CORPORATION OF THE CITY OF NEW WESTMINSTER

SOIL DEPOSIT REGULATION BYLAW

The Council of the City of New Westminster, in open meeting assembled, ENACTS AS FOLLOWS:

PART I – CITATION

1. Citation

1.1 This bylaw may be cited for all purposes as “New Westminster Soil Deposit Regulation Bylaw No. 7102, 2006”.

PART II – INTERPRETATION

2. Interpretation

2.1 In this bylaw:

“City” means the City of New Westminster;

“Council” means the municipal council of the City of New Westminster;

“deposit” or “deposit operation” means to place soil or other material upon land on which such soil or other material did not previously exist or stand, and includes the movement of soil or other material from one part of a property to another part of the same property and, in the case of preload fill, removal of the preload shall be considered part of the deposit operation;

“Engineer” means the Director of Engineering for the City and any person designated by the Engineer to act in his or her place;

“highway” includes a street, road, lane, bridge, viaduct and any other way open to public use, other than a private right-of-way on private property;

“other material” means any material not classified as soil that is deposited on land for any purpose including soil consolidation.

“parcel” means any lot, block or other area in which land is held or into which land is subdivided but does not include a highway;

“permit” means the written authority granted by the Engineer under this bylaw for the deposit of soil or other material upon land within the City;

"project environmental engineer" means an engineer registered with the Association of Professional Engineers and Geoscientists of B.C. as an environmental engineer or equivalent

"project geotechnical engineer" means an engineer registered with the Association of Professional Engineers and Geoscientists of B.C. as a geotechnical engineer

"soil" means clay, silt, sand, gravel, cobbles, boulders, peat or other substances of which land is naturally composed, that is deposited for any purpose including soil consolidation.

PART III – RESTRICTIONS AND EXEMPTIONS

3. Restriction and Permit Requirement

3.1 No person shall deposit, or cause, suffer or permit the deposit of any "waste", as defined in the *Environmental Management Act*, on any land within the City.

3.2 Except as otherwise provided in this bylaw, no person shall carry out a deposit, or cause, suffer or permit a deposit to be made on any land within the City without first making application for and obtaining a permit under this bylaw, and every such deposit shall conform in all respects to the regulations and requirements of this bylaw and the terms and conditions of the permit.

4. Exemptions from Permit Requirement

4.1 Despite Section 3.2, a permit is not required where the deposit:

(a) will not exceed 150 millimetres in depth at any point on the parcel;

(b) is required for the construction or maintenance of a private sewage disposal system or septic field for which a Provincial permit or approval has been granted;

(c) is provided by a bona fide processor of construction aggregates

required for the construction or installation of a roadway, utility service, dyke or other service;

(d) is an ingredient or component part of processed or manufactured materials where such materials are stockpiled on land where they are, under licence from the City, being processed or manufactured;

(e) is by a florist, grower, nursery or horticulturist on lands owned by that person and in connection with such trade or business;

(f) is required for the erection of a building or structure under a valid building permit or development permit issued by the City, where the deposit is in accordance with the approved drawings submitted as part of the application for such permit;

(g) is related to the construction of works and services for a subdivision where the deposit is in accordance with the approved drawings submitted as part of the application for subdivision;

(h) is required to create, maintain or repair a private road, driveway, paved parking area, dyke or any highway or statutory right-of-way necessary to accommodate a permitted use on the property; or

(i) is required for the construction, maintenance or repair of utility works within a highway or municipal works by or on behalf of the City.

PART IV – PERMIT APPLICATION PROCESS

6.0 Application Requirements

6.1 Every application for a permit shall be made in writing to the Engineer on the form prescribed in Schedule “A” of this bylaw and shall include:

(a) a non-refundable application fee in the amount of $200.00 plus $0.15 per cubic metre of soil or other material to be deposited;

(b) a deposit of security in accordance with the requirements of Section 7.1;

(c) a description of the purpose for which the deposit is to be made;

(d) a statement of the estimated total volume of the deposit and the estimated total volume of the deposit to remain on the deposit site after surcharge removal. These volumes shall be determined by the project geotechnical engineer and shall represent the likely total volume of fill required to obtain the conditions provided for by the permit drawings;

(e) the consent in writing of the owner and any person having a registered charge against the lands from or upon which it is intended to deposit the soil or other material, together with a current State of Title Certificate attesting to the ownership of the lands immediately prior to the date of application;

(f) proof satisfactory to the City that the applicant is in possession of all permits or approvals required under the *Pollution Control Act* and the *Environmental Management Act*;

(g) a release and indemnity in favour of the City, in the form prescribed in Schedule "A", releasing, indemnifying and saving harmless the City, its agents, employees, officers and servants, from and against all claims, demands, losses, costs, damages, actions, suits or proceedings whatsoever by whomsoever brought by reason of, or arising from, the issue by the City of a permit under this bylaw to conduct the proposed deposit operation; and

(h) such further and other information as the Engineer determines is necessary to adequately describe the nature and extent of the deposit or removal operation.

6.2 In addition to the above requirements, every application for a permit to deposit a volume of soil or other material in excess of 150mm in depth shall include:

(a) plans of the lands upon which the applicant proposes to make the deposit, prepared by a B.C. Land Surveyor or professional engineer registered in the Province of British Columbia, which shall include:

i) contour plans of the lands, to a scale of not less than 1:500 metric, showing contours at a vertical interval suitable to describe the existing terrain of the lands and the relation to that of the adjoining lands and highways and showing the proposed geodetic survey of Canada (G.S.C.) datum elevations of the lands after the deposit has been made. In

the case of preload deposits, the plans shall show the proposed elevation of the preload, and the proposed final elevation after preload removal. Where the lands are subject to a “Flood Construction Level” restriction imposed under a flooding covenant, and where the deposit is proposed to achieve that “Flood Construction Level”, the final G.S.C. datum elevation of the deposit may not exceed the “Flood Construction Level” plus an allowance for long-term settlement, as approved by the Engineer;

ii) full particulars of the present use, occupancy and condition of the lands upon which the deposit is proposed and of those portions of adjacent lands which may be affected by the proposed deposit, including all pertinent topographic features, buildings, structures and tree cover existing on the lands, highways and highway allowances, foot paths, watercourses, water table drainage facilities, wells, private sewage disposal systems, fence lines, facilities existing for pedestrian and vehicular traffic (indicating the suitability of same for carrying the type and volume of traffic to be generated by the deposit), utilities, services and other existing facilities;

iii) the proposed slopes which will be maintained during and upon completion of the deposit operation;

iv) the proposed methods of sediment and erosion control for the banks of any excavation or deposit, during and upon completion of the deposit operation;

v) the proposed methods of drainage control and sediment and erosion control, which methods shall meet the standards of the City’s Subdivision and Development Control Bylaw for the deposit operation, both during and upon completion of the deposit operation;

vi) the proposed methods of access to the lands during and upon completion of the deposit operation;

vii) the proposed methods of fencing, enclosing, and clearing the lands to ensure that no hazard to human or animal life is created or exists;

viii) the proposed location of stockpiles indicating their extent and nature;

ix) the proposed location of machinery, buildings, scales and other structures and improvements to be located on the lands in connection with the proposed deposit operation;

x) proposed trucking routes, trip frequency and traffic control provisions; and

xi) such further and other information as may be necessary to adequately describe the proposed soil deposit operation; and

(b) detailed calculations, cross-sections and other engineering data and pertinent information used in calculating the volume of soil or other material to be deposited.

7. Security

7.1 In order to ensure full and proper compliance with the provisions of this bylaw and all terms and conditions of the permit, every applicant must, prior to the issuance of a permit, deposit with the City security in the form of cash or an unconditional, irrevocable letter of credit, in a form acceptable to the Engineer and drawn on a Canadian financial institution, in an amount equal to $3,500.00 per 5000 cubic metres of soil to deposited, or fraction thereof. The security shall be maintained in full force and effect throughout the permit period and thereafter as may be required by the Engineer. That portion of the security deposit not required for the purposes of ensuring compliance with this bylaw and the permit or to repair damage to City property caused by the deposit operation, shall be returned to the applicant.

8. Permit Issuance

8.1 Subject to Section 8.2, where:

(a) an application for a permit complies with the requirements of this bylaw;

(b) the proposed deposit complies with this bylaw and all other applicable City bylaws and local, provincial or federal enactments

and regulations;

(c) the Engineer, having regard to the documents, plans and information submitted with the application for a permit, is of the opinion that the deposit can be carried out safely, without undue nuisance or interference to adjacent lands or the public, or damage or injury to persons or property;

the Engineer may issue a permit in the form prescribed by Schedule "B" attached to and forming part of this bylaw.

8.2 A permit will not be issued where the proposed deposit could reasonably be expected to:

(a) endanger, damage or otherwise adversely affect any adjacent land, structure, highway, easement, utility works and services or right-of-way;

(b) foul, obstruct, impede or otherwise adversely affect any stream, creek, waterway, watercourse, groundwater acquifer, waterworks, ditch, drain, sewer or other established drainage facility; or

(c) endanger or otherwise adversely affect an environmentally sensitive area.

9. Expiry

9.1 Every permit shall expire 12 months from the date of issue or upon such earlier date as may be specified in the permit.

10. Renewal, Modification, Transfer, Display and Records

10.1 If the deposit operation authorized by a permit are not completed before the permit expires, or it becomes necessary to alter or deviate from the particulars of the permit application or drawings submitted for a permit, the Engineer may renew or modify the permit upon written request of the permit holder, subject to the following:

(a) an application to renew a permit shall be made in the same manner and upon payment of the same fees and deposit of the same security as provided in this bylaw for the original permit;

(b) an application to renew a permit shall include a fee in accordance

with paragraph 7 of Schedule 'A'.

(c) the Engineer may require that the permit holder provide additional information authorized by this bylaw as a pre-condition to considering an application for a permit renewal or modification; and

(d) all terms and conditions set out in the original permit shall apply to each renewal or modification of the permit except as expressly amended or modified by the renewal or modification.

10.2 No permit or interest in a permit may be transferred or assigned. Where there is a change of ownership in the land for which a permit has been issued, the permit shall immediately become void and the deposit operation shall immediately cease.

10.3 Each permit shall be visibly displayed in a protected, accessible and conspicuous position on the lands for which the permit has been issued and shall be made available to the Engineer upon request.

10.4 Every permit holder shall maintain accurate and up-to-date records of the progress of the deposit operation sufficient to show compliance with the provisions of this bylaw and the permit, and such records shall be made available to the Engineer upon request.

PART V – REGULATIONS

11. Regulations

11.1 Every person who makes a deposit, or causes, suffers or permits a deposit to be made shall comply with, and every permit issued under this bylaw is subject to, the observance or fulfilment of the following requirements, restrictions and regulations, to the satisfaction and approval of the Engineer:

(a) every deposit shall comply with the regulations and requirements of Schedule "C" of this bylaw;

(b) deposit operations may only be carried out within the limits of time indicated in City of New Westminster Construction Noise Bylaw

6063, 1992.;

(c) every truck used for hauling soil or other material shall be properly licensed and in compliance with all applicable laws and regulations governing the use and operation of the truck on a highway;

(d) every load of soil or other material shall be fully and properly covered so as to prevent dust or soil from blowing or falling from the vehicle;

(e) all damage to drainage facilities, natural watercourses, service mains or connections, roads, lanes or other highways or public or private property shall, at the expense of the permit holder, be promptly and properly repaired to the satisfaction of the Engineer so as to restore the property as nearly as possible to its condition prior to the commencement of the deposit operation, except that, all repairs to City or other public authority facilities or property shall be done by the City or other public authority, unless otherwise authorized by the Engineer;

(f) all streams, creeks, waterways, natural watercourses, groundwater aquifers, waterworks, ditches, drains, sewers or other established drainage facilities shall be kept free of all soil arising from or caused by the deposit operation;

(g) no deposit greater than 0.5 metres in depth shall be undertaken within 2.5 metres of any utility pole, pipeline, structure or highway without giving prior notice to and receiving approval from the City or other authority having jurisdiction;

(h) no deposit shall be undertaken on a highway, statutory right-of-way or easement without first obtaining the permission in writing of the City or other authority having jurisdiction over such highway or statutory right-of-way;

(i) all structures or excavations erected or made in connection with a deposit operation shall be temporary in nature and shall be removed forthwith upon completion of the operation;

(j) all hazards or potential hazards arising from the deposit shall be adequately fenced or otherwise protected for the safety of the public;

(k) during and upon completion of the every deposit operation, the boundaries of all adjacent lands, highways, rights-of-way and easements shall be protected from erosion or collapse and from run-off of water or mud;

(l) stockpiles of soil or other material shall be confined to the locations prescribed in the permit and shall be maintained so that they do not adversely affect or damage adjacent properties or cause a nuisance to any person;

(m) deposit operations must not encroach upon, undermine, damage or endanger any adjacent property or any setback area prescribed in the permit or a bylaw; and

(n) deposit operations shall be limited only to the area specified in the permit which shall be clearly marked at the site and such markings maintained for the duration of the permit.

11.2 The Engineer may issue a permit subject to the observance or fulfilment of additional conditions specified in the permit which in the opinion of the Engineer are necessary to achieve the purposes of this bylaw.

PART VI – ADMINISTRATION

12. Right of Entry for Inspection

12.1 The Engineer is hereby authorized at all reasonable times to enter upon and inspect any lands to determine whether the requirements, restrictions, regulations, terms, conditions and directions of this bylaw or a permit are being observed.

12.2 No person shall prevent or obstruct or attempt to prevent or obstruct the Engineer from entering upon lands as authorized by Section 12.1.

13. Notice of Non-compliance

13.1 The Engineer may give notice to any person, including but not limited to a permit holder, the owner or occupier of lands upon which a deposit is being made or any person engaged in a deposit operation, of a breach of, or non-compliance with, any of the provisions of this bylaw or a permit issued under this bylaw.

13.2 Every person receiving a notice referred to in Section 13.1, shall immediately cease all deposit activities and operations until such breach or non-compliance is remedied to the satisfaction of the Engineer and every owner of land shall refuse to permit the further deposit of soil upon the land until such time as the breach or non-compliance is remedied to the satisfaction of the Engineer.

14. Failure to Remedy Non-compliance

14.1 In the event that a person having received notice of breach fails within the time specified in the notice to remedy such breach or otherwise continues to breach any provision of this bylaw or any permit issued under this bylaw:

(a) the City or its appointed agents and contractors may enter upon the lands or any part thereof and carry out such works as may be required to remedy the breach, and the expense of doing so shall be paid by the person in breach within 30 days of receipt of the City's invoice;

(b) where the City's invoice remains unpaid after 30 days and security has been deposited with the City under this bylaw, the City may deduct the cost of such works from the security deposit;

(c) where no security has been deposited or the security deposited is insufficient to cover the cost of the City's works, the City may recover the costs, or any part of the costs, with interest at the rate of 6% per year, in the same manner as municipal taxes.

15. Suspension or Cancellation of Permit

15.1 If:

(a) there is a contravention of any term, condition, requirement or restriction of this bylaw or a permit issued under this bylaw; or

(b) a permit was issued under this bylaw on the basis of statements made in the permit application or a report, declaration or record

required under this bylaw, that was false or misleading with respect to a material fact or that omitted to state a material fact, the omission of which made the statement false or misleading;

the Engineer may:

(c) suspend in whole or in part the rights of the permit holder under the permit;

(d) cancel the permit; or

(e) amend or attach new conditions to a permit with the consent of the permit holder.

16. Removal of Surcharge

16.1 The applicant or owner of the property on which the deposit is placed is required to provide the Geotechnical Engineers certification that removal of the surcharge is appropriate, and must give the City a copy of such certification with a minimum of 2 business days notification of intention to commence surcharge removal. Surcharge removal shall not proceed without prior City approval. All applicable provisions of Section 6.2 of this bylaw apply to surcharge removal.

PART VII – OFFENCES AND PENALTIES

17. Offences and Penalties

17.1 Any person who contravenes or violates any provision of this bylaw or of any permit issued under this bylaw or who suffers or allows any act or thing to be done in contravention or violation of this bylaw or any permit issued under this bylaw, or who fails or neglects to do anything required to be done under this bylaw or any permit issued under this bylaw, commits an offence and upon conviction shall be liable to a fine of not more than $10,000.00 and where the offence is a continuing one, each day that the offence is continued shall constitute a separate offence.

PART VIII – SEVERABILITY

18. Severability

18.1 If any section, subsection, sentence, clause or phrase of this bylaw is for any reason held to be invalid by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this bylaw.

19. Repeal

19.1 “Queensborough Fill Bylaw No. 5300, 1981” is hereby repealed.

READ A FIRST TIME this	day of	, 2006
READ A SECOND TIME this	day of	, 2006
READ A THIRD TIME this	day of	, 2006
APPROVED by the Minister of Energy and Mines this	day of	, 2006
ADOPTED this	day of	, 2006

_____

Mayor

_____

City Clerk

SCHEDULE “A”

APPLICATION FOR PERMISSION TO DEPOSIT SOIL AND/OR OTHER MATERIAL

1. I/We _____ of
(full name)
_____
(address) (phone number)

hereby apply for a permit to deposit soil or other material upon the following lands:

Address:_____

Legal Description

_____

_____

2. The registered owner of the lands (if not the applicant)

is: _____

of: _____
(address) (phone number)

and the notarized consent of the owner authorizing this application is attached hereto.

3. The ground area of the deposit is _____ hectares

4. The estimated total volume of the deposit is _____ cubic metres.

5. The estimated total volume of the deposit to remain on the deposit site after surcharge removal is _____ cubic metres.

6. The proposed date of commencement of the deposit operation is_____;

the estimated date of completion is

_____.

7. The required permit fee of $200.00 plus $0.15 per cu. metre of initial deposit is included with this application. Any permit removal will incur fees as outlined in Section 10 of this bylaw.

I hereby declare that the above information is correct, that it is my intention to deposit soil or other material upon the lands in accordance with the attached plans and specifications, that I am aware of the provisions of the “New Westminster Soil Deposit Regulation Bylaw”, that I am aware that a security deposit in the form of cash or an irrevocable letter of credit drawn upon a Canadian chartered bank, trust company or credit union is required of me, and that I will abide by all applicable provisions of the New Westminster Soil Deposit Regulation Bylaw in respect of my application for a permit.

I hereby agree to release and forever indemnify and hold harmless the City, its elected officials, officers, employees, agents and assigns from and against all manner of actions, causes of action, claims, debts, suits, demands and promises whatsoever at law or at equity, whether known or unknown, which have arisen or may arise in connection with, directly or indirectly, the granting or existence of a permit issued to me to conduct the deposit operation proposed by this application.

Signature of Applicant:

_____
(Owner or Authorized Agent)

Date: _____

SCHEDULE "B"

SOIL DEPOSIT PERMIT NO. 7102, 2006

In accordance with New Westminster Soil Deposit Regulation Bylaw No. 7102 2006, permission is hereby granted to:

_____ of

_____
(address) (phone number)

to deposit _____ cubic metres of soil and/or other material upon the lands described as:

_____
(address of property)

_____
(legal description of property)
_____

in accordance with the provisions of New Westminster Soil Deposit Regulation Bylaw No. 7102, 2006, the application submitted by the applicant and the plans, specifications and other supporting data filed with the application, copies of which are attached to and form part of this permit, and the following additional terms and conditions:

Received _____

from _____
(type of security)

_____ No. _____

in the amount of $_____

as security for full and proper performance of the deposit operation in compliance

with New Westminster Soil Deposit Regulation Bylaw No. 7102, 2006 and all other terms and conditions of this permit.

This permit is issued on the _____ day of _____, 20

This permit shall expire on the _____ day of _____, 20

This permit may not be transferred or assigned.

_____

Director of Engineering Services
Corporation of the City of
New Westminster

CORPORATION OF THE CITY OF NEW WESTMINSTER

SCHEDULE “C” TO BYLAW NO. 7102, 2006

REGULATIONS REGARDING THE DEPOSIT OF SOIL

In addition to the requirements set out in the text of this Bylaw, every soil deposit operation shall comply with the following regulations:

1. Every Applicant for a Permit to Deposit soil shall submit with his application the following:

    (a) A description of the purpose for which the Deposit is to be made.

    (b) A statement of the estimated total volume of the Deposit, and the estimated total volume of the Deposit to remain on the Deposit site after surcharge removal. These volumes shall be determined by the Project Geotechnical Engineer, and shall represent the likely total volume of fill required to obtain the conditions provided for by the Soil Deposit Permit drawings.

    (c) The consent in writing of the owner and any person having a registered charge against the lands from or upon which it is intended to Deposit the Soil or Other Material, together with a current State of Title Certificate attesting to the ownership of the lands immediately prior to the date of application.

    (d) As security for the full and proper compliance with the provisions of this Bylaw and the performance of all terms and conditions expressed in the permit, the Applicant shall provide a cash deposit or irrevocable letter of credit drawn upon a Canadian chartered bank, trust company or credit union in a form acceptable to the City and in an amount equal to $3,500.00 for each 5000 cubic metres or fraction thereof of the lands upon which soil is to be deposited, which security shall be maintained in full force and effect throughout the permit period and thereafter as may be required by the Engineer.

    (e) Proof satisfactory to the City that the Applicant is in possession of all permits or approvals required pursuant to the Pollution Control Act and the Waste Management Act.

2. In addition to the above requirements, every Applicant for a Permit to deposit a volume of soil in excess of 150 millimeters (mm) in depth is required to submit with his application:

(c) plans of the lands upon which the Applicant proposes to make Deposit, prepared by a B.C. Land Surveyor or Professional Engineer registered in the Province of British Columbia, which shall include:

i) Topographic plans of the lands based on Geodetic Survey of Canada datum, to a scale of not less than 1:500 metric, showing spot elevations at break points of the ground surface (e.g. ditches, top and bottom of slopes, etc.) and at maximum 6 metres horizontal spacing in flat or gently sloping grounds. In the case of preload Deposits, the plans shall show the proposed elevation of the preload, and the proposed final elevation after preload removal. In areas subject to Flood Construction Level imposition through Flooding Covenant, and where the Deposit is proposed to achieve that Flood Construction Level, the final Geodetic Survey of Canada (G.S.C.) datum elevation of the Deposit may not exceed the Flood Construction Level plus an allowance for long-term settlement. This allowance must be calculated by the Geotechnical Engineer and approved by the Engineer.

ii) Full particulars of the present use, occupancy and condition of the lands upon which the Deposit is proposed and of those portions of adjacent lands which may be affected by the proposed Deposit, including all pertinent topographic features, buildings, structures and tree cover existing on the lands, highways and highway allowances, foot paths, watercourses, water table drainage facilities, wells, private sewage disposal systems, fence lines, facilities existing for pedestrian and vehicular traffic (indicating the suitability of same for carrying the type and volume of traffic to be generated by the Deposit), utilities, services and other existing facilities.

iii) The proposed slopes which will be maintained during and upon completion of the Soil Deposit operation.

iv) The proposed methods of sediment and erosion control for the banks of any excavation or Soil Deposit, during and upon completion of the Soil Deposit operation.

v) The proposed methods of drainage control sediment and erosion control shall meet the standards of the City Subdivision and Development Control Bylaw and MMCD for

the Soil Deposit operation during and upon completion of the Soil Deposit operation.

vi) The proposed methods of access to the lands during and upon completion of the soil deposit operation.

vii) The proposed methods of fencing, enclosing, and clearing the lands affected to ensure that no hazard to human or animal life shall exist.

viii) The proposed location of stockpiles indicating their extent and nature.

ix) The proposed location of machinery, buildings, scales and other structures and improvements to be located on the lands in connection with the proposed soil deposit operation.

x) Proposed trucking routes, trip frequency and traffic control provisions.

xi) Such further and other information as may be necessary to adequately describe the proposed soil deposit operation.

(d) Detailed calculations, cross-sections and other engineering data and pertinent information used in calculating the volume of soil to be deposited.

3. The Deposit shall at all times be carried out in accordance with the following requirements and to the satisfaction of the City:

(a) The slope of any part of an exposed face of any Deposit shall not be greater than the angle of repose necessary for stability of the Deposit in question.

(b) The Deposit shall not, in any way, interfere with the established above or below ground drainage pattern of any adjoining lands and shall not cause the groundwater table to rise on adjoining lands so as to cause flooding, contamination or malfunctioning of any private sewage disposal system or water supply system. Where necessary, a system of interceptor ditches or subsurface drains should be installed which is sufficient to compensate for any interference which might otherwise occur to such established drainage pattern as a result of the Deposit. In no circumstances shall the drainage measures depress the water table below the summer water table elevation (approximately low water level in nearby ditches).

(c) The Deposit shall be graded in such a manner that positive gravity drainage is assured throughout, and a drainage system shall be installed which is of sufficient capacity and extent to ensure that groundwater or surface runoff will not drain into adjoining lands at greater rates than those existing prior to the commencement of the Deposit.

(d) No Deposit shall be made over any dedicated public right-of-way or registered easement without first obtaining the approval, in writing, of the authority having jurisdiction over such right-of-way or easement, and a copy of such written approval shall be filed with the Engineer, and will form part of the Permit documentation.

Notwithstanding any other provision of this bylaw, no person shall make Deposit:

i) on or over any statutory right-of-way, easement area or on or over any pipe, utility or service in or above the ground whether or not there is a statutory right-of-way or easement agreement registered in the appropriate Land Title Office, without first obtaining the approval in writing of the authority having jurisdiction over such statutory right-of-way, easement, pipe, utility or service. Approval shall be on such terms and conditions as the authority having jurisdiction deems necessary or desirable to prevent injury or damage to the statutory right-of-way, easement, pipe, utility or service;

ii) within such proximity of any statutory right-of-way, easement or any pipe, utility or service in or above the ground, whether or not there is a statutory right-of-way or easement agreement registered in the appropriate Land Title Office, so as to give rise to a possibility of injury or damage to such statutory right-of-way, easement, pipe, utility or service, whether by settlement or pressure resulting from such deposit or otherwise, without first obtaining the approval in writing of the authority having jurisdiction over such statutory right-of-way, easement, pipe, utility or service on such terms and conditions as the authority having jurisdiction deems necessary or desirable to prevent injury or damage.

(e) A copy of the written approval and the terms and conditions referred to in subparagraphs (i) and (ii) above shall be delivered to the Engineer.

(f) For greater certainty the provisions of sections (d) and (e) above shall apply whether or not a Permit is required under this bylaw.

(g) No Deposit shall be made over private sewage disposal systems.

4. All buildings and structures erected in connection with a Deposit shall be temporary in nature and shall be removed immediately upon completion of the Deposit.

5. No person shall use washing, crushing, or screening equipment in connection with any Deposit unless such a person shall first have obtained a Permit to do so, or exemption from a requirement to obtain a Permit under the Pollution Control Act, and unless the lands upon which such washing, crushing or screening equipment are to be located are zoned for that use.

6. All hazards or potential hazards arising from Deposit shall be adequately fenced or otherwise protected for the safety of the public, and suitable weather-proof signs shall be mounted and maintained at intervals of not greater than 60 metres around the perimeter of the operation with clear, legible wording to indicate the hazard, the nature of the operation, the presence of an excavation and prohibiting the entry of the public and all unauthorized persons.

7. All roads used for hauling and or any other function of the Deposit shall be maintained in clean condition. Traffic control personnel shall be provided on the site and in any other location where truck and other machinery operation may, in the opinion of the City, cause a potential hazard to the public. Trucking to and from the Deposit site shall at all times proceed in accordance with instructions from the City. Such instructions shall be written except in emergency situations, in which case verbally issued trucking operational revisions shall be confirmed by the City in writing.

8. Prior to deposit of any soil, a contamination assessment of the proposed Deposit Material indicating the soil complies with the current requirements of the British Columbia Ministry of Water, Land and Air Protection standards for the property.

   Contamination assessment must be carried out by a qualified environmental engineer acceptable to the Engineer.

   No Soil or Other Material shall be deposited until the Applicant has received the City's written acceptance of the adequacy of the contamination assessment data.

9. The following guidelines are intended to limit the maximum lift thickness and rate of fill placement in previously unconsolidated areas, and set other requirements to be met to satisfy the Permit. The guidelines are not intended to replace proper engineering design of fills which shall be done by the geotechnical engineer retained by the land owner (i.e., the Soil Deposit Permit Applicant). Strict adherence to the guidelines does not guarantee that fills thus constructed will be stable or that the impact on adjacent properties or structures will be within acceptable limits. These considerations must be taken into account in the site-specific design of each fill and the accompanying monitoring program:

(a) GENERAL

i) Applicant is responsible for the stability of the fill and minimization of its impact on adjacent properties or structures to within acceptable limits, which depend on the nature of those properties or structures. Potential impacts to be considered include, but are not limited to: ground displacements (i.e., heave, settlement or lateral displacement); changes in groundwater table elevation; and changes in groundwater and surface drainage patterns.

ii) The Applicant shall retain a Project Geotechnical Engineer who is registered as a Professional Engineer in the Province of British Columbia to investigate the site conditions, design the fill, and monitor placement. The Applicant shall not restrict the geotechnical work to less than that considered necessary in the professional opinion of the Project Geotechnical Engineer. The Applicant shall keep the Project Geotechnical Engineer apprised of the actual scheduling of all fill placement activities sufficiently well in advance that the Project Geotechnical Engineer can maintain adequate monitoring of the effects of fill placement.

iii) Prior to placement of fill on peat or organic silt, the vegetation may be cut flush with the ground surface and removed but the tree roots and grass should be left in the ground whenever possible and disturbance to the ground shall be avoided.

iv) The location of all nearby underground utilities shall be confirmed with the utility owner(s) prior to the commencement of fill placement, and such utility locations noted on the fill placement plan submitted to the City and utility owner.

(b) PLACEMENT RATE/THICKNESS

i) All Deposits greater than 2.0 meters in total thickness (i.e., including that which settles below the original ground surface) must be constructed in stages. Fills less than 2.0 meters in total thickness shall be constructed in stages if considered advisable by the Project Geotechnical Engineer.

ii) Deposit geometry and placement rate shall be designed by the Project Geotechnical Engineer on the basis of site-specific subsurface information and ongoing instrumentation monitoring results. However, regardless of the foregoing, in no case shall fill be placed in lifts exceeding 2.0 metres in total thickness (i.e., including that which settles below the original ground surface during placement) for the first lift, 1.5 metres for the second lift, and 1.0 metres for any lift thereafter, unless otherwise approved by the Geotechnical Engineer. The ultimate achievable fill height shall be determined by the Project Geotechnical Engineer based on site-specific ground conditions and this height shall not be exceeded.

iii) A waiting period shall be observed following completion of placement of a lift to allow dissipation of excess pore pressures (i.e., consolidation of the underlying soils) prior to placement of the next lift. The waiting period between the completion of placement of a lift and the commencement of the next lift shall be at least four weeks times the thickness of the lift in metres. Longer waiting periods may be required, depending on the pore pressure dissipation rate(s) indicated by piezometer readings which shall be taken and interpreted prior to placement of subsequent lifts of fill.

iv) Reduction of the minimum required waiting period specified in B-3 above will be considered by the City on an individual basis upon written application by the Project Geotechnical Engineer. Separate written applications are required for each lift of fill for which placement prior to the end of the required waiting period is proposed.

v) Fill side slopes shall be no steeper than 1.5H:1V.

vi) Additional safety measures, such as provision of berms and/or fill setbacks shall be used as required, to increase stability and protect adjacent property or structures.

(c) DRAINAGE

i) Drainage works shall be installed to intercept surface runoff from the fill site and/or neighbouring properties and to minimize the impact on groundwater levels on adjacent properties.

ii) This may include, for example, installation of French drains, ditches, culverts, perforated drain pipe, or cutoffs around the perimeter of the fill site. The impact of filling on existing drainage patterns shall be identified and the proposed remediation plans submitted to the Engineer.

iii) A drainage medium shall be provided below the entire footprint of all fills exceeding 3 metres in height if the fill comprises low permeability soils such as silt, clay, excavated till-like soil or any soil with a fines content of more than 5%. The drainage medium may comprise french drains, a 0.75 metres thick blanket of free draining sand or horizontal prefabricated drains. All drainage systems shall be designed by the Project Geotechnical Engineer

The french drains shall consist of trenches 0.6 metres wide and 0.6 metres deep filled with uniformly graded gravel (i.e. drain rock) at 10 metre centres across the fill area and around the entire perimeter. A suitable filter shall be installed to cover the drains to prevent downward migration of fines into the drain rock. The perimeter drains shall connect with the drains crossing the property.

The 0.75 metre thick blanket of free draining sand shall comprise clean, free draining sand with a fines content of less than 3% (i.e. clean Fraser River Sand). A perimeter ditch or french drain shall be installed to collect water expelled during the ground consolidation process.

The prefabricated drains may comprise wick drains enclosed in geotextile (not paper) installed horizontally on the ground surface prior to fill placement and at close spacing (less than 2 metres). The prefabricated drains shall be laid across the entire width of the fill and extend outside the perimeter of the fill and may terminate in a perimeter french drain.

The perimeter drains for the 3 drainage options provided shall drain into the Corporation’s drainage system, as approved by the Engineer.

(d) INSTRUMENTATION MONITORING PROGRAM

i) The Project Geotechnical Engineer shall be retained by the Applicant to provide fill placement monitoring, as follows:

- continuous on-site monitoring of hydraulic filling operations; and

- at least daily site visits during placement of fill by other means (i.e., by truck).

ii) An instrumentation program shall be designed and implemented to monitor the stability of the fill and the impact of filling operations on adjacent properties or structures. The required complexity and coverage of the instrumentation program is a function of the subsurface conditions, proposed fill thickness, size of the area to be filled, and the proximity and sensitivity of adjacent properties or structures. Instruments used may include settlement gauges, piezometers, inclinometers, lateral displacement pins or other devices as appropriate. Regular visual observations must also be carried out as part of the monitoring process.

iii) Proposed instrumentation and monitoring programs shall be submitted in writing to the Engineer prior to the commencement of fill activities. The locations of all proposed monitoring instruments shall be shown on fill placement drawings submitted to the Engineer. The Engineer shall be kept apprised of any changes in the instrumentation program by way of timely submissions of drawing revisions.

iv) All elevations shall be reported relative to geodetic survey of Canada datum using benchmark(s) provided by the Engineer, which are at least 100 metres from the nearest edge of the fill site or any other site where significant fill has been placed within the past two years and 50 metres away from significant fill placed in the last 5 years. The initial ground surface topography and baseline readings of instruments shall be determined by a B.C.Land Surveyor or Professional Engineer registered in the Province of British Columbia.

v) Instruments shall be read at intervals considered appropriate by the Project Geotechnical Engineer, and the readings interpreted without delay with respect to stability of the fill and effects on adjacent properties or structures. The proposed frequency of readings shall be submitted to the City prior to the start of filling. However, as a minimum, the following readings shall be taken:

- prior to the commencement of placement of a lift;
- at about the midpoint of placement of a lift;
- 6 hour to 12 hour after the completion of a lift in the case of hydraulic filling;
- instruments in critical areas shall be read at least daily during rapid fill placement or when the final design height is approached, or when previous readings indicate a potential trend toward failure, or as long as the increment between successive readings increases;
- all instruments shall be read at least weekly during active fill placement; and
- all instruments shall be read at least biweekly (i.e., every 14 days or less) during the waiting period between lifts and monthly during prolonged preload/surcharge periods.

vi) Instrument readings shall be submitted to the City on a weekly basis during active fill placement, and on a monthly basis thereafter, to confirm that readings are being taken and interpreted in a timely manner. Submissions shall include the following as a minimum:

- instrument type;'
- instrument identification number;
- instrument location (should also be shown on fill placement plan) and depth of monitoring zone;
- the benchmark location and elevation that the readings are referenced to;
- the extent and elevation of fill in the vicinity of the instrument at the time of the reading;
- baseline reading;
- table and/or graph of readings to date; and
- a stability chart(s) indicating the level of suitability of the readings.

vii) Stand pipe piezometers shall be installed as part of the instrumentation program for any fills thickness exceeding 2.0 metres. These Piezometers shall be installed at shallow depth outside the perimeter of the fill adjacent nearby properties to monitor the groundwater table elevation on properties adjacent to the fill. Stand pipe piezometers shall be installed outside the zone of influence of the fill operations, in locations approved by the appropriate land owner, to provide a baseline reference.

Pneumatic or electric piezometers shall be installed as part of the instrumentation program for any fills thickness exceeding 3.0 metres. These piezometers shall be installed in the critical (with respect to stability) strata underlying the fill to aid in assessing the stability of the fill.

viii) Where piezometers are installed, the following shall be measured, as a minimum:

- elevation of the groundwater table outside the zones of influence of the Deposit;
- elevation of the groundwater table on adjoining properties; and
- piezometric levels in pneumatic or electric piezometers, fill thickness and average fill surface elevation near the piezometer.

ix) Settlement gauges shall be installed and monitored to record the progress of Deposit settlement. The number of gauges shall be proportional to the size of the area to be filled, and to some extent, the height of the Deposit. At least 5 settlement gauges are required for fills up to about 1,500 square meters in the area, and at least 10 gauges are required for larger areas. The Applicant shall ensure that settlement gauges are not damaged during Deposit placement operations.

x) The use of lateral displacement pins to monitor surface movements adjacent to the toe of the Deposit is recommended. Displacement pins are to be surveyed for northing/easting and elevation, and the monitoring results assessed for evidence of incipient failure. Pins should be installed near the Deposit toe, offset from the toe, and near the critical structures. The survey frequency should be as described above for all instrument readings, except for that rapid Deposit placement (such as by hydraulic filling), the location of the stakes should be monitored two to three times daily in critical areas when the Deposit approaches the final design height.

xi) Periodic surveying of existing structures adjacent to thick Deposits is recommended to ensure that the impact of the Deposit is within acceptable limits, and to give early warning of potentially damaging movements. Such surveying must be approved by the property owner.

xii) Use of other monitoring techniques not discussed herein may be advisable, depending on the nature of the Deposit and the proximity/sensitivity of adjacent properties or structures.

(e) PREVENTATIVE MEASURES

i) If visual observations or the instrumentation monitoring program results indicate incipient failure, preventive measures shall be taken, as recommended by the Project Geotechnical Engineer or required by the City. Preventive measures may include:

- removal of some of the Deposit in the critical area; and/or
- construction of stabilizing berms; and/or
- increasing the waiting period before resumption of Deposit to allow dissipation of excess pore water pressures

ii) For large fills or fills adjacent to sensitive structures, a Preventive Action Plan prepared by the Project Geotechnical Engineer shall be submitted to the City prior to the commencement of filling operations. The Plan shall outline specific hazard warning signs and the preventive measure(s) that will be triggered at those warning levels. (Refer to Appendix B for an example of a Preventive Action Plan.)

(f) ENVIRONMENTAL

i) The Applicant shall retain a Project Environmental Engineer who is registered in the Province of British Columbia to report on the environmental quality of the proposed fill material before the commencement of filling, and to investigate on-site soil or water contamination if such contamination is suspected or could reasonably be foreseen given the history of site use, or if suspected contaminants are observed and/or detected during site development operations. The Applicant shall inform the City of any known or suspected contamination and the proposed remediation measures.

ii) The Applicant shall ensure that the origin of all Deposits is confirmed on daily basis by the Project Geotechnical Engineer, who shall immediately inform the Engineer of materials coming from sites for which the Developer has not provided contamination assessments previously approved by the Engineer.

APPENDIX B

EXAMPLE OF A PREVENTATIVE ACTION PLAN

LEVEL	WARNING SIGN	ACTION
0	Lateral displacement pin movement of less than _____ mm since last reading, and piezometric level increase of less than _____ under crest of fill.	None
1	Lateral displacement of _____mm to _____mm at any one survey pin, or piezometric level increase of _____ to _____ under crest of fill.	Repeat readings next day. PGE site visit for visual observation.
2	Lateral displacement of more than _____mm at any two survey pins, or piezometric level increase of more than _____ under crest of fill.	Site visit. Suspend filling in critical area. Increase monitoring frequency.
3	Lateral displacement of more than _____mm at any one survey pin, or piezometric level of _____ at any location.	Immediate removal of fill in the area.