



THE DISTRICT OF NORTH VANCOUVER

ENVIRONMENTAL PROTECTION AND PRESERVATION BYLAW

BYLAW 6515

Effective Date – November 8, 1993

CONSOLIDATED FOR CONVENIENCE ONLY

This is a consolidation of the bylaws below. The amending bylaws have been combined with the original bylaw for convenience only. This consolidation is not a legal document. Certified copies of the original bylaws should be consulted for all interpretations and applications of the bylaw on this subject.

Original Bylaw	Date of Adoption
Bylaw 6515	November 8, 1993
Amending Bylaw	Date of Adoption
Bylaw 6658	April 11, 1994
Bylaw 6727	January 30, 1995
Bylaw 6838	March 4, 1996
Bylaw 6919	November 25, 1996
Bylaw 6949	April 7, 1997
Bylaw 7034	February 15, 1999
Bylaw 7144	December 20, 1999
Bylaw 7291	December 17, 2001
Bylaw 7363	December 16, 2002
Bylaw 7496	September 13, 2004
Bylaw 7517	December 20, 2004
Bylaw 7637	December 4, 2006
Bylaw 7659	April 7, 2008
Bylaw 7757	December 15, 2008
Bylaw 7765	February 16, 2009

Bylaw 7799
Bylaw 7821
Bylaw 7960
Bylaw 8271
Bylaw 8559

September 28, 2009
July 23, 2012
December 12, 2012
December 11, 2017
May 30, 2022

The bylaw numbers in the margin of this consolidation refer to the bylaws that amended the principal bylaw (Environmental Protection and Preservation Bylaw – Bylaw 6515). The number of any amending bylaw that has been repealed is not referred to in this consolidation.

THE CORPORATION OF THE DISTRICT OF NORTH VANCOUVER

BYLAW 6515

A bylaw to protect, preserve and conserve our natural setting and ecological systems of watercourses, trees, soils, lands and visual assets of the District of North Vancouver pursuant to sections 523, 551, 553, 723, 725 (h), 920 (7), 923, and Division 4.1 of the *Municipal Act* R.S.B.C. 1996, c323.

The Council for The Corporation of the District of North Vancouver enacts the following:

Title

1. This bylaw may be cited as "**ENVIRONMENTAL PROTECTION AND PRESERVATION BYLAW**".

Administration Of Bylaw

2. This bylaw is administered by the Environmental Protection Officer.

Conflict With Cited Publications

3. Where anything in the *Land Development Guidelines*, the "British Columbia Landscape Standard", 1993 Edition, published by British Columbia Society of Landscape Architects, or "Pruning and Tree Repair" published by The National Institute on Park and Grounds Management, Appleton, Wisconsin, conflicts with a regulation in this bylaw, the regulation prevails.

PART A

AQUATIC AREAS

(6727)

Application

4. This part applies to *stream corridors*, the *waterfront* and *wetlands*.

(6727)

Definitions

5. In this bylaw,

drainage works includes culverts, ditches, drains, rip rapped channels, and storm sewer systems, which discharge into, or collect, constrain or divert, a *stream*;

Land Development Guidelines means the "Land Development Guidelines for the Protection of the Aquatic Habitat", September 1993 as co-published by the Ministry of Environment, Lands and Parks, Integrated Management Branch, and the Department of Fisheries and Oceans;

natural boundary means the visible high water mark of any *stream*, or the ocean where the presence and action of the water are so common and usual, and so long continued in all ordinary years, as to mark the *soil* of the bed of the body of water a character distinct from that of its banks, in vegetation or in the nature of the *soil* itself;

regular maintenance does not include the topping and removal of *trees*;

stream means a natural watercourse, whether usually containing water or not, ground water, a lake, river, creek, spring, ravine, swamp, gulch, *drainage works*, and *wetland*, and includes any site drainage *works* on or within 30 metres of sloping terrain;

stream corridor means the area of land between the tops of bank of a *stream* and,

1. in the case of a fish-bearing *stream*, as designated and delineated in attachment A.1 Fish Bearing Streams, the land above and within 30 metres measured horizontally of the *top of bank* of the *stream*; and
2. in the case of a non-fish-bearing *stream*, the land above and within 15 metres measured horizontally of the *top of bank* of the *stream*;

structure includes a wall, crib, weir, dam, building or any *work* capable of affecting or controlling the flow of water in a *stream*, or capable of damaging, weakening or reducing the effectiveness of the bank, bed or channel of a *stream* to carry storm or flood waters;

top of bank has the meaning set out in the *Land Development Guidelines*;

waterfront means the land lying between a line measured horizontally 30 metres inland from the *natural boundary* and the District boundary line in Burrard Inlet and Indian Arm;

wetland means land that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated *soil* conditions, including swamps, marshes, bogs and similar areas, and land above and within 30 metres measured horizontally of the land just described and without limiting the generality of the foregoing, the areas designated and delineated on attachments A.2 - Mackay Creek Marsh, A.3 - Hogan's Pools, and A.4 - Park Street Marsh; and

work means activities involved in cutting or *removal* of a *tree*, *removal* of vegetation, removal of *soil*, deposit of *soil* or other material, construction of a building or *structures*; and installation of drainage *works*, but does not include the *regular maintenance* of planted gardens or landscaping.

(6727)

Guidelines

6. The Land Development Guidelines apply in the administration of this bylaw and to any permits to do *work* within a *stream corridor*, on the uplands of the *waterfront* or on wetland.

(6727)

Fouling Prohibited

7. No person may do anything that would, directly or indirectly, foul, obstruct or impede a *stream*, or *waterfront*.

(6727)

Suspended Solids And Other Material

8. Without limiting the generality of section 7, no person may discharge a fluid containing suspended solids into a *stream* that would exceed
 - a. 25 milligrams per litre above background suspended solids of the receiving environment during the months of May to September, or 75 milligrams per litre above background suspended solids of the receiving environment during the months of October to April; or
 - b. those parameters as listed in "Approved and Working Criteria for Water Quality" as published by Ministry of Environment, Water Management Branch March 1989, and "Urban Runoff Quality Control Guidelines for British Columbia" as published by Waste Management Groups, British Columbia Research Corporation, June 1992.

Permit Required

9. No person may do any *work* within a *stream corridor*, *waterfront* or on *wetland*

- a. without a permit issued pursuant to Part F; or
- b. contrary to a permit issued pursuant to Part F;

(6727)

9.1 Application to Development Permit Areas

The permit requirement in Section 9 does not apply in respect of work for which a development permit has been issued for the Protection of the Natural Environment or Protection of Development from Hazardous Conditions.

(7659)

PART B

SLOPING TERRAIN

Application

10. This part applies to *sloping terrain*; except for such land in a *stream corridor*.

Definition

11. In this bylaw,

sloping terrain means land with a slope angle greater than 10° for a height of 6 metres or more.

Subdivision Requirements

12. When the slope angle is
- a. less than 20°, normal development and engineering practices apply;
 - b. from 20° to 30°, if the Director of Parks and Engineering Services determines that site conditions so require, engineering plans shall be prepared under the supervision of a registered professional engineer; and
 - c. greater than 30°, a registered professional engineer shall certify construction drawings and specifications for all roads and *structures* and supervise all construction.

(6727)

Site Development Requirements

13. The following regulations apply to development on or adjacent to sloping terrain:
- a. where development is to occur at the base of a slope and
 - i. the angle of slope is more than 10° but less than 20°, the maximum depth of excavation permitted without the advice of a registered professional engineer is 2 metres, and the sides of the cut must be sloped at 2:1 or less, or suitable retaining *structures* provided as approved by a registered professional engineer;
 - ii. the angle of slope is from 20° to 30°, the minimum setback distance is 5 metres measured from the nearest edge of a *structure* and the base of the slope, and excavations deeper than 1 metre must be reviewed by a registered professional engineer;

- iii. the angle of slope is greater than 30°, the minimum setback distance is 5 metres measured from the nearest edge of a *structure* and the base of the slope, all excavations must be designed and supervised by a registered professional engineer .
- b. where development is to occur on a slope and
 - i. the angle of slope is more than 10° but less than 20°, the maximum depth of excavation permitted without the advice of a registered professional engineer is 2 metres, the sides of any cut or fill must be sloped at 2:1 or flatter, or suitable retaining *structures* provided, or as may be approved by a registered professional engineer;
 - ii. the angle of slope is from 20° to 30°, excavations deeper than 1 metre must be reviewed by a registered professional engineer;
 - iii. the angle of slope is greater than 30°, all excavations must be designed and supervised by a registered professional engineer.
 - c. where development is to occur at the top of a slope and
 - i. the angle of slope is more than 10° but less than 20°, the maximum height of fill permitted is 1.5 metres measured to the depth of the original ground, the fill slope shall not exceed 2:1, and any retaining *structures* higher than 1.5 metres must be designed by a registered professional engineer;
 - ii. the angle of slope is 20° to 30°, the minimum distance between the nearest edge of *structure* and the top of slope is 10 metres, except where a registered professional engineer has designed the foundation for a building or shelter so as to permit a lesser distance; and
 - iii. the angle of slope is 30° or greater, all *work* carried out must be designed and supervised by a registered professional engineer.

(6727)

Overburden

- 14. No person may place *soil* on *sloping terrain* where the slope is greater than 30°
 - a. without a permit issued pursuant to Part F; or
 - b. contrary to a permit issued pursuant to Part F.

(6727)

- 15. Deleted

(6919)

PART C

SOIL

(6727)

Application

- 16. This part applies to the removal of *soil* and the *deposit* of *soil* or other materials other than the removal or *deposit* of *soil* on any parcel in an amount not exceeding 18 cubic metres during a calendar year.

Definitions

- 17. In this bylaw,

contaminant includes waste as defined by the Waste Management Act R.S.B.C., 1982 c.41 and a substance having a temperature exceeding 65 degrees Celsius.

contaminated soil means *soil* or other materials which meet or exceed a classification of PL or RL for lands zoned for residential or recreational purposes, or which exceed a classification of CL or IL for lands zoned for commercial or industrial purposes, as listed in the *Waste Management Act - Contaminated Sites Regulations, Section 4*;

(6949)

deposit means place, move, discharge, spray, spill, leak, seep, pour, emit, store, stockpile, or release directly or indirectly through the migration of a substance from one location to another.

soil means unconsolidated mineral or organic material, rock, sediment *deposited* on land, and fill, but does not include manure applied for a beneficial purpose on land.

(6727)

Contamination Of Soils

18. No person may *deposit* a *contaminant* on *soil* in which the levels of that *contaminant* before or after the *deposit* exceed the applicable criteria listed in the *Waste Management Act - Contaminated Sites Regulations, Section 4*, for the uses allowed within the zoning of the land as described by the Corporation, and, without limiting the generality of the foregoing, no manufacturer or processor may dispose of the waste from their plants in a manner that could result in such *deposit*.

(6949)

Contaminated Soil Prohibition

19. No person may *deposit* or cause or permit the *deposit* of *soil* or other material on any land
- a. used for residential, recreational, agricultural or any other purpose except as provided in b. where the *soil* or other materials contains a *contaminant* or any other substance in excess of Level PL or RL as specified in the *Waste Management Act - Contaminated Sites Regulations, Section 4*, or in excess of quantities or concentrations established from time to time under Part 3.1 of the *Waste Management Act*;
 - b. used exclusively for commercial or industrial purposes where the *soil* or other materials contains a *contaminant* or any other substance in excess of Level CL or IL as specified in the *Waste Management Act - Contaminated Sites Regulations, Section 4* or in excess of quantities or concentrations established from time to time under Part 3.1 of the *Waste Management Act*.

(6949)

(6949)

Containment Barriers

20. Where *contaminants* are used or stored on real property, the owner or occupier of the real property shall install and maintain in safe working condition interceptors, catchbasins, and containment barriers of an appropriate type and design, prepared, signed and sealed by a Professional Engineer Registered in the Province of British Columbia, so as to prevent any *deposit* of *contaminants* in or on any *stream, soil* or land.

Deposit Or Removal Of Soil

21. No person may remove or *deposit* *soil* or other materials.
- a. without a permit issued pursuant to Part F; or
 - b. contrary to a permit issued pursuant to Part F.

(6727)

PART D

Deleted

(7821)

PART E

Deleted

(7821)

PART F

PERMIT APPLICATION REQUIREMENTS

Application For A Permit

27. Where a permit is required, application shall be made to the Director of Community Planning, Building, Land and Bylaw Services:

(6727 7034)

Information To Accompany An Application For An Aquatic Area Permit

28. An application for a permit to perform *work* in a *stream corridor* or in *waterfront, wetlands* shall be accompanied by the following information:
- a. detailed drawings or plans clearly describing the proposed *structures* and the materials and type of construction to be employed including a cross section of proposed *structure* and its layout on the ground;
 - b. a detailed description of existing *structures* near the proposed *structure* or area of *work*;
 - c. a detailed drawing or plan clearly describing any area of the removal of rock, gravel or *soil*;
 - d. the reason and purpose of the *work*;
 - e. the name of the contractor, if any, who will do the *work*;
 - f. time required for completion in calendar days; and
 - g. any further information required by the Environmental Protection Officer to ensure compliance with this Bylaw including design construction or structural detail of any part of the proposed *works*;
 - h. an environmental impact assessment prepared by a person qualified to give authoritative opinions on the subject matters discussed, including:
 - i) a description of the existing conditions of the site and an analysis of any adverse impacts of the proposed *work* on the environment during and after the *work* having regard to such matters as the location of topography of the *work* site and surrounding area; and the effects on the *stream corridor* or *waterfront* including effects on: water quality and quantity; hydrology; fisheries; wildlife, *tree* and vegetation inventory; *soils*; climate; land use; recreation; aesthetics; and, human interest;
 - ii) a description of all federal and provincial environmental standards that apply to the proposed *work* during and after the *work* and during operations; and
 - iii) evidence that all adverse environmental impacts during and after the *work* and once in operation will be insignificant or mitigated to insignificant levels by the *work* methods, design and mitigation measures that will be used or incorporated into the *work*.

iv) a plan showing the replanting of vegetation in disturbed areas using approved species from those listed in Attachment A.5.

i. a copy of any applicable federal or provincial approval.

(6727)

Information Required To Accompany An Application For A Tree Permit

29. Deleted

(7821)

Terms and Conditions Applicable to a Tree Permit

29.1 Deleted

(7821)

Information Required To Accompany An Application For A Soil Permit

30. An application for a Soil Permit shall be accompanied by the following information:

- a. the legal description, name and address of the registered owner of the lands from which it is proposed to remove or *deposit soil*;
- b. where necessary, deposit monies for completing the *works* and fulfilling the conditions of the permit;
- c. a topographic plan or plans of the lands;
 - i) showing contours at an interval of 1 metre or less of the entire site and the locations of all *structures, streams, the waterfront* and constructed roads, lanes and utilities;
 - ii) showing the final elevations proposed and relating the contemplated future development of the lands to surrounding properties;
 - iii) information regarding all lands adjacent to those referred to in the application;
 - iv) consent in writing of the registered owner for the removal or *deposit of soil* from the lands; and
 - v) *soil* profiles of the lands down to the proposed final grade.
- d. a schedule showing the order of procedure, the timing and the quantities of *soil* to be removed as well as the method;
- e. class of contaminated *soils*;
- f. an environmental impact assessment prepared by a registered professional and including a description of the existing conditions, and any impacts on the following parameters: location, topography, *streams*, including water quality and quantity, hydrology, fisheries, wildlife, *tree* and vegetation inventory, *soils*, climate, land use, recreation, aesthetics and human interest;
- g. a mitigation statement, prepared and signed by a registered professional engineer and all other applicable qualified persons which will describe the relevant environmental standards which govern the proposed discharge of airborne, terrestrial, or waterborne pollutants and contaminants from the land to the environment during the course of, and after, the term of the permit. The mitigation statement will include a description of the expected nature, amount and concentration of contaminants, pollutants, and toxic materials which are expected to be discharged to the adjoining lands, water, atmosphere, natural streams, utility systems, or moved to other locations;
- h. a copy of any applicable federal or provincial approval.

(6727)

31. Prior to the issuance of

- a. an Aquatic Permit, an applicant is required to provide a security in the form of cash, certified cheque, or an unconditional, irrevocable letter of credit drawn on a Canadian chartered bank in a form acceptable to the Director of Financial Services in an amount equal to 30% of the estimated cost of the work to be performed under the permit to a maximum of \$10,000, to ensure full and proper compliance with provisions of this bylaw and all terms and conditions of the permit. **(7821)**
- b. Soil Permit an applicant is required to provide a security in the form of cash, certified cheque, or unconditional, irrevocable letter of credit drawn on a Canadian chartered bank in a form acceptable to the Director of Financial Services in an amount per the following table:

Project Capital Cost	Required Security Deposit
0-\$100,000	\$2,500
\$100,000 - \$200,000	\$5,000
>\$200,000	\$10,000
more than 3 permits per applicant	\$30,000 plus \$6,000 cash for minor work as required.

(6838)

Drawing On Security Deposit

32. If the applicant does not comply with the terms and conditions of the permit or the provisions of this bylaw the District may use all or a portion of the security deposit or call for and receive the funds secured by the letter of credit and use the funds to remedy the non-compliance, or if the *work* under the permit is not completed before 1 month of the expiry date of the letter of credit, the District may call for and receive the funds secured by the letter of credit and retain the funds until the applicant delivers a replacement letter of credit to the District in the same form and amount; and at the discretion of the District, all or part of this security may be held for up to three years of issuance.

The security taken pursuant to this section may also be used by the District in accordance with section 5.7 of the Construction Bylaw 8271, 2017 and the security deposit taken pursuant to section 5.7 of the Construction Bylaw 8271, 2017 may be used by the District for this section 32. **(8271)**

Liability On Security Deposit

33. Prior to issuance of a permit for *work* on land owned by the Corporation of the District of North Vancouver, an applicant is required to obtain and maintain, at all times during the period of validity of the permit, public liability insurance in the amount of \$5,000,000, in connection with the obligations under this bylaw with deductibles and terms reasonably satisfactory to the District, with the District listed as an "Additional Named Insured" and evidence of this coverage must be provided in the form of an insurance certificate, and with a provision that the insurer will notify the District in writing at least 30 days prior to cancellation of the policy, and will deliver a certified copy of such policy to the District upon demand.

(6727)

Fees

34. For fees associated with permits, re-inspection, inspection procedures, works conducted without a permit, and preliminary site review – environmental requirements, as described or required, or both, under this bylaw, refer to Schedule "B" of the District of North Vancouver Fees and Charges Bylaw 6481.

(6949 7144 7291 7363 7517 7757 7799 7960)

Public Meeting

35. Upon receipt of an application for a Tree Permit for a parcel of land greater than one hectare in size Council may, at its discretion, require a public information meeting to be held prior to Council issuing or refusing the permit.

(6727)

Issuing Of Permit

36. When all conditions have been met for the issue of the permit,
- a. an Aquatic Area Permit shall be issued; and
 - b. a Soil Permit shall be issued subject to the terms and conditions required by the Environmental Protection Officer to ensure compliance with the provisions of this bylaw or any other bylaw.

(7821)

Maintaining Validity Of Permit

37. A permit is valid while
- a. everything done under the permit conforms with the provisions of this bylaw, including the terms and conditions of the permit;
 - b. all federal and provincial approvals remain in effect;
 - c. all information provided in support of the application for the permit is correct; and
 - d. any person providing services required under this bylaw has adequately met the requirements of this bylaw, and failure to meet any of these provisions invalidates the permit.

PART G

ENFORCEMENT

Order To Comply

38. Where the holder of a permit has failed to maintain the validity of the permit, the Section Manager-Environment Services, Environmental Protection Officer, Environmental Control Technician, a Bylaw Enforcement Officer, Park Ranger, a Building Inspector, or the Arborist may, in accordance with section 39, serve on such person an Order to Comply which requires the person to remedy the non-compliance within 14 days or, if in the opinion of the Environmental Protection Officer special circumstances exist, on a date the Officer considers reasonable in the circumstances.

(6727 7496)

Service Of The Order

39. The Section Manager-Environment Services, Environmental Protection Officer, Environmental Control Technician, a Bylaw Enforcement Officer, Park Ranger, a Building Inspector, or the Arborist shall serve the Order to Comply on the holder of the permit by
- (a) personal service, or
 - (b) return registered mail to the address of the holder of the permit as it appears on the application for the permit and when an Order to Comply is not personally served it is deemed to have been served on the third day after mailing or posting.

(6727 7496)

Appeal

40. A person upon whom an Order to Comply has been served may, by giving notice in writing to the Municipal Clerk at least 72 hours prior to the expiry of the time given in the Order to Comply to remedy any contradictions of the bylaw, appeal to the Council who shall hear and determine the appeal by confirming, amending or rescinding the Order to Comply.

41. Deleted

(7821)

Designation Of Bylaw

42. This bylaw is designated pursuant to sections 272-273 of the *Municipal Act*, R.S.B.C. 1996, c.323 (the *Municipal Act*) as a bylaw that may be enforced by means of a ticket in the form prescribed.

Designation Of Bylaw Enforcement Officer

43. The Section Manager-Environment Services, Environmental Protection Officer, Environmental Control Technician, Arborist, Bylaw Enforcement Officers, Park Ranger, and Building Inspectors are designated to enforce this bylaw by means of a ticket pursuant to section 264 of the Community Charter.

(7496)

Ticketing

44. The words or expressions listed below in the **Designated Expression** column are authorised to be used on a ticket issued pursuant to section 264 of the *Community Charter* to designate an offence against the respective section of this bylaw appearing opposite in the **Section** column and the amounts appearing in the **Fine** column below are the fines set pursuant to section 264 of the *Community Charter* for contravention of the respective section of this bylaw appearing opposite in the **Section** column:

Designated Expression	Section	Fine
discharge of fouling material	7.	\$250.00
conduct works in stream corridor without permit	9a.	\$100.00
conduct works in stream corridor contrary to permit	9b.	\$250.00
deposit soil without permit	21a.	\$100.00
deposit soil contrary to permit	21b.	\$250.00
remove soil without permit	21a.	\$100.00
remove soil contrary to permit	21b.	\$250.00
deposit contaminated soil	19.	\$300.00

(7821)

Offences And Penalties

45. (a) A person who:

- i. contravenes a provision of this bylaw;
- ii. causes, consents to, allows or permits an act or thing to be done contrary to this bylaw;
- iii. neglects or refrains from doing anything required by a provision of this bylaw; or
- iv. fails to comply with any order, direction or notice given under this bylaw,

commits an offence and is subject to the penalties imposed by this bylaw and the *Offence Act*.

- (b) Each instance that a contravention of a provision of this bylaw occurs and each day that a contravention occurs or continues shall constitute a separate offence.
- (c) A person found guilty of an offence under this bylaw is subject to a fine of not less than \$1,000.00 and not more than \$50,000.00 for every instance that an offence occurs or each day that it occurs or continues, plus the costs of prosecution.

(8559)

Obstruction

- 46. A person must not interfere with, delay, obstruct or impede a Bylaw Enforcement Officer or designate or other person lawfully authorized to enforce this bylaw in the performance of duties under this bylaw.

(8559)

Default

- 47. Whenever a person is in default of doing any matter or thing required to be done under this bylaw, the District, through its employees or agents, may do what is required to be done, at the expense of the person in default, and such costs will constitute a debt due and owing in accordance with section 17 of the *Community Charter*.

(8559)

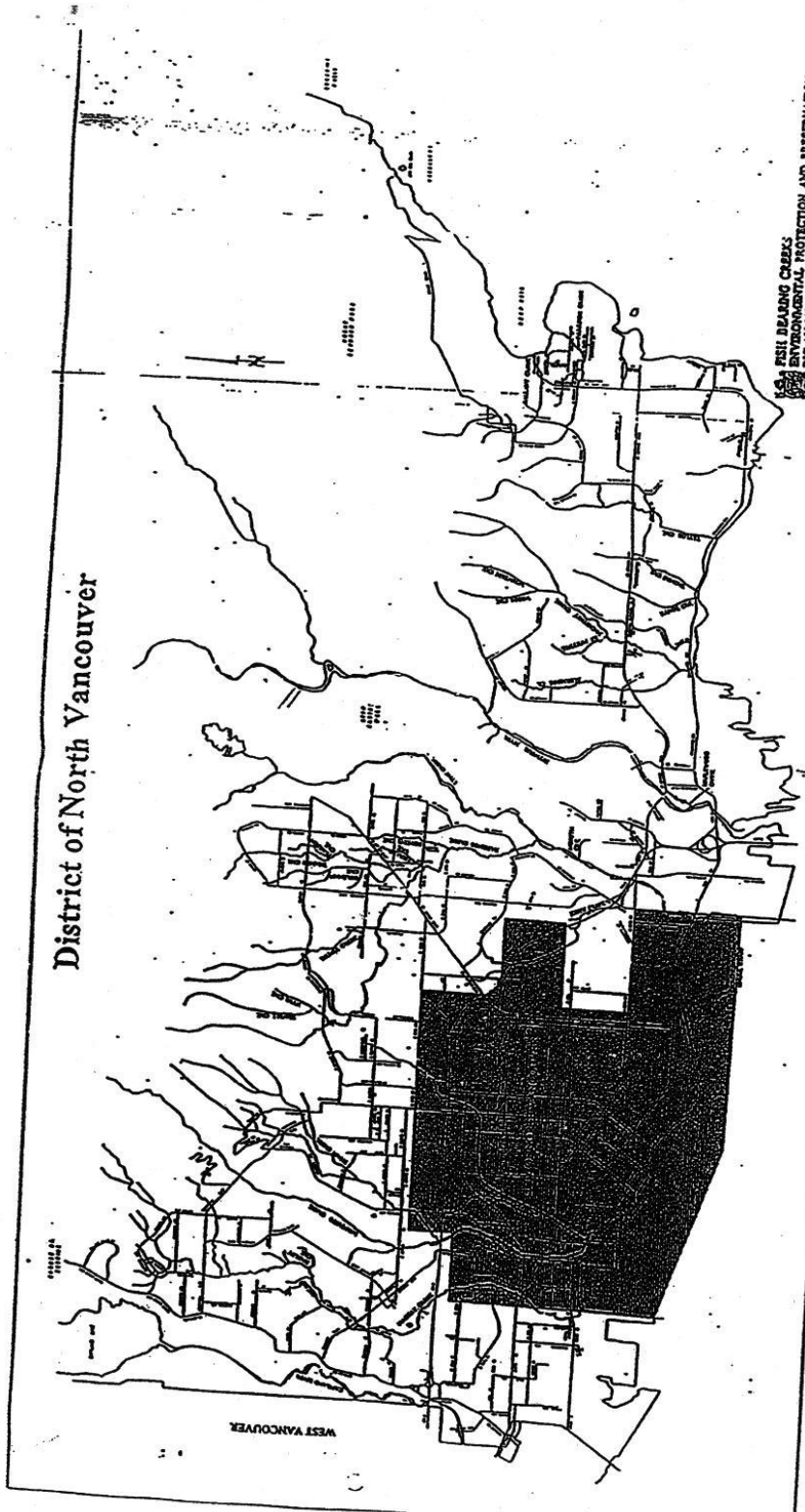
PART H

REPEAL

Repeal

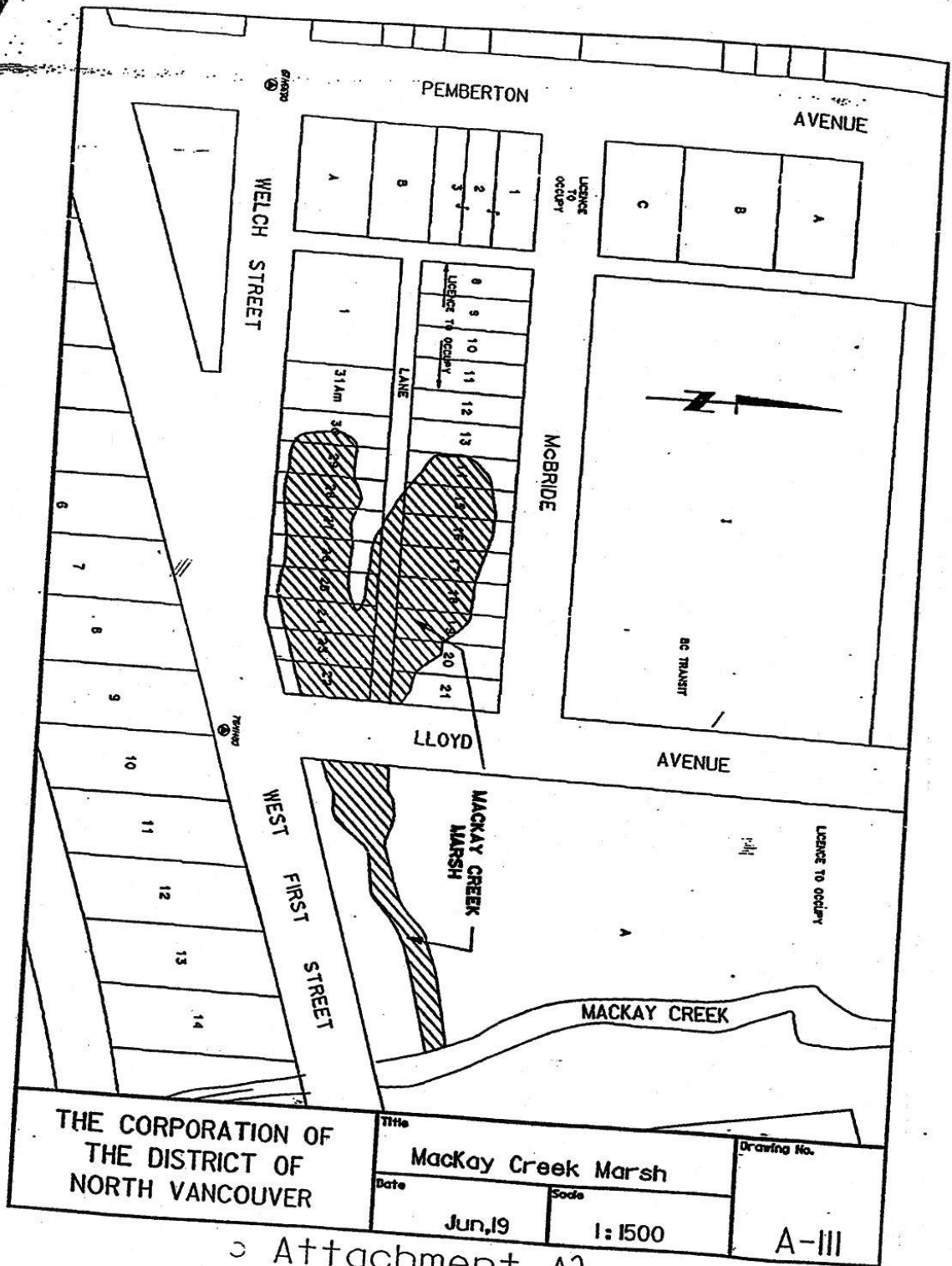
- 48. The Watercourse Regulation Bylaw (Bylaw 3612) and all amendments thereto, the District of North Vancouver Soil Removal Bylaw 1963 (Bylaw 2994) and all amendments thereto, and the Tree Cutting Bylaw (Bylaw 6046) and all amendments thereto are repealed.

**Amended by: 6658 6727 6838 6919 6949 7034 7144 7291 7363 7496 7517 7637 7659 7765
7799 7821 8271 8559**

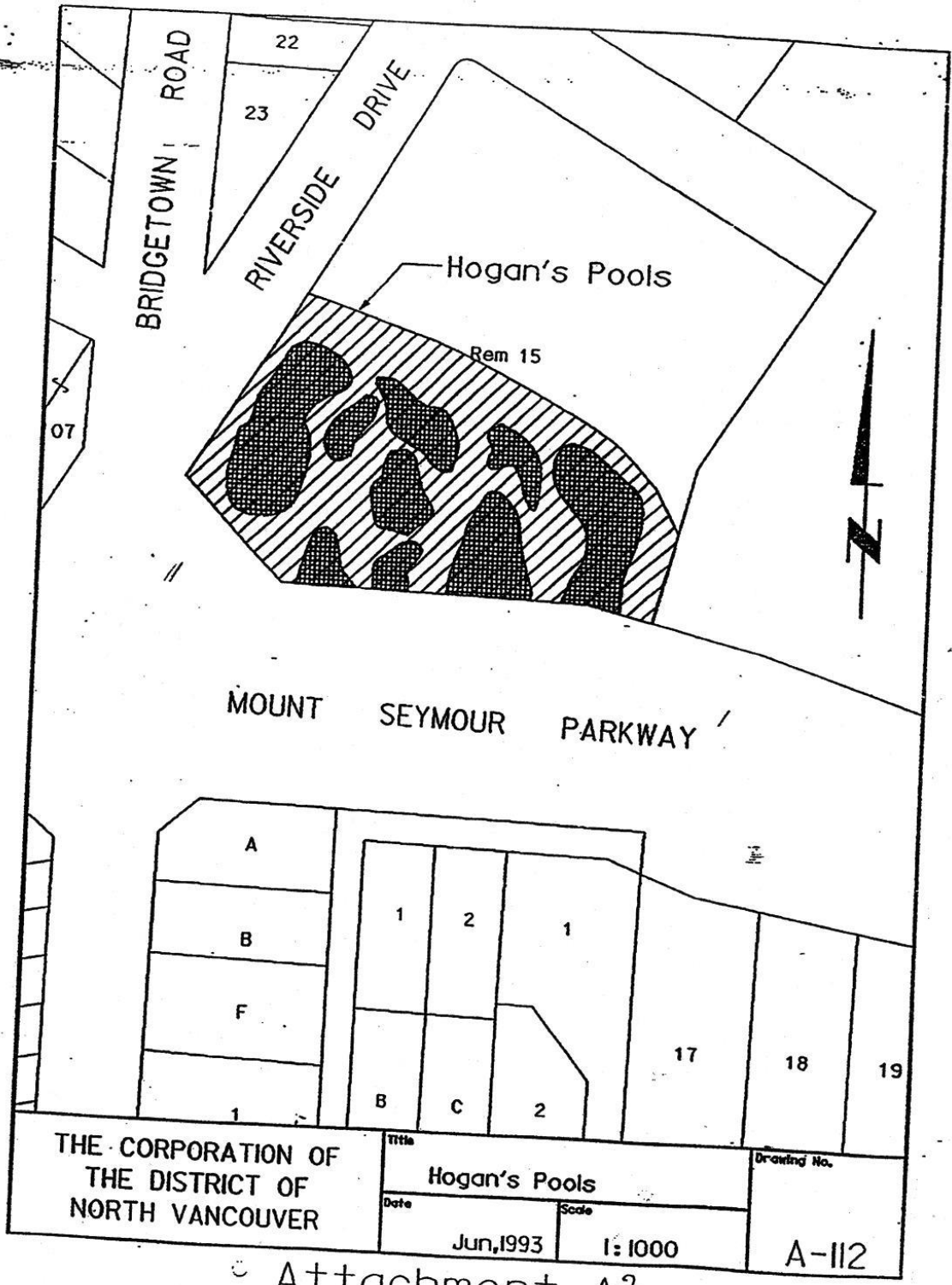


District of North Vancouver

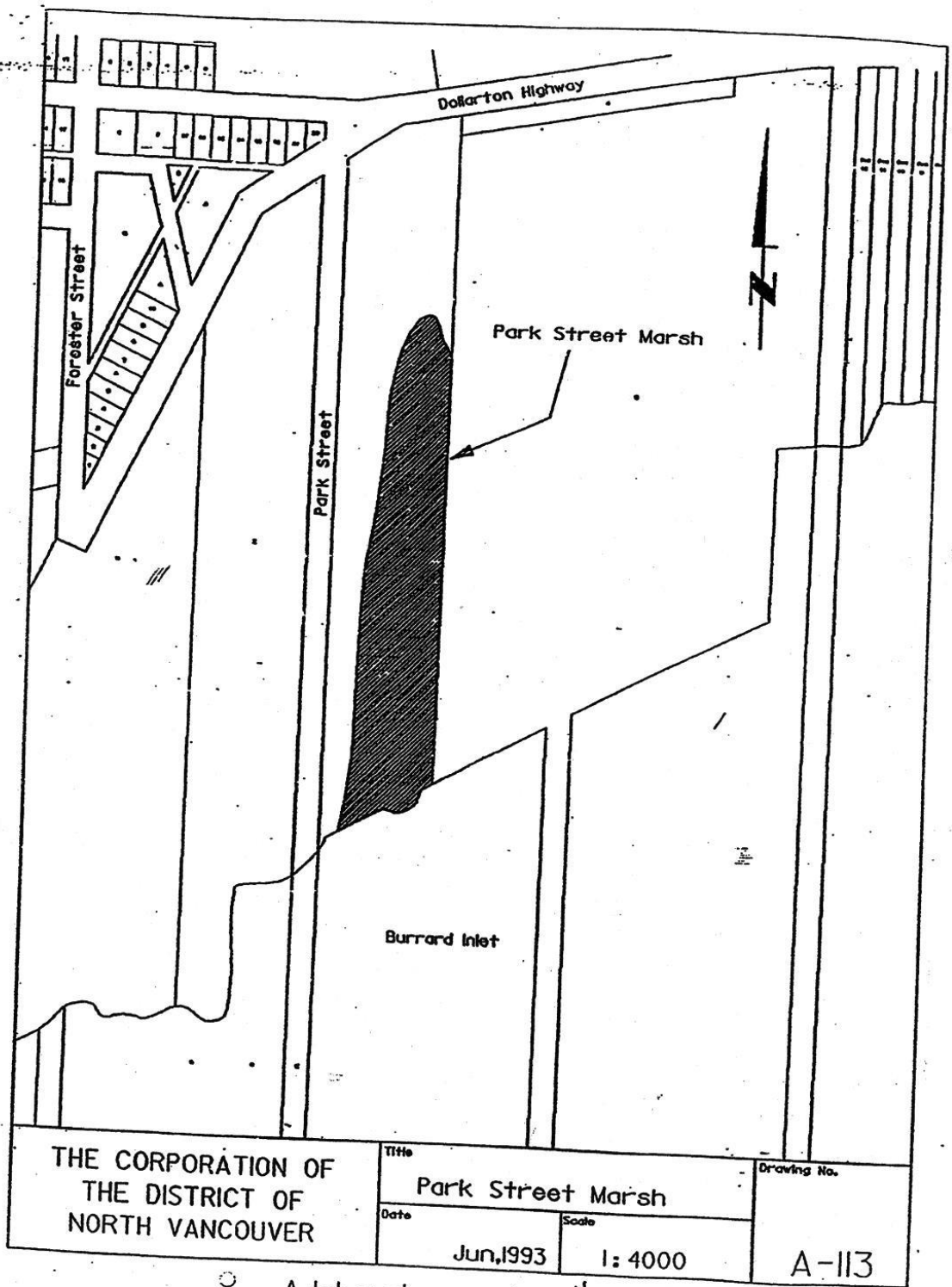
FOR FISH READING CHECKS
ENVIRONMENTAL PROTECTION AND PRESERVATION
BYLAW NO 811



Attachment A2



Attachment Δ3



Attachment 14

ATTACHMENT A.5

A Guide to Riparian Revegetation

Riparian zones are located next to streams, rivers, lakes and wetlands, and have direct influence on aquatic and wildlife habitat. These include swampy areas, wetlands, small streams and old channels or intermittently wetted areas. Riparian areas or zones can broadly be described as the areas of the streambank, including old channel and associated banks, and they include upland areas not normally inundated during high water conditions. Leave strips are the areas of land and vegetation adjacent to watercourses that are to remain in an undisturbed state, throughout and after the development process. They protect the riparian zone and help protect private property from flooding and potential loss of land due to stream erosion and instability.

The following provisions are steps intended to protect leave strips and maintain a healthy functional riparian zone.

Minimizing Impacts on Riparian Areas

- Streambank characteristics and vegetation should be taken into account when planning development activities in and around rivers and streams.
- During development of the land, there should be no unauthorized work or disturbance into the riparian zone.
- Where encroachment into a leave strip is required, specific plans must be prepared and approved by DFO and MOELP in advance.
- Carefully select access points to the streambank through the riparian zone; minimize the size and duration of disturbance; and preserve streamside vegetation and undergrowth wherever possible.
- Limit machinery and equipment access and direct disturbance to streambank areas.

Stabilizing Impacted Riparian Areas

- Physical stabilization of eroding or eroded banks may be required to promote bank stability and regeneration of riparian vegetation.
- Design and construction of stabilization works should prevent their subsequent erosion.

- Remove disturbed, unstable debris from the riparian zone to prevent it from being swept away during high water.
- Retain stable large organic debris (LOD) which does not impede flows and fish migration, or promote bank erosion.

Revegetating Impacted Riparian Areas

- Revegetate disturbed areas immediately following completion of work in riparian zones.
- Establish ground cover through ground seeding to prevent surface erosion.
- Plant deeper rooted plants, shrubs and trees to provide long-term stability to the streambank and prevent erosion.

The following native tree and shrub species are those recommended for revegetating riparian areas next to streams, lakes and wetlands with the benefit of enhancing fish and wildlife habitat values.

Deciduous Tree Species:

Vine Maple	<i>Acer circinatum</i>
Hawthorn	<i>Crataegus douglasii*</i>
Pin Cherry	<i>Prunus pennsylvanica*</i>
Choke Cherry	<i>Prunus virginiana*</i>
Mountain Ash	<i>Sorbus aucuparia*</i>
Pacific Willow	<i>Salix lasioandra</i>
Pacific Crabapple	<i>Malus diversifolia*</i>

Coniferous Tree Species:

Douglas Fir	<i>Pseudotsuga menziesii</i>
Western Red Cedar	<i>Thuja plicata</i>
Western Hemlock	<i>Tsuga heterophylla</i>

Shrub Species:

Red Osier Dogwood	<i>Cornus saricoca*</i>
Thimbleberry	<i>Rubus parviflorus*</i>
Salmonberry	<i>Rubus spectabilis*</i>
Elderberry	<i>Sambucus racemosa*</i>
Snowberry	<i>Symphoricarpos albus*</i>
Red Huckleberry	<i>Yacdnium parviflorum*</i>
Nootka Rose	<i>Rosa nutkana*</i>
Shrub Rose	<i>Rosa rugosa*</i>
Fussy Willow	<i>Salix discolor</i>

* denotes fruit-bearing species!

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Planting Criteria:

- All tree and shrub species should be guaranteed nursery stock for successful transplanting.
- The correct botanical name should be used to order planting stock and tags should be left attached for field identification.
- Tree stock should be a minimum of 1.5 meters in height when purchased, and planted at the width suitable for the mature stock (no greater than 2.0 meters apart).
- Stock should be planted in the fall (September to October) and spring (March to April) depending on local conditions.
- The quantity of stock planted should ensure at least 80% take, or replanting will be required.
- Additional fertilizing and watering may be required if site soil conditions are poor for successful established growth.
- Fruiting trees and shrubs should be planted to promote recolonization by seed and provide bird/wildlife food sources.

Suggested Planting Layout:

Planting layout will depend on what is required to reestablish or enhance existing riparian vegetation, species selected, density of plants, mature plant heights and planting system: linear, random, grid, etc.

Ground Seeding:

Seeding reduces surface erosion, enhances the soil's absorption and retention of water and promotes establishment of suitable soil conditions for larger plants. Generally, a combination of 2-5 species of seed-forming grasses, bunch grasses and nitrogen-fixing legumes are required, depending on soil type, climate, soil moisture and species compatibility. A general purpose seeding mix would include:

- | | |
|-------------------|------------------------|
| 25% red fescue | 20% perennial ryegrass |
| 15% hard fescue | 15% orchard grass |
| 10% alsike clover | 10% white clover |
| 5% redtop | |

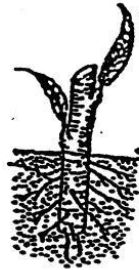
Additionally:

- Seeding should occur in spring or fall when soil conditions are suitable.
- Grass-legume ratio should be 70:30 in wet areas and 80:20 in dry areas.
- Dry seeding should be done at a minimum rate of 80 kg/ha.
- Fertilize with 19-20-12 at a minimum rate of 400 kg/ha.

Live Staking:

Live staking usually involves the planting of rooted or unrooted cuttings of *Populus* or *Salix* to establish shrubs for the prevention of erosion and protection of streambanks. The shrub species used for live staking must be:

- Indigenous to the area, easily propagated and provide the required effect.
- Harvested with the dormant plant's previous season's growth with straight, healthy stalks and clean unsplit ends.
- Cuttings 15-20 cm long with a mid-stem diameter of 2 cm minimum. Avoid using the top 10 cm of the stem. Cuttings should have a minimum of two healthy buds per stem.



Planted in late autumn or early spring after buds have set (full dormancy) with two buds above ground, but with as little stem exposed as possible.

Cuttings planted firmly in the soil at required density and spacing.

Experience has shown better survival and shrub development if 3-4 cuttings are bundled and planted together.

Harvesting of cuttings should not depopulate or destroy native shrubs; collection of cutting should be from a large population for minimum impact.

For Further Information

Contact your local office of the Department of Fisheries and Oceans, or Ministry of Environment, Lands and Parks.

Attachment D.3
THE CORPORATION OF THE DISTRICT OF NORTH VANCOUVER
HERITAGE TREES

- | <u>NAME:</u> | <u>LOCATION</u> |
|--|---------------------------------|
| 1. Copper Beach (<i>Fagus sylvatica</i> 'Cuprea')
Comments: This mature specimen, approximately 70 feet high, remains from the landscaping of the boy's school which was formerly on this site. The tree is in very good condition, and is typical of English style landscaping. | 355 Queens Road West |
| 2. Damson Plum (<i>Prunus inipitia</i> 'Damson')
Comments: Also remaining from the landscaping of the boy's school, its ornamental fruit tree is in very good condition. The billowy shape results from the weight of the fruit, and provides good shade. | 355 Queens Road West |
| 3. Horse Chestnut (<i>Aesculus hippocastum</i>) trees
Comments: These street trees were planted by the North Lonsdale Ratepayers Association as a local area improvement. They are unusual for having been planted on the south side of the street only. | 100 - 300 block Kings Road East |
| 4. Black Locust (<i>Robinia pseudoacacia</i>) tree:
Comments: This very large and old specimen exists in conjunction with a primary heritage building, the Davidson House. It provides dappled shade, and the leaves turn bright yellow in the fall. | 299 Kings Road East |
| 5. Tulip (<i>Liriodendron tulipifera</i>) tree:
Comments: Planted in conjunction with a primary heritage building, the Jacobs House, the flowers of this ornamental tree are small and yellow, and resemble tulips, hence its name. | 461 Kings Road East |
| 6. Spanish Chestnut (<i>Castanea sativa</i>) tree:
Comments: An unusual specimen, also known as a Sweet Chestnut, this ornamental tree is part of the landscaping of a secondary building, the Brown House. | 382 Saint James Road East |
| 7. Black Walnut (<i>Juglans nigra</i>) tree:
Comments: This large, mature and healthy specimen is part of the landscaping of the Ward House, a secondary heritage building. | 390 Kings Road East |
| 8. Giant Sequoia (<i>Sequoiadendron giganteum</i>)
Coast Redwood (<i>Sequoia sempervirens</i>)
Native Larch (<i>Larix occidentalis</i>)
Blue Cedar (<i>Cedus atlantica glauca</i>) | Carisbrooke Park: |
| 9. Sitka Spruce (<i>Picea sitchensis</i>)
Comments: The historic Allen House, built circa 1905, boasts many features of its early landscaping, including this large specimen Sitka Spruce. | 1458 29th Street East |
| 10. Walnut (<i>Juglans Regia</i>) | 1045 Cortell Street |

Comments: The tree straddles the property line between 1045 Cortell Street and the Cortell Street road allowance on the north western area of the 1045 Cortell Street property.