where pipe is to be installed to a predetermined grade, a cut sheet will be provided showing the depth of the pipe invert relative to the grade stake elevation at the respective locations along the pipeline.

The trench shall be excavated so that pipe can be laid to the established alignment and depth, with allowance made for specified trench wall clearances and bedding as shown in Drawings W-1, W-2, and W-3 of this Schedule for various conditions, or otherwise required.

All trenching and excavations shall be carried out in the manner recommended by the Workers' Compensation Board of British Columbia, or as may be necessary to protect life, property, and structures adjacent to the work and the work itself.

3.5 Pipe Installation

In general, and without limiting the clauses set out in this Standard, pipe shall be installed in accordance with the following specifications:

Ductile Iron Main	AWWA C600
Steel Mains	AWWA C603
PVC Mains	AWWA C900

3.6 Trench Backfill

Trench backfill shall be carried out as shown in Drawings W-1, W-2, and W-3 of this Schedule for various conditions.

3.7 Repairs

Any system approved and built to these standards which requires maintenance work, shall be repaired with materials and construction methods conforming to the specifications contained herein.

4. TESTING AND DISINFECTION

4.1 Written Reports

The applicant shall submit reports to the Regional District certified by a Design Professional of the tests and chlorination requirements specified herein.

4.2 Leakage Tests

Following final trench backfilling, leakage tests shall be performed on all installed piping.

Leakage tests shall be carried out between valved sections of the installation such that every valve in the system is tested for leakage in the shut-off position.

Leakage tests shall be performed in the following manner. The section to be tested shall be filled with water and all air expelled from the piping. It is recommended that the test section be filled with water for at least 24 hours prior to testing. By pumping water into the test section, the pressure within the piping shall be increased to 0.7 MPa, or 1-1/2 times the system operating pressure at the point of test, whichever is the greater. This pressure shall be maintained constantly in the pipe throughout the duration of the test by the addition of make-up water. The duration of the test section to maintain the specified pressure over the period of test shall be considered to be the leakage.

Piping will not be accepted until the leakage is less than the maximum allowable leakage determined from the following formula:

L = ND x the square root of P

in which L = the allowable leakage in litres per hour,

N = the number of joints in the test section,

D = the nominal diameter of the pipe in millimetre, and

P = the average test pressure during the leakage test in megapascals.

Should any test disclose leakage greater than that specified above, the defect shall be located and repaired, and the section shall be retested to ensure that the leakage is within the allowable limits.

4.3 Flushing

The pipe shall be cleaned of dirt and other foreign materials. The pipe shall be flushed at water velocities of 1.0 m/s, or as high a velocity as can be obtained from the available water sources. Flushing water shall be discharged to watercourses or ditches that have sufficient capacity to carry the flow. Measures shall be taken to avoid any damage to fish habitat or to fish and other aquatic life.

4.4 Chlorination

On completion of the flushing operation, main pipes and services shall be chlorinated. Chlorination procedures shall conform to AWWA C651.

On completion of chlorination, the entire piping system shall be thoroughly flushed of all highly chlorinated water and filled with normal system water at a slow rate to avoid stirring deposits from existing mains, sampled in accordance with VIHA, and following satisfactory test results left in a condition ready for use.

Water reservoirs and storage tanks shall be disinfected in accordance with AWWA C652, and wells in accordance with AWWA C654.

Chlorinated water shall be disposed of in such a way as to not cause harm or damage to fish, vegetation or aquatic life in bodies of water or water courses; all federal and provincial regulations and/or guidelines on disposing of chlorinated water to the environment shall be followed.

4.5 Inspection

The Regional District shall be given 48 hour notice of all tests and chlorination.

5. TRANSFERRING THE WATER SYSTEM TO THE RDN

5.1 Final Inspection by RDN

Prior to requesting a Final Inspection, the Design Professional shall submit to the Regional District complete Record Documents, a completed Certification of Installed Works, all applicable test results (chlorination, pressure, leakage, health, commissioning, etc.), and Certificate of Approval for electrical works (pump stations, wells, lighting, controls, etc.) The Final Inspection shall be arranged by the Design Professional on completion of the work. This shall be directed by the Design Professional in the presence of approved representatives of the Regional District and the installation Contractor. A complete list of deficiencies identified during the final inspection shall be prepared by the Design Professional. Once the deficiencies have been satisfactorily rectified, the Design Professional shall so notify the Regional District. The date of the Final Inspection will generally be regarded as the commencement of the guarantee period, unless significant deficiencies critical to the effective operation of the system are found at the inspection, at the discretion of the Regional District.

5.2 Preparation/Execution of Transfer Agreement by Developer

The Developer shall prepare and execute a Draft Transfer Agreement for the works and submit the document to the Regional District for review/comment. Once approved by the Regional District the Developer shall complete the document and execute it accordingly and submit to the Regional District for them to execute. The date of the Transfer Agreement shall be the date on which the Regional District executes the document.

5.3 Preparation/Execution of Maintenance Agreement

The Developer shall prepare and execute a Draft Maintenance Agreement for the works and submit the document to the Regional District for review/comment. Once approved by the Regional District the Developer shall complete the document and execute it accordingly and submit to the Regional District for them to execute.

The Developer shall guarantee the workmanship and the performance of the work as per the Maintenance Agreement, from the date of acceptance (generally the date on which the Regional District executes the Transfer Agreement) for a period of two years. This shall be additionally secured by way of cash or an irrevocable letter of credit suitable to the Regional District in the amount of 10% of the cost of construction as certified by the Design Professional or $10,000.00 (whichever is greater). There will be no interest paid on this security.

The RDN may reduce the length of the guarantee period and/or the amount of the security. The RDN may also require additional payment, or payout a credit as appropriate, related to an adjustment of the initial engineering fee to final construction cost values, in accordance with RDN Bylaw 1259.03 or most recent amendment. Any change to the guarantee period, security amount or the engineering fee is required to be in writing.

5.4 Preparation/Execution of Latecomer Agreement

Where a latecomer agreement may be applicable to a portion of the costs of the works, as agreed by the Regional District and any other applicable jurisdictions, the Developer shall pay all costs of both the Regional District and the Developer associated with the preparation, execution, and registration of the necessary Latecomer Agreement. The Regional District will assume any internal staff costs involved in planning, reviewing, approving, and administering the Latecomer Agreement preparation, and any administrative and financial costs involved

during the effective time-period of the agreement. Based on current legislation, a Latecomer Agreement expires 10 years after its initial registration.

5.5 Letter of Acceptance of the Works by RDN

Following completion of all the foregoing requirements, the Regional District will issue the formal Letter of Acceptance of the Works.

The Regional District will also issue a written statement that the new works can be connected to the District's existing system. Such connection shall be undertaken by the applicant under the direct supervision of the District or by the District at a cost to the applicant.

REGIONAL DISTRICT OF NANAIMO

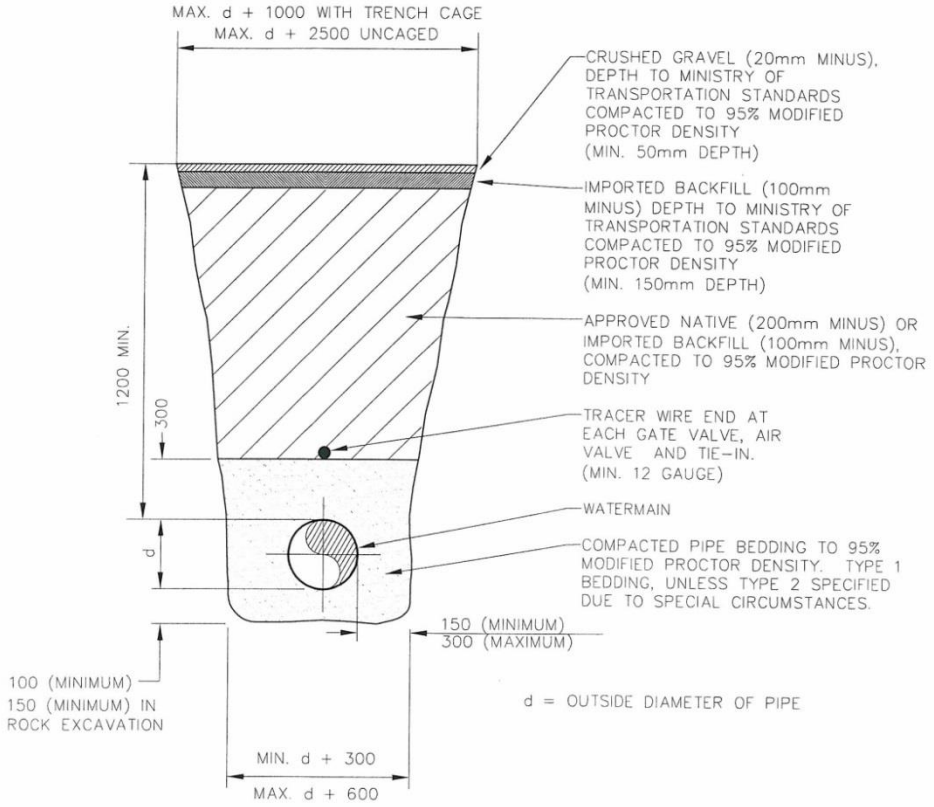
BYLAW NO. 500

LAKES DISTRICT AND SCHOONER COVE

COMMUNITY WATER SYSTEM STANDARDS

APPENDIX 1

STANDARD DRAWINGS



NOTE:

1. PIPE BEDDING SHALL BE TYPE 1 OR PEA GRAVEL, EXCEPT WHEN TYPE 2 IS SPECIFIED TO MEET SPECIAL DESIGN LOADING. IN ROCK, PIPE ZONE SHALL HAVE FILTER FABRIC BETWEEN ROCK AND BEDDING. IN AREAS OF HIGH GROUNDWATER OR BLASTED ROCK EXCAVATION PEA GRAVEL MAY BE USED AT LEAST TO PIPE SPRING LINE, SEPARATED FROM OTHER TRENCH BACKFILL BY FILTER CLOTH.
2. TRACER WIRE (MIN. 12 GAUGE, WHITE PLASTIC COVER), TO TERMINATE IN AIR VALVE CHAMBER OR NELSON BOX. TRACER WIRE MUST BE ABLE TO EXTEND A MINIMUM OF 600mm ABOVE GROUND. AT VALVE BOX, WIRE TO BE OUTSIDE OF RISER PIPE, THEN INSIDE NELSON BOX. ALTERNATE TERMINATION LOCATIONS: BELOW-GRADE FLUSHOUT CHAMBER, METER CHAMBER, WATER METER BOX.
3. ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE SHOWN.

REGIONAL DISTRICT OF NANAIMO

BYLAW No. 1562
COMMUNITY WATER SYSTEM STANDARDS

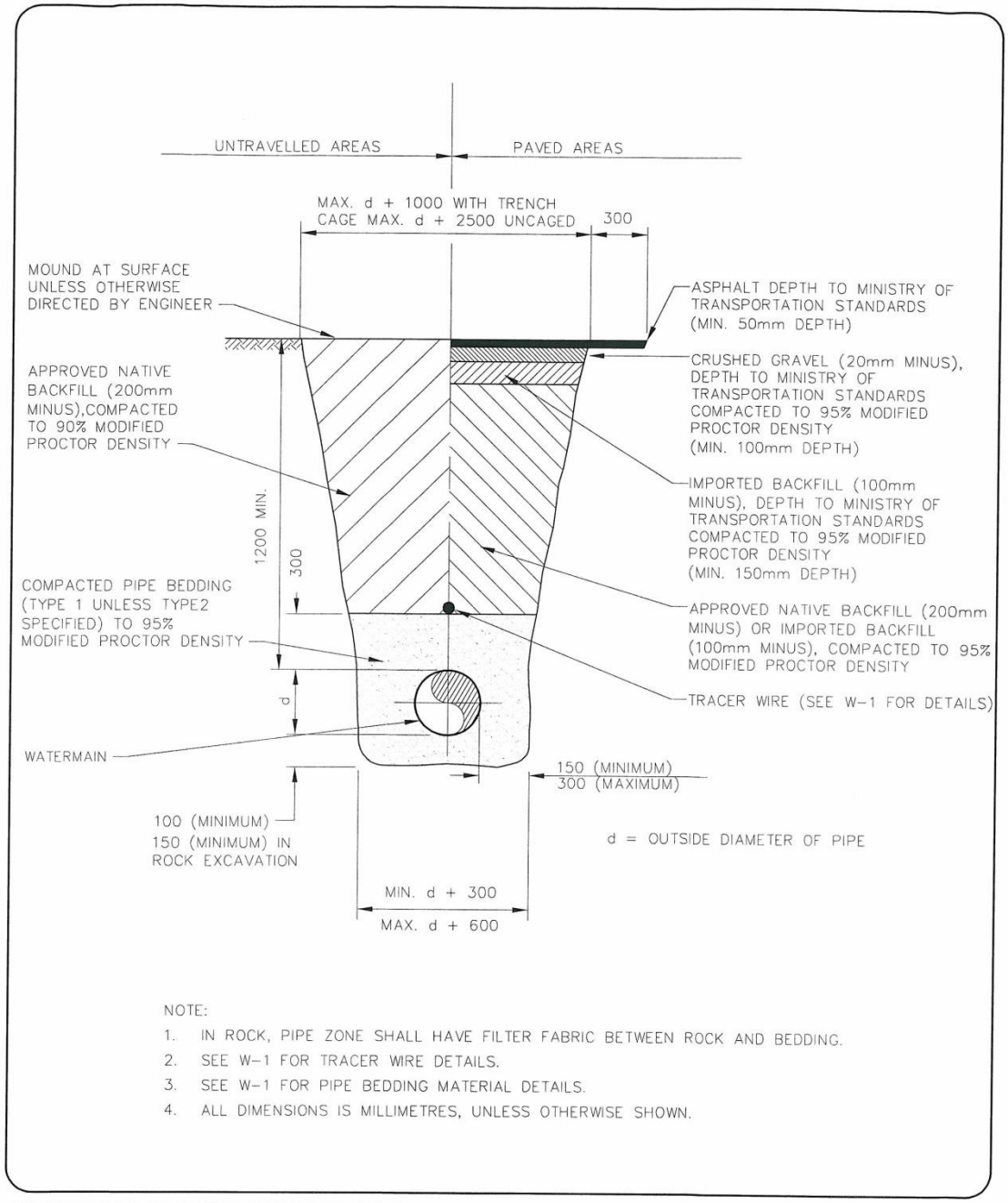
TRENCH DETAIL
SHOULDER AREAS

REVISIONS

No.	DATE	DETAILS	APP.
0	JUN/06	BYLAW UPDATE	W.F.M.

REVISION 0

DRAWING No. W-1



NOTE:

1. IN ROCK, PIPE ZONE SHALL HAVE FILTER FABRIC BETWEEN ROCK AND BEDDING.
2. SEE W-1 FOR TRACER WIRE DETAILS.
3. SEE W-1 FOR PIPE BEDDING MATERIAL DETAILS.
4. ALL DIMENSIONS IS MILLIMETRES, UNLESS OTHERWISE SHOWN.

REGIONAL DISTRICT OF NANAIMO

BYLAW No. 1562
COMMUNITY WATER SYSTEM STANDARDS

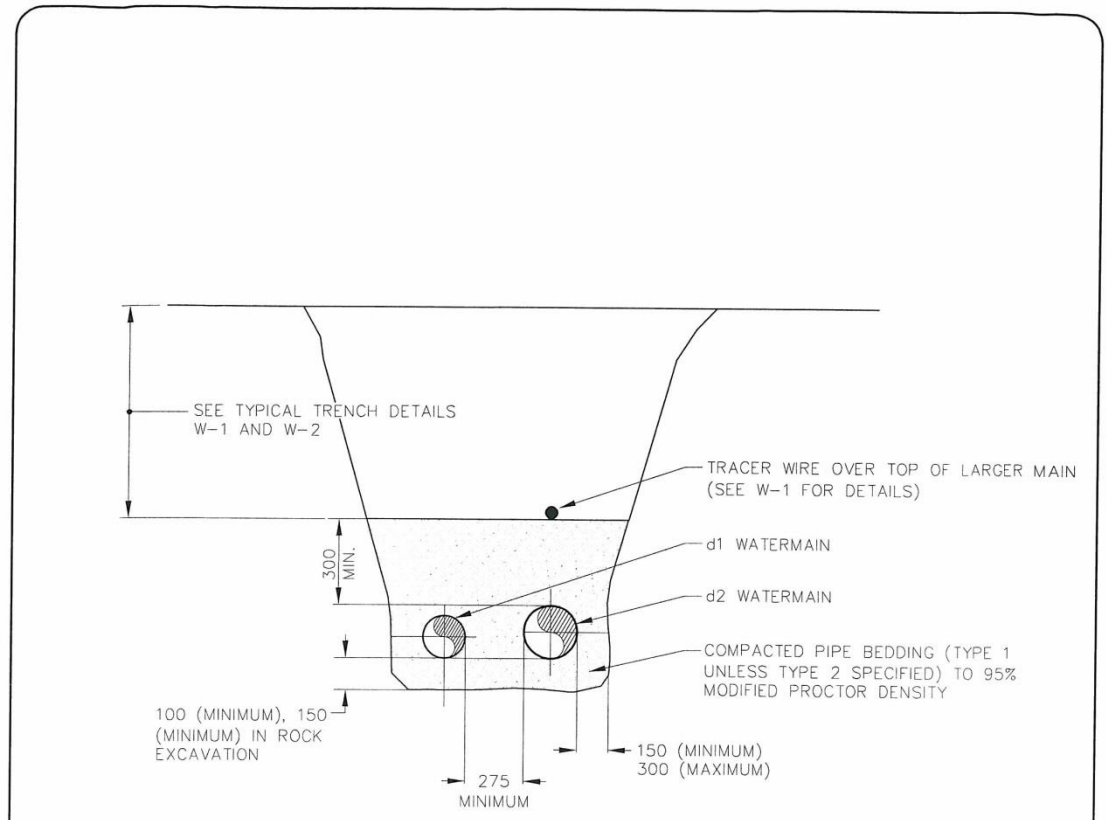
TRENCH DETAIL
PAVED & UNTRAVELLED AREAS

REVISIONS

No.	DATE	DETAILS	APP.
0	JUN/06	BYLAW UPDATE	W.F.M.

REVISION 0

DRAWING No. W-2



NOTE:

1. IN ROCK, PIPE ZONE SHALL HAVE FILTER FABRIC BETWEEN ROCK AND BEDDING.
2. SEE W-1 FOR TRACER WIRE DETAILS.
3. SEE W-1 FOR PIPE BEDDING MATERIAL DETAILS.
4. ALL DIMENSIONS IS MILLIMETRES, UNLESS OTHERWISE SHOWN.

REGIONAL DISTRICT OF NANAIMO

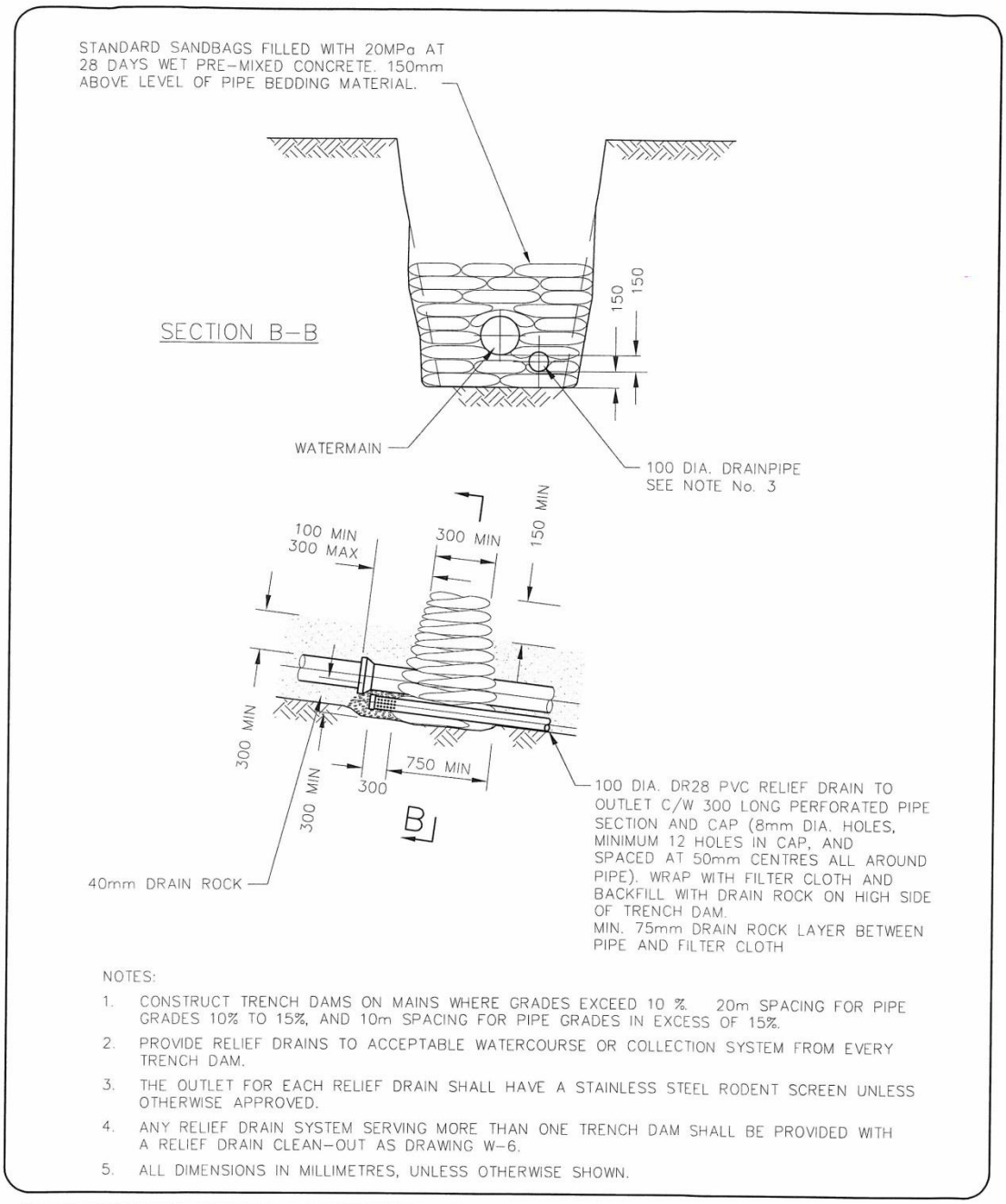
BYLAW No. 1562
COMMUNITY WATER SYSTEM STANDARDS

TRENCH DETAIL
TWO PIPES

REVISIONS			
No.	DATE	DETAILS	APP.
0	JUN/06	BYLAW UPDATE	W.F.M

REVISION 0

DRAWING No. W-3



NOTES:

1. CONSTRUCT TRENCH DAMS ON MAINS WHERE GRADES EXCEED 10 %. 20m SPACING FOR PIPE GRADES 10% TO 15%, AND 10m SPACING FOR PIPE GRADES IN EXCESS OF 15%.
2. PROVIDE RELIEF DRAINS TO ACCEPTABLE WATERCOURSE OR COLLECTION SYSTEM FROM EVERY TRENCH DAM.
3. THE OUTLET FOR EACH RELIEF DRAIN SHALL HAVE A STAINLESS STEEL RODENT SCREEN UNLESS OTHERWISE APPROVED.
4. ANY RELIEF DRAIN SYSTEM SERVING MORE THAN ONE TRENCH DAM SHALL BE PROVIDED WITH A RELIEF DRAIN CLEAN-OUT AS DRAWING W-6.
5. ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE SHOWN.

REGIONAL DISTRICT OF NANAIMO

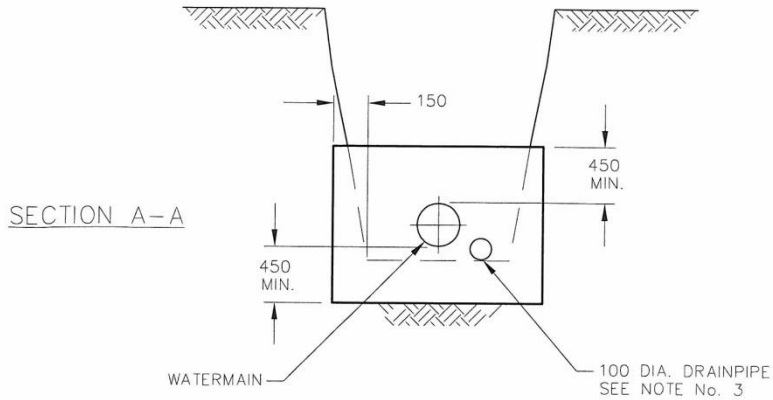
BYLAW No. 1562
COMMUNITY WATER SYSTEM STANDARDS

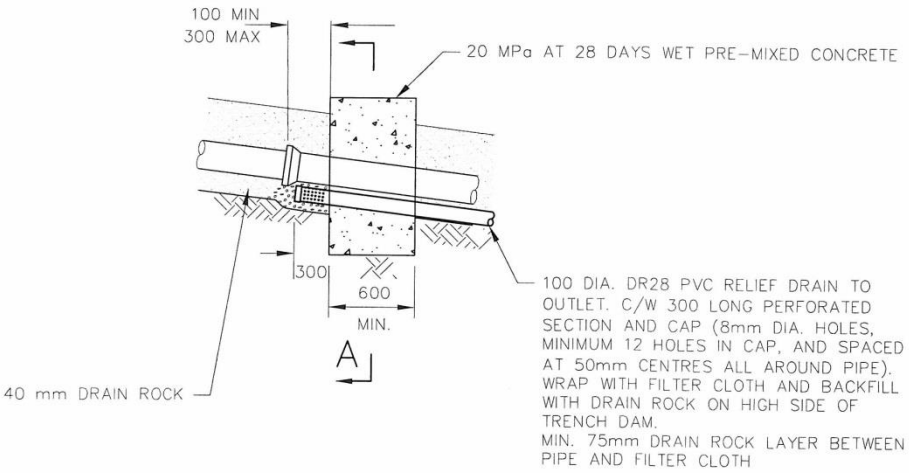
TRENCH DAM
SANDBAG CONCRETE TRENCH DAM

REVISIONS			
No.	DATE	DETAILS	APP.
0	JUN/06	BYLAW UPDATE	W.F.M.

REVISION 0

DRAWING No W-4





NOTES:

1. CONSTRUCT TRENCH DAMS ON MAINS WHERE GRADES EXCEED 10%. 20m SPACING FOR PIPE GRADES 10% TO 15%, AND 10m SPACING FOR PIPE GRADES IN EXCESS OF 15%.
2. PROVIDE RELIEF DRAINS TO ACCEPTABLE WATERCOURSE OR COLLECTION SYSTEM FROM EVERY TRENCH DAM.
3. THE OUTLET FOR EACH RELIEF DRAIN SHALL HAVE A STAINLESS STEEL RODENT SCREEN UNLESS OTHERWISE APPROVED.
4. ANY RELIEF DRAIN SYSTEM SERVING MORE THAN ONE TRENCH DAM SHALL BE PROVIDED WITH A RELIEF DRAIN CLEAN–OUT AS DRAWING W–6.
5. ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE SHOWN.

REGIONAL DISTRICT OF NANAIMO

BYLAW No. 1562
COMMUNITY WATER SYSTEM STANDARDS

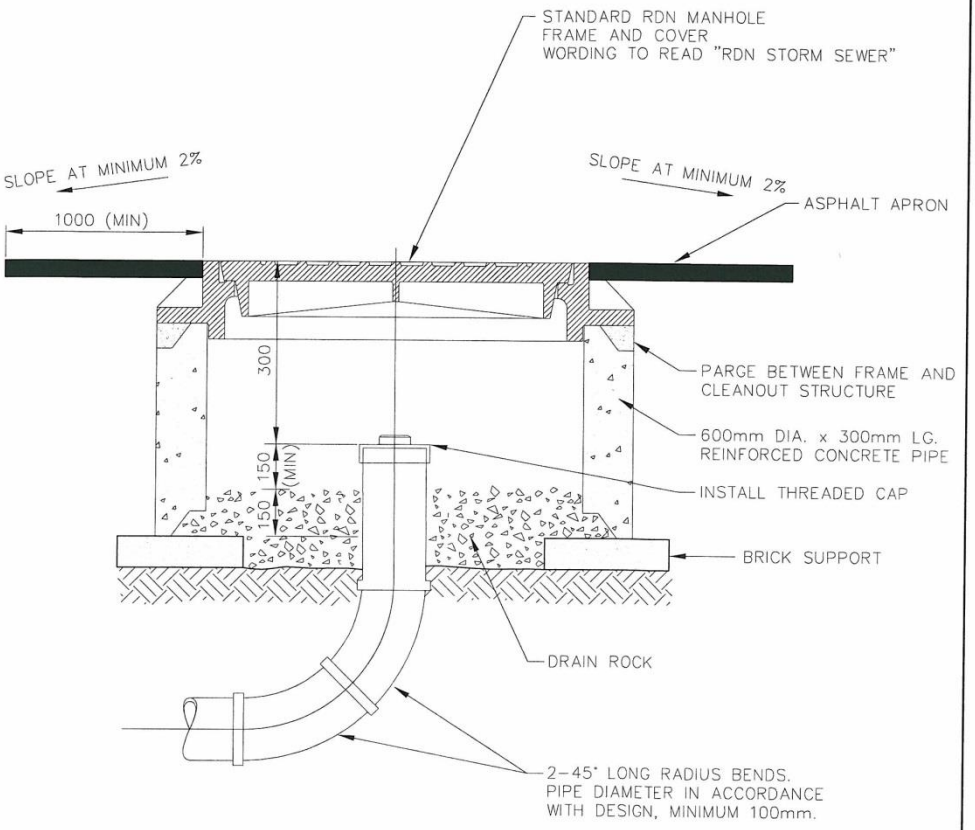
TRENCH DAM
FORMED CONCRETE TRENCH DAM

REVISIONS

No.	DATE	DETAILS	APP.
0	JUN/06	BYLAW UPDATE	W.F.M.

REVISION 0

DRAWING No. W–5



NOTES:

1. RELIEF DRAIN CLEAN-OUT TO BE PROVIDED ON UPSTREAM END OF ANY SYSTEM SERVICING MORE THAN ONE TRENCH DAM.
2. REFER TO DRAWINGS W-4 AND W-5 FOR TRENCH DAM DETAILS.
3. ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE SHOWN.

REGIONAL DISTRICT OF NANAIMO

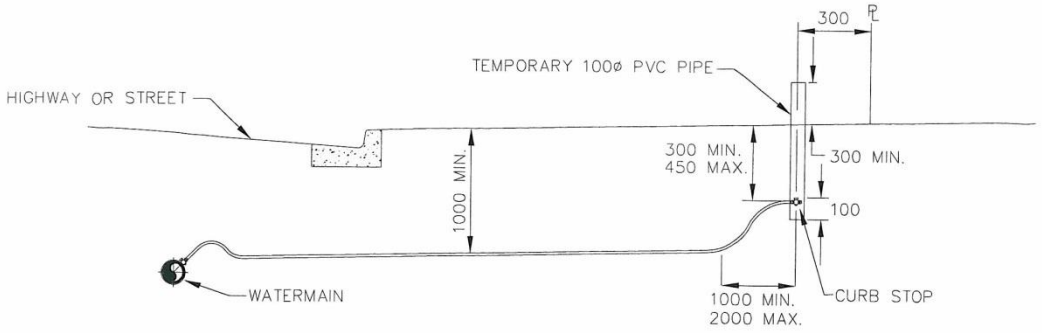
BYLAW No. 1562
COMMUNITY WATER SYSTEM STANDARDS

RELIEF DRAIN CLEANOUT

REVISIONS			
No.	DATE	DETAILS	APP.
0	JUN/06	BYLAW UPDATE	W.F.M.

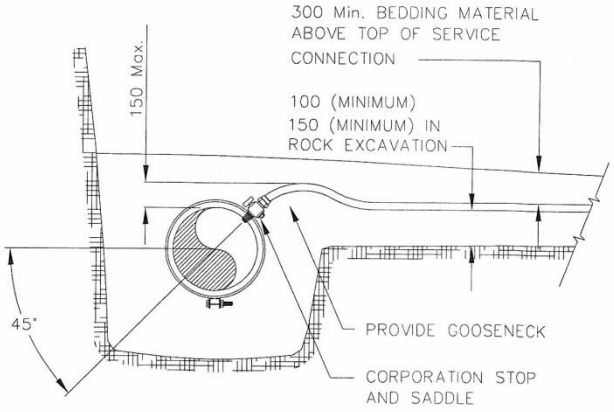
REVISION 0

DRAWING No. W-6



NOTES:

1. PROVIDE "SLACK" IN SERVICE PIPE TO ALLOW FOR SLIGHT SUBSIDENCE.
2. MIN. 20mm SERVICE PIPE GOLDENFLOW (HDPE SERIES 160) OR 20mm SERVICE PIPE TYPE "K" COPPER FOR PIPE SPLITTING.
3. SINGLE SERVICE UP TO 25mm, DETAILS ARE SIMILAR.
4. CENTRE TO CENTRE LOCATION OF SERVICE CONNECTIONS IN THE WATERMAIN NOT LESS THAN 1m.
5. CURB STOPS COMPRESSION BY METER SWIVEL NUT.
6. CONTRACTOR TO PROVIDE METER BOX TO RDN, CONCRETE BOX WITH FULL SUPPORT LIP AND STEEL LID DRILLED FOR TOUCH–READ METER PAD; LID TO READ "RDN WATER"
7. ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE SHOWN.



TYPE OF PIPE	LARGEST SERVICE CONNECTION ALLOWABLE	
	DIAMETER	WITH STAINLESS STEEL BAND
POLY VINYL CHLORIDE (P.V.C.)	100mm	20mm
	150mm	25mm
	200mm	40mm
	250mm	40mm
	300mm	50mm

REGIONAL DISTRICT OF NANAIMO

BYLAW No. 1562
COMMUNITY WATER SYSTEM STANDARDS

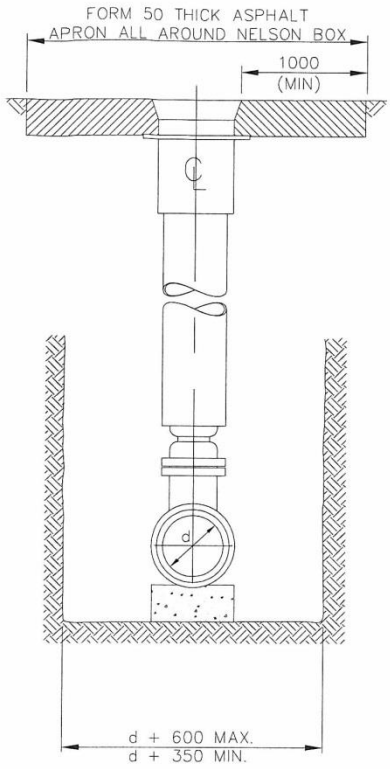
WATER SERVICE CONNECTION

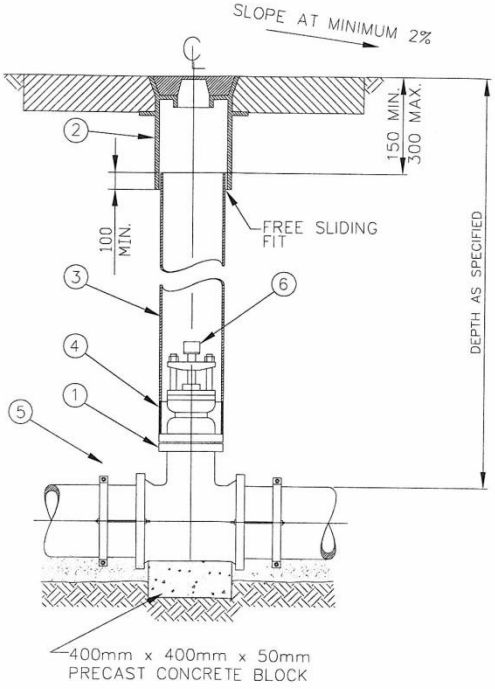
REVISIONS

No.	DATE	DETAILS	APP.
0	JUN/06	BYLAW UPDATE	W.F.M.

REVISION 0

DRAWING No. W–7





NOTE:
JOINT RESTRAINTS AS PER MANUFACTURER'S RECOMMENDATIONS, ON EACH SIDE OF VALVE. ALL RESTRAINER RODS AND NUTS SHALL BE SUPPLIED BY THE MANUFACTURER OF THE RESTRAINTS USED.

1. GATE VALVE – (MJ x MJ FOR 250mm DIA. AND LARGER. HUB FOR 200mm DIA. AND SMALLER.)
2. VALVE BOX WITH CAST IRON LID (NELSON BOX STYLE) OR APPROVED ALTERNATIVE.
3. 150mm DIA. P.V.C. RISER PIPE, DR 18 IN TRAVELLED AREAS, DR 35 IN UNTRAVELLED AREAS.
4. VALVE BOOT REQUIRED ON 250mm DIA. VALVES AND LARGER.
5. MECHANICAL JOINT RESTRAINTS FOR 250mm DIA. AND LARGER, JOINT RESTRAINT CLAMPS FOR 200mm DIA. AND SMALLER.
6. VALVE OPERATING NUT TO BE CENTRED IN RISER PIPE, WHICH SHALL BE PERPENDICULAR TO THE MAIN.

NOTES:
1. ASPHALT APRON SHALL BE AT, OR LOWER THAN, ADJACENT PAVEMENT.
2. ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE SHOWN.

REGIONAL DISTRICT OF NANAIMO

BYLAW No. 1562
COMMUNITY WATER SYSTEM STANDARDS

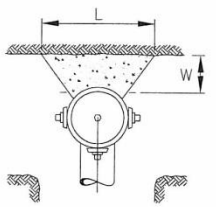
VALVE

REVISIONS

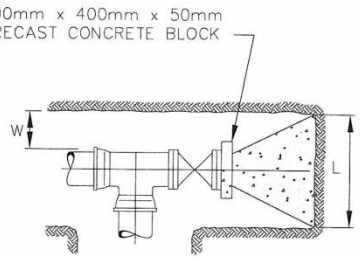
No.	DATE	DETAILS	APP.
0	JUN/06	BYLAW UPDATE	W.F.M.

REVISION 0

DRAWING No. W-8



HYDRANT



DEAD–END, CAP, OR BLIND FLANGE

NOTE:
THRUST BLOCK MAY ONLY BE USED AT END–OF–MAIN HYDRANT. ALL OTHER HYDRANTS SHALL USE MANUFACTURED JOINT RESTRAINT CLAMPS AND MATCHING RESTRAINER RODS AND NUTS.

MINIMUM THRUST AREAS FOR FITTINGS AT 1030kN/m^2 PRESSURE AND FOR SOILS WITH A MINIMUM BEARING OF 96kN/m^2 (NOT TO BE USED FOR SOFT CLAY, MUCK, PEAT, ETC.)

FITTING SIZE "D" (mm)	OUTSIDE OF FITTING TO BEARING FACE "W" (mm)	LENGTH "L" (mm)	HEIGHT "H" (mm)
150	300	600	450
200	350	750	600
250	375	975	750
300	400	1200	900
350	425	1300	1000

NOTES:

1. DIMENSIONS APPLY TO THE LARGER DIAMETER END OF FITTING.
2. ALL THRUST BLOCKS TO BE CONSTRUCTED USING TRUCK DELIVERED WET PRE–MIXED CONCRETE ONLY, WITH MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 20MPa.
3. WHERE GROUND CANNOT BE EXCAVATED TO FREE STANDING UNDISTURBED SOIL, UTILIZE THRUST RESTRAINT DEVICES IN PLACE OF THRUST BLOCK.
4. ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE SHOWN.

REGIONAL DISTRICT OF NANAIMO

BYLAW No. 1562
COMMUNITY WATER SYSTEM STANDARDS

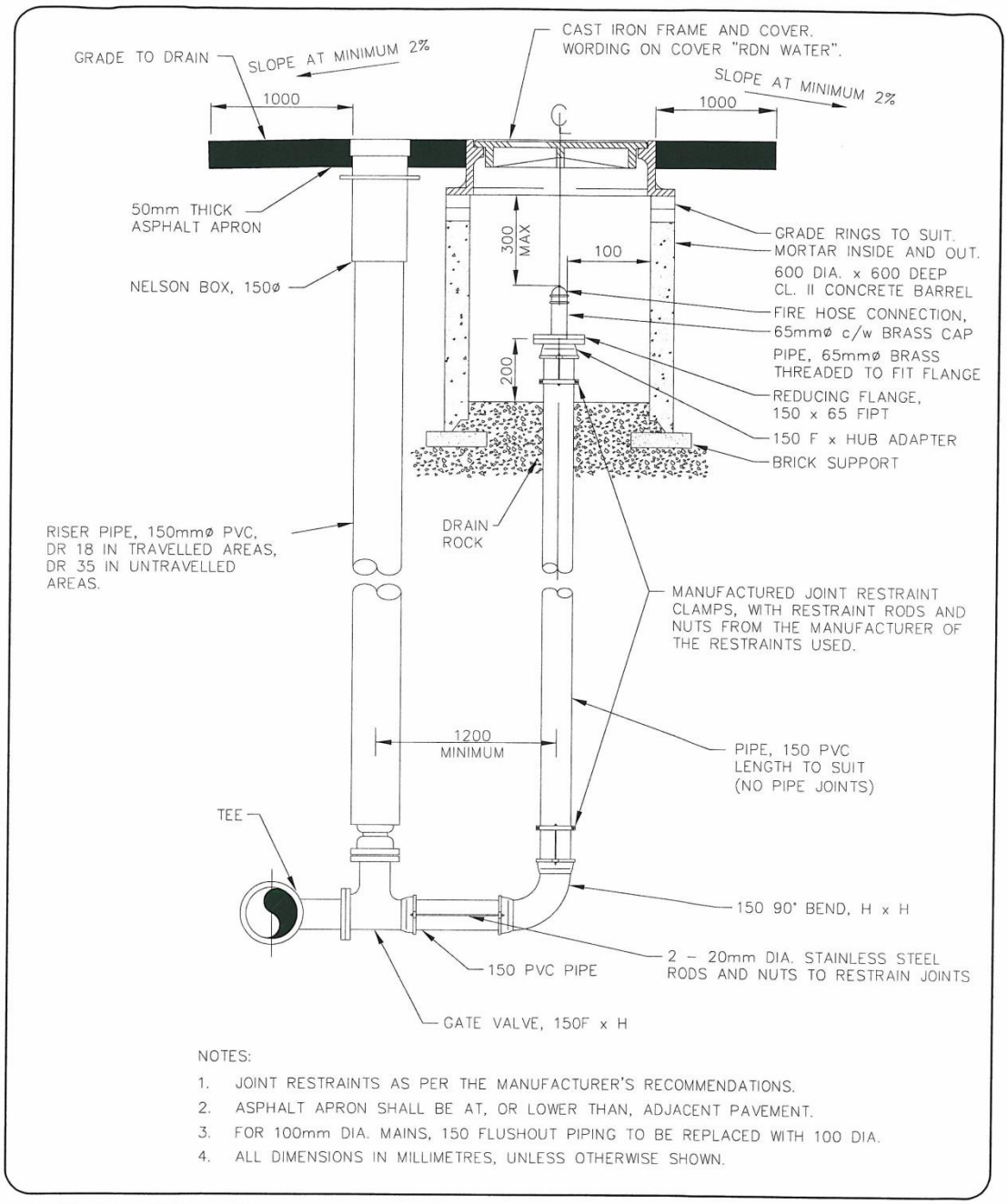
THRUST BLOCK DETAILS

REVISIONS

No.	DATE	DETAILS	APP.
0	JUN/06	BYLAW UPDATE	W.F.M.

REVISION 0

DRAWING No. W–9



NOTES:

1. JOINT RESTRAINTS AS PER THE MANUFACTURER'S RECOMMENDATIONS.
2. ASPHALT APRON SHALL BE AT, OR LOWER THAN, ADJACENT PAVEMENT.
3. FOR 100mm DIA. MAINS, 150 FLUSHOUT PIPING TO BE REPLACED WITH 100 DIA.
4. ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE SHOWN.

REGIONAL DISTRICT OF NANAIMO

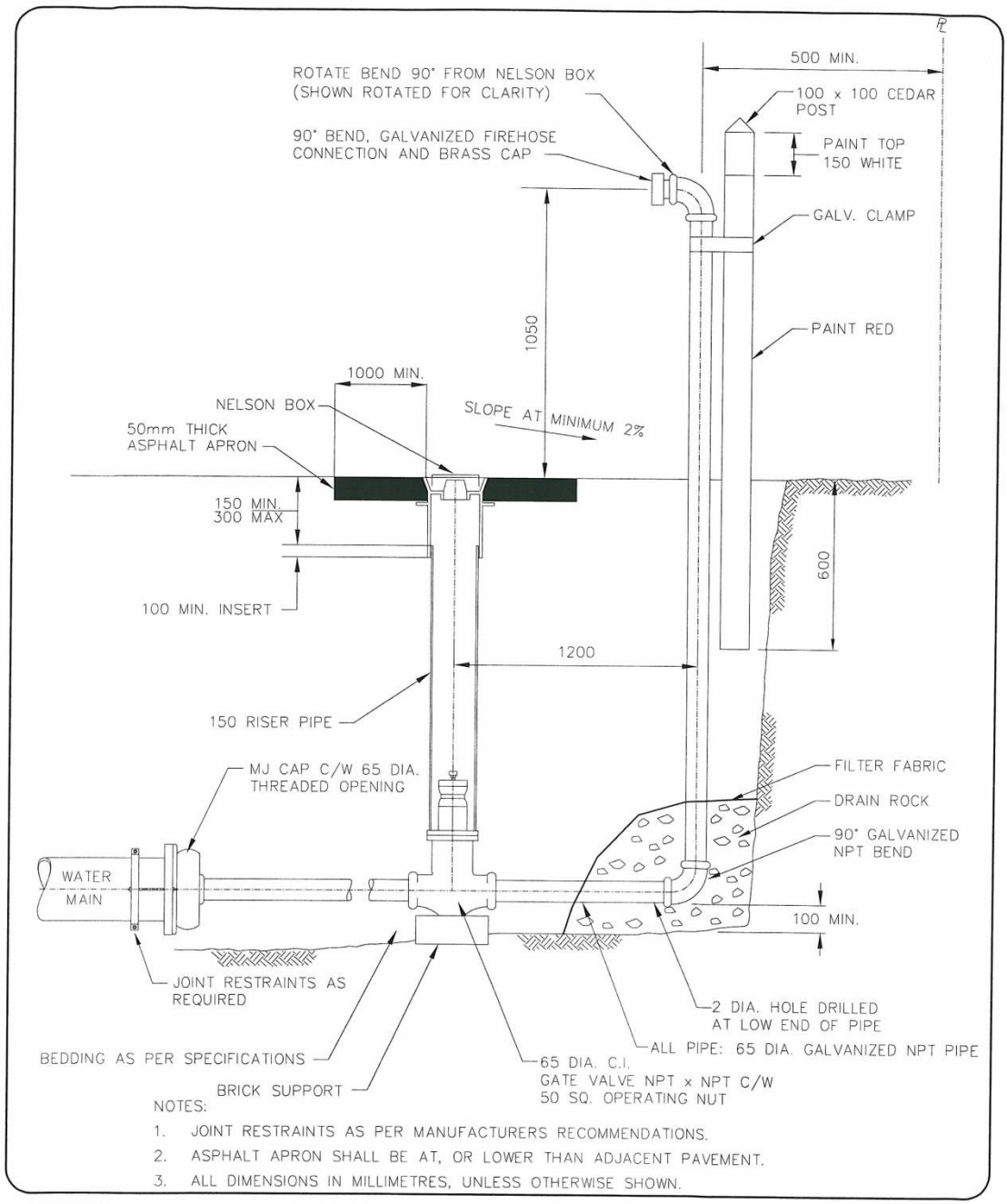
BYLAW No. 1562
COMMUNITY WATER SYSTEM STANDARDS

BELOW GROUND FLUSHOUT

REVISIONS			
No.	DATE	DETAILS	APP.
0	JUN/06	BYLAW UPDATE	W.F.M.

REVISION 0

DRAWING No. W–10



REGIONAL DISTRICT OF NANAIMO

BYLAW No. 1562
COMMUNITY WATER SYSTEM STANDARDS

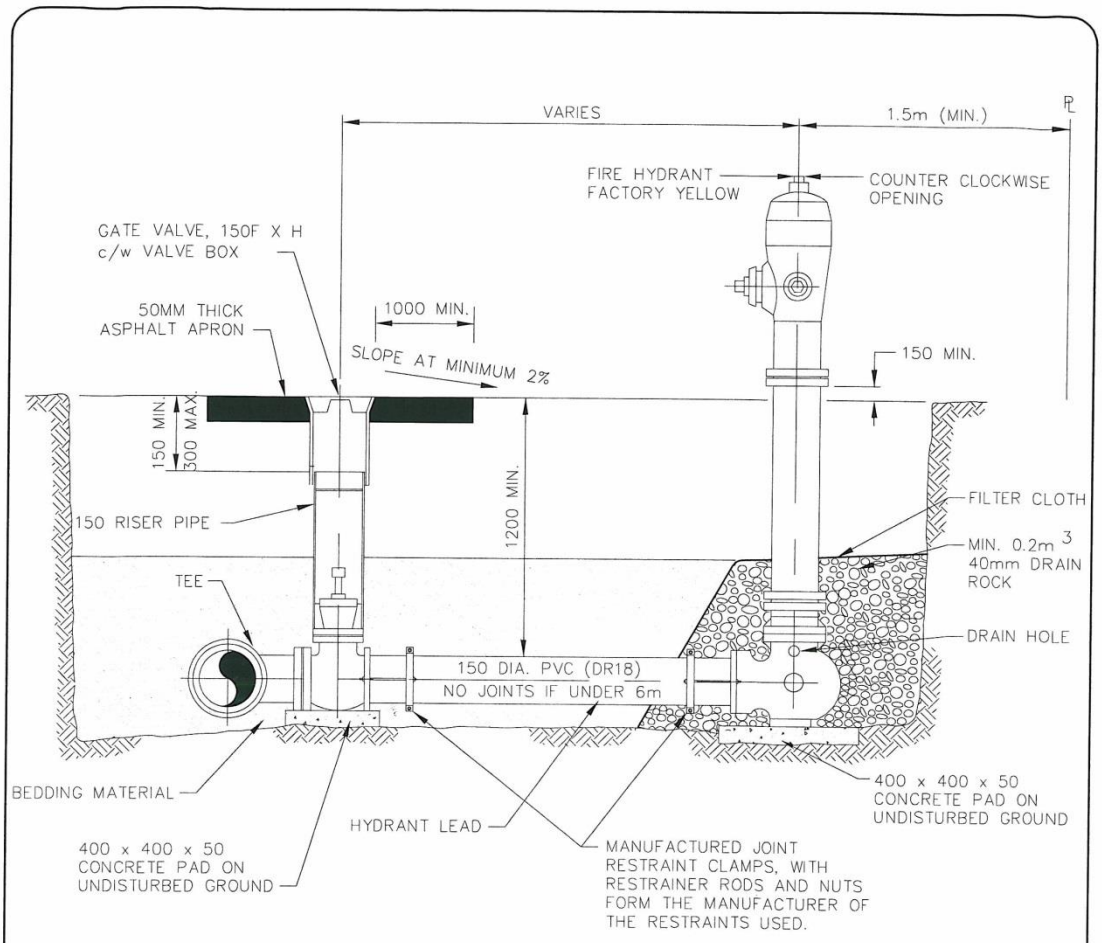
TEMPORARY
ABOVE GROUND FLUSHOUT

REVISIONS

No.	DATE	DETAILS	APP.
0	JUN/06	BYLAW UPDATE	W.F.M.

REVISION 0

DRAWING No. W–11



NOTES:

1. PUMPER NOZZLE PERPENDICULAR TO ROAD CENTRELINE.
2. HYDRANT TO BE INSTALLED VERTICAL.
3. MANUFACTURED JOINT RESTRAINERS TO BE USED AT EVERY PIPE JOINT FOR HYDRANT LEADS OVER 6m IN LENGTH. RESTRAINTS REQUIRED AT HYDRANT BOOT AND VALVE FOR LEADS 2m TO 6m LONG. LEADS LESS THAN 2m MAY BE RESTRAINED USING 2–20mm DIA. STAINLESS STEEL THREADED RODS c/w SS NUTS AND SS WASHERS.
4. END–OR–MAIN HYDRANT SHALL BE FULLY RESTRAINED AS PER MANUFACTURER'S RECOMMENDATIONS, OR MAY USE A THRUST BLOCK (SEE W–9 FOR DETAILS).
5. ASPHALT APRON SHALL BE AT, OR LOWER THAN, ADJACENT PAVEMENT.
6. WHERE CURB/GUTTER DOES NOT EXIST, PAVE FROM EDGE OF ROAD SURFACE TO 1m BEHIND HYDRANT AND 2m WIDE.
7. ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE SHOWN.

REGIONAL DISTRICT OF NANAIMO

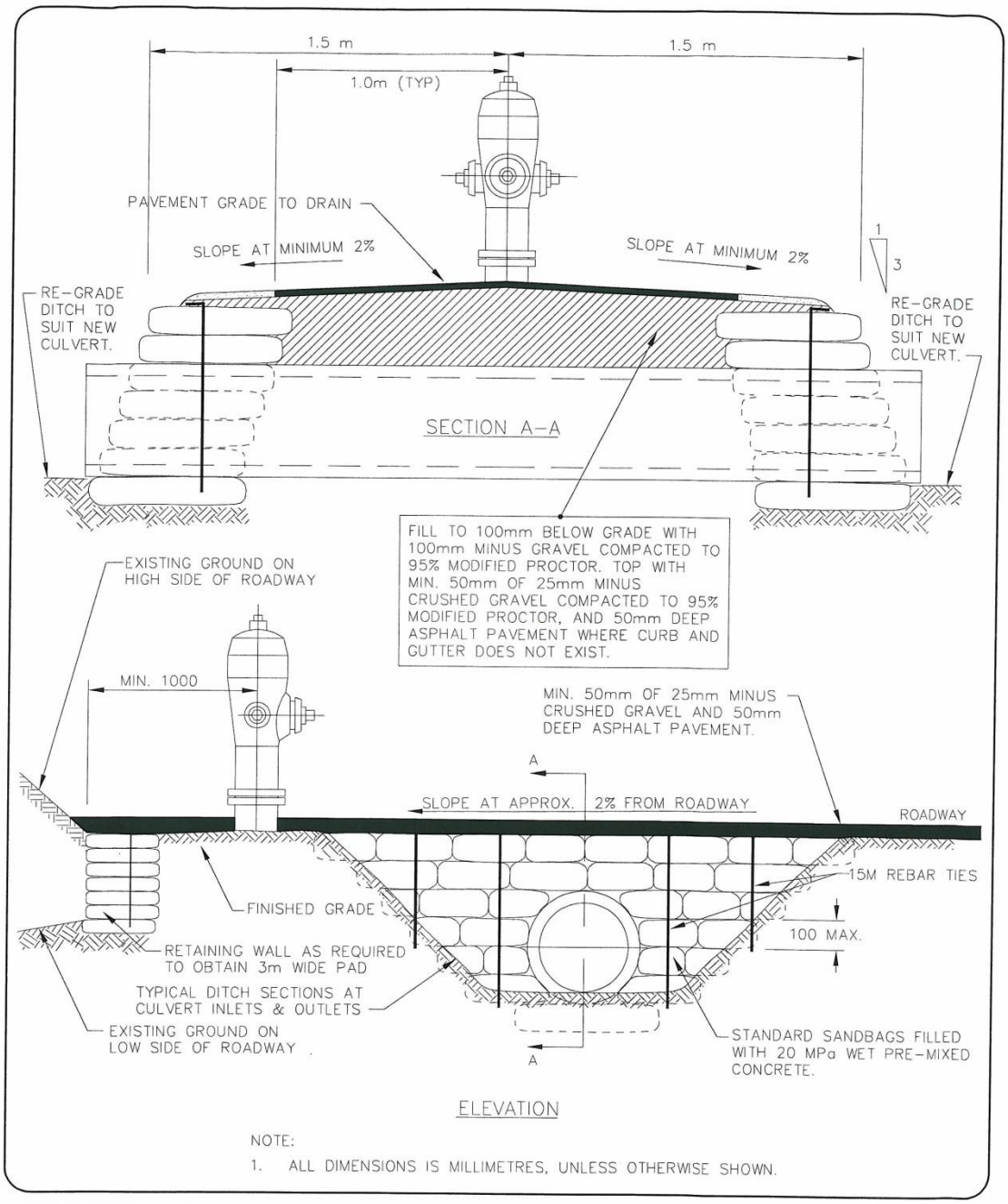
BYLAW No. 1562
COMMUNITY WATER SYSTEM STANDARDS

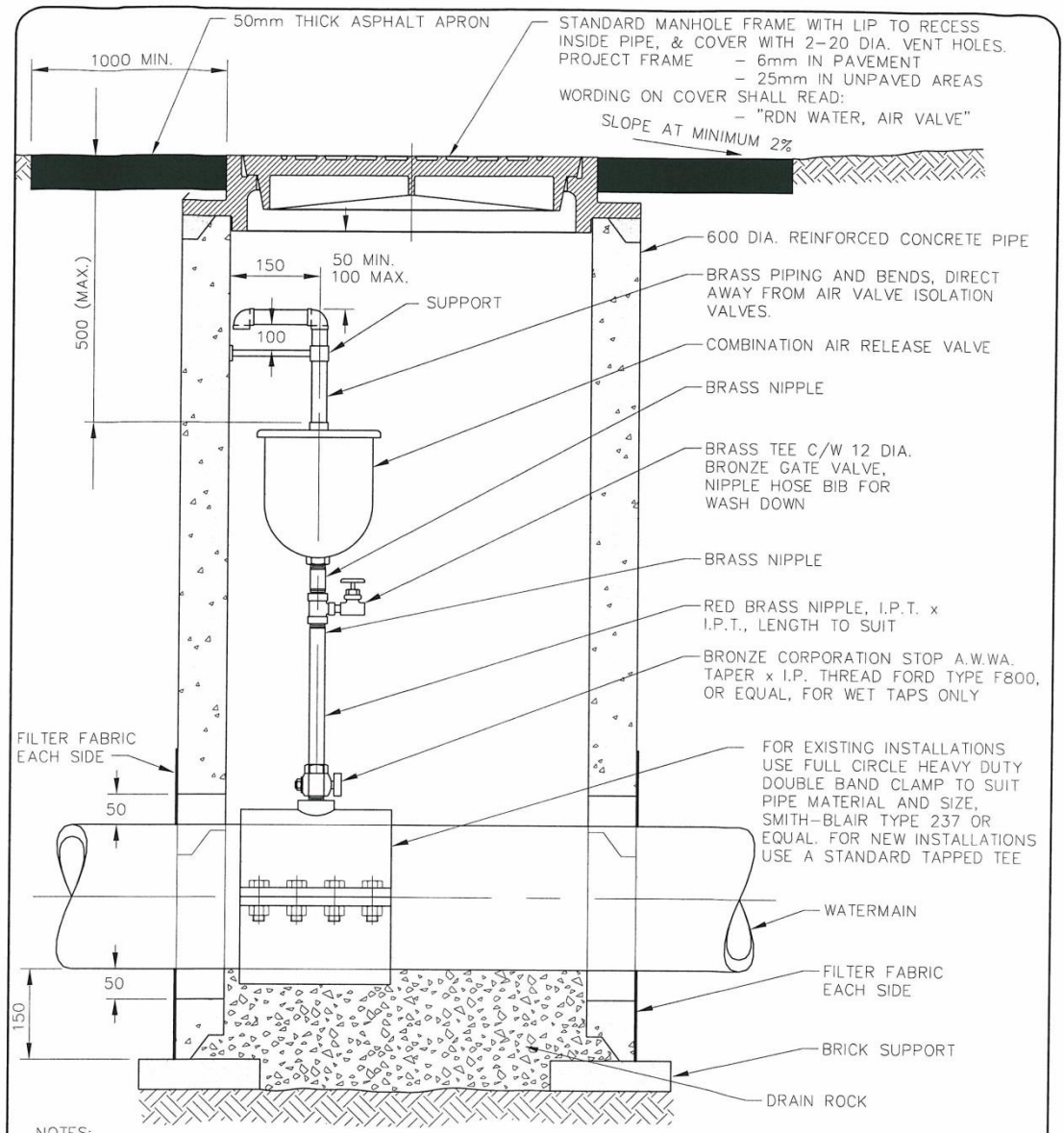
FIRE HYDRANT ASSEMBLY

REVISIONS			
No.	DATE	DETAILS	APP.
0	JUN/06	BYLAW UPDATE	W.F.M.

REVISION 0

DRAWING No. W–12


1.5 m
1.5 m
1.0m (TYP)
PAVEMENT GRADE TO DRAIN
SLOPE AT MINIMUM 2%
SLOPE AT MINIMUM 2%
1
3
RE-GRADE DITCH TO SUIT NEW CULVERT.
RE-GRADE DITCH TO SUIT NEW CULVERT.
SECTION A-A
FILL TO 100mm BELOW GRADE WITH 100mm MINUS GRAVEL COMPACTED TO 95% MODIFIED PROCTOR. TOP WITH MIN. 50mm OF 25mm MINUS CRUSHED GRAVEL COMPACTED TO 95% MODIFIED PROCTOR, AND 50mm DEEP ASPHALT PAVEMENT WHERE CURB AND GUTTER DOES NOT EXIST.
EXISTING GROUND ON HIGH SIDE OF ROADWAY
MIN. 1000
MIN. 50mm OF 25mm MINUS CRUSHED GRAVEL AND 50mm DEEP ASPHALT PAVEMENT.
A
SLOPE AT APPROX. 2% FROM ROADWAY
ROADWAY
15M REBAR TIES
FINISHED GRADE
100 MAX.
RETAINING WALL AS REQUIRED TO OBTAIN 3m WIDE PAD
TYPICAL DITCH SECTIONS AT CULVERT INLETS & OUTLETS
EXISTING GROUND ON LOW SIDE OF ROADWAY
STANDARD SANDBAGS FILLED WITH 20 MPa WET PRE-MIXED CONCRETE.
A
ELEVATION
NOTE:
1. ALL DIMENSIONS IS MILLIMETRES, UNLESS OTHERWISE SHOWN.
REGIONAL DISTRICT OF NANAIMO
BYLAW No. 1562
COMMUNITY WATER SYSTEM STANDARDS
HYDRANT ACCESS CULVERT
REVISIONS
No. 0
DATE JUN/06
DETAILS BYLAW UPDATE
APP. W.F.M.
REVISION 0
DRAWING No. W-13



REGIONAL DISTRICT OF NANAIMO

BYLAW No. 1562
COMMUNITY WATER SYSTEM STANDARDS

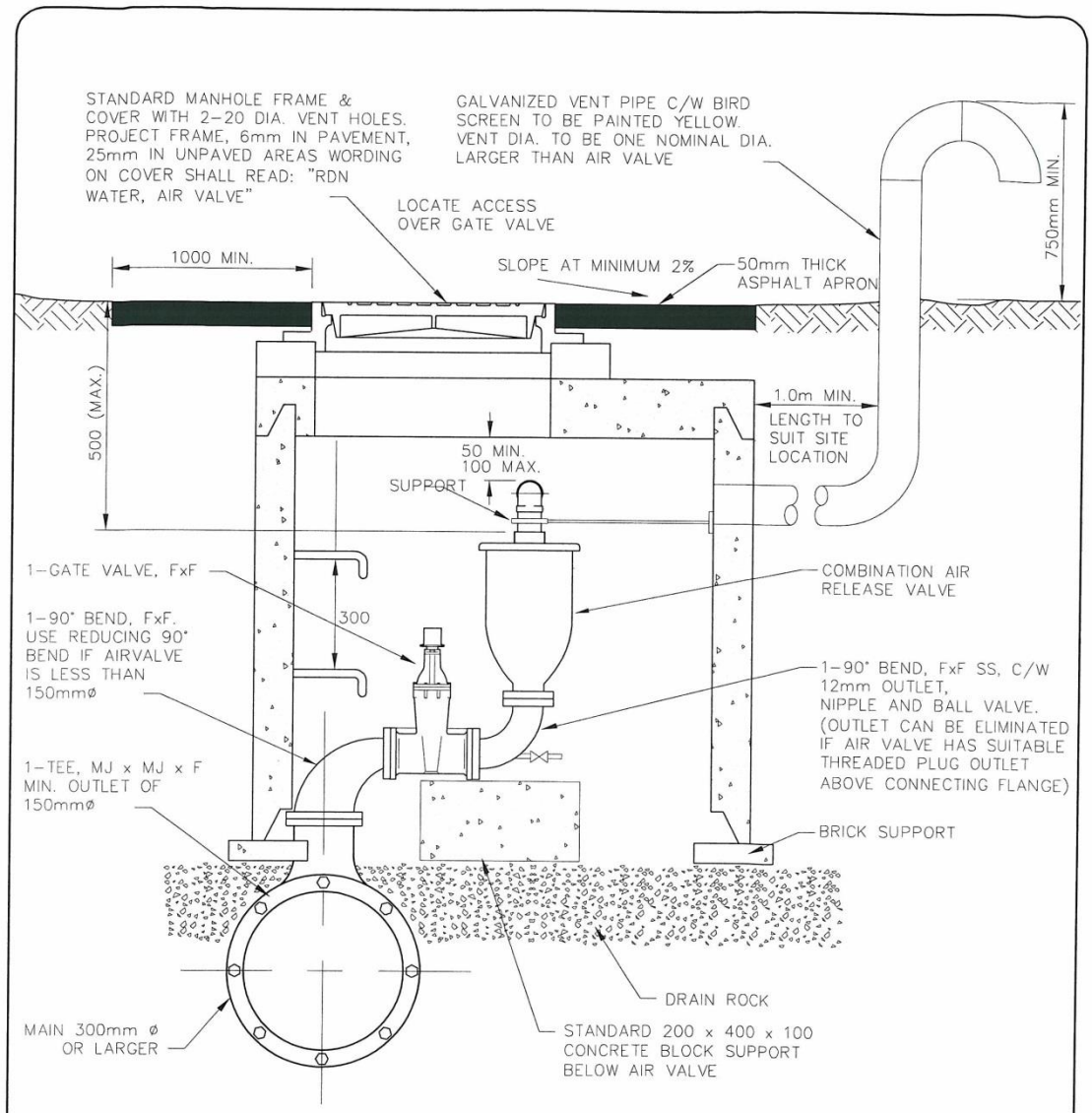
AIR VALVES UP TO 50mm DIAMETER

REVISIONS

No.	DATE	DETAILS	APP.
0	JUN/06	BYLAW UPDATE	W.F.M.

REVISION 0

DRAWING No. W–14



NOTES:

1. IN AREAS WHERE HIGH WATER TABLE MAY APPROACH AIR VALVE VENT OUTLET, CHAMBER DRAINAGE TO BELOW AIR VALVE SHALL BE PROVIDED. IF NOT FEASIBLE, VENT PIPE SHALL BE EXTENDED OUSIDE CHAMBER, INSIDE A GALVANIZED VENT PIPE.
2. SEE W–16 FOR PLAN VIEW.
3. ASPHALT APRON TO BE AT, OR LOWER THAN, ADJACENT PAVEMENT.
4. ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE SHOWN.

REGIONAL DISTRICT OF NANAIMO

BYLAW No. 1562
COMMUNITY WATER SYSTEM STANDARDS

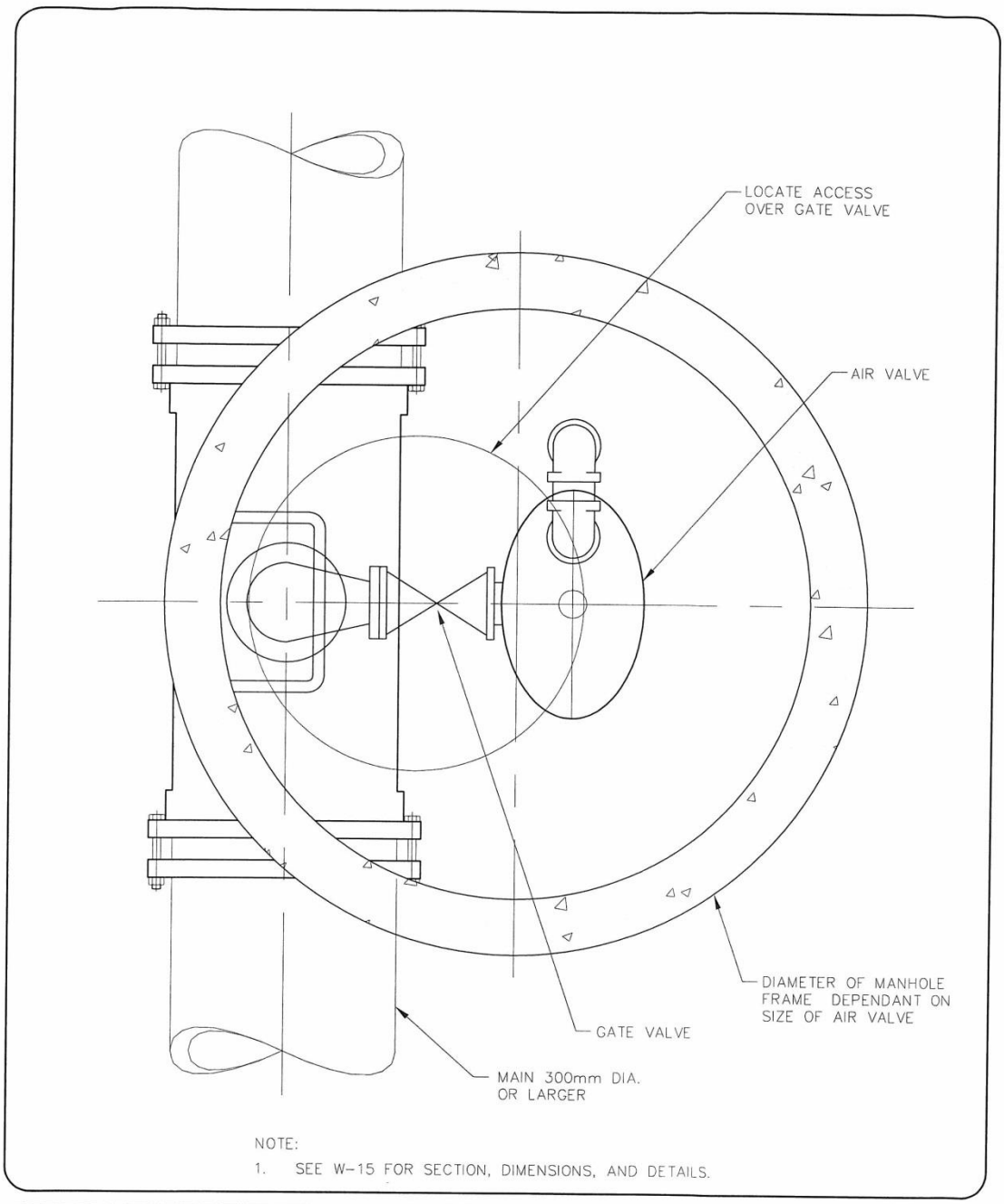
AIR VALVE 75mm DIA. AND LARGER SECTION

REVISIONS

No.	DATE	DETAILS	APP.
0	JUN/06	BYLAW UPDATE	W.F.M.

REVISION 0

DRAWING No. W–15



NOTE:

1. SEE W–15 FOR SECTION, DIMENSIONS, AND DETAILS.

REGIONAL DISTRICT OF NANAIMO

BYLAW No. 1562
COMMUNITY WATER SYSTEM STANDARDS

AIR VALVE 75mm DIA. AND LARGER
PLAN

REVISIONS

No.	DATE	DETAILS	APP.
0	JUN/06	BYLAW UPDATE	W.F.M.

REVISION 0

DRAWING No W–16

REGIONAL DISTRICT OF NANAIMO

BYLAW NO. 500

LAKES DISTRICT AND SCHOONER COVE

COMMUNITY WATER SYSTEM STANDARDS

APPENDIX 2

LETTER OF ASSURANCE

REGIONAL DISTRICT OF NANAIMO

LETTER OF ASSURANCE

NOTE:

To be submitted at time of Feasibility Review

To: Manager of Engineering Services
Regional District of Nanaimo
6300 Hammond Bay Road
Nanaimo BC V9T 6N2

RE: _____
(Project)

Date: _____, 20__.

This will confirm that (Developer) has retained (Consultant) to provide, design, contract administration, inspection and as-constructed drawings for this project all in accordance with the current bylaws and standards of the Regional District and in accordance with good engineering practice.

_____
(Developer)

This confirms we have accepted this assignment on the above terms.

_____
(Consultant)

REGIONAL DISTRICT OF NANAIMO

BYLAW NO. 500

LAKES DISTRICT AND SCHOONER COVE

COMMUNITY WATER SYSTEM STANDARDS

APPENDIX 3

CERTIFICATE OF DESIGN

REGIONAL DISTRICT OF NANAIMO

CERTIFICATE OF DESIGN

I, _____, a Professional Engineer registered in the Province of British Columbia, hereby certify that the works as herein set out on the attached drawings entitled_____
_____
_____

have been designed in accordance with the Regional District of Nanaimo Bylaw 500 and/or in accordance with good engineering practice where such design is not covered by the Regional District Bylaw 500.

I have been retained to provide design, supervision, full-time inspection, as-built drawings, and final certification for this project by:

_____

(Name of Client)

I am satisfied that in the contractual mandate which exists between myself and my client, the terms of reference will permit me to render a level of supervision of the construction work which will allow me to put my name and seal to the "Certification of Installed Works" required by the Regional District of Nanaimo, a sample of which is attached to this document and initialed by me.

In the event that my client releases me from this project, or in the event that I find the terms of reference do not permit me to render a level of supervision of the construction work which will allow me to put my name and seal to the form of certification required by the Regional District of Nanaimo, I will notify the Regional District within twenty-four (24) hours verbally and follow it up with written confirmation and clarification.

Signed this _____ day of _____, 20____.

_____, P.Eng.

(signature)

_____

(name printed)

I understand that the "Certification of Installed Works" is to be completed in this format and submitted with the "as-constructed" drawings.

_____

(Engineer)

REGIONAL DISTRICT OF NANAIMO

BYLAW NO. 500

LAKES DISTRICT AND SCHOONER COVE

COMMUNITY WATER SYSTEM STANDARDS

APPENDIX 4

CERTIFICATION OF INSTALLED WORKS

REGIONAL DISTRICT OF NANAIMO

CERTIFICATION OF INSTALLED WORKS

NOTE: To be completed in this format and submitted with the 'As-Built' drawings

Location of the Construction Site and Works: (Legal Description / Location)

_____

_____

all within the Regional District of Nanaimo, British Columbia.

I, _____, a Registered Professional Engineer (Reg. No. _____) in the Province of British Columbia, hereby certify:

1. THAT the following construction tests were carried out to confirm that construction met the specifications required:

   a) _____
   b) _____
   c) _____
   d) _____
   e) _____
   f) _____

2. THAT I was able to monitor the construction and provide a level of supervision of the construction work sufficient to be able to confirm that the specifications in force and effect by the Regional District of Nanaimo and in the applicable design drawings for the said Works were generally met during the Construction Period; and

3. THAT the accompanying plans labeled:

   (i) _____
   (ii) _____
   (iii) _____

accurately record the materials, grades, inverts, offsets and dimensions of the constructed work.

DATED this _____ day of _____, 20 _____.

_____

Engineer (signature & seal)

_____

Engineering Firm

REGIONAL DISTRICT OF NANAIMO

BYLAW NO. 500

LAKES DISTRICT AND SCHOONER COVE

COMMUNITY WATER SYSTEM STANDARDS

APPENDIX 5

OUTLINE FOR WELLHEAD PROTECTION REPORT

(MINIMUM REQUIREMENTS)

OUTINE FOR WELLHEAD PROTECTION REPORT

(Version: November 19, 2009)

Acceptable Preliminary Well Head Protection Plan (WHPP) for New Wells supplied to the RDN by/for private land development (to be prepared by a qualified professional in ground water and well head protection and approved by the RDN prior to appointment).

Below are the minimum requirements for this Document:

Name of the Plan (WHPP), describe the well #'s, legal location of well(s), client, development for which the well is being provided and client file number.

1.0 INTRODUCTION

2.0 BACKGROUND

- 2.1 SITE DESCRIPTION (including a sketch of the current and proposed lot boundaries, locations of wells on current and proposed lots plus on adjacent properties, locations of sewage disposal fields, drainage ditches, dry wells or infiltrations areas, all surface bodies [either permanent and/or intermittent] and other relevant information)
- 2.2 OVERVIEW OF WELL PROTECTION PLANNING
- 2.3 SCOPE OF WORK

3.0 NOTES of MEETINGS with RDN, DEVELOPER, CONSULTANT, etc.

4.0 NOTES of DISCUSSIONS WITH VIHA STAFF

5.0 HYDROGEOLOGIC CONDITIONS

- 5.1 CLIMATE
- 5.2 TOPOGRAPHY AND SURFACE WATER DRAINAGE
- 5.3 GEOLOGY
- 5.4 LOCAL AQUIFERS (include sketch showing aquifer extent and boundaries if present, well head and static water level elevation, areas of recharge and discharge and direction of groundwater flow under natural conditions)
- 5.5 LOCAL GROUNDWATER USE (number and location of wells and estimates of seasonal water use)
- 5.6 WATER QUALITY (identify where the water quality exceeds guidelines and specifically iron and manganese)
- 5.7 NEW AND EXISTING WELLS ON PROPOSED LOTS (to include information on total well depth and depth of fractures producing groundwater or well screens. Also include testing and yield evaluation results. All pumping test data and well logs to be included with report)
- 5.8 COMPLIANCE OF WELLS WITH BC GROUNDWATER PROTECTION REGULATIONS
- 5.9 ASSESSMENT OF POTENTIAL FOR MUTUAL WELL INTERFERENCE

6.0 CURRENT ZONING OF WELL HEAD AND PROPOSED AND ADJACENT CURRENT LAND USE (within minimum 1 kilometre of well(s))

7.0 PRELIMINARY WELL HEAD PROTECTION PLAN

- 7.1 WELL HEAD PROTECTION AREA
- 7.2 AREAS OF POTENTIAL ENVIRONMENTAL CONCERN
  - 7.2.1 WELLS AS A POTENTIAL CONDUIT TO THE SUB-SURFACE
  - 7.2.2 SEWAGE DISPOSAL SEPTIC FIELDS
  - 7.2.3 STORMWATER DISPOSAL
  - 7.2.4 HEATING OIL ABOVE GROUND AND UNDERGROUND STORAGE TANKS
  - 7.2.5 HISTORICAL OPERATIONS (ON SITE AS WELL AS ADJACENT TO SITE)
  - 7.2.6 POTENTIAL FOR SALTWATER INTRUSION
- 7.3 DETERMINATION OF WELL HEAD CAPTURE ZONE (include background on methodologies to determine zones, why specific method was used and assumptions incorporated into analysis)
- 7.4 RECOMMENDATIONS FOR WELL PROTECTION AREA MANAGEMENT
  - 7.4.1 WELL CONSTRUCTION AND CLOSURE ISSUES
  - 7.4.2 SEWAGE DISPOSAL SEPTIC FIELD SYSTEMS
  - 7.4.3 STORMWATER DISPOSAL MANAGEMENT
  - 7.4.4 HEATING OIL UNDERGOUND STORAGE TANKS
  - 7.4.5 MONITORING SPECIFIC TO SALTWATER INTRUSION
  - 7.4.6 WATER QUALITY MONITORING

8.0 CONCLUSION AND RECOMMENDATIONS (ALSO INCLUDE ANY COST ASSOCIATIED WITH RECOMMENDATIONS)

9.0 COMMITMENT FOR ANNUAL MONITORING AND REPORTING ON WHPP TO RDN

REGIONAL DISTRICT OF NANAIMO

BYLAW NO. 500

LAKES DISTRICT AND SCHOONER COVE

COMMUNITY WATER SYSTEM STANDARDS

APPENDIX 6

STANDBY IRREVOCABLE LETTER OF CREDIT

[BANK LETTERHEAD]

Letter of Credit No.	_____	Amount:	_____
Applicant	_____	Initial Expiry Date:	_____
	_____	Beneficiary:	_____

For the account of _____

(Name of Customer)

up to an aggregate amount of _____ available on demand.

Pursuant to the request of our customer, we hereby establish and give you a Standby Irrevocable Letter of Credit in your favour in the above amount which may be drawn on by you at any time and from time to time, upon written demand for payment made upon us by you, which demand we shall honour without enquiring whether you have the right as between yourself and the said customer to make such demand, and without recognizing any claim of our said customer, or objection by it to payment by us.

This Letter of Credit relates to those Regional District of Nanaimo services and financial obligations set out in an Agreement between the customer and the Regional District of Nanaimo and briefly described as:

_____

_____

The amount of this Letter of Credit may be reduced from time to time as advised by notice in writing to us by the Regional District of Nanaimo.

Partial or full drawings may be made.

This Letter of Credit shall expire at 3:00 p.m. on _____. This Letter of Credit will continue in force for a period of 1 year, but shall be subject to the condition hereinafter set forth.

It is a condition of the Letter of credit that it shall be deemed to be automatically extended without amendment from year to year from the present or any future expiation date hereof, unless at lease 30 days prior to the present or any future expiration date, we notify you in writing by registered mail, that we elect not to consider this Letter of Credit to be renewable for any additional period. This Letter of Credit is subject to the Uniform Custom and Practice for Documentary Credits (1993 Revision) International Chamber of Commerce Publication No. 500.

DATED at _____, British Columbia, this _____ day of _____, 20___.

_____

(Name of Bank)

_____

(Address of Bank)

_____

PER:

_____

(Authorized Signature)

Schedule '1' to accompany "Regional District of Nanaimo Land Use and Subdivision Amendment Bylaw No. 500.388, 2013".

_____

Chairperson

_____

Corporate Officer

Schedule '2'

Schedule 4D1

Lakes District and Schooner Cove Community Sewer System Standards

REGIONAL DISTRICT OF NANAIMO

BYLAW NO. 500

SCHEDULE 4 D 1

2013 LAKES DISTRICT AND SCHOONER COVE

COMMUNITY SEWER SYSTEM STANDARDS

REGIONAL DISTRICT OF NANAIMO

LAKES DISTRICT AND SCHOONER COVE

2013 COMMUNITY SEWER SYSTEM STANDARDS

TABLE OF CONTENTS

APPENDICES

1. GENERAL

1.1. Requirement

The RDN will require a "Subdivision Servicing Agreement" to be completed for any new sewer system or existing system extension, unless otherwise agreed to in writing by the RDN.

Sewage collection and conveyance systems shall be designed, installed, extended, tested and maintained in accordance with the following regulations and standards.

The sewer standards for design and construction of the sewer within the Lakes District and the Schooner Cove Community Sewer Standards Area are to be governed by Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500, 1987, and particularly by this Schedule 4D1.

It is the intention of the RDN to enter into a phased development agreement under section 905.1 of the *Local Government Act* with the property owner of the lands within the Lakes District Comprehensive Development Zone CD44 and the Schooner Cove Comprehensive Development CD45 that will specify changes to specified subdivision servicing bylaw provisions that would not apply to the development contemplated under that agreement, unless agreed to in writing by the developer.

1.2. Design

The engineering design of the sewage collection and conveyance systems shall be carried out by, and the preparation of drawings and specifications shall be sealed by a Professional Civil Engineer registered in the Province of British Columbia, and shall conform to these Standards.

1.3. Definitions

ADWF means average Dry Weather Flow

AWWF means average Wet Weather Flow

B.O.D means quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure in 5 days at 20˚C expressed in mg/l.

Collection facility means A facility used for the collection and conveyance of sanitary sewage.

Comminuted Garbage means the wastes from the preparation, cooking and dispensing of food that have been shredded to such a degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particle greater than 6mm in any dimension

Design Flow means peak sewage flow plus peak storm water infiltration.

Direct Service Area means land and improvements directly served by the proposed facility.

Engineer means the Manager of Engineering Services for the Regional District of Nanaimo, or the person designated by the General Manager of Regional and Community Utilites.

Engineer of Record means a Professional Engineer registered with the Association of Professional Engineers and Geoscientists of BC who is responsible for the construction drawings and documents. The Engineer of Record will be the engineer that signs and seals the record drawings and the certification of installed works.

Facilities means sewers, sewage treatment and disposal plants, pumping stations and other works necessary thereto, and outlets for carrying off, treating and disposing of sewage, and includes any and all works, structures, lands, conveniences, incidental to and necessary for a sewerage system.

Garbage means solid wastes from domestic and commercial preparation cooking and dispensing of food, and from the handling, storage and sale of produce.

Industrial Waste means liquid waste from industrial manufacturing processes trade or business, as distinct from sanitary sewage.

Lateral Sewer *means* sewer serving more than a single subdivided parcel

LPCPD means litres per capita per day

l/s means litres per second

mg/l means milligrams per litre

MPa means megapascals (1000 kPa)

Member Municipality or Member means a municipality or improvement district within the Regional District of Nanaimo.

M^3/ha means cubic metres per hectare

M^3pd means cubic metres per day

PDWF means Peak Dry Weather Flow

pH means the logarithm of the reciprocal of the weight of hydrogen ions in grams per litre of solution

ppm means parts per million

Peaking Factor (PF) means the Ratio of peak dry weather flow to the average dry weather flow.

Regional District means in this document the Regional District shall refer to the Regional District of Nanaimo.

Sanitary Sewage means sewage having a quality substantially equal to that of normal domestic sewage

Sanitary Sewer means a sewer which carries sewage and to which storm, surface and ground water are not intentionally admitted

Service Connection means a sewer connection a subdivided lot to the lateral sewer

Sewage Treatment Plant means an arrangement of structures and devices used for treating sewage

Stormwater Infiltration means the infiltration of groundwater or inflow of stormwater through leaks and connections into the system

Suspended Solids means solids that either float on the surface of, or are in suspension in water, sewage or other liquids, and which are removable by laboratory filtering

Tributary Area means all land in the service area tributary to the proposed facility

1.4. Application

All applications shall be made in the following steps:

1. Feasibility Review

All proposed construction of sewage collection and conveyance facilities shall be submitted to the Regional District for a feasibility review prior to commencement of any detailed design or construction. Such requests shall include a plan of the proposed construction and the area it will serve. The applicable feasibility review fee, in accordance with RDN Bylaw No. 1259.03 or most recent amendment, and the Letter of Assurance shall also be submitted at this time.

The Regional District will review the proposal, and reply in writing indicating the District's decision regarding acceptance or rejection, and/or the necessary amendments required.

2. Detailed Design

The detailed design and specifications shall be submitted in duplicate to the Regional District for Design Stage Approval (DSA) prior to construction. Attached to the submission shall be a Certification of Design. The applicable engineering review fee, in accordance with RDN Bylaw No. 1259.03 or most recent amendment, shall also be submitted at this time, along with the Design Professional Engineer's certified cost estimate for the works upon which the fee amount is based. *The final determination of the DSA fee shall be determined upon completion of the project and final certification of the construction costs by the Design Professional.*

The detailed plans will be returned either approved or with a request for re-submission. Re-submission will be carried out until the Regional District

approves the detailed plans and specifications, and issues Design Stage Approval (DSA).

The designer shall submit the RDN approved plans to the Provincial Ministry of Transportation & Infrastructure and Vancouver Island Health Authority for approval permits. Receipt and submission of these permits to the RDN shall also be a prerequisite to the start of construction. Approval permits from other applicable agencies as required shall also be obtained.

2.1. Drawings and Specifications

All design drawings shall be ISO A1 size, 594 mm in depth and 841 mm in width the following information shall be supplied

1. **Location Plan** - showing the location of the proposed work. This may appear on the same sheet as the Key Plan.

2. **Key Plan** - showing a plan of the proposed work at a suitable scale such that the whole works are shown on one drawing, usually 1:5000, 1:2000 or 1:1000. The Key Plan shall show a general outline of the works, area covered and sheet numbers of the plan/profile drawings, and a legend showing existing and proposed works.

3. **Plans/Profiles -** showing detailed design of the proposed works.

   Plans shall be drawn at a scale of 1:500 or 1:250, showing the location of the pipe centre line, pipe size and type and off-set from property line, manholes, services, trench details, trench dam details and all related appurtenances in relation to road, easement and adjacent property and lot lines. Existing or proposed underground utilities are to be indicated on the plan in addition to the extent of work required in making connection to existing sewer main. Location of service connections are to be shown. Connections not conforming to the standard offset require a distance from an iron pin or lot line.

   Profiles shall be drawn at a horizontal scale of 1:500 and a vertical scale of 1:50 if more suited to specific conditions. The profile shall show the line of the existing and finished road grade on centreline, the invert of the pipe, location of manholes, and location of storm and water utilities. Where vertical curves are used, the invert elevation shall be shown at the beginning and end of the curves.

4. **Specifications** - shall be prepared to further define materials of construction and shall specify methods of construction and workmanship.

5. **Record Drawings** - shall be prepared by correcting drawings on completion of construction in order to reflect "record drawing" conditions for permanent records. The location of all individual lot sewer service connections shall be clearly shown with distance from the nearest manhole to the service wye. The drawings shall be signed and sealed by the Professional Civil Engineer, and shall be

accompanied by a Certification of Installed Works. Final record drawings shall consist of:

(a) Two (2) full-size paper sets;
(b) One (1) full size 3 mil Mylar set;
(c) 2 – 11" X 17" paper sets or 2 A3 half-size paper sets, as agreed by the RDN; and
(d) Digital copies: one (1) as AutoCAD or Civil 3D file as applicable to the current software, and one (1) as TIFF files.

1.6. Variations from Standards

Where the applicant wishes to vary from these standards he shall submit a written request with adequate supporting data to the Regional District for review.

The Regional District shall make the final decision in writing as to the standard requirements which shall apply.

1.7. Permits

The applicant shall be responsible for obtaining all necessary approvals and permits required prior to commencing construction of the sewer system.

1.8. New Service Areas

Where a sewer system is to be constructed by an applicant within an area previously unserviced by a community sewer system, the design and construction for the system shall comply with the requirements of these standards, unless otherwise agreed to in writing by the Regional District.

1.9. Existing Service Areas

Where a sewer system is to be constructed by an applicant within the existing or extended boundaries of an area already being served by a community sewer system, the design and construction of the system shall comply with the requirements of these standards.

1.10. Inspection

The Manager of Engineering Services of the Regional District or his appointed deputies shall be allowed access and provided adequate facilities for access to any part of the works at all times for the purpose of inspection.

Any connections to or interruption of any existing system will only be permitted be under the direct supervision of the Regional District. Adequate notice to the Regional District of any such interruption to service shall be provided in order that attendance by Regional District personnel can be arranged.

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2. DESIGN

2.1. Sewage Flows

Sanitary sewer systems shall be designed using the following formula to accommodate peak sewage flows and peak inflow & infiltration.

AWWF=PDWF +I&I

Storm water connections shall not be made to the sanitary sewer system.

2.2. Design Population

Design contributory populations shall be calculated in accordance with the Regional District of Nanaimo's population predictions or with the ultimate planned development in the tributary area, whichever is greater.

The following densities shall be used for housing types listed below:

Housing Unit	Persons per unit	Notes
Single Family / detached house	2.2	Based on 2011 census for Nanoose: 5674 persons / 2,587 housing units. Nanoose is predominately single family (>90% of dwellings)
Townhouse (attached, semi-detached) unit	1.9	Based on 2011 census for City of Nanaimo, City of Victoria
Apartment / condominium unit	1.4	Based on 2011 census for City of Nanaimo, City of Victoria
Secondary suite (carriage house)	1.1	50% of single family, consistent with draft zoning bylaw
Seniors living unit	1.1	Per CWPC Senior`s Housing Group

Where units are not known the following should be used:

.1	Dwelling unit	30 pph
.2	Multi dwelling unit development	125 pph
.3	Commercial Equivalent of	50 pph
.4	Industrial Equivalent of	50 pph
.5	Institutional	50 pph

pph = persons per hectare

2.3. Sewage Flow Calculation

Average dry weather flow (ADWF) shall be established by multiplying the design population by an average daily sewage flow of 300 Litres per capita per day.

Peak dry weather flow (PDWF) shall be established by multiplying the ADWF by the peaking factor (PF) which obtained from the following formula.

$$PF=6.75*Population^{-0.11}$$

Peak dry weather flow can also be obtained using the graph contained in the standard drawing S-21.

For new developments, where water conservation measures are mandatory (such as low flow toilets), the sewage flow may be reduced by 10% from that obtained from this table.

Design sewage flows may be varied by the Regional District, where suitable metered flow record is available, or for developments utilizing wastewater (grey water) re-use onsite.

Peak inflow and infiltration (I&I) shall be calculated using:

.1 12 m^3/ha for Existing development areas
.2 10 m^3/ha for New development areas
.3 The peak inflow and infiltration may be varied by the Regional District where suitable metered records for design storm events of maximum infiltration period of the year are available.

Design sewage rates of flow shall be computed by adding peak sewage flow to peak inflow and infiltration design allowances.

Sanitary sewage design calculations shall be prepared and submitted on a drawing showing the sanitary sewer tributary area as part of the detailed design drawings. If the sanitary sewer calculations are completed using modeling software the results of the software shall be displayed on the detailed design drawings. Use of modeling software shall be approved by the Regional District.

2.4. Sewage Characteristics

1. Sewage quality criteria shall be as follows:

Sewage Quantity (ADWF) in the Direct Service Area	Constituent	Average Normal
<50m^3/day	BOD -5 day 20˚ C Suspended Solids pH Temperature	1000mg/l 800mg/l 4-10.5 79˚ C
50m3/day to 450 m3/day	BOD -5 day 20˚ C Suspended Solids pH Temperature	400mg/l 300mg/l 5-9.5 66˚ C
>450 m3/day	BOD -5 day 20˚ C Suspended Solids pH Temperature	200mg/l 200mg/l 5.5-9.0 54˚ C

2. Regulations governing the quality of wastes acceptable for admission to The Regional District of Nanaimo shall be followed and can be found in Bylaw 1225.

3. Where the existing industrial and/or commercial developments will be connected to the sewer system, the District may require that flow sampling be carried out to determine the design loadings; re-treatment of wastewater prior to discharge to the Regional District's facilities may be required.

2.5. Hydraulics

1. All facilities shall be designed to convey peak sewage flow plus peak I&I calculated as set out in section 2.3 sewage flow calculation.

2. Sewers shall be designed to carry the calculated design flow at a minimum velocity of 0.6 m/s.

3. When carrying design flow the maximum pipe depth of flow shall not exceed the following:

(a) <250mm ¾ pipe diameter

(b) 300mm to 450mm ¾ pipe diameter

(c) >500mm Full pipe diameter

4. Service connections shall be designed with a minimum velocity of 0.9m/s.

5. Forcemains shall be designed with a minimum velocity of 0.6m/s.
6. Manning's Roughness Coefficient of 0.013 shall be used for design sewers and service connections. Manning's Roughness Coefficient of 0.015 shall be used for forcemains and outfalls.
7. Manholes shall be designed to incorporate a minimum elevation differential of 30mm wherever a horizontal deflection exceeding 45 degrees occurs and 5mm where it is straight run. These elevation differentials are in addition to the normal grade of the lateral sewer.
8. Pumping stations and treatment disposal works shall be designed to process peak sewage flow plus peak I&I calculated as set out in section sewage flows section of these standards. Bypassing of works to disposal shall not be allowed except under emergency conditions.

2.6. Piping

1. Lateral Sewers

No lateral sewer shall be less than 200mm in diameter, unless the sewer is the final section of a lateral that cannot be extended, in that case, under the approval of the RDN a pipe 150mm in diameter may be used providing that it meets the hydraulic needs of the sanitary sewer.

2. Service connections

Service connections shall be minimum 100mm in diameter. Service connections serving more than one dwelling unit shall be minimum 150mm in diameter or sized in accordance with design flows and available grades.

No service connection shall exceed 15m in length measured horizontally between the lateral sewer and the property line without the approval of the Regional District. If a service greater than 15m is approved by the Regional District, a cleanout facility must be provided as shown on the standard detail drawing for service connection.

Water service and sewer services in a common trench shall be in accordance with the requirements of the Vancouver Island Health Authority.

3. Depths

Depths of all sewers shall be such that all basements in the area the sewer is intended to serve can be drained by gravity. Lift stations from individual homes will be acceptable as depicted generally in the Lakes District Infrastructure Phasing Drawing appended to this addendum. There may be other areas that will be serviced by individual lift stations subject to the Approval of the RDN.

Minimum cover on services shall be 0.75m.

Where minimum cover cannot be provided, an explanation of the reasons shall be submitted to the RDN with the proposed method of protecting the pipe.

Excessively deep service inspection assemblies should be avoided. Where standpipes are more that 1.8m in depth, the standpipes shall be constructed in two or more sections, each having a length not exceeding 1.8m.

4. Curved Sewers

Wherever possible, curved alignment shall be avoided.

Horizontal curves may be permitted where the configuration of the right of way permits curvature at a constant offset, where the velocity in the pipe exceeds 1m/s and where grades of 1% or greater are available. Tracer wire is required on all sewers with horizontal curves.

Vertical curves may be permitted where excessive depths or rock cuts are to be avoided or energy dissipation is needed.

Radius of curvature for PVC sewers to 250mm diameter shall be uniform throughout the curves by bending pipe barrel plus joint deflection to 2 degrees maximum and shall not be less than 60m or the manufacturer's minimum pipe radius, whichever provides a greater radius of curvature. PVC pipes 300mm diameter shall be deflected only at pipe joints to 2.5 degrees maximum, and 350mm diameter and larger pipes at pipe joints to 1.5 degree maximum. Miter bends are not to be used unless approved by the RDN.

Horizontal curves will be permitted for the gravity sewer along the eastern side of Enos Lake and in the park areas where sewers are approved. Curves radii are to be at or larger than manufacturers specifications. Vertical grades are to be chosen such that velocities must be equal to or exceed 1m/s (for max day flows at full build out).

Compound horizontal curves are not permitted between manholes.

Horizontal and vertical may be permitted in the same run.

Concrete pipe shall not be curved horizontally or vertically.

5. Manholes

In general the distance between manholes shall not exceed 150m, unless approved by the RDN. If approved by the RDN the maximum distance between manholes my be increased to 250m.

Manholes shall be located at grade and alignment changes, at lateral size changes, at the upstream end of all lateral sewers, at the junctions of all lateral, at regular spacing not exceeding the maximum allowable, sewers and at service connections larger than 150mm in size.

Cleanouts may be substituted for manholes at the upstream end of lateral sewers where no further extension of the sewer main is anticipated.

Where the difference between the incoming and outgoing invert exceeds 600mm, a drop manhole shall be used. See the standard detail drawings for drop manhole details. Differences between 150mm and 600mm should be avoided. Inside drop manholes with a minimum barrel size of 1200mm as shown in drawing the standard detail drawings, may be permitted for new construction of drops between 900mm and 2000mm and upon the approval of the RDN.

Manholes shall be constructed in a manner that prevents water from infiltrating into the manhole.

Where cast in place manholes are proposed, an explanation of the reasons shall be submitted to the RDN with the proposed design and construction method. Only ready mix concrete, 20 Mpa at 28 days shall be used.

Manholes shall be located so that the manhole covers are not located in the wheel paths of vehicles, in gutter lines, curbs or sidewalks.

Manholes located in untraveled areas shall have a 1m asphalt apron which slopes away from the manhole rims at 2%.

A watertight manhole frame and cover shall be required for all sewer manholes located in areas which flooding can occur.

Precast manhole bases shall be sized according to the following table

Pipe Size (mm) (Nominal)	Depth of Manhole (m) (Top of Cover to Inv.)	Barrel Size (mm) (Inside Diameter)
150-375	**0 - 5.9**	**1050**
150-375	**6-9**	**1200**
150-600	**9 or deeper**	**1500**
400-600	**0-8.9**	**1200**
675 – 1050	**All depths**	**1500**

6. Manhole Platforms

Manhole platforms are generally not required. Design of manholes shall consider use of appropriate safety equipment.

A cage, well or ladder safety device shall be provided where the length of climb is greater than 6 metres.

If platforms are necessary, ladders shall meet the following requirements:

(a) The ladder shall consist of multiple sections.
(b) Each section shall be horizontally offset from adjacent sections.
(c) A landing platform shall be provided within the length of climb.
(d) Refer to the Standard Drawings for manhole platform details.

7. Location of Sewers

Wherever possible, sewers shall be located on the high side of the street where only the high side is served by the lateral and on the low side of the street where both sides are served by the lateral. Wherever possible the sewer shall be located on the opposite side from the watermain and at a constant offset from the property line or paved roadway.

Sanitary lateral sewers shall be located at least 3.0m horizontally and 0.45m vertically from water pipes unless approved by the Vancouver Island Health Authority and all joints are suitably coated and wrapped.

Sanitary sewer mains may be installed in a common trench with storm sewers provided the minimum outside pipe separation is 300mm.

8. Utilities in Private Lands

The design of utilities shall avoid crossing private lands as much as possible.

Utilities crossing private lands shall generally be offset a minimum 1.5 metres from the property boundary unless otherwise approved by the Regional District.

Appurtenances such as manholes, valves ect. shall not be located on property boundaries.

Utilities shall not cross private lands in such a manner that they render the property unusable and generally be located beyond the normal building envelope allowed by zoning. Special considerations must be given to ensure the location of the utility crossing minimizes the limitation on the future use of the property.

The minimum width of the right of way shall be 3m for single pipes and 4.5m for two pipes installed in a common trench.

9. Siphons

Where a siphon (i.e. inverted sewer, depressed sewer) is required to carry flow under an obstruction such as a stream, the following criteria shall be applied to the design:

(a) All siphons shall be multiple pipe structures.
(b) A cleansing velocity of 0.6 to 0.9 m/s shall be reached at least once a day in the primary pipe even during the first years of operation.
(c) The total system shall be sized to accommodate the ultimate design peak flow.
(d) A 1200mm diameter manhole shall be provided on both ends of the siphon.
(e) Each manhole on the siphon shall be provided on both ends of the siphon.
(f) There shall be no high points in the siphon between manholes.
(g) There shall be no acute bends in the siphon.
(h) There shall be no change of pipe diameter between manholes.
(i) The primary pipe shall be minimum 200mm in diameter wherever possible.
(j) All siphons shall have a separate debris sump manhole upstream of the siphon. The debris sump shall be designed to allow easy access for maintenance and cleaning and shall be suitably vented.

2.7. Pumping Stations

This section applies to all municipal owned and operated sanitary sewer pumping stations. Properties serviced by individual sewer pumps shall be connected to the municipal sewer system by a gravity service connection from the property line to the municipal sewer system.

This section is intended as a guide for general requirements for a pumping station. All pumping station designs shall be developed using good engineering practice with the input of the Regional District of Nanaimo.

Sanitary sewer pump stations shall only be permitted at locations where gravity connections from an existing or proposed trunk sewer cannot be provided.

1. General Design Criteria

Pump station size and configuration shall accommodate ultimate sewage flows.

Pumping stations shall be designed and constructed using materials recognized for quality in the sanitary sewer industry.

Pumping stations shall be fully automatic in normal operation, and fully compatible with the Regional District of Nanaimo's telemetry system. Specifics of SCADA systems shall be coordinated with the Regional District of Nanaimo during the pre-design stage.

All stations shall have a wet well capacity providing not more than 12 hours of storage at minimum design flows and a frequency of pump start –up of not less than 5 minutes at peak flows.

No overflow of sewage shall be permitted. Pumping stations shall have emergency backup systems to prevent sewage overflows during a mechanical or electrical failure.

4 complete (3 paper and 1 digital) sets of operational instructions, maintenance manuals, emergency procedures, parts lists, as-built engineering drawings, shall be submitted to the Regional District of Nanaimo upon completion of the pump station.

Current and future service requirements shall be evaluated with the electrical and phone utility companies.

Buildings shall have gutters on all four sides of the roof.

Pump station buildings shall be BC Hydro green in colour.

2. Pumps and Equipment

As a minimum, pumping stations shall be equipped with alternating duplex pumping units. One pump shall be equipped with a flush valve.

Duplex pump arrangements shall be designed for each pump providing 100 percent standby at peak flow.

Individual pump motors shall be equipped with hour meters and pump run indicator lights.

All pumping units to be grinder or vortex pumps capable of handling a 75mm solid, without clogging.

All piping and valves shall have a minimum of 100mm diameter.

Minimum pump run time shall not be less that 2.5 minutes or as recommended by pump manufacturer; whichever is greater.

Each sewer pump shall be provided with its own individual pipe connection to the wet well.

A concentric increaser shall be provided on the pump discharge followed by a check and gate valve.

Check valves on discharge lines shall be ball type.

The desirable velocity at the discharge point at maximum pump discharge is from 1.8 to 2.5 metres per second.

3. Controls

Stations shall be equipped with high and low level alarm, security alarm, power fail alarm and general alarm (for motor overload, temperature, and moisture alarms if so equipped.) Also, a level transducer probe and data logger, suitable to the Regional District, shall be installed in the wet well.

Manual operation of all pumps by push-button control shall be possible for checking the operation and for drawing down the wet well. Manual operation shall bypass the low water cutout but not the low water alarm.

Wiring for the control panel shall be underground from the hydro pole to the control panel kiosk.

Alarms shall have audio & visual alerts at the pumpstation.

Stations with submersible pumps shall have the motor starters and controls located in a factory assembled free-standing unit control centre located at ground level on a concrete pad.

Stations with non-submersible pumps, shall have the pump motors and controls located in a ventilated, heated, lighted and dehumidified area.

Name plates, approved by the Regional District, shall be supplied on the pump's control enclosure components and other operating components to indicate to the operator the purpose of the component or the operating routine applying to the component.

An isolation switch for each pump shall be located within sight of a service man working inside. Switches shall function by breaking the pump control circuit, thereby isolating the main power at the control panel.

Relays are to be used in conjunction with level controls.

An electrical panel heater and thermostat shall be installed inside all control panels.

The control panel kiosk shall be aluminum.

The control panel shall include an extra 110 volt, 10 amp, duplex receptacle, complete with cover, for operation of small electric tools. It shall be separately fused within the control panel.

4. Standby Power

The onsite provision of a standby power generator will be decided on a site specific basis by the Regional District . If the Regional District decides that permanent standby power facilities are not needed for the specific pump station, the pump station shall be equipped with a generator receptacle matching the Regional District style.

5. Pumping Station Chamber

The control panel and non-submersible pump motors shall be located in one above-ground enclosure unless otherwise approved by the Regional District.

The below grade chamber shall be reinforced concrete construction or as approved by the Regional District.

Concrete pump chambers shall have a 1 to 1 slope benching around the base perimeter.

Exterior concrete walls shall be tar-coated to prevent leakage.

The chamber above grade shall be designed to harmonize with the surroundings, shall be of fireproof construction and have no windows.

Chamber access shall be in accordance with the latest WorkSafe BC Regulations.

Equipment guards and rails for floor openings shall be provided.

Independent mechanical ventilation shall be provided by explosion proof exhaust fans for the dry and wet chambers where applicable. If the ventilation system is intermittent rather than continuous, the electrical switches shall be interconnected with the station lighting system. Ventilation interconnected with the station lighting system shall have sufficient capacity to exchange the total volume of air inside the station with fresh air within 3 minutes. All vents lines shall have screened openings to prevent the entrance of rock or other foreign matter. Air flow in fans shall be fresh air to wet well with second vent out for discharge.

Dry well stations shall include a sump and sump pump for the interior of the dry well with discharge above the top water line in the wet well.

The entrance to the station shall be waterproof and supplied with a lockable door complete with security alarm.

Where the entire station is underground, the entrance shall not be more than one metre above the surrounding finished grade.

6. Sitework and Lighting

A 25mm water service connection, complete with an approved backflow prevention device, shall be provided in the station designed in accordance with the AWWA Cross-Connection Control Manual.

The pumping station and appurtenances shall be within a porous paved surface or approved gravel which provides for the turning movements. A minimum turning grade of 12.8 metres, shall be used to determine turning movements. A minimum of 3.65 metres in width is required for access to all equipment. Approved landscape screening shall be provided.

Storm drainage from the site shall be self-contained.

Adequate protection shall be provided to prevent vandalism and vehicular damage and to protect public safety. Requirements may include fencing, non-mountable curbs and/or traffic bollards.

High pressure sodium, dark sky compliant, lighting shall be provided unless other wise approved by the Regional District. Backup lighting connected to the standby power supply shall be provided in case of a power failure.

7. Forcemains

All forcemains shall be designed so that the minimum velocity is 0.6m/s and a detention time not exceeding 12 hours during ADWF.

Forcemains shall be designed without high points unless otherwise approved by the RDN. If approved, an air-relief valve shall be provided at high points in the line, meeting RDN requirements.

Thrust blocks shall be provided at all bends as required.

Cleanouts (blowdowns) shall be supplied at all low points of forcemain.

Flushouts shall be located at the terminus end of all pressure sewer mains leading to manholes or pump stations.

3. CONSTRUCTION

3.1. General

1. Access Roads

Temporary roads shall be constructed as required for access to the working areas. Adequate drainage facilities in the form of ditches, culverts, or other conduits shall be installed as found necessary to maintain these roads. In the construction of access roads, existing drainage facilities, natural or otherwise, shall not be disturbed to the detriment of properties outside the working area and such facilities shall, unless otherwise provided elsewhere in the specifications, be restored to their original condition on completion of the work.

2. Sanitary Facilities

Clean, sanitary latrine accommodations shall be provided and shall be located and maintained in accordance with the regulations of VIHA.

3. Special Tools, Operating Manuals, Shop Drawings

With each piece of mechanical and electrical equipment or machinery having wearing parts and requiring periodical repair and adjustment, all special tools, wrenches, and accessories required for removing worn part, making adjustments, and carrying out maintenance shall be supplied. All gauges, indicators, and lubricating devices necessary for the proper operation of the equipment shall be furnished.

With each piece of equipment, 4 sets of operating manuals and as-constructed shop drawings shall be supplied. The manuals shall provide the manufacturer's recommended maintenance schedules with the grades of lubricants required, and instructions as to how the equipment may be taken apart for periodical inspection and replacement.

4. Blasting

Blasting will be permitted only after securing the approval of the applicable authorities. Blasting will not be carried out without first verifying that insurance covers any loss of life or damage that may result from this work. The Regional District, in granting approval for blasting, does not in any way assume responsibility for injury, loss of life, or damage that result there from, and such approval shall not be construed as approval of the methods employed in blasting, the sole responsibility therefore being that of the applicant.

5. Site Maintenance and Clean Up

The working area shall be maintained in an orderly manner and shall not be encumbered with equipment, materials, or debris.

Clean up shall be a continuing process from the start of the work to final acceptance of the project. Property on which work is in progress shall at all times be kept free from accumulations of waste materials or rubbish. Accumulations of waste materials, which might constitute a fire hazard, shall not be permitted. Spillage from hauling vehicles on traveled public or private roads shall be promptly cleaned up. On completion of construction, all temporary structures, rubbish, and waste materials resulting from the operations, shall be removed.

6. Erosion and Sediment Control

An Erosion and Sediment Control Plan shall be submitted for review and approval seven days prior to the pre-construction meeting. The Erosion and Sediment Control Plan shall describe the proposed methodology to minimize potential impact on the surrounding environment. The Erosion and Sediment Control Plan shall indicate how the Contractor plans to control sediment discharges from the project and what measures will be put in place to prevent damage to aquatic habitat located downstream.

The work shall be carried in compliance with the submitted and approved Erosion and Sediment Control Plan and all other environmental laws affecting the work and with the recommendations contained in the most recent edition of the "Land and Development guidelines for the Protection of Aquatic Habitat" published jointly by the Ministry of Land, Water, and Air Protection and Fisheries and Oceans Canada.

For the erosion and sediment control plan, 'environmental laws' means all statutes, regulations, orders, and bylaws relating in any way to the natural environment or its ecosystems, public or occupational health, transportation, storage or handling of contaminants or hazardous materials.

3.2. Existing Structures and Utility Works

1. Scope

Existing structures shall be interpreted as being all existing pipes, ducts, ditches, or other works forming a part of sewerage, drainage, water, telephone, electrical, gas, or other utility system, as well as sidewalks, curbs, poles, fences, buildings, and other man-made things that may be encountered during construction.

2. Material Supply

Unless otherwise specified, materials supplied for replacement of existing structures shall be at least equal to those being replaced.

3. Location of Structures

Drawings or descriptions, verbal or otherwise, of existing structures or their location that are supplied by the Regional District are intended only as an aid to locating these structures. Measurements and location of the existing underground structures shown on the drawings are not guaranteed to be accurate, and must be verified prior to proceeding with construction.

4. Protection of Structures

Unless authorization from the Regional District is received for their removal, underground and surface structures encountered during construction shall be protected from damage. In the event of damage resulting from the construction operation, structures shall be repaired or replaced to a condition, which is at least the equivalent of that which existed prior to construction.

5. Emergency Situations

In emergency situations resulting from the construction operation, where life or property are endangered, the applicant shall immediately take whatever action is possible to eliminate the danger, and shall also notify the Regional District of the situation.

6. Access Maintained

Existing hydrants, valves or control pit covers, valve boxes, curb stop boxes, fire or police call boxes, and all other utility controls, warning systems, and appurtenances thereof shall not be made inaccessible at any time by the construction work. Bridges, walks, or other temporary facilities shall be provided as may be necessary to ensure that these controls or warning systems are free for use in their normal manner at all times during construction.

7. Curtailment of Utility Service

Where existing utilities such as water, sewer, electricity, telephone, and gas are serving the public, work shall be planned and executed such that there is no curtailment of service provided by these utilities without prior receipt of approval of the authorities responsible for provision and maintenance of these utilities. The applicant shall obtain the above approvals from the recognized authorities controlling these utilities. If approval for such disruption of utility service is not granted, it may be possible to establish temporary facilities to provide continuous utility service during the course of construction. Such temporary facilities shall only be implemented after receiving the approval of the utility authority.

If approval is received to temporarily shut off an existing utility, individual users of the utility shall be notified at least one hour prior to the time of shut-off.

8. Support of Structures

Existing structures shall be protected against damage from settlement by means of timber support of compaction of backfill as required. Where necessary, timber support shall remain in place following backfill of excavations.

Backfill which is placed under or adjacent to the existing structures, which have been undermined during excavation, shall be compacted in a manner which will prevent damage of the structure from settlement. Such backfill shall be of approved granular material suitable for compaction.

On existing piping, this material shall extend horizontally a minimum distance of 600 mm on both sides of the pipe at a level 300 mm above the pipe, and shall slope down from this point at 1-1/2 horizontal to 1 vertical to meet the bottom of the excavation.

9. Drainage Facilities

Existing culverts, enclosed drains, flumes and ditches, and other drainage structures affected by the work but left in place shall be kept clear of excavated material at all times during construction. When it is necessary to temporarily remove an existing drainage structure, suitable temporary ditches or other approved means of handling the drainage shall be provided during construction.

3.3. Clearing

Prior to clearing, the exact limits of the areas on which clearing may take place and whether or not there are restrictions placed on clearing which would result in leaving certain trees, structures, or other existing items in place shall be ascertained.

Prior to trenching, the right-of-way shall be cleared of all standing or fallen brush, timber, stumps, or other debris, which may obstruct the construction operation, damage the completed installation, or detract from the appearance of the site on completion of construction. This material shall be burned or otherwise disposed of to the satisfaction of the Regional District.

The restrictions of all authorities established to control burning in the area shall be complied with. If burning cannot be done on the clearing site, the material shall be hauled to an approved location for burning or disposal. Burning permits, as required, shall be obtained by the applicant.

3.4. Trench Alignment and Depth

Following clearing and prior to excavation of the trench, the location at which the pipe shall be installed shall be established by setting appropriate survey control. As a minimum this shall include marking of the manholes and any horizontal or vertical curves in the pipe, with suitable elevation data provided. A laser should typically be used to maintain grade during pipelaying, and for all grades of 2% or less.

Where pipe is to be installed to a predetermined grade, a cut sheet will be provided showing the depth of the pipe invert relative to the grade stake elevation at the respective locations along the pipeline.

The trench shall be excavated so that pipe can be laid to the established alignment and depth, with allowance made for specified trench wall clearances and bedding as shown in the standard drawings of this Schedule for various conditions, or otherwise required.

All trenching and excavations shall be carried out in the manner recommended by the Workers' Compensation Board of British Columbia, or as may be necessary to protect life, property, and structures adjacent to the work and the work itself.

3.5. Trench Backfill

Trench backfill shall be carried out as shown in the standard drawings of this Schedule for various conditions.

3.6. Pipe Bedding

1. Granular material for pipe bedding within the pipe zone shall be sand or clean gravel or crushed rock, evenly graded from coarse to fine, and conforming the following specifications and gradations limits:
2. The standard trench section is shown in the standard drawings of this Schedule for various conditions. The nominal minimum depth of cover shall be 1.5 m in traveled areas and 1.0 m in untraveled areas unless otherwise permitted by the Regional District. Water mains shall be located not less than 3 m centre-to-centre from all sanitary lines, unless otherwise permitted by the Regional District and the Vancouver Island Health Authority.

3. Bedding material shall conform to the following gradation limits:

Gradation Limits

(Percent by Weight Passing)

Sieve Designation	Type 1	Type 2
19.0 mm	100	90-100
12.5 mm		65-85
9.5 mm	85-100	50-75
4.750 mm	70-100	25-50
2.36 mm		10-35
1.18 mm	20-65	
0.850 mm		5-20
0.6 mm	0-45	
0.425 mm		0-15
0.18 mm		0-8
0.15 mm	0-10	
0.075 mm	0-5	0-5

4. Type 1 is the standard acceptable bedding material. Type 2 shall be used where specified by the design engineer to meet special design loading. Dry sieve analysis shall be carried out in checking material gradation.

5. Other acceptable bedding materials, for use only where shown on the construction drawings or as approved by the Engineer, are drain rock, pea gravel or native material. In rock, pipe zone shall have filter fabric between rock and bedding material. Filter fabric shall be non-woven, minimum grade Armtec 200 or equivalent.

6. The bedding material shall cover the full width of the trench bottom and have a minimum depth of 100 mm on completion of compaction. In rock excavation the minimum depth of bedding below the pipe shall be 150 mm after completion of compaction.

7. Bedding material shall be compacted in maximum 150 mm lifts to 95% of Modified Proctor Density (ASTM D1557). Side tamping shall be carried out with bedding material placed to the pipe springline, to provide haunch support.

8. Bedding material shall be placed in such a manner that the pipe is evenly supported throughout its length by the pipe bedding material.

9. Placement and compaction of the bedding material shall not damage or displace the pipe.

10. Bedding material shall be leveled across the full width of the trench to an elevation of 300 mm above the crown of the pipe.

3.7. Repairs

Any system approved and built to these standards which requires maintenance work, shall be repaired with materials and construction methods conforming to the specifications contained herein.

3.8. Pipes and Fittings

The size and type of the pipe to be used are to be shown on the design drawings.

Only the pipe types listed in this section shall be used for lateral sanitary sewers or services.

Pipe shall be installed in strict accordance with all of the manufacturer's recommended practice.

All products used shall conform to the Regional District of Nanaimo's Approved Product List.

1. <u>Polyvinyl Chloride (PVC) Pipe, Lateral Sewers</u>

(a) PVC pipe shall be DR 35.

(b) Pipe and fittings shall be manufactured to the following standards:

- 100mm to 375mm ASTM D3034 and CSA B182.2
- 450mm to 675mm ASTM F679 and CSA B182.2

(c) All PVC sanitary gravity main pipes should be green in colour.

(d) Sanitary sewer main pipe, fittings and service connections shall be joined with a rubber gasket or other preformed, factory manufactured gasket or approved material designed for use with the specified pipe. Solvent connected joints and fittings will not be permitted.

2. <u>Polyvinyl Chloride (PVC) Pipe, Service Pipes & Fittings</u>

(a) PVC pipe of 100 mm pipe diameter shall be DR 28.

(b) Services larger than 100mm shall be as specified the same as lateral sewers.

(c) All sanitary services 100mm in diameter shall be white.

(d) Service connections to be PVC mainline pipe shall be made with PVC fittings manufactured to ASTM D3034, CSA 182.1 and CSA 182.2.

(e) The use of saddles instead of manufactured wye fittings shall require approval of the RDN.

3. <u>Polyvinyl Chloride (PVC) Pipe, Pressure Pipe</u>

(a) Pipe shall be white in colour.

(b) Pipe and fittings shall be manufactured to the following standards:

- 100mm to 300mm AWWA C900 and CSA B137.3
- 350mm to 900mm AWWA C905 and CSA B137.3

(c) Pipe shall be compatible with mechanical and push-on joint fittings and valves without the use of special adapters.

(d) Pipe shall include push-on integrally thickened bell and spigot type joints conforming to ASTM D313.9 with single elastomeric gasket conforming to ASTM F477.

4. <u>High Density Polyethylene (HDPE) Pipe (Smooth Profile)</u>

(a) Pipe shall conform to CGSB 41-GP-25M. Pipe material shall conform to ASTM D1248 Type III, Class C, Category 5, Grade PE 35-10

(b) Minimum Acceptable pipe class shall be DR 26 with a hydrostatic design stress of 10MPa.

(c) HDPE pipe used for pressurised applications shall be a minimum pipe class of DR21.

(d) All pipe shall bear the pipe series designation and manufacturers name.

(e) Fittings for HDPE, if required, shall be detailed and manufactured by the pipe manufacturer. Mitre bends shall be fibreglass reinforced. Fittings shall have a pressure rating at least equal to that of the pipe it is being joined.

(f) Pipe may be deflected up to the manufacturer's recommended minimum radius. Deflected pipe may be used instead of manufactured or mitred bends.

(g) Joints shall be by thermal butt-fusion and constructed in accordance with the manufacturers specifications.

(h) Flange joints shall be used to join long sections of butt joined pipe or as shown on the design drawings.

(i) Flanges for HDPE pipe shall be slip-on type installed in conjunction with stub ends supplied by the pipe manufacturer. The flanges shall be class 150 meeting ANSI B16.5 drilling dimensions. Flanges shall be carbon steel.

(j) All flanged joints shall be separated by a neoprene gasket bonded to one of the flange faces. Neoprene for flange gaskets shall be 3mm thick with holes drilled fro flange bolts and size equal to flange diameter.

(k) Bolts and nuts for flanges shall be hot dipped galvanized.

(l) HDPE pipe shall only be used where approved by the RDN.

5. <u>Concrete Pipes</u>

(a) Concrete pipe should only be used for sewer mains larger than 450mm in diameter.

(b) Concrete pipe should be reinforced, ASTM C 76 Specification.

(c) Lifting holes in concrete pipe shall be plugged with prefabricated plugs in non-shrink grout or other plugs recommended by the pipe manufacturer.

(d) Concrete pipes shall have every joint grouted.

(e) Testing for concrete pipes shall be carried out hydraulically. Air testing will not be permitted.

6. <u>Ductile Iron Pipes (DI)</u>

(a) Ductile iron pipe may be used with the specific approval of the Regional District.

(b) Soil corrosion survey will be required, and suitable corrosion protection measures installed.

(c) Testing for ductile iron pipes shall be carried out hydraulically. Air testing will not be permitted.

3.9. Manholes

1. Manhole Sections

(a) Unless otherwise approved, all manhole sections shall be precast reinforced concrete in accordance with ASTM C478.

(b) All precast sections shall be complete with ladder rungs as the manhole steps section listed below.

(c) O-ring rubber gaskets shall be placed between Manhole sections. The O-ring rubber gaskets shall conform to ASTM C443.

(d) The inside surface of the precast barrel at the O-ring joints shall be filled with cement grout to a smooth finish.

(e) Precast manhole barrel sections shall be placed plumb.

2. Manhole Bases

(a) All manhole bases are to be precast unless otherwise approved.

(b) Manholes bases shall be constructed so that the first section of a precast base can be set plumb with a uniform bearing pressure throughout its circumference.

(c) Precast manhole bases shall be placed on 150mm thick base of 40mm drain rock.

(d) Precast manholes and Cast-in-place manhole bases shall conform to the applicable standard drawings.

(e) Cast in place manholes or connections to existing manholes shall utilize a rubber adaptor ring to seal the connection.

(f) If the material at the bottom of the trench is unsuitable for support, the bottom shall be over excavated to a firm base, and backfilled with base gravel and thoroughly compacted.

3. Manhole Tops

Manhole tops shall be flat slab, precast concrete. Tops shall be reinforced to meet H20 loading conditions. Precast tops shall conform to ASTM C478 with approved offset opening for frame and cover.

4. Manhole Covers and Frames

(a) Covers and frames shall be cast iron and certified to meet H20 loading requirements.

(b) Covers and frames shall conform to the standard drawings.

(c) Covers shall have "RDN SANITARY SEWER" permanently embossed on the cover.

(d) Utility chamber manhole frame and cover shall conform to the standard drawings.

(e) A watertight manhole frame and cover, if required shall conform to the standard drawings.

(f) Covers located in statutory rights-of-way shall be permanently embossed with the additional wording "DO NOT COVER".

(g) Frames shall be set on precast concrete grade rings to bring the cast iron manhole frame to grade as shown on the drawings.

(h) In unpaved areas, covers shall have a 1m circular 50mm thick asphalt apron sloping away from the manhole cover at a minimum grade of 2%.

(i) In paved areas covers shall not protrude above the finished pavement.

(j) In streets manhole covers shall not be placed in the wheel paths of vehicles.

5. Manhole Steps

(a) Steps shall conform to ASTM C478 for manhole steps, they shall be 19mm either hot dipped galvanized cold rolled steel or aluminum alloy.

(b) All steps shall be complete with approved polyethylene anchor insulating sleeves and installed in 25mm to 26 mm precast drilled holes in a manhole section.

(c) Distance between manholes steps shall be maximum 400 mm, with the first manhole step being a maximum 500mm from top of the manhole. Manhole steps shall conform with the most up to date Worksafe BC's standard *G13.2(1)(b) Ladders in manholes*.

(d) Manhole steps shall be installed 75mm into the manhole section wall.

6. Manhole Platforms

(a) Manhole platforms are generally not required. Design of manholes shall consider use of appropriate safety equipment.

(b) A cage, well or ladder safety device shall be provided where the length of climb is greater than 6 metres.

(c) If platforms are necessary, ladders shall meet the following requirements:

- The ladder shall consist of multiple sections.
- Each section shall be horizontally offset from adjacent sections.
- A landing platform shall be provided within the length of climb.
- Refer to the standard drawings for additional details.

7. Concrete for Manholes

(a) The compressive strength of concrete used shall not be less than 20 MPa at 28 days.

(b) All concrete shall contain an air entrainment agent to provide 4% to 6% air content.

3.10. Service Boxes

Service boxes for sanitary services shall be 305 mm x 508 mm Concrete boxes complete with cast iron lid. The lettering shall read "SEWER".

Service boxes shall not be installed, they shall be supplied to the Regional District of Nanaimo's works yard.

3.11. Service Connections

Service connection piping shall be as detailed elsewhere in this standard.

Each service shall have its own independent connection into the main sewer.

Service connections shall have a minimum grade of 2% unless otherwise directed by the Engineer.

Services shall be constructed in accordance with the standard drawings.

Minimum cover for services shall be 0.75m at property line.

In rock, the trench is to be excavated minimum 1m into the property.

Approved watertight caps suitably supported by sandbags to prevent leakage shall be installed on sewer services at the terminus of each service.

A 50 mm x 100 mm wood marker stake shall be placed at the end of the service connection. The stake shall be painted red with the depth to invert of service to the nearest 0.01m marked. The wood marker stake shall be a minimum 3m from the service box

4. TESTING AND INSPECTION

4.1. Written Reports

The applicant shall submit reports to the Regional District certified by a Professional Engineer of the tests and requirements specified herein.

4.2. Materials Testing

If, in the opinion of the Engineer, testing is required, the Engineer will arrange for a testing firm to carry out tests to determine whether the applicable standards and specifications have been met. Where initial testing indicates inadequacies additional testing may be required by the engineer.

The Contractor as directed by the engineer shall supply specimens or samples for testing.

The types of tests listed below may be required by the engineer unless in the opinion of the Engineer other testing is required.

Joints for sanitary sewer main pipe and fittings and service connection pipe fittings shall be capable of meeting the following exfiltration tests. The Engineer may require that

these tests be carried out by the contractor or his supplier prior to the acceptance of pipe on the project.

(a) Pipes in Proper Alignment:

Not fewer than 3, or more than 5, pipes selected from stock by the Engineer shall be assembled according to standard installation instructions issued by the manufacturer. With ends bulkheaded and restrained against internal pressure, the section shall be subjected to 70 kPa hydrostatic pressure. Pressure shall be maintained for a period of 24 hours. There shall be no leakage at the joints.

(b) Pipes in Maximum Deflected Position:

At least 2 of the joints of the assembly shall be deflected to the maximum amount recommended by the manufacturer. 35 kPa internal hydrostatic pressure shall then be applied to the test section and maintained for a period of 24 hours. Joints shall show no leakage.

(c) Pipes in Maximum Lateral Misalignment:

The test section shall be supported on blocks or otherwise so that one of the pipes is suspended freely between adjacent pipes and bears only on the jointing material. The suspended pipe shall then be loaded on the bell or coupling by a load equal to one-third of the ultimate 3-edge bearing strength required by the applicable ASTM specification, except that pipe having a laying length of more than 1.2 m shall be loaded no more than the amount computed for a 1.2 m length. While under this load, stressed joints shall show no leakage under 35 kPa internal hydrostatic pressure.

4.3. Leakage Testing of Gravity Sewers & Manholes

Leakage test shall be performed by the contractor on all sanitary sewers and service connections, manholes and appurtenances

1. <u>Type of Test</u>:

(a) Leakage testing on gravity sewers shall be tested with low pressure compressed air.

(b) Leakage tests on concrete, ductile iron and HDPE gravity sewers shall be ex-filtration water tests.

(c) Leakage tests on manholes shall be ex-filtration water tests

(d) Testing shall only be carried out after the pipe has been backfilled, and only on completed sections between manholes.

(e) All test results to be witnessed by the Engineer or the Engineer's Representative.

2. <u>Testing Equipment:</u>

The Contractor shall furnish all the necessary testing equipment, including suitable removable watertight plugs and test balls and shall perform the tests in

a manner satisfactory to the Engineer. Testing equipment must provide readily observable and reasonable accurate measurements of leakage under the specified conditions. The Contractor must comply with all Worksafe BC regulations covering the use of air testing, and ensure that safe working practices are used in the application of the test.

3. Leakage Testing with Water:

Ex-filtration Testing:

On an exfiltration test, the test section shall be sealed at the lower extremity by means of a watertight plug. The test section shall be filled with water such that a minimum hydrostatic head of 600 mm minimum head shall be maintained for a period of not less than one hour, and unless excess exfiltration requires further testing, not greater than 8 hours. Pressures in excess of 3 metres water are not recommended. Damage resulting to pipe as a result of testing shall be repaired by the Contractor at his own expense.

Manholes shall be tested for leakage by filling the chamber to the underside of the roof slab with water. Water level shall be rechecked following a minimum time period of four hours. No leakage shall be permitted in manholes.

In areas where the groundwater table is above the sewer invert level, the test shall be increased by a height equal to the distance from the sewer invert level to the water table elevations.

Ex-filtration test sections shall normally have a manhole at both extremities. If, however, sewer grades are such that a test section cannot be terminated at a manhole without placing excess pressure on the pipe or joints, apparatus shall be provided to enable testing without having manholes at the upper and lower ends of a test section.

Gravity sewers, service connections appurtenant structures thereon shall be constructed such that leakage, as evidenced by exfiltration tests, is less than that calculated using the following formula:

$$\text{Allowable leakage in litres} = \frac{HDL}{5200}$$

Where: H = duration of test in hours,

D = inside diameter of the pipe in millimetres, and

L = length of pipe in the test section in metres

The above leakage limit will constitute the total maximum allowable leakage of any test section of gravity sewer. Where service connections exist along the test section, the allowable leakage from service pipe calculated by the use of the above formula will be added to that of the main sewer to arrive at the total allowable leakage unless the elevation of the service connection pipe is greater than the maximum water elevation. No additional leakage allowance will be made for manholes existing along the test section.

The maximum allowable leakage for an ex-filtration test will be that calculated by the above formula regardless of the test head of water employed. Where a section of sewer is found to have leakage exceeding the allowable limit, replacement or repairs shall be made to reduce the amount of leakage to or below the allowable limit. Repaired sections shall be retested until they meet the allowable limit.

All point sources of leakage discovered during the leakage testing shall be made watertight by the Contractor to the satisfaction of the Engineer.

The Contractor shall dispose of the water used for testing in a manner approved by the Engineer.

4. <u>Leakage Testing With Air:</u>

On an air test, the section to be tested shall be plugged at each end and all service laterals, stubs and fittings properly capped or plugged.

Air shall be supplied to the test section slowly, filling the line to a constant pressure of 24.0 kilopascals (kPa). The air pressure inside the pipe shall not exceed 27.5 kPa except in the case where the groundwater level is above the sewer line being tested. In the event of the groundwater level being above the invert, the air test pressure must be increased by 1.0 kPa for each 100 mm of groundwater above the invert.

The air supply is throttled to maintain the internal pressure above 20.75 kPa for a minimum of 5 minutes to stabilize the temperature in the pipe. After stabilization, the air pressure is adjusted to 24.0 kPa, timing commences and the time required for the line pressure to drop to 17.25 kPa is noted.

If the time required to drop from 20.75 to 17.25 kPa is greater than allowable, the test section shall have passed.

For the air test the minimum time allowable is calculated from the following tables:

Time Requirements for Air Testing

PIPE SIZE	TIME	
(Millimetres)	Min.	Sec.
100	02	32
150	03	50
200	05	06
250	06	22
300	07	39

PIPE SIZE	TIME

(Millimetres)	Min.	Sec.
375	09	35
450	11	34
525	13	30
600	15	24

Where various pipe sizes are to undergo the air test, the average size shall be used.

5. <u>Testing of Forcemains</u>

Following final trench backfilling, leakage tests shall be performed on all installed piping.

Leakage tests shall be carried out between valved sections of the installation such that every valve in the system is tested for leakage in the shut-off position.

Leakage tests shall be performed in the following manner. The section to be tested shall be filled with water and all air expelled from the piping. It is recommended that the test section be filled with water for at least 24 hours prior to testing. By pumping water into the test section, the pressure within the piping shall be increased to 0.7 MPa, or 1-1/2 times the system operating pressure at the point of test, whichever is the greater. This pressure shall be maintained constantly in the pipe throughout the duration of the test by the addition of make-up water. The duration of the test section to maintain the specified pressure over the period of test shall be considered to be the leakage.

Piping will not be accepted until the leakage is less than the maximum allowable leakage determined from the following formula:

L = ND x the square root of P in which:

L = the allowable leakage in litres per hour,

N = the number of joints in the test section,

D = the nominal diameter of the pipe in millimetre,

P = the average test pressure during the leakage test in megapascals.

Should any test disclose leakage greater than that specified above, the defect shall be located and repaired, and the section shall be retested to ensure that the leakage is within the allowable limits.

4.4. Cleaning and Flushing

On completion of sewer pipe installation, the pipes shall be cleaned to the satisfaction of the Engineer and the Regional District of Nanaimo.

Sewer lines shall be cleaned and flushed prior to video inspection.

Material displaced from flushing sewer lines shall be collected with a vacuum truck at a downstream manhole. Under no circumstances shall the material be flushed into the downstream system.

4.5. Video Inspection of Sewer Mains

All gravity sewers except services shall be video inspected to check alignment, grade, and condition of the sewer pipe.

1. Video inspections shall be of the following quality:

(a) Camera lens shall be free of grease or other deleterious matter to ensure optimal clarity.

(b) Videos shall be free of steaming and fogging encountered during the inspection.

(c) The camera shall pan to the service connections and pause for at least five seconds.

(d) Illumination depth of field shall be no less than 3 joints for standard joint and spigot pipe types to allow for pipe deflection assessments (9m). No dark circle shall be visible in the middle of this depth of field viewing area.

2. The inspections submission shall include:

(a) A pipe condition report including code descriptions used for describing the condition of the pipe.

(b) Video shall be submitted on a 4.7GB DVD.

The Engineer shall review all videos and certify that the pipe is installed in accordance with these standards and in accordance with the manufactures recommendations.

If directed by the Engineer, the contractor shall arrange for a re-inspection of the pipe at the contractors cost, for the warranty inspection one month prior to the end of the maintenance period.

Video inspection and pipe condition coding shall be undertaken only by personnel with current certification by a Regional District approved agency.

If video inspection does not meet the standards set out here, the contractor shall re-video and re-submit the video at their own cost.

4.6. Inspection

1. The Regional District of Nanaimo shall be given 48 hours notice of all tests.

5. TRANSFERRING THE SEWER SYSTEM TO THE RDN

5.1 Final Inspection by RDN

Prior to requesting a Final Inspection, the registered B.C. Professional Civil Engineer shall submit to the Regional District complete Record Documents, a completed letter Certification of Installed Works, all applicable inspection and test results (video inspection DVD's, leakage testing, etc.), and Certificate of Approval for electrical works (pump stations, wells, lighting, controls, etc.) The Final Inspection shall be arranged by the Professional Engineer on completion of the work. This shall be directed by the Professional Engineer in the presence of approved representatives of the Regional District and the installation Contractor. A complete list of deficiencies identified during the final inspection shall be prepared by the Professional Engineer. Once the deficiencies have been satisfactorily rectified, the Professional Engineer shall so notify the Regional District. The date of the Final Inspection will generally be regarded as the commencement of the guarantee period, unless significant deficiencies critical to the effective operation of the system are found at the inspection, at the discretion of the Regional District.

5.2 Preparation/Execution of Transfer Agreement by Developer

The Developer shall prepare and execute the Transfer Agreement for the works to the Regional District.

5.3 Preparation/Execution of Maintenance Agreement

The Developer shall guarantee the workmanship and the performance of the work as per the Maintenance Agreement, from the date of acceptance (generally the RDN final inspection date) for a period of two years. This shall be additionally secured by way of cash or an irrevocable letter of credit in the amount of 5% of the cost of construction as certified by a B.C. Professional Civil Engineer, or $10,000.00 (whichever is greater).

The RDN may reduce the length of the guarantee period and/or the amount of the security. The RDN may also require additional payment, or payout a credit as appropriate, related to an adjustment of the initial engineering fee to final construction cost values, in accordance with RDN Bylaw No. 1259.03 or most recent amendment. Any change to the guarantee period, security amount or the engineering fee is required to be in writing.

5.4 Preparation/Execution of Latecomer Agreement

Where a latecomer agreement may be applicable to a portion of the costs of the works, as agreed by the Regional District and any other applicable jurisdictions, the Developer shall pay all costs of both the Regional District and the Developer associated with the preparation, execution, and registration of the necessary Latecomer Agreement. The Regional District will assume any internal staff costs involved in planning, reviewing, approving, and administering the Latecomer Agreement preparation, and any administrative and financial costs involved during the effective time-period of the agreement. Based on current legislation, a Latecomer Agreement expires 10-years after its initial registration.

5.5 Letter of Acceptance of the Works by RDN

Following completion of all the foregoing requirements, the Regional District will issue the formal Letter of Acceptance of the Works.

The Regional District will also issue a written statement that the new works can be connected to the District's existing system. Such connection shall be undertaken by the applicant under the direct supervision of the District or by the District at a cost to the applicant.

REGIONAL DISTRICT OF NANAIMO

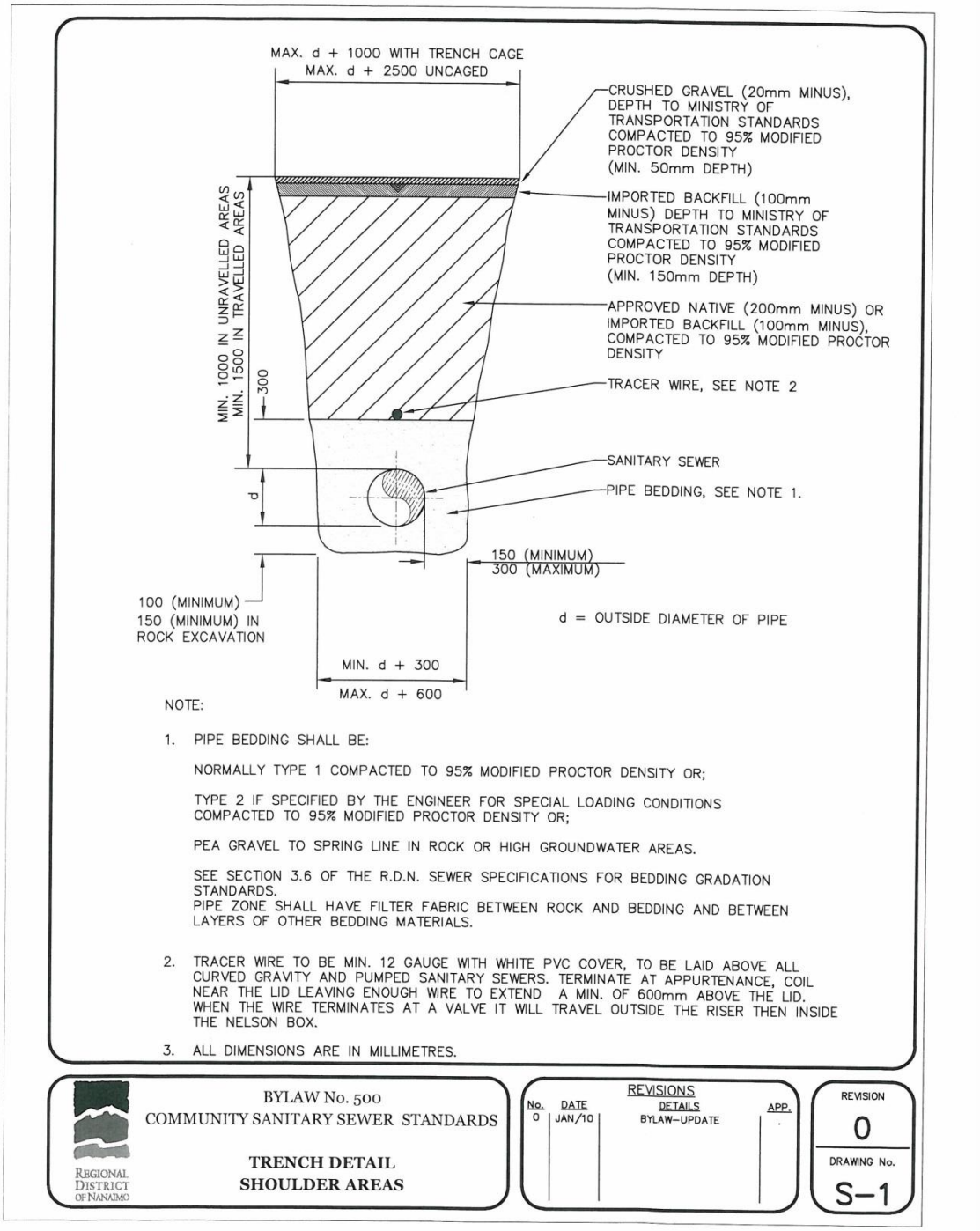
BYLAW NO. 500

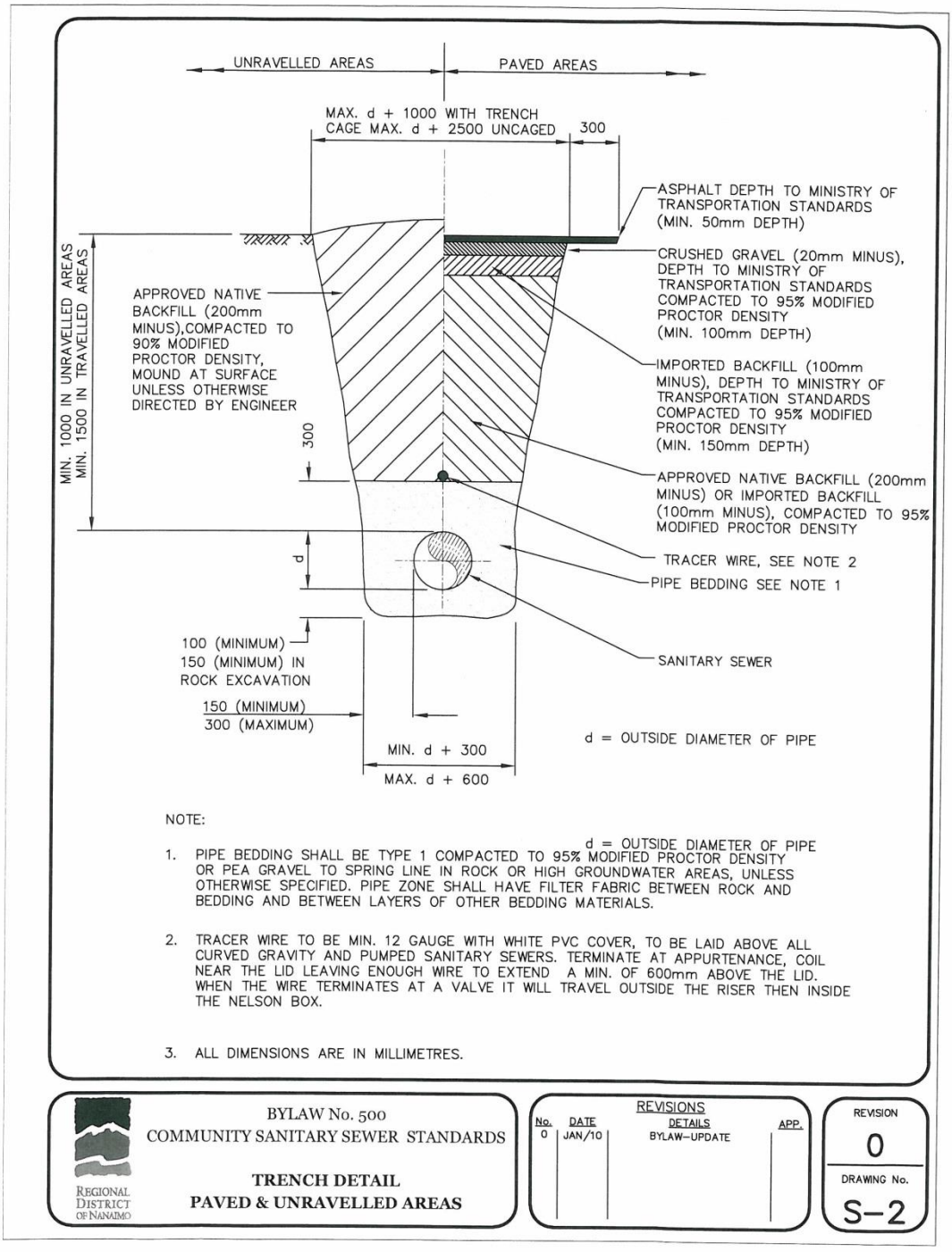
LAKES DISTRICT AND SCHOONER COVE

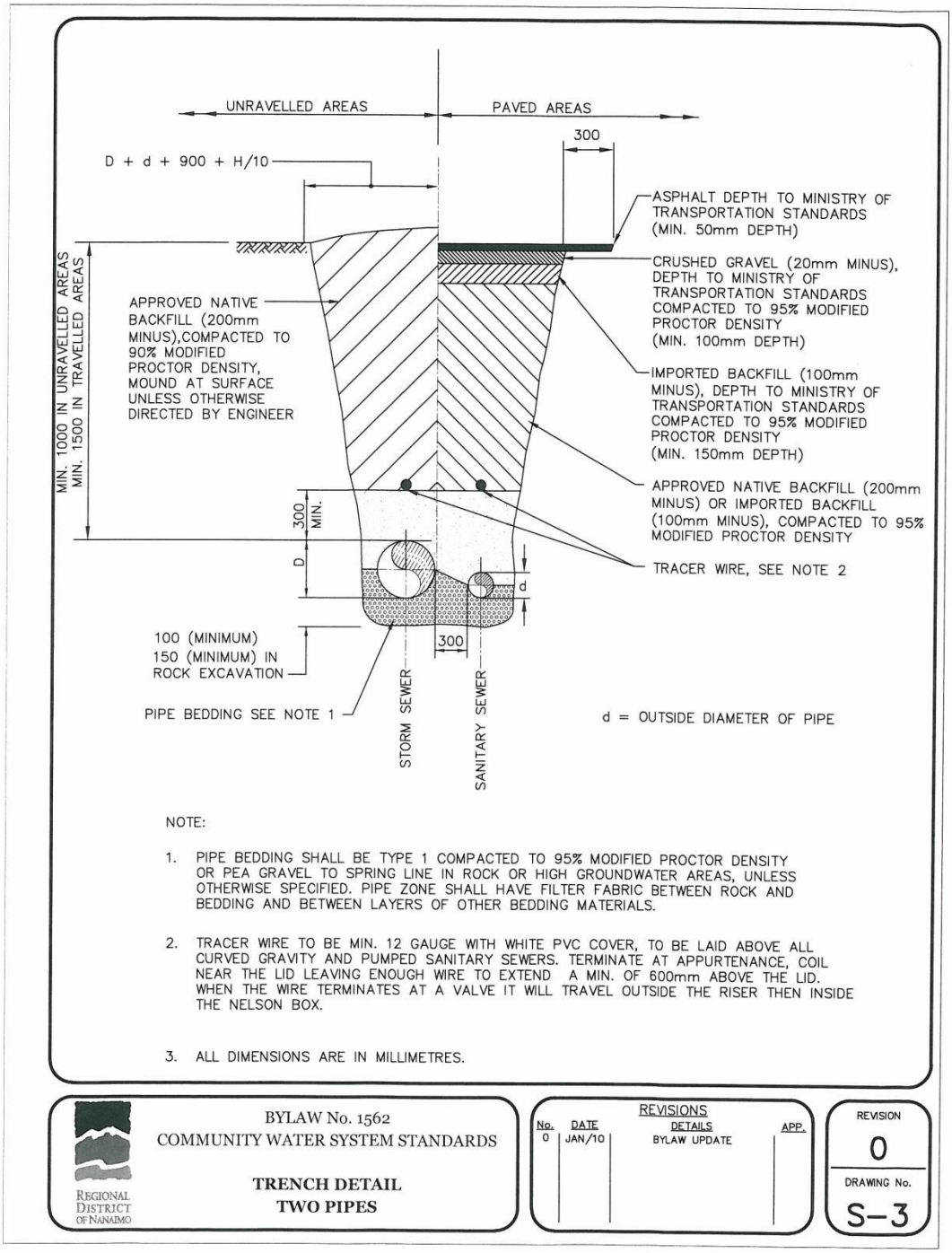
COMMUNITY SEWER SYSTEM STANDARDS

APPENDIX 1

STANDARD DRAWINGS


MAX. d + 1000 WITH TRENCH CAGE
MAX. d + 2500 UNCAGED
CRUSHED GRAVEL (20mm MINUS), DEPTH TO MINISTRY OF TRANSPORTATION STANDARDS COMPACTED TO 95% MODIFIED PROCTOR DENSITY (MIN. 50mm DEPTH)
IMPORTED BACKFILL (100mm MINUS) DEPTH TO MINISTRY OF TRANSPORTATION STANDARDS COMPACTED TO 95% MODIFIED PROCTOR DENSITY (MIN. 150mm DEPTH)
APPROVED NATIVE (200mm MINUS) OR IMPORTED BACKFILL (100mm MINUS), COMPACTED TO 95% MODIFIED PROCTOR DENSITY
TRACER WIRE, SEE NOTE 2
SANITARY SEWER
PIPE BEDDING, SEE NOTE 1.
MIN. 1000 IN UNRAVELLED AREAS
MIN. 1500 IN TRAVELLED AREAS
300
d
150 (MINIMUM)
300 (MAXIMUM)
100 (MINIMUM)
150 (MINIMUM) IN ROCK EXCAVATION
d = OUTSIDE DIAMETER OF PIPE
MIN. d + 300
MAX. d + 600
NOTE:
1. PIPE BEDDING SHALL BE:
NORMALLY TYPE 1 COMPACTED TO 95% MODIFIED PROCTOR DENSITY OR;
TYPE 2 IF SPECIFIED BY THE ENGINEER FOR SPECIAL LOADING CONDITIONS COMPACTED TO 95% MODIFIED PROCTOR DENSITY OR;
PEA GRAVEL TO SPRING LINE IN ROCK OR HIGH GROUNDWATER AREAS.
SEE SECTION 3.6 OF THE R.D.N. SEWER SPECIFICATIONS FOR BEDDING GRADATION STANDARDS.
PIPE ZONE SHALL HAVE FILTER FABRIC BETWEEN ROCK AND BEDDING AND BETWEEN LAYERS OF OTHER BEDDING MATERIALS.
2. TRACER WIRE TO BE MIN. 12 GAUGE WITH WHITE PVC COVER, TO BE LAID ABOVE ALL CURVED GRAVITY AND PUMPED SANITARY SEWERS. TERMINATE AT APPURTENANCE, COIL NEAR THE LID LEAVING ENOUGH WIRE TO EXTEND A MIN. OF 600mm ABOVE THE LID. WHEN THE WIRE TERMINATES AT A VALVE IT WILL TRAVEL OUTSIDE THE RISER THEN INSIDE THE NELSON BOX.
3. ALL DIMENSIONS ARE IN MILLIMETRES.
REGIONAL DISTRICT OF NANAIMO
BYLAW No. 500
COMMUNITY SANITARY SEWER STANDARDS
TRENCH DETAIL
SHOULDER AREAS
REVISIONS
No. 0
DATE JAN/10
DETAILS BYLAW–UPDATE
APP.
REVISION 0
DRAWING No. S–1


UNRAVELLED AREAS
PAVED AREAS
MAX. d + 1000 WITH TRENCH CAGE MAX. d + 2500 UNCAGED
300
ASPHALT DEPTH TO MINISTRY OF TRANSPORTATION STANDARDS (MIN. 50mm DEPTH)
CRUSHED GRAVEL (20mm MINUS), DEPTH TO MINISTRY OF TRANSPORTATION STANDARDS COMPACTED TO 95% MODIFIED PROCTOR DENSITY (MIN. 100mm DEPTH)
IMPORTED BACKFILL (100mm MINUS), DEPTH TO MINISTRY OF TRANSPORTATION STANDARDS COMPACTED TO 95% MODIFIED PROCTOR DENSITY (MIN. 150mm DEPTH)
APPROVED NATIVE BACKFILL (200mm MINUS) OR IMPORTED BACKFILL (100mm MINUS), COMPACTED TO 95% MODIFIED PROCTOR DENSITY
TRACER WIRE, SEE NOTE 2
PIPE BEDDING SEE NOTE 1
SANITARY SEWER
APPROVED NATIVE BACKFILL (200mm MINUS),COMPACTED TO 90% MODIFIED PROCTOR DENSITY, MOUND AT SURFACE UNLESS OTHERWISE DIRECTED BY ENGINEER
MIN. 1000 IN UNRAVELLED AREAS
MIN. 1500 IN TRAVELLED AREAS
300
d
100 (MINIMUM)
150 (MINIMUM) IN ROCK EXCAVATION
150 (MINIMUM)
300 (MAXIMUM)
MIN. d + 300
MAX. d + 600
d = OUTSIDE DIAMETER OF PIPE
NOTE:
d = OUTSIDE DIAMETER OF PIPE
1. PIPE BEDDING SHALL BE TYPE 1 COMPACTED TO 95% MODIFIED PROCTOR DENSITY OR PEA GRAVEL TO SPRING LINE IN ROCK OR HIGH GROUNDWATER AREAS, UNLESS OTHERWISE SPECIFIED. PIPE ZONE SHALL HAVE FILTER FABRIC BETWEEN ROCK AND BEDDING AND BETWEEN LAYERS OF OTHER BEDDING MATERIALS.
2. TRACER WIRE TO BE MIN. 12 GAUGE WITH WHITE PVC COVER, TO BE LAID ABOVE ALL CURVED GRAVITY AND PUMPED SANITARY SEWERS. TERMINATE AT APPURTENANCE, COIL NEAR THE LID LEAVING ENOUGH WIRE TO EXTEND A MIN. OF 600mm ABOVE THE LID. WHEN THE WIRE TERMINATES AT A VALVE IT WILL TRAVEL OUTSIDE THE RISER THEN INSIDE THE NELSON BOX.
3. ALL DIMENSIONS ARE IN MILLIMETRES.
REGIONAL DISTRICT OF NANAIMO
BYLAW No. 500
COMMUNITY SANITARY SEWER STANDARDS
TRENCH DETAIL
PAVED & UNRAVELLED AREAS
REVISIONS
No. 0
DATE JAN/10
DETAILS BYLAW–UPDATE
APP.
REVISION 0
DRAWING No. S–2



NOTE:

1. PIPE BEDDING SHALL BE TYPE 1 COMPACTED TO 95% MODIFIED PROCTOR DENSITY OR PEA GRAVEL TO SPRING LINE IN ROCK OR HIGH GROUNDWATER AREAS, UNLESS OTHERWISE SPECIFIED. PIPE ZONE SHALL HAVE FILTER FABRIC BETWEEN ROCK AND BEDDING AND BETWEEN LAYERS OF OTHER BEDDING MATERIALS.
2. TRACER WIRE TO BE MIN. 12 GAUGE WITH WHITE PVC COVER, TO BE LAID ABOVE ALL CURVED GRAVITY AND PUMPED SANITARY SEWERS. TERMINATE AT APPURTENANCE, COIL NEAR THE LID LEAVING ENOUGH WIRE TO EXTEND A MIN. OF 600mm ABOVE THE LID. WHEN THE WIRE TERMINATES AT A VALVE IT WILL TRAVEL OUTSIDE THE RISER THEN INSIDE THE NELSON BOX.
3. ALL DIMENSIONS ARE IN MILLIMETRES.

REGIONAL DISTRICT OF NANAIMO

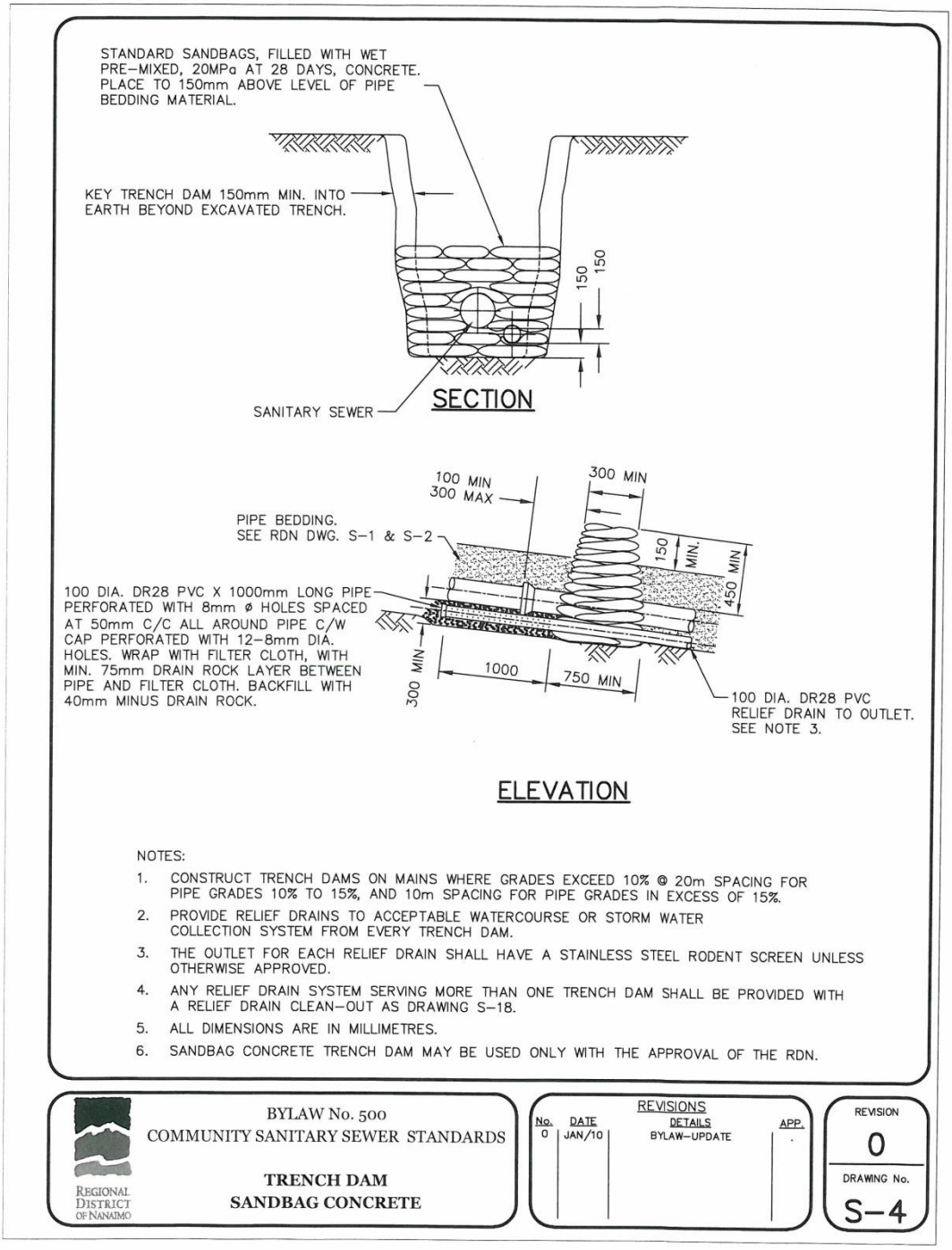
BYLAW No. 1562
COMMUNITY WATER SYSTEM STANDARDS

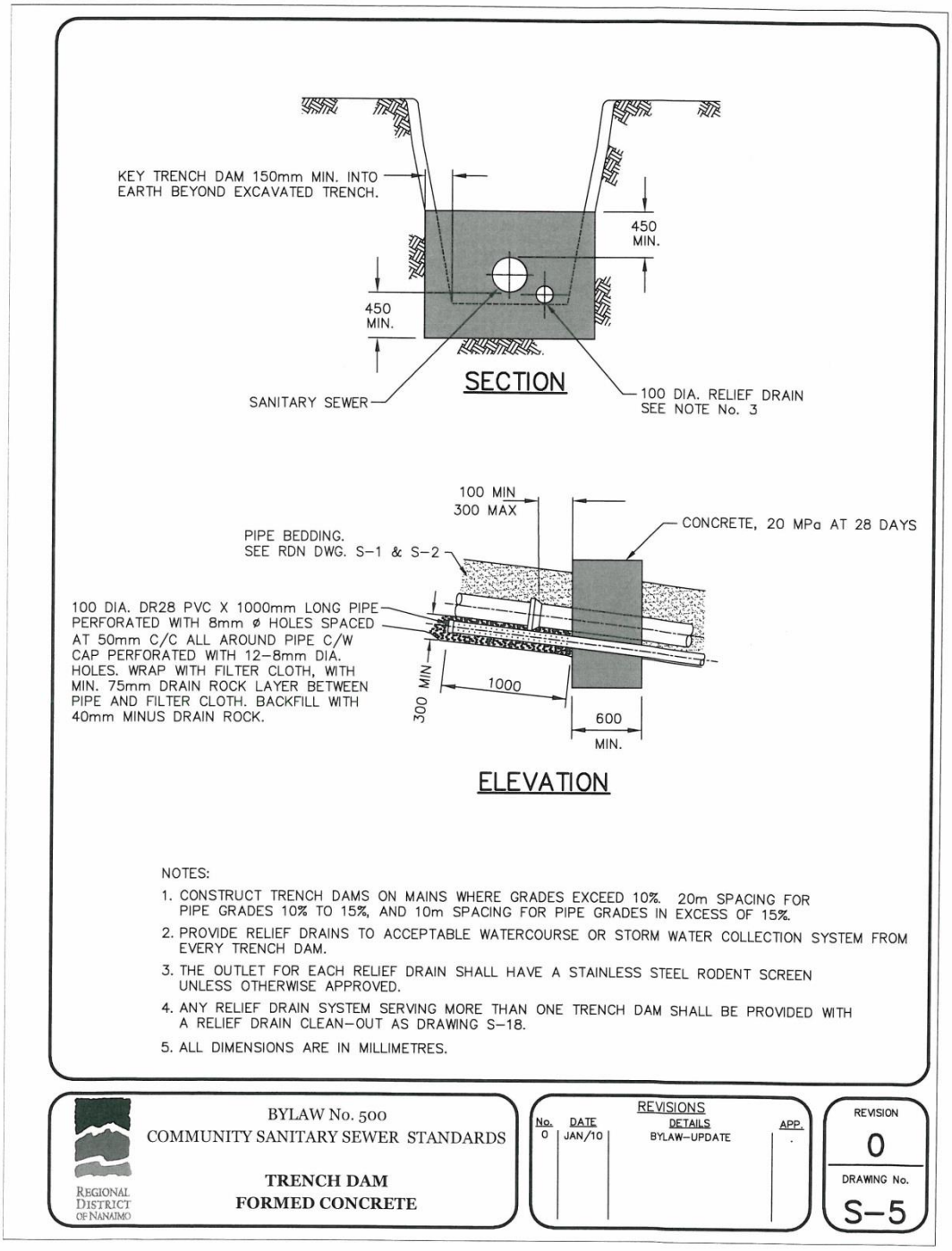
TRENCH DETAIL
TWO PIPES

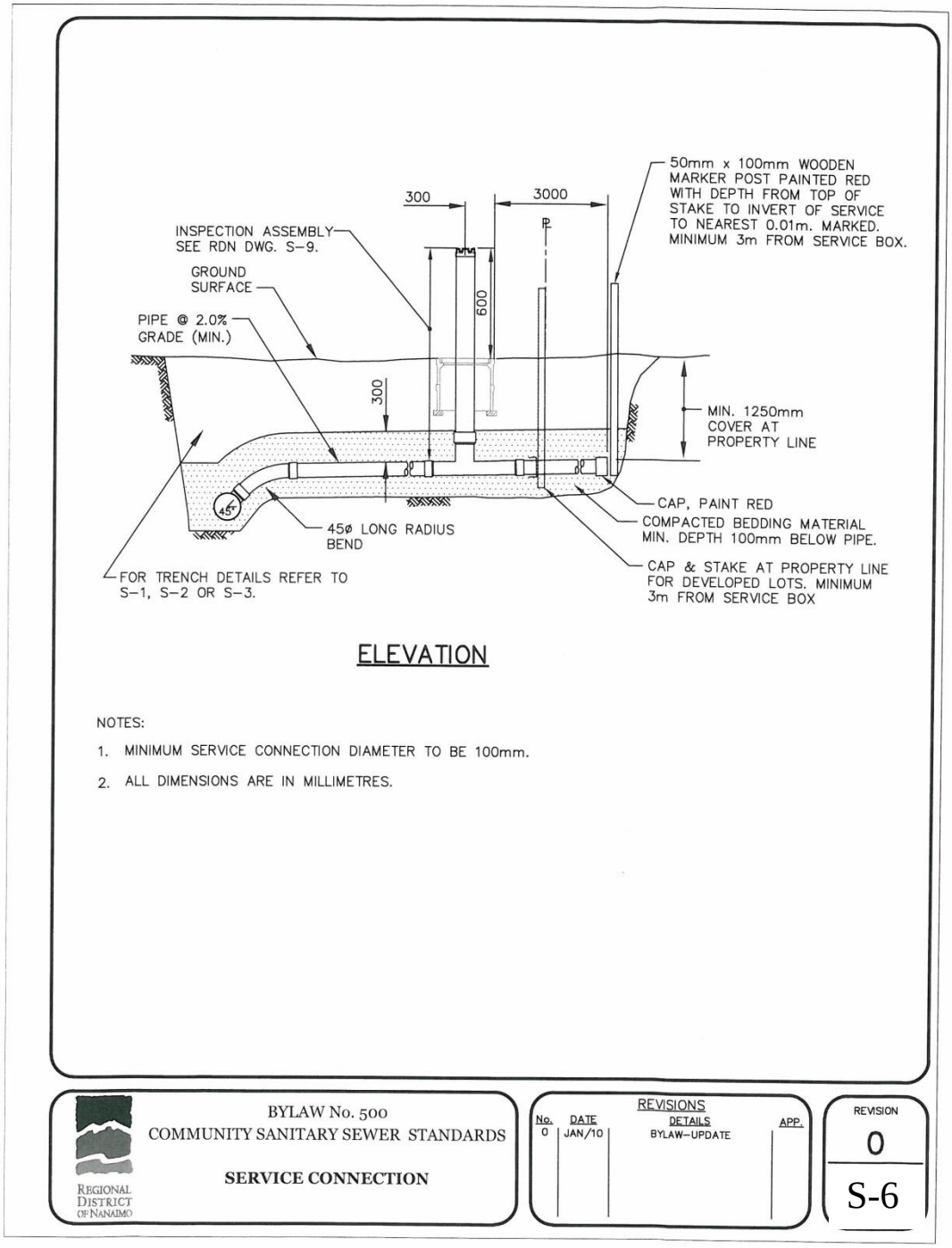
REVISIONS			
No.	DATE	DETAILS	APP.
0	JAN/10	BYLAW UPDATE	

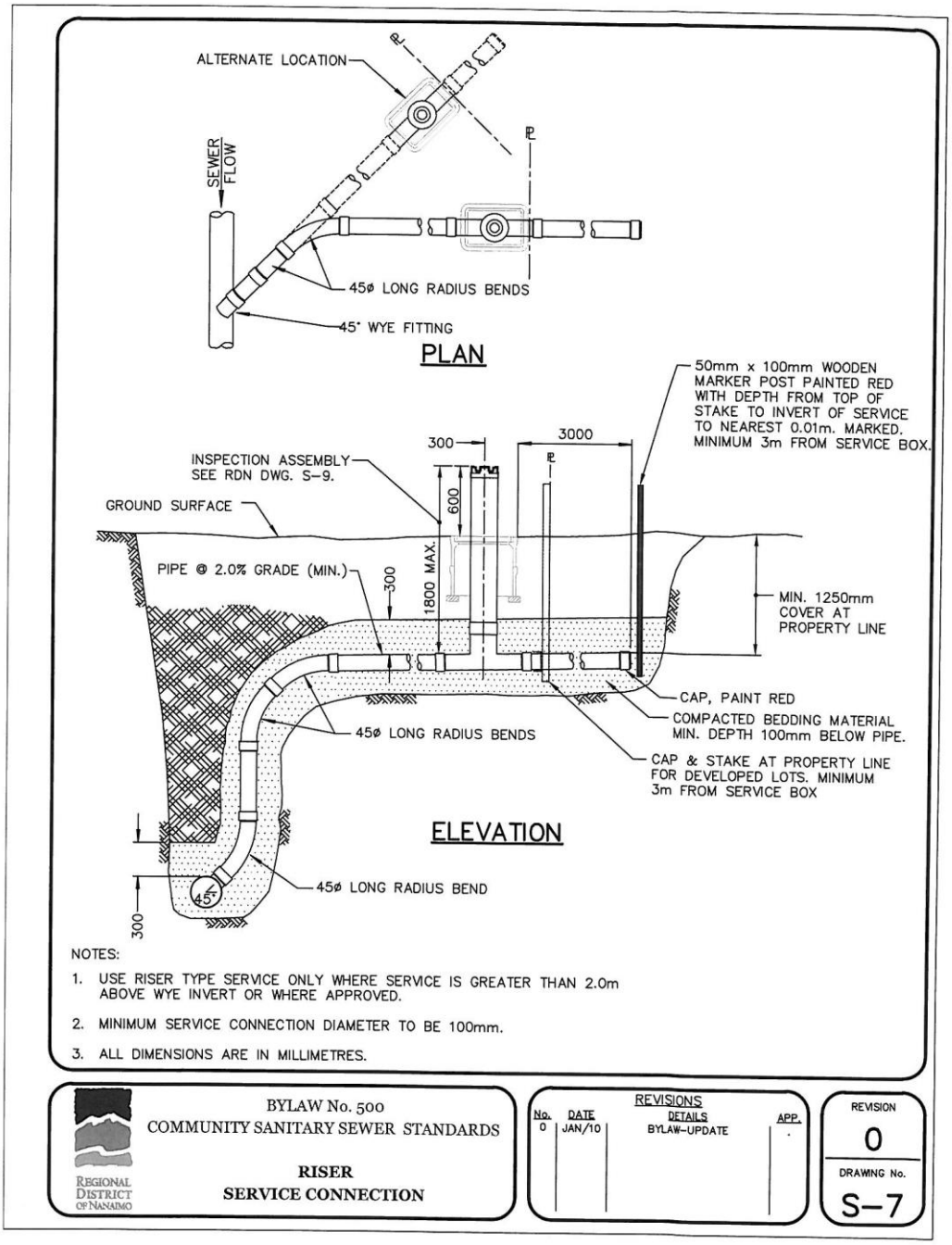
REVISION 0

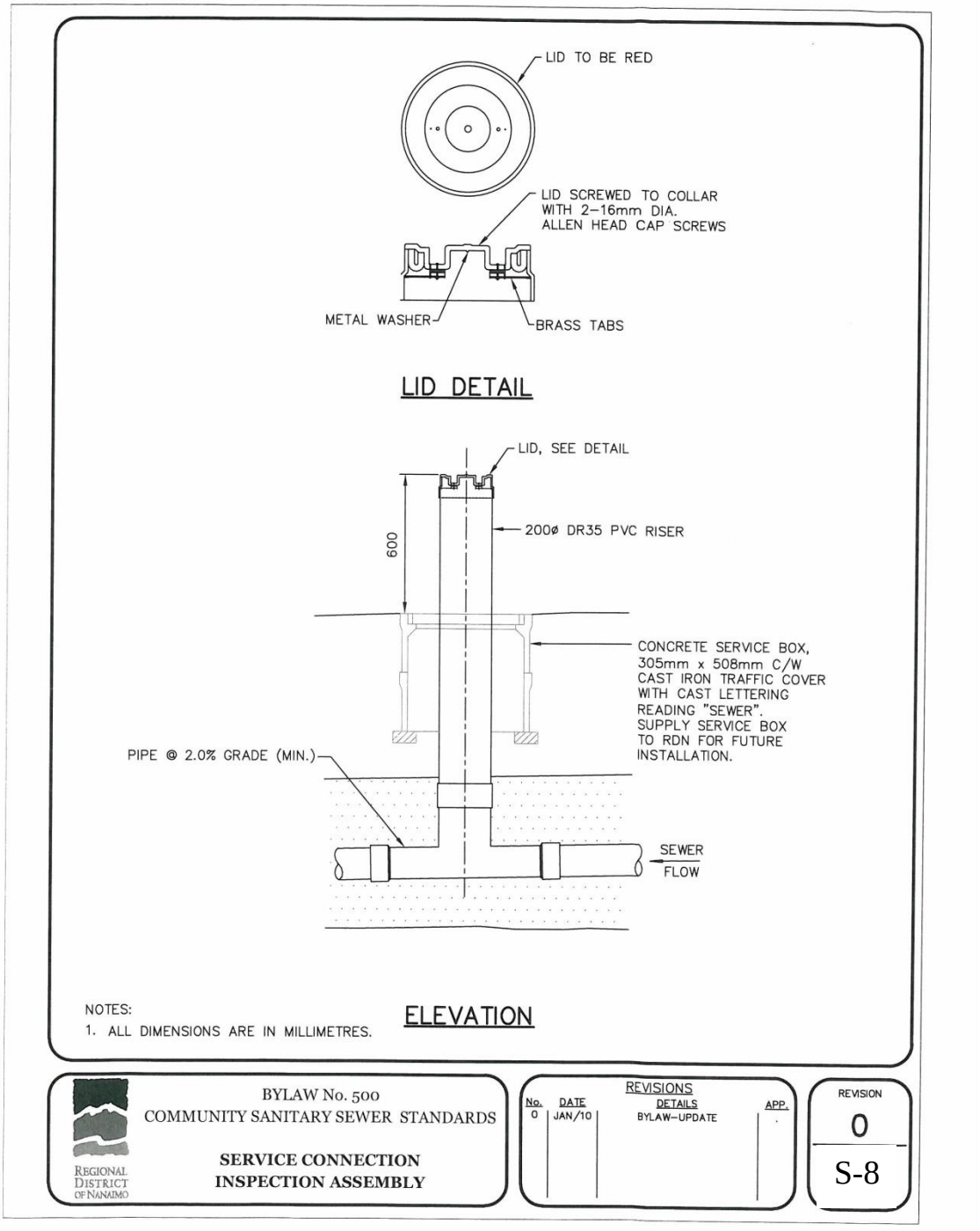
DRAWING No. S-3

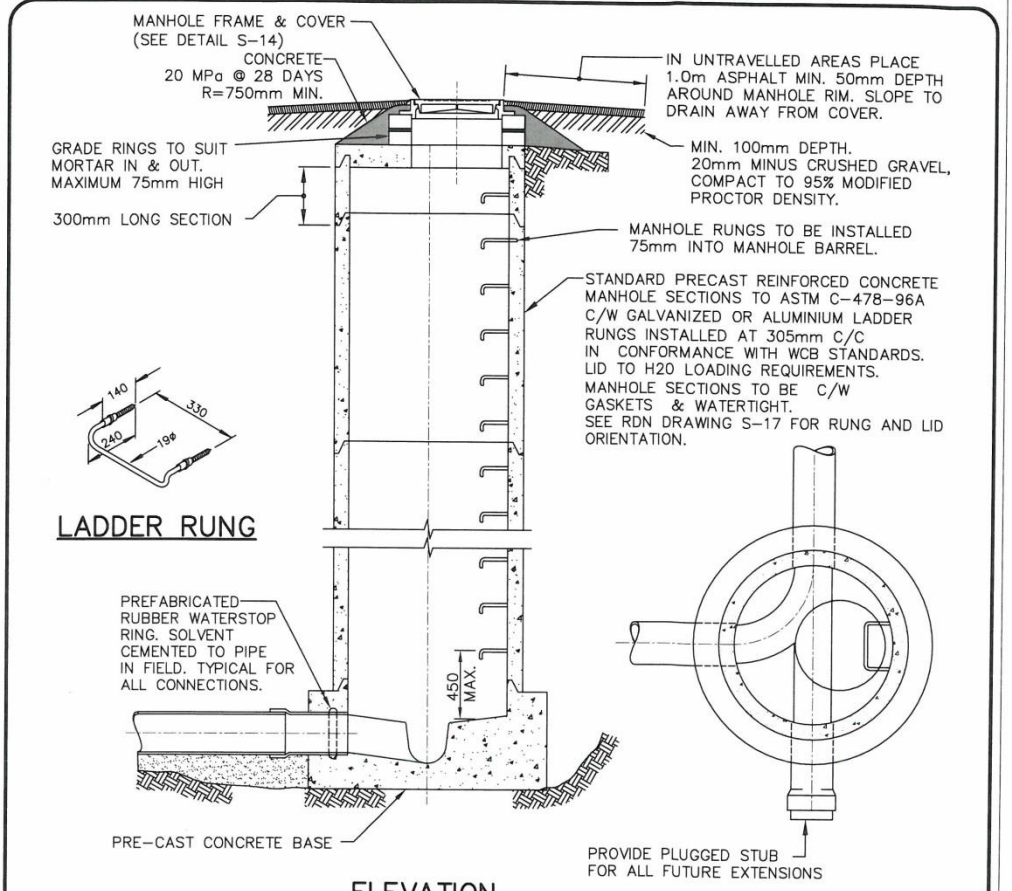

STANDARD SANDBAGS, FILLED WITH WET PRE–MIXED, 20MPa AT 28 DAYS, CONCRETE. PLACE TO 150mm ABOVE LEVEL OF PIPE BEDDING MATERIAL.
KEY TRENCH DAM 150mm MIN. INTO EARTH BEYOND EXCAVATED TRENCH.
150
150
SANITARY SEWER
SECTION
100 MIN
300 MAX
300 MIN
PIPE BEDDING. SEE RDN DWG. S–1 & S–2
150
MIN.
450 MIN
100 DIA. DR28 PVC X 1000mm LONG PIPE PERFORATED WITH 8mm ø HOLES SPACED AT 50mm C/C ALL AROUND PIPE C/W CAP PERFORATED WITH 12–8mm DIA. HOLES. WRAP WITH FILTER CLOTH, WITH MIN. 75mm DRAIN ROCK LAYER BETWEEN PIPE AND FILTER CLOTH. BACKFILL WITH 40mm MINUS DRAIN ROCK.
300 MIN
1000
750 MIN
100 DIA. DR28 PVC RELIEF DRAIN TO OUTLET. SEE NOTE 3.
ELEVATION
NOTES:
1. CONSTRUCT TRENCH DAMS ON MAINS WHERE GRADES EXCEED 10% @ 20m SPACING FOR PIPE GRADES 10% TO 15%, AND 10m SPACING FOR PIPE GRADES IN EXCESS OF 15%.
2. PROVIDE RELIEF DRAINS TO ACCEPTABLE WATERCOURSE OR STORM WATER COLLECTION SYSTEM FROM EVERY TRENCH DAM.
3. THE OUTLET FOR EACH RELIEF DRAIN SHALL HAVE A STAINLESS STEEL RODENT SCREEN UNLESS OTHERWISE APPROVED.
4. ANY RELIEF DRAIN SYSTEM SERVING MORE THAN ONE TRENCH DAM SHALL BE PROVIDED WITH A RELIEF DRAIN CLEAN–OUT AS DRAWING S–18.
5. ALL DIMENSIONS ARE IN MILLIMETRES.
6. SANDBAG CONCRETE TRENCH DAM MAY BE USED ONLY WITH THE APPROVAL OF THE RDN.
REGIONAL DISTRICT OF NANAIMO
BYLAW No. 500
COMMUNITY SANITARY SEWER STANDARDS
TRENCH DAM
SANDBAG CONCRETE
REVISIONS
No. 0
DATE JAN/10
DETAILS BYLAW–UPDATE
APP. .
REVISION 0
DRAWING No. S–4

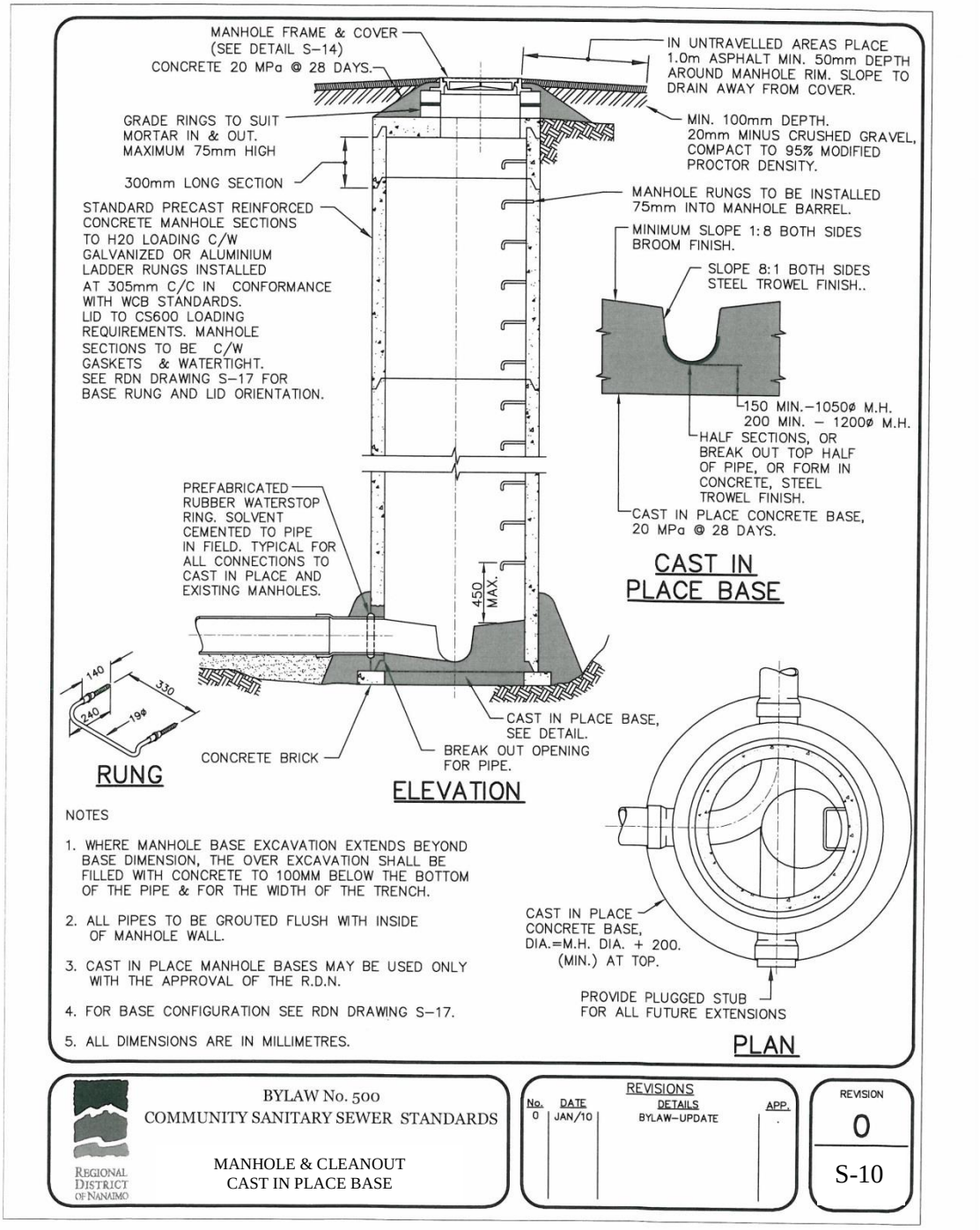

KEY TRENCH DAM 150mm MIN. INTO EARTH BEYOND EXCAVATED TRENCH.
450 MIN.
450 MIN.
SECTION
SANITARY SEWER
100 DIA. RELIEF DRAIN SEE NOTE No. 3
100 MIN 300 MAX
CONCRETE, 20 MPa AT 28 DAYS
PIPE BEDDING. SEE RDN DWG. S-1 & S-2
100 DIA. DR28 PVC X 1000mm LONG PIPE PERFORATED WITH 8mm ø HOLES SPACED AT 50mm C/C ALL AROUND PIPE C/W CAP PERFORATED WITH 12-8mm DIA. HOLES. WRAP WITH FILTER CLOTH, WITH MIN. 75mm DRAIN ROCK LAYER BETWEEN PIPE AND FILTER CLOTH. BACKFILL WITH 40mm MINUS DRAIN ROCK.
300 MIN
1000
600 MIN.
ELEVATION
NOTES:
1. CONSTRUCT TRENCH DAMS ON MAINS WHERE GRADES EXCEED 10%. 20m SPACING FOR PIPE GRADES 10% TO 15%, AND 10m SPACING FOR PIPE GRADES IN EXCESS OF 15%.
2. PROVIDE RELIEF DRAINS TO ACCEPTABLE WATERCOURSE OR STORM WATER COLLECTION SYSTEM FROM EVERY TRENCH DAM.
3. THE OUTLET FOR EACH RELIEF DRAIN SHALL HAVE A STAINLESS STEEL RODENT SCREEN UNLESS OTHERWISE APPROVED.
4. ANY RELIEF DRAIN SYSTEM SERVING MORE THAN ONE TRENCH DAM SHALL BE PROVIDED WITH A RELIEF DRAIN CLEAN-OUT AS DRAWING S-18.
5. ALL DIMENSIONS ARE IN MILLIMETRES.
REGIONAL DISTRICT OF NANAIMO
BYLAW No. 500
COMMUNITY SANITARY SEWER STANDARDS
TRENCH DAM
FORMED CONCRETE
REVISIONS
No. 0
DATE JAN/10
DETAILS BYLAW-UPDATE
APP. .
REVISION 0
DRAWING No. S-5

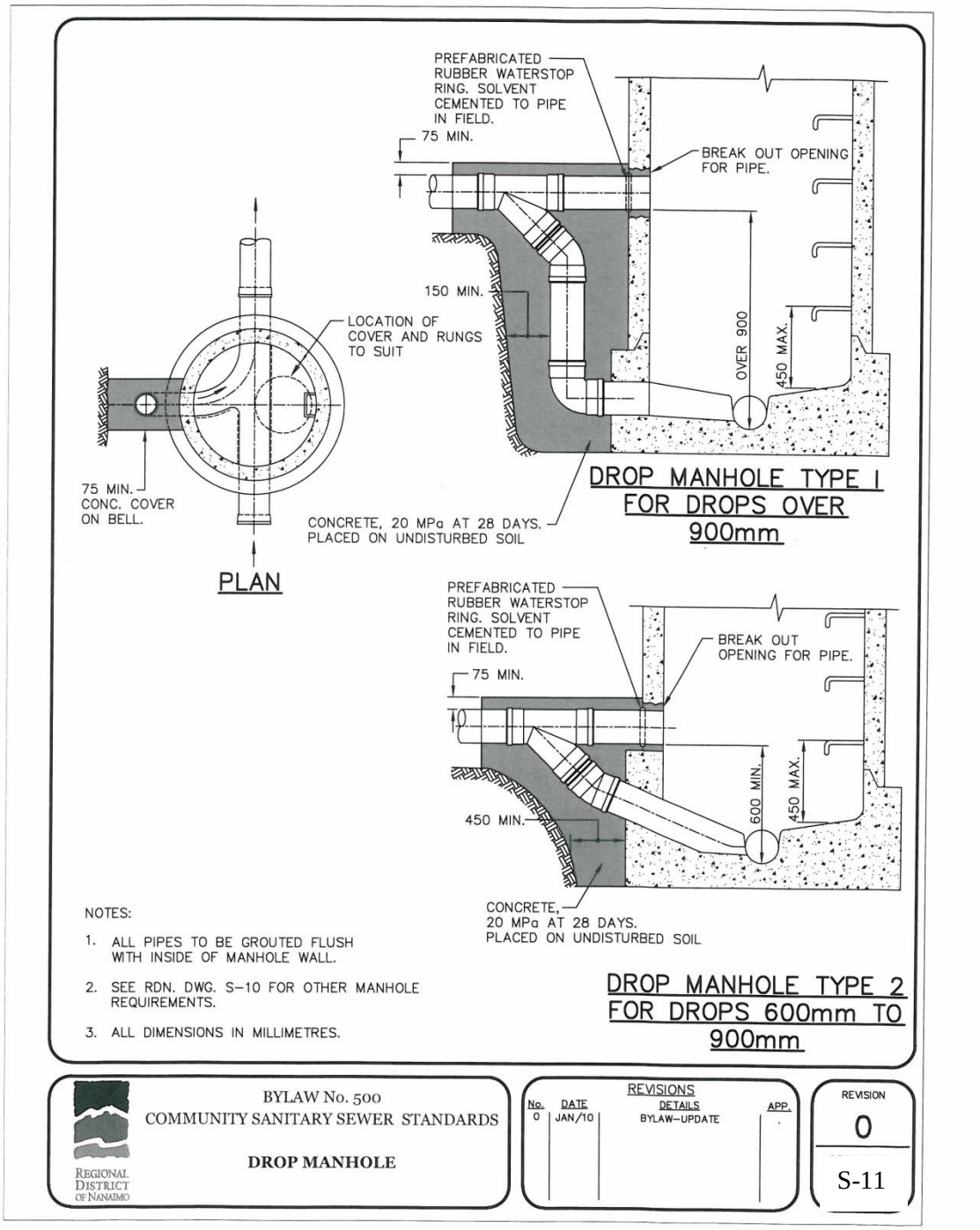

300
3000
50mm x 100mm WOODEN MARKER POST PAINTED RED WITH DEPTH FROM TOP OF STAKE TO INVERT OF SERVICE TO NEAREST 0.01m. MARKED. MINIMUM 3m FROM SERVICE BOX.
INSPECTION ASSEMBLY SEE RDN DWG. S-9.
GROUND SURFACE
PIPE @ 2.0% GRADE (MIN.)
600
300
MIN. 1250mm COVER AT PROPERTY LINE
45°
45ø LONG RADIUS BEND
CAP, PAINT RED
COMPACTED BEDDING MATERIAL MIN. DEPTH 100mm BELOW PIPE.
CAP & STAKE AT PROPERTY LINE FOR DEVELOPED LOTS. MINIMUM 3m FROM SERVICE BOX
FOR TRENCH DETAILS REFER TO S-1, S-2 OR S-3.
ELEVATION
NOTES:
1. MINIMUM SERVICE CONNECTION DIAMETER TO BE 100mm.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
REGIONAL DISTRICT OF NANAIMO
BYLAW No. 500
COMMUNITY SANITARY SEWER STANDARDS
SERVICE CONNECTION
REVISIONS
No. 0
DATE JAN/10
DETAILS BYLAW–UPDATE
APP.
REVISION 0
S-6

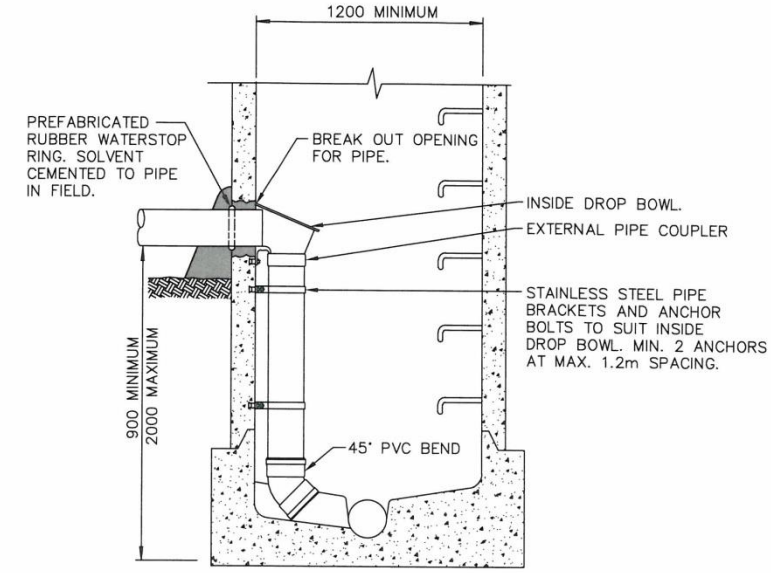

ALTERNATE LOCATION
SEWER FLOW
45ø LONG RADIUS BENDS
45° WYE FITTING
PLAN
50mm x 100mm WOODEN MARKER POST PAINTED RED WITH DEPTH FROM TOP OF STAKE TO INVERT OF SERVICE TO NEAREST 0.01m. MARKED. MINIMUM 3m FROM SERVICE BOX.
300
3000
INSPECTION ASSEMBLY SEE RDN DWG. S–9.
600
GROUND SURFACE
PIPE @ 2.0% GRADE (MIN.)
300
1800 MAX.
MIN. 1250mm COVER AT PROPERTY LINE
CAP, PAINT RED
COMPACTED BEDDING MATERIAL MIN. DEPTH 100mm BELOW PIPE.
45ø LONG RADIUS BENDS
CAP & STAKE AT PROPERTY LINE FOR DEVELOPED LOTS. MINIMUM 3m FROM SERVICE BOX
ELEVATION
45ø LONG RADIUS BEND
45°
300
NOTES:
1. USE RISER TYPE SERVICE ONLY WHERE SERVICE IS GREATER THAN 2.0m ABOVE WYE INVERT OR WHERE APPROVED.
2. MINIMUM SERVICE CONNECTION DIAMETER TO BE 100mm.
3. ALL DIMENSIONS ARE IN MILLIMETRES.
REGIONAL DISTRICT OF NANAIMO
BYLAW No. 500
COMMUNITY SANITARY SEWER STANDARDS
RISER
SERVICE CONNECTION
REVISIONS
No. 0
DATE JAN/10
DETAILS BYLAW–UPDATE
APP.
REVISION 0
DRAWING No. S–7


LID TO BE RED
LID SCREWED TO COLLAR WITH 2–16mm DIA. ALLEN HEAD CAP SCREWS
METAL WASHER
BRASS TABS
LID DETAIL
LID, SEE DETAIL
600
200ø DR35 PVC RISER
CONCRETE SERVICE BOX, 305mm x 508mm C/W CAST IRON TRAFFIC COVER WITH CAST LETTERING READING "SEWER". SUPPLY SERVICE BOX TO RDN FOR FUTURE INSTALLATION.
PIPE @ 2.0% GRADE (MIN.)
SEWER FLOW
ELEVATION
NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES.
REGIONAL DISTRICT OF NANAIMO
BYLAW No. 500
COMMUNITY SANITARY SEWER STANDARDS
SERVICE CONNECTION INSPECTION ASSEMBLY
REVISIONS
No. 0
DATE JAN/10
DETAILS BYLAW–UPDATE
APP.
REVISION 0
S-8


MANHOLE FRAME & COVER
(SEE DETAIL S–14)
CONCRETE
20 MPa @ 28 DAYS
R=750mm MIN.
IN UNTRAVELLED AREAS PLACE
1.0m ASPHALT MIN. 50mm DEPTH
AROUND MANHOLE RIM. SLOPE TO
DRAIN AWAY FROM COVER.
GRADE RINGS TO SUIT
MORTAR IN & OUT.
MAXIMUM 75mm HIGH
MIN. 100mm DEPTH.
20mm MINUS CRUSHED GRAVEL,
COMPACT TO 95% MODIFIED
PROCTOR DENSITY.
300mm LONG SECTION
MANHOLE RUNGS TO BE INSTALLED
75mm INTO MANHOLE BARREL.
STANDARD PRECAST REINFORCED CONCRETE
MANHOLE SECTIONS TO ASTM C–478–96A
C/W GALVANIZED OR ALUMINIUM LADDER
RUNGS INSTALLED AT 305mm C/C
IN CONFORMANCE WITH WCB STANDARDS.
LID TO H20 LOADING REQUIREMENTS.
MANHOLE SECTIONS TO BE C/W
GASKETS & WATERTIGHT.
SEE RDN DRAWING S–17 FOR RUNG AND LID
ORIENTATION.
140
330
240
19ø
LADDER RUNG
PREFABRICATED
RUBBER WATERSTOP
RING. SOLVENT
CEMENTED TO PIPE
IN FIELD. TYPICAL FOR
ALL CONNECTIONS.
450
MAX.
PRE–CAST CONCRETE BASE
PROVIDE PLUGGED STUB
FOR ALL FUTURE EXTENSIONS
ELEVATION
PLAN
NOTES
1. WHERE MANHOLE BASE EXCAVATION EXTENDS BEYOND BASE DIMENSION, THE OVER EXCAVATION SHALL BE FILLED WITH CONCRETE TO 100mm BELOW THE BOTTOM OF THE PIPE & FOR THE WIDTH OF THE TRENCH.
2. ALL PIPES TO BE GROUTED FLUSH WITH INSIDE OF MANHOLE WALL.
3. ALL MANHOLES TO HAVE PRE–CAST BASES UNLESS APPROVED BY THE R.D.N.
4. ALL DIMENSIONS ARE IN MILLIMETRES.
REGIONAL DISTRICT OF NANAIMO
BYLAW No. 500
COMMUNITY SANITARY SEWER STANDARDS
MANHOLE & CLEANOUT
PRECAST BASE
REVISIONS
No. 0
DATE JAN/10
DETAILS BYLAW–UPDATE
APP.
REVISION 0
S-9


MANHOLE FRAME & COVER
(SEE DETAIL S–14)
CONCRETE 20 MPa @ 28 DAYS.
IN UNTRAVELLED AREAS PLACE
1.0m ASPHALT MIN. 50mm DEPTH
AROUND MANHOLE RIM. SLOPE TO
DRAIN AWAY FROM COVER.
GRADE RINGS TO SUIT
MORTAR IN & OUT.
MAXIMUM 75mm HIGH
MIN. 100mm DEPTH.
20mm MINUS CRUSHED GRAVEL,
COMPACT TO 95% MODIFIED
PROCTOR DENSITY.
300mm LONG SECTION
MANHOLE RUNGS TO BE INSTALLED
75mm INTO MANHOLE BARREL.
STANDARD PRECAST REINFORCED
CONCRETE MANHOLE SECTIONS
TO H20 LOADING C/W
GALVANIZED OR ALUMINIUM
LADDER RUNGS INSTALLED
AT 305mm C/C IN CONFORMANCE
WITH WCB STANDARDS.
LID TO CS600 LOADING
REQUIREMENTS. MANHOLE
SECTIONS TO BE C/W
GASKETS & WATERTIGHT.
SEE RDN DRAWING S–17 FOR
BASE RUNG AND LID ORIENTATION.
MINIMUM SLOPE 1:8 BOTH SIDES
BROOM FINISH.
SLOPE 8:1 BOTH SIDES
STEEL TROWEL FINISH..
150 MIN.–1050ø M.H.
200 MIN. – 1200ø M.H.
HALF SECTIONS, OR
BREAK OUT TOP HALF
OF PIPE, OR FORM IN
CONCRETE, STEEL
TROWEL FINISH.
CAST IN PLACE CONCRETE BASE,
20 MPa @ 28 DAYS.
CAST IN
PLACE BASE
PREFABRICATED
RUBBER WATERSTOP
RING. SOLVENT
CEMENTED TO PIPE
IN FIELD. TYPICAL FOR
ALL CONNECTIONS TO
CAST IN PLACE AND
EXISTING MANHOLES.
450
MAX.
140
330
240
19ø
RUNG
CONCRETE BRICK
CAST IN PLACE BASE,
SEE DETAIL.
BREAK OUT OPENING
FOR PIPE.
ELEVATION
CAST IN PLACE
CONCRETE BASE,
DIA.=M.H. DIA. + 200.
(MIN.) AT TOP.
PROVIDE PLUGGED STUB
FOR ALL FUTURE EXTENSIONS
PLAN
NOTES
1. WHERE MANHOLE BASE EXCAVATION EXTENDS BEYOND BASE DIMENSION, THE OVER EXCAVATION SHALL BE FILLED WITH CONCRETE TO 100MM BELOW THE BOTTOM OF THE PIPE & FOR THE WIDTH OF THE TRENCH.
2. ALL PIPES TO BE GROUTED FLUSH WITH INSIDE OF MANHOLE WALL.
3. CAST IN PLACE MANHOLE BASES MAY BE USED ONLY WITH THE APPROVAL OF THE R.D.N.
4. FOR BASE CONFIGURATION SEE RDN DRAWING S–17.
5. ALL DIMENSIONS ARE IN MILLIMETRES.
REGIONAL DISTRICT OF NANAIMO
BYLAW No. 500
COMMUNITY SANITARY SEWER STANDARDS
MANHOLE & CLEANOUT
CAST IN PLACE BASE
REVISIONS
No. DATE DETAILS APP.
0 JAN/10 BYLAW–UPDATE .
REVISION
0
S-10


PREFABRICATED RUBBER WATERSTOP RING. SOLVENT CEMENTED TO PIPE IN FIELD.
75 MIN.
BREAK OUT OPENING FOR PIPE.
150 MIN.
LOCATION OF COVER AND RUNGS TO SUIT
OVER 900
450 MAX.
75 MIN. CONC. COVER ON BELL.
CONCRETE, 20 MPa AT 28 DAYS. PLACED ON UNDISTURBED SOIL
PLAN
DROP MANHOLE TYPE 1 FOR DROPS OVER 900mm
PREFABRICATED RUBBER WATERSTOP RING. SOLVENT CEMENTED TO PIPE IN FIELD.
BREAK OUT OPENING FOR PIPE.
75 MIN.
600 MIN.
450 MAX.
450 MIN.
CONCRETE, 20 MPa AT 28 DAYS. PLACED ON UNDISTURBED SOIL
NOTES:
1. ALL PIPES TO BE GROUTED FLUSH WITH INSIDE OF MANHOLE WALL.
2. SEE RDN. DWG. S–10 FOR OTHER MANHOLE REQUIREMENTS.
3. ALL DIMENSIONS IN MILLIMETRES.
DROP MANHOLE TYPE 2 FOR DROPS 600mm TO 900mm
REGIONAL DISTRICT OF NANAIMO
BYLAW No. 500
COMMUNITY SANITARY SEWER STANDARDS
DROP MANHOLE
REVISIONS
No. 0
DATE JAN./10
DETAILS BYLAW–UPDATE
APP.
REVISION 0
S-11



DROP MANHOLE TYPE 3
FOR DROPS OVER 900mm

NOTES:

1. DROP MANHOLE TYPE 3 TO BE USED ONLY WITH THE WRITTEN PERMISSION OF THE RDN. APPROVAL WILL ONLY BE GRANTED FOR SITUATIONS WHERE MODIFICATIONS TO EXISTING MANHOLES ARE
2. PROPOSED.

   DROP PIPE TO BE DR28 PVC, DIA. TO SUIT INSIDE DROP BOWL.
3.

   THIS DRAWING SHOWS INSIDE DROP ONLY.
   SEE RDN DWG. S-10 FOR ALL OTHER DETAILS PERTAINING TO MANHOLE
4. REQUIREMENTS.

   ALL MOUNTING & BRACKET HARDWARE, (STRAPS & BOLTS) SHALL BE
5. STAINLESS STEEL

   ALL DIMENSIONS ARE IN MILLIMETRES.

REGIONAL DISTRICT OF NANAIMO

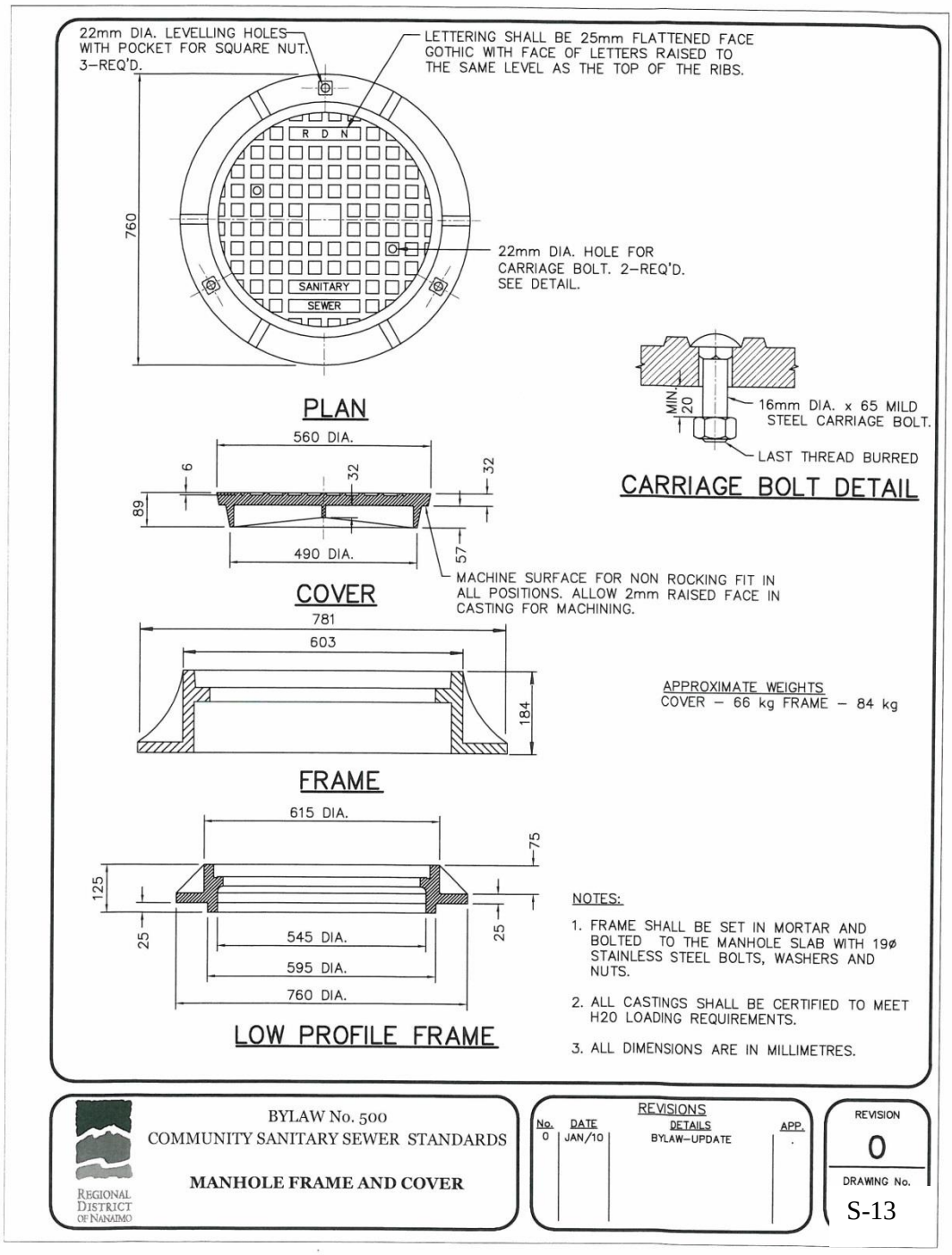
BYLAW No. 500
COMMUNITY SANITARY SEWER STANDARDS

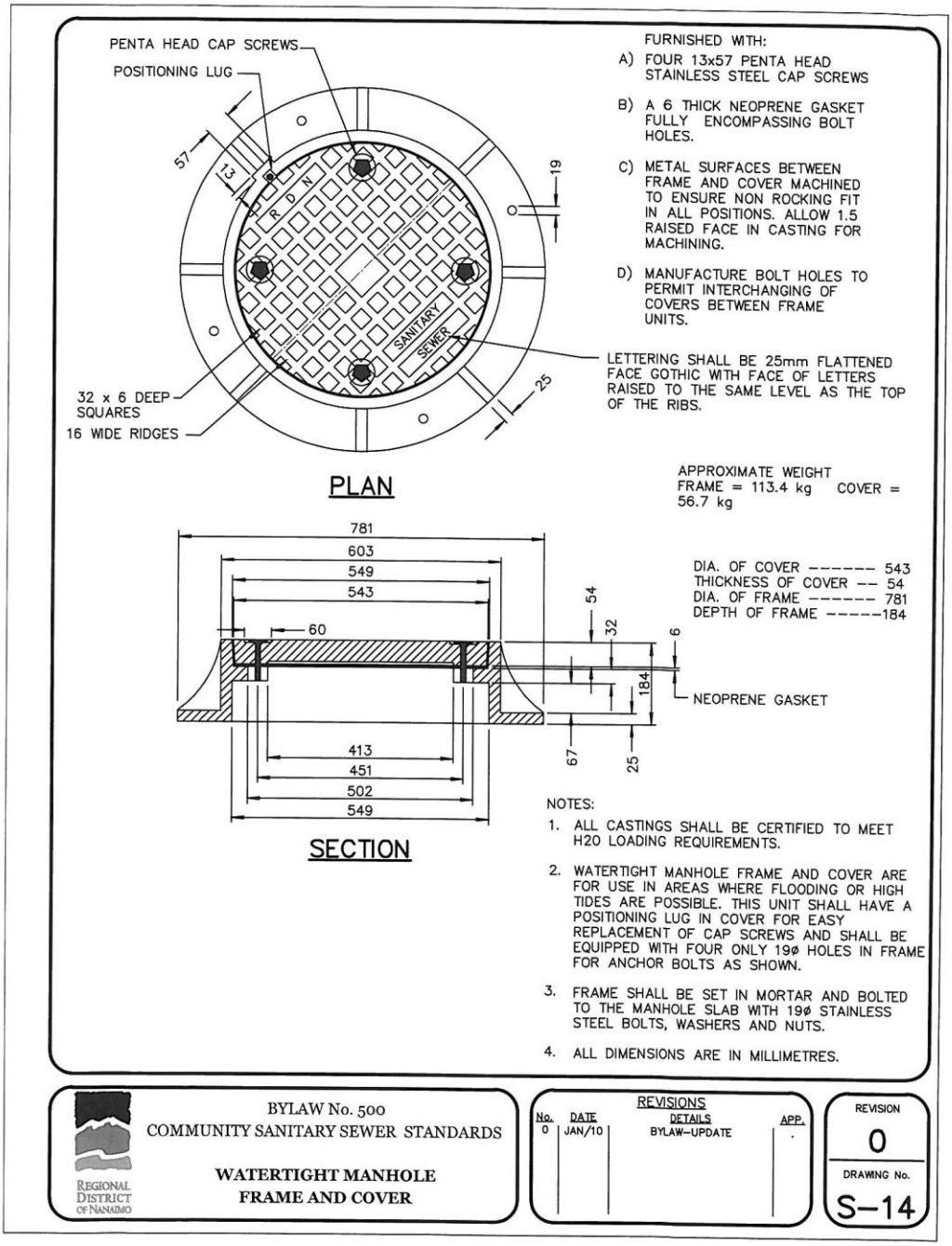
INSIDE DROP MANHOLE DETAILS

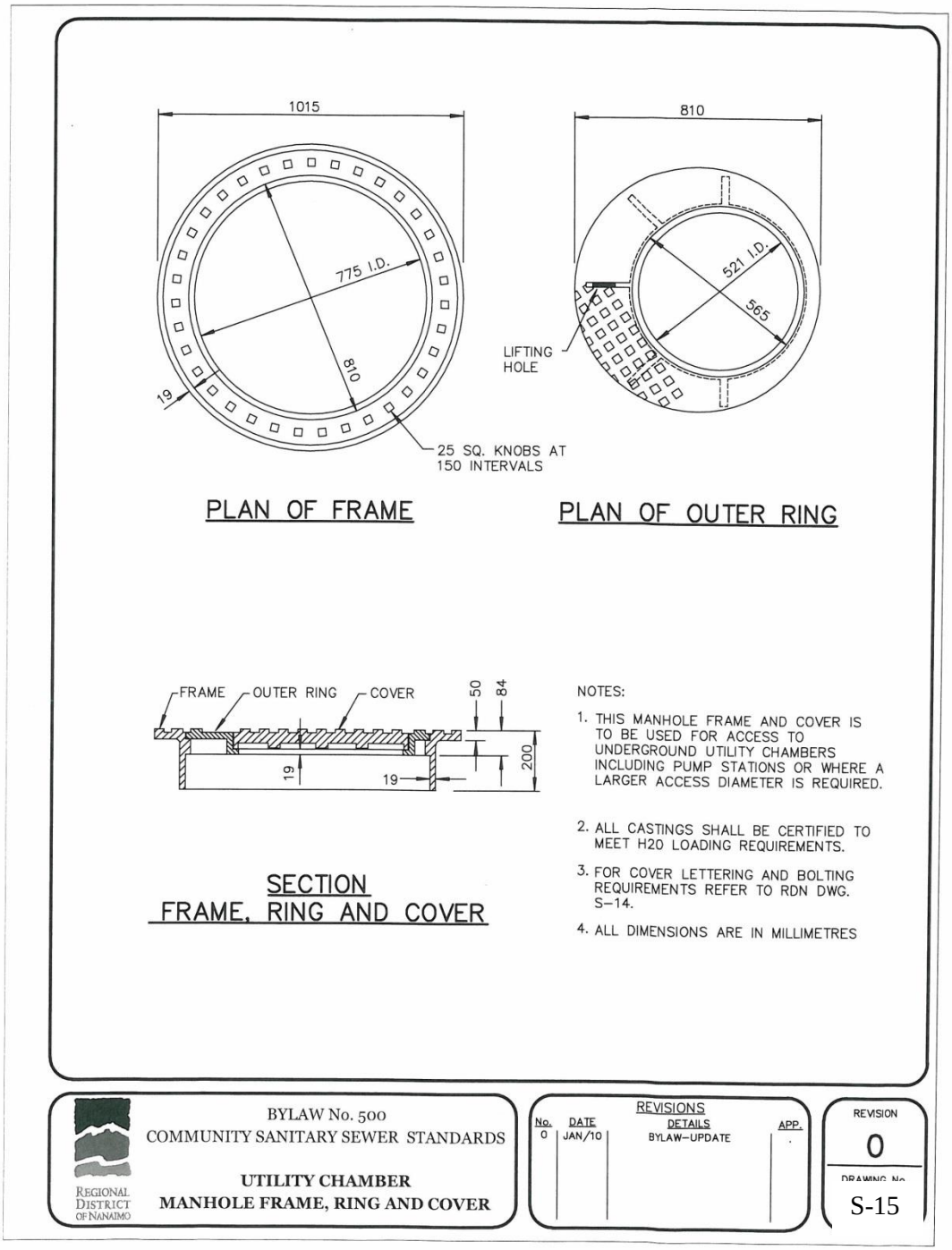
REVISIONS			
No.	DATE	DETAILS	APP.
0	JAN./10	BYLAW-UPDATE	

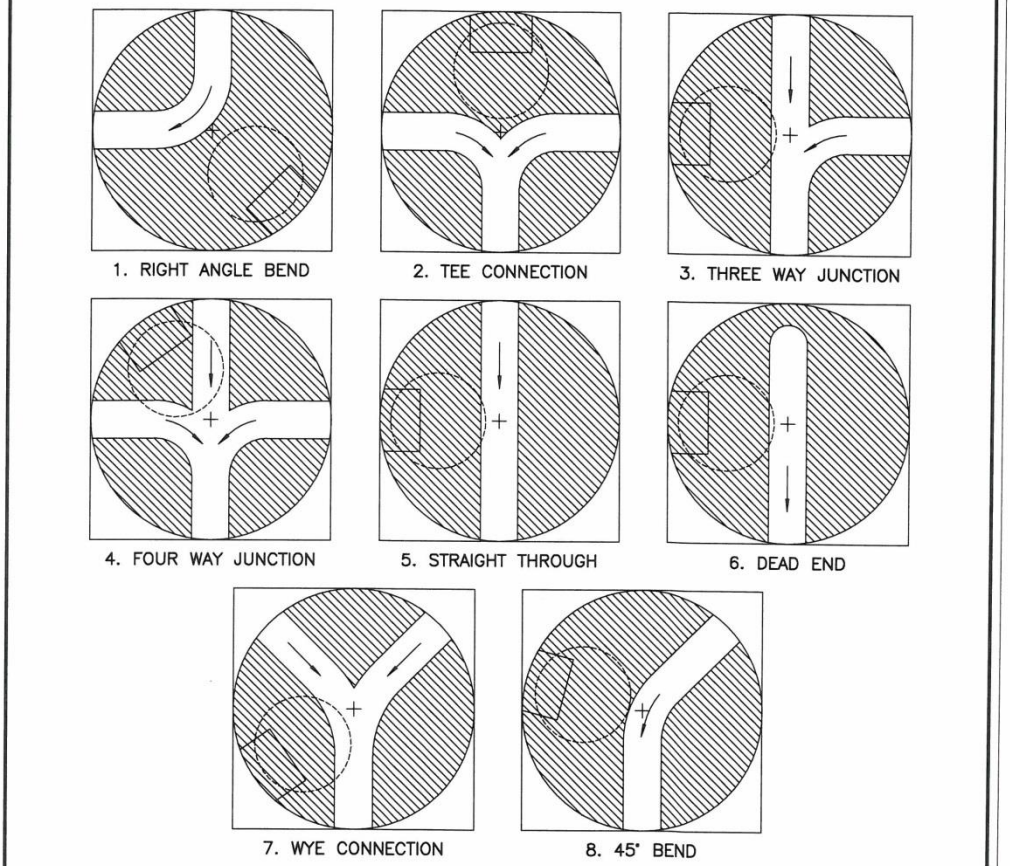
REVISION 0

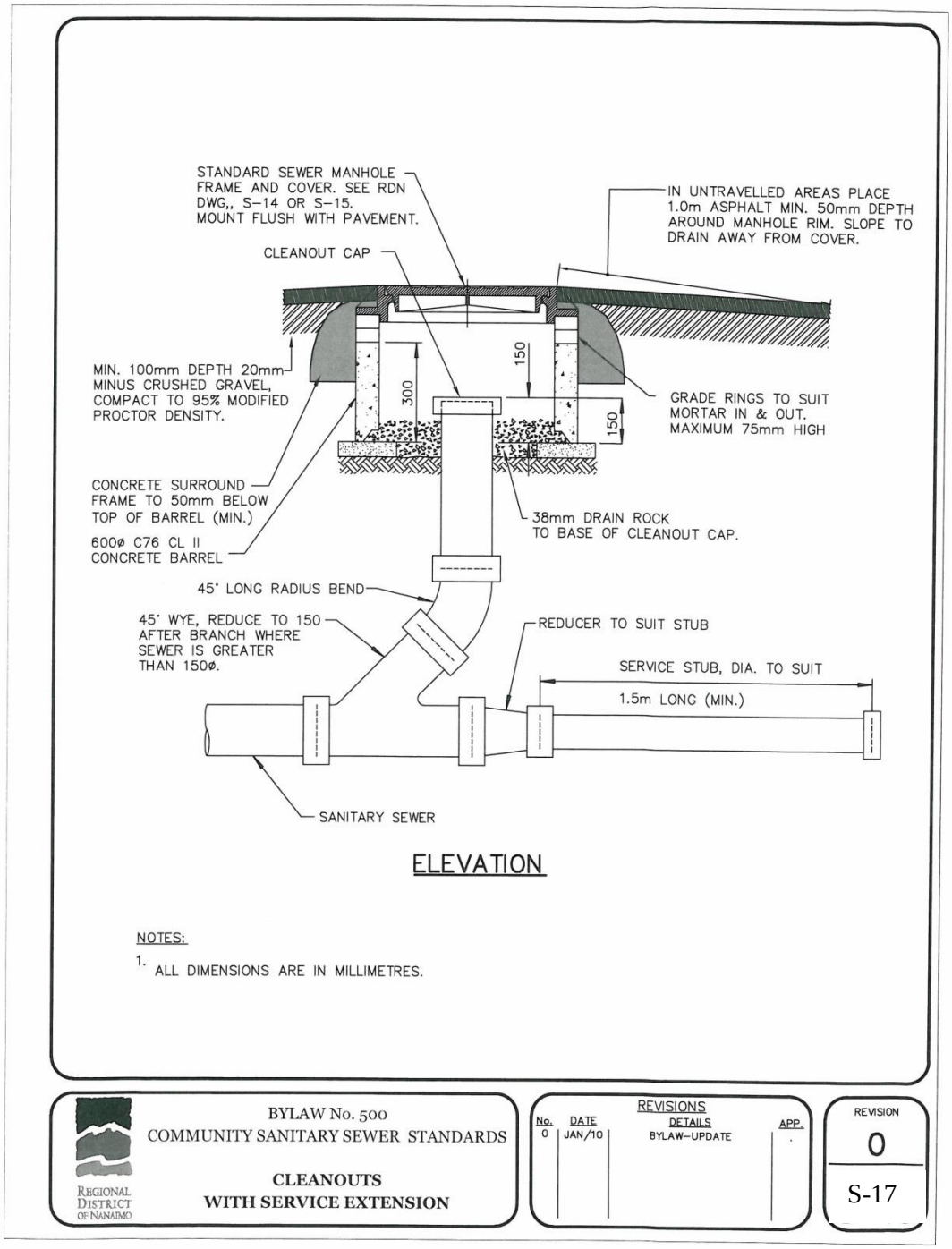
S-12

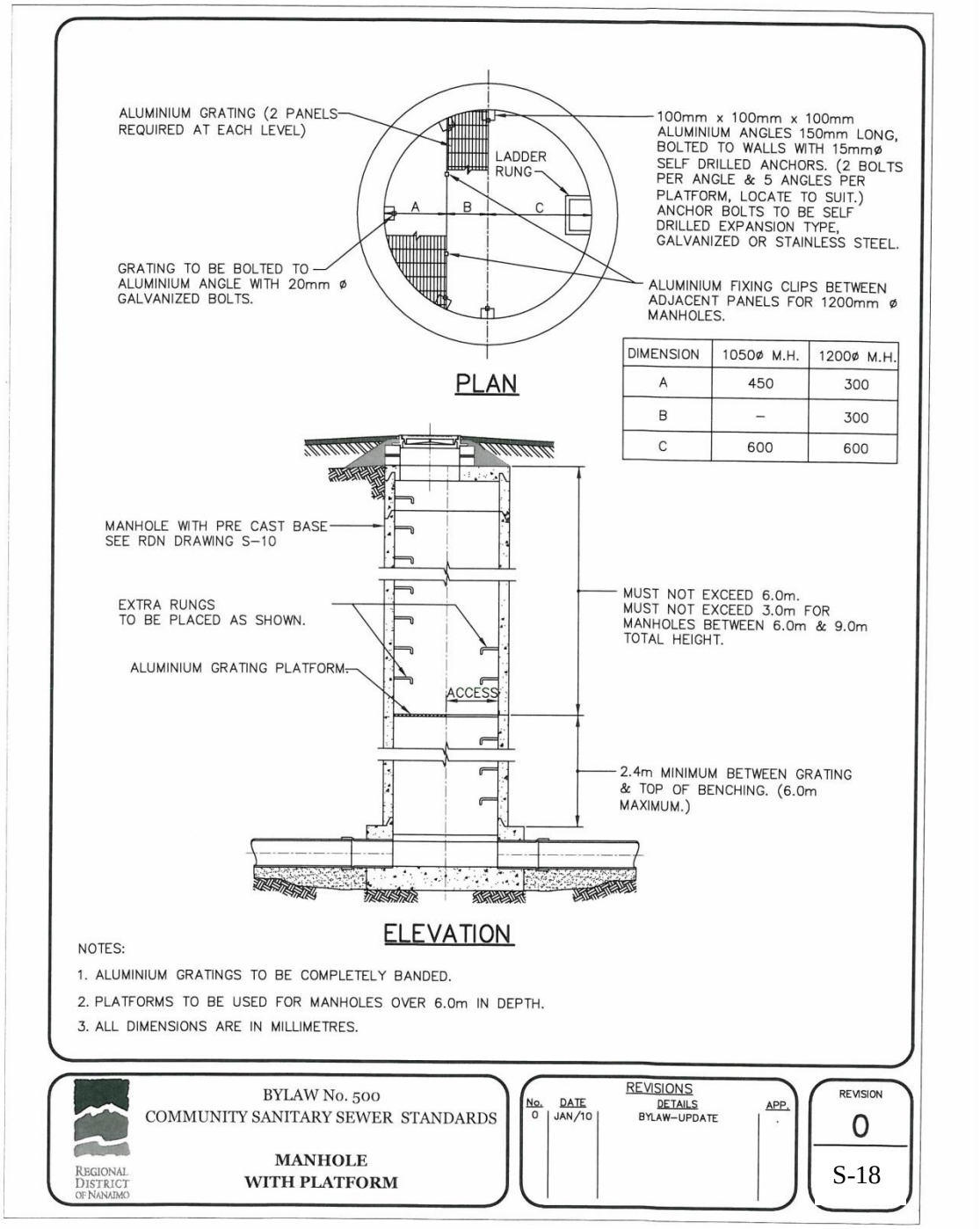

22mm DIA. LEVELLING HOLES WITH POCKET FOR SQUARE NUT. 3–REQ'D.
LETTERING SHALL BE 25mm FLATTENED FACE GOTHIC WITH FACE OF LETTERS RAISED TO THE SAME LEVEL AS THE TOP OF THE RIBS.
R D N
SANITARY
SEWER
760
22mm DIA. HOLE FOR CARRIAGE BOLT. 2–REQ'D. SEE DETAIL.
PLAN
MIN. 20
16mm DIA. x 65 MILD STEEL CARRIAGE BOLT.
LAST THREAD BURRED
CARRIAGE BOLT DETAIL
560 DIA.
6
32
32
89
490 DIA.
57
MACHINE SURFACE FOR NON ROCKING FIT IN ALL POSITIONS. ALLOW 2mm RAISED FACE IN CASTING FOR MACHINING.
COVER
781
603
184
APPROXIMATE WEIGHTS
COVER – 66 kg FRAME – 84 kg
FRAME
615 DIA.
75
125
25
25
545 DIA.
595 DIA.
760 DIA.
LOW PROFILE FRAME
NOTES:
1. FRAME SHALL BE SET IN MORTAR AND BOLTED TO THE MANHOLE SLAB WITH 19ø STAINLESS STEEL BOLTS, WASHERS AND NUTS.
2. ALL CASTINGS SHALL BE CERTIFIED TO MEET H20 LOADING REQUIREMENTS.
3. ALL DIMENSIONS ARE IN MILLIMETRES.
REGIONAL DISTRICT OF NANAIMO
BYLAW No. 500
COMMUNITY SANITARY SEWER STANDARDS
MANHOLE FRAME AND COVER
REVISIONS
No. 0
DATE JAN/10
DETAILS BYLAW–UPDATE
APP. .
REVISION 0
DRAWING No. S-13

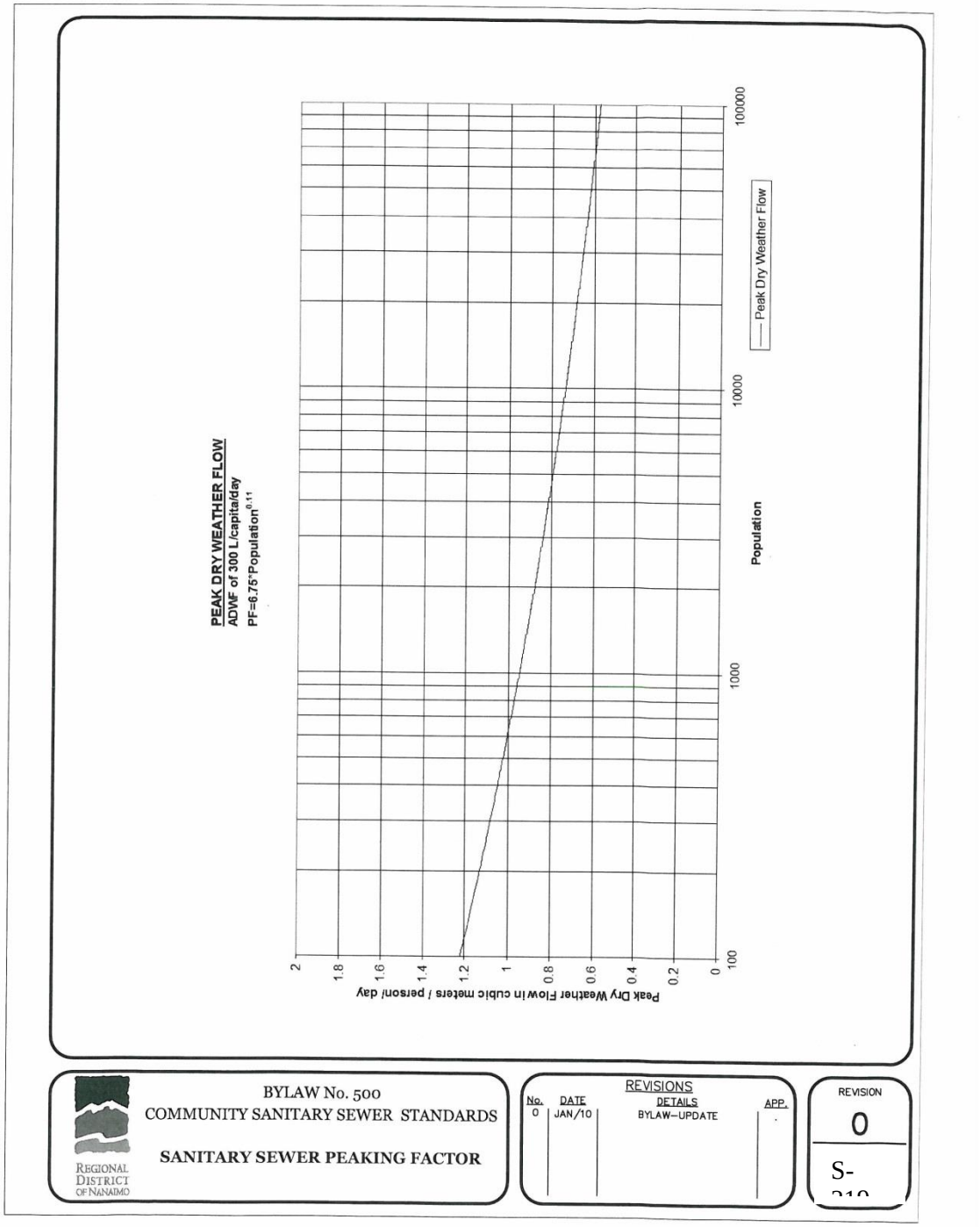

PENTA HEAD CAP SCREWS
POSITIONING LUG
57
13
19
25
R D N
SANITARY
SEWER
32 x 6 DEEP SQUARES
16 WIDE RIDGES
PLAN
781
603
549
543
60
54
32
6
184
67
25
413
451
502
549
SECTION
NEOPRENE GASKET
FURNISHED WITH:
A) FOUR 13x57 PENTA HEAD STAINLESS STEEL CAP SCREWS
B) A 6 THICK NEOPRENE GASKET FULLY ENCOMPASSING BOLT HOLES.
C) METAL SURFACES BETWEEN FRAME AND COVER MACHINED TO ENSURE NON ROCKING FIT IN ALL POSITIONS. ALLOW 1.5 RAISED FACE IN CASTING FOR MACHINING.
D) MANUFACTURE BOLT HOLES TO PERMIT INTERCHANGING OF COVERS BETWEEN FRAME UNITS.
LETTERING SHALL BE 25mm FLATTENED FACE GOTHIC WITH FACE OF LETTERS RAISED TO THE SAME LEVEL AS THE TOP OF THE RIBS.
APPROXIMATE WEIGHT
FRAME = 113.4 kg COVER = 56.7 kg
DIA. OF COVER ------ 543
THICKNESS OF COVER -- 54
DIA. OF FRAME ------ 781
DEPTH OF FRAME -----184
NOTES:
1. ALL CASTINGS SHALL BE CERTIFIED TO MEET H20 LOADING REQUIREMENTS.
2. WATERTIGHT MANHOLE FRAME AND COVER ARE FOR USE IN AREAS WHERE FLOODING OR HIGH TIDES ARE POSSIBLE. THIS UNIT SHALL HAVE A POSITIONING LUG IN COVER FOR EASY REPLACEMENT OF CAP SCREWS AND SHALL BE EQUIPPED WITH FOUR ONLY 19ø HOLES IN FRAME FOR ANCHOR BOLTS AS SHOWN.
3. FRAME SHALL BE SET IN MORTAR AND BOLTED TO THE MANHOLE SLAB WITH 19ø STAINLESS STEEL BOLTS, WASHERS AND NUTS.
4. ALL DIMENSIONS ARE IN MILLIMETRES.
REGIONAL DISTRICT OF NANAIMO
BYLAW No. 500
COMMUNITY SANITARY SEWER STANDARDS
WATERTIGHT MANHOLE FRAME AND COVER
REVISIONS
No. 0 | DATE JAN/10 | DETAILS BYLAW–UPDATE | APP. .
REVISION 0
DRAWING No. S–14


1015
775 I.D.
810
19
25 SQ. KNOBS AT
150 INTERVALS
PLAN OF FRAME
810
521 I.D.
565
LIFTING
HOLE
PLAN OF OUTER RING
FRAME
OUTER RING
COVER
50
84
200
19
19
SECTION
FRAME, RING AND COVER
NOTES:
1. THIS MANHOLE FRAME AND COVER IS TO BE USED FOR ACCESS TO UNDERGROUND UTILITY CHAMBERS INCLUDING PUMP STATIONS OR WHERE A LARGER ACCESS DIAMETER IS REQUIRED.
2. ALL CASTINGS SHALL BE CERTIFIED TO MEET H20 LOADING REQUIREMENTS.
3. FOR COVER LETTERING AND BOLTING REQUIREMENTS REFER TO RDN DWG. S–14.
4. ALL DIMENSIONS ARE IN MILLIMETRES
REGIONAL DISTRICT OF NANAIMO
BYLAW No. 500
COMMUNITY SANITARY SEWER STANDARDS
UTILITY CHAMBER
MANHOLE FRAME, RING AND COVER
REVISIONS
No. DATE DETAILS APP.
0 JAN/10 BYLAW–UPDATE
REVISION
0
S-15


1. RIGHT ANGLE BEND
2. TEE CONNECTION
3. THREE WAY JUNCTION
4. FOUR WAY JUNCTION
5. STRAIGHT THROUGH
6. DEAD END
7. WYE CONNECTION
8. 45° BEND
NOTES
1. ALL CHANNELS SHALL BE FINISHED WITH A STEEL TROWEL. BENCHING (SHADED AREAS) SHALL BE BROOM FINISHED.
2. MANHOLE COVER OPENINGS AND RUNG LOCATIONS SHALL BE AS SHOWN UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS.
REGIONAL DISTRICT OF NANAIMO
BYLAW No. 500
COMMUNITY SANITARY SEWER STANDARDS
CAST IN PLACE
MANHOLE BENCHING
REVISIONS
No. 0
DATE JAN/10
DETAILS BYLAW–UPDATE
APP.
REVISION 0
S-16


STANDARD SEWER MANHOLE FRAME AND COVER. SEE RDN DWG,, S–14 OR S–15. MOUNT FLUSH WITH PAVEMENT.
CLEANOUT CAP
IN UNTRAVELLED AREAS PLACE 1.0m ASPHALT MIN. 50mm DEPTH AROUND MANHOLE RIM. SLOPE TO DRAIN AWAY FROM COVER.
MIN. 100mm DEPTH 20mm MINUS CRUSHED GRAVEL, COMPACT TO 95% MODIFIED PROCTOR DENSITY.
300
150
150
GRADE RINGS TO SUIT MORTAR IN & OUT. MAXIMUM 75mm HIGH
CONCRETE SURROUND FRAME TO 50mm BELOW TOP OF BARREL (MIN.)
600ø C76 CL II CONCRETE BARREL
38mm DRAIN ROCK TO BASE OF CLEANOUT CAP.
45° LONG RADIUS BEND
45° WYE, REDUCE TO 150 AFTER BRANCH WHERE SEWER IS GREATER THAN 150ø.
REDUCER TO SUIT STUB
SERVICE STUB, DIA. TO SUIT
1.5m LONG (MIN.)
SANITARY SEWER
ELEVATION
NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES.
REGIONAL DISTRICT OF NANAIMO
BYLAW No. 500
COMMUNITY SANITARY SEWER STANDARDS
CLEANOUTS
WITH SERVICE EXTENSION
REVISIONS
No. 0
DATE JAN/10
DETAILS BYLAW–UPDATE
APP.
REVISION 0
S-17


ALUMINIUM GRATING (2 PANELS REQUIRED AT EACH LEVEL)
LADDER RUNG
A
B
C
100mm x 100mm x 100mm ALUMINIUM ANGLES 150mm LONG, BOLTED TO WALLS WITH 15mmø SELF DRILLED ANCHORS. (2 BOLTS PER ANGLE & 5 ANGLES PER PLATFORM, LOCATE TO SUIT.) ANCHOR BOLTS TO BE SELF DRILLED EXPANSION TYPE, GALVANIZED OR STAINLESS STEEL.
GRATING TO BE BOLTED TO ALUMINIUM ANGLE WITH 20mm ø GALVANIZED BOLTS.
ALUMINIUM FIXING CLIPS BETWEEN ADJACENT PANELS FOR 1200mm ø MANHOLES.
PLAN
DIMENSION | 1050ø M.H. | 1200ø M.H.
A | 450 | 300
B | – | 300
C | 600 | 600
MANHOLE WITH PRE CAST BASE SEE RDN DRAWING S–10
EXTRA RUNGS TO BE PLACED AS SHOWN.
ALUMINIUM GRATING PLATFORM
ACCESS
MUST NOT EXCEED 6.0m. MUST NOT EXCEED 3.0m FOR MANHOLES BETWEEN 6.0m & 9.0m TOTAL HEIGHT.
2.4m MINIMUM BETWEEN GRATING & TOP OF BENCHING. (6.0m MAXIMUM.)
ELEVATION
NOTES:
1. ALUMINIUM GRATINGS TO BE COMPLETELY BANDED.
2. PLATFORMS TO BE USED FOR MANHOLES OVER 6.0m IN DEPTH.
3. ALL DIMENSIONS ARE IN MILLIMETRES.
REGIONAL DISTRICT OF NANAIMO
BYLAW No. 500
COMMUNITY SANITARY SEWER STANDARDS
MANHOLE WITH PLATFORM
REVISIONS
No. | DATE | DETAILS | APP.
0 | JAN/10 | BYLAW–UPDATE |
REVISION 0
S-18


PEAK DRY WEATHER FLOW
ADWF of 300 L/capita/day
PF=6.75*Population^-0.11
Peak Dry Weather Flow in cubic meters / person/ day
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
100
1000
10000
100000
Population
Peak Dry Weather Flow
BYLAW No. 500
COMMUNITY SANITARY SEWER STANDARDS
SANITARY SEWER PEAKING FACTOR
REGIONAL DISTRICT OF NANAIMO
REVISIONS
No. DATE DETAILS APP.
0 JAN/10 BYLAW–UPDATE
REVISION
0
S-

REGIONAL DISTRICT OF NANAIMO

BYLAW NO. 500

LAKES DISTRICT AND SCHOONER COVE

COMMUNITY SEWER SYSTEM STANDARDS

APPENDIX 2

LETTER OF ASSURANCE

REGIONAL DISTRICT OF NANAIMO

LETTER OF ASSURANCE

NOTE:

To be submitted at time of Feasibility Review

To: Manager of Engineering Services
Regional District of Nanaimo
6300 Hammond Bay Road
Nanaimo BC V9T 6N2

RE: _____
(Project)

Date: _____, 20__.

This will confirm that (Developer) has retained (Consultant) to provide, design, contract administration, inspection and as-constructed drawings for this project all in accordance with the current bylaws and standards of the Regional District and in accordance with good engineering practice.

_____
(Developer)

This confirms we have accepted this assignment on the above terms.

(Consultant)

REGIONAL DISTRICT OF NANAIMO

BYLAW NO. 500

LAKES DISTRICT AND SCHOONER COVE

COMMUNITY SEWER SYSTEM STANDARDS

APPENDIX 3

CERTIFICATE OF DESIGN

REGIONAL DISTRICT OF NANAIMO

CERTIFICATE OF DESIGN

I, _____, a Professional Engineer registered in the Province of British Columbia, hereby certify that the works as herein set out on the attached drawings entitled_____
_____
_____
have been designed in accordance with the Regional District of Nanaimo Bylaw 500 and/or in accordance with good engineering practice where such design is not covered by the Regional District Bylaw 500.

I have been retained to provide design, supervision, full-time inspection, as-built drawings, and final certification for this project by:

_____
(Name of Client)

I am satisfied that in the contractual mandate which exists between myself and my client, the terms of reference will permit me to render a level of supervision of the construction work which will allow me to put my name and seal to the "Certification of Installed Works" required by the Regional District of Nanaimo, a sample of which is attached to this document and initialed by me.

In the event that my client releases me from this project, or in the event that I find the terms of reference do not permit me to render a level of supervision of the construction work which will allow me to put my name and seal to the form of certification required by the Regional District of Nanaimo, I will notify the Regional District within twenty-four (24) hours verbally and follow it up with written confirmation and clarification.

Signed this _____ day of _____, 20____.

_____, P.Eng.

(signature)

_____
(name printed)

I understand that the "Certification of Installed Works" is to be completed in this format and submitted with the "as-constructed" drawings.

_____
(Engineer)

REGIONAL DISTRICT OF NANAIMO

BYLAW NO. 500

LAKES DISTRICT AND SCHOONER COVE

COMMUNITY SEWER SYSTEM STANDARDS

APPENDIX 4

CERTIFICATION OF INSTALLED WORKS

REGIONAL DISTRICT OF NANAIMO

CERTIFICATION OF INSTALLED WORKS

NOTE: To be completed in this format and submitted with the 'As-Built' drawings

Location of the Construction Site and Works: (Legal Description / Location)

_____

all within the Regional District of Nanaimo, British Columbia.

I, _____, a Registered Professional Engineer (Reg. No. _____) in the Province of British Columbia, hereby certify:

4. THAT the following construction tests were carried out to confirm that construction met the specifications required:

   a) _____
   b) _____
   c) _____
   d) _____
   e) _____
   f) _____

5. THAT I was able to monitor the construction and provide a level of supervision of the construction work sufficient to be able to confirm that the specifications in force and effect by the Regional District of Nanaimo and in the applicable design drawings for the said Works were generally met during the Construction Period; and

6. THAT the accompanying plans labeled:

   (i) _____
   (ii) _____
   (iii) _____

   accurately record the materials, grades, inverts, offsets and dimensions of the constructed work.

   DATED this _____ day of _____, 20 _____.

_____

Engineer (signature & seal)

Engineering Firm _____

REGIONAL DISTRICT OF NANAIMO

BYLAW NO. 500

LAKES DISTRICT AND SCHOONER COVE

COMMUNITY SEWER SYSTEM STANDARDS

APPENDIX 5

STANDBY IRREVOCABLE LETTER OF CREDIT

[BANK LETTERHEAD]

Letter of Credit No.	_____	Amount:	_____
Applicant	_____	Initial Expiry Date:	_____
	_____	Beneficiary:	_____

For the account of _____
(Name of Customer)

up to an aggregate amount of _____ available on demand.

Pursuant to the request of our customer, we hereby establish and give you a Standby Irrevocable Letter of Credit in your favour in the above amount which may be drawn on by you at any time and from time to time, upon written demand for payment made upon us by you, which demand we shall honour without enquiring whether you have the right as between yourself and the said customer to make such demand, and without recognizing any claim of our said customer, or objection by it to payment by us.

This Letter of Credit relates to those Regional District of Nanaimo services and financial obligations set out in an Agreement between the customer and the Regional District of Nanaimo and briefly described as:

_____

The amount of this Letter of Credit may be reduced from time to time as advised by notice in writing to us by the Regional District of Nanaimo.

Partial or full drawings may be made.

This Letter of Credit shall expire at 3:00 p.m. on _____. This Letter of Credit will continue in force for a period of 1 year, but shall be subject to the condition hereinafter set forth.

It is a condition of the Letter of credit that it shall be deemed to be automatically extended without amendment from year to year from the present or any future expiration date hereof, unless at least 30 days prior to the present or any future expiration date, we notify you in writing by registered mail, that we elect not to consider this Letter of Credit to be renewable for any additional period. This Letter of Credit is subject to the Uniform Custom and Practice for Documentary Credits (1993 Revision) International Chamber of Commerce Publication No. 500.

DATED at _____, British Columbia, this _____ day of _____, 20___.

_____
(Name of Bank)

_____
(Address of Bank)

_____
PER:_____
(Authorized Signature)

Schedule '3' to accompany "Regional District of Nanaimo Land Use and Subdivision Amendment Bylaw No. 500.388,2013"

_____

Chairperson

_____

Corporate Officer

Schedule '3'
Lakes District and Schooner Cove Community Water and Sewer Standards Area