At their meeting of August 7, 2007, the Niagara Escarpment Commission (NEC) in response to a Development Permit application “To permit landfill and grading works to improve lot drainage” asked staff to prepare a policy paper on “Fill”. In that instance, the fill activity had commenced already, the applicant had not been informed by the municipality that a Development Permit was required from the NEC. The applicant was proposing to “fill” within 120 m of a locally significant wetland.

There are a number of issues related to the question of “fill”:

- The definition of development and the requirement for a Development Permit for filling, grading, and site alteration.

- Enforcement: Filling is going on in many locations on the Escarpment without a Development Permit; this is particularly true of locations around the GTA where there is extensive development and where developers are contracting out the removal of “fill”. There are increasing numbers of situations where neighbours are reporting unapproved “filling”. It is difficult to monitor because unlike building development, permits may not be required from local municipalities and it is therefore difficult to enforce.

- The environmental impact of “filling”:
  - the ability to ensure that “fill” is clean is difficult to enforce;
  - importers of “fill” may be unaware of the potential problems of using contaminated soils for uses not approved in Environmental Protection Act (EPA) and regulations;
  - importers of “fill” may be unaware of the restrictions against using anything other that “inert fill” in the Niagara Escarpment Plan area;
  - changes to drainage of a site has the potential to impact local drainage, neighbouring properties, natural features - wetlands, streams, existing vegetation and woodlots.
  - “filling/ grading” has the potential to create slopes with stability problems;
o even the addition of inert fill has the potential to cause erosion, creation of sediment and contamination of watercourses.
o filling and grading is often justified as a permitted use because it is done to improve agricultural lands.

- The visual impact of filling:
  o There are an increasing number of situations where applicants are proposing large berms as part of their site plans to mitigate the impacts of busy rural roads on their homes or simply to create privacy.
o Berms and grading are sometimes recommended by NEC staff as a solution to mitigating the visual impacts of uses related to the maintenance of the Niagara Escarpment as a “continuous natural corridor” and for the maintenance of the “open landscape character.
o Although the Development Criteria addresses the question of the visual impact of berming for quarries, berms are all provided to mitigate noise/vibration from the quarry;
o Grading or removal of slopes and their replacement by retaining walls may be proposed in order to create more useable area on a site;
o The extent to which filling or grading of a property can occur at the same time satisfying the NEP; and
o There are uses other than pits and quarries that are permitted by the NEP which by their very nature involve “changing of contours” and extensive grading and filling” such as “Skiing facilities and golf courses.”

These four major issues will be addressed in this Policy Paper. There are other issues related to the question of “fill” which have not been addressed – mining of peat, removal of topsoil. The question of the changing of contour related to recreation development has already been dealt with by the NEC in a policy paper and this discussion will not be repeated in this policy paper.

There are extensive excerpts from the NEP, various legislation and the Oak Ridges Moraine Conservation Plan included in this report, they are included in test boxes.

I. THE DEFINITION OF FILLING AND GRADING, SITE ALTERATION AND THE NIAGARA ESCARPMENT PLANNING AND DEVELOPMENT ACT (NEPDA) AND THE NIAGARA ESCARPMENT PLAN (NEP)

The NEPDA defines “development” to “include(s) a change in the use of any land, building or structure”. This has been interpreted to include filling, site grading etc.
The NEP, in none of its land use designations (Part 1 of the NEP), addresses the question of the use of land by filling or grading directly except with the following references:

With respect to “Accessory buildings, structures and facilities and incidental uses” in all designations the NEP refers to the “site modifications required to accommodate them”.

ONTARIO REGULATION 828/90

Ontario Regulations 828/90 does not exempt “filling or grading” from requiring a Development Permit. The only reference to the use of fill – is under the exemption No. 8 Agriculture which states:

i. The cultivation of soil, including the picking and removal of field rocks and stones, but not including the stripping, removal or stockpiling of topsoil, earth, rock, sand, gravel or other aggregate material or the addition of fill.

From Ontario Regulation 828/90, Section 8. Agricultural activities.

This means that the addition of fill is not part of general agriculture, it is not exempt and therefore requires a Development Permit. Filling or grading and the resulting site alteration associated with any permitted use in a designation would be permitted if the Development Criteria of Part 2 of the Niagara Escarpment Plan were satisfied. The conclusion which follows this is that if filling or grading or site alterations are proposed which are unrelated to a permitted use, they are not permitted by the NEP.

OAK RIDGES MORRaine PLAN AND GREENBELT PLAN

In comparison to the NEP, both the Oak Ridges Moraine Conservation Plan (ORMCP) and the Greenbelt Plan (GP) have definitions of “Development” and “Site Alteration”. The definitions below are taken from the ORMCP but the definitions in the GP are very similar.
“development” means the creation of a new lot, a change in land use, or the construction of buildings and structures, any of which require approval under the Planning Act, the Environmental Assessment Act, or the Drainage Act, but does not include,
(a) the construction of facilities for transportation, infrastructure and utilities uses, as described in section 41, by a public body, or
(b) for greater certainty,
   (i) the reconstruction, repair or maintenance of a drain approved under the Drainage Act and in existence on November 15, 2001, or
   (ii) the carrying out of agricultural practices on land that was being used for agricultural uses on November 15, 2001;

From the Oak Ridges Moraine Conservation Plan, 2002; page 18.

“site alteration” means activities such as filling, grading and excavation that would change the landform and natural vegetative characteristics of land, but does not include,
(a) the construction of facilities for transportation, infrastructure and utilities uses, as described in section 41, by a public body, or
(b) for greater certainty,
   (i) the reconstruction, repair or maintenance of a drain approved under the Drainage Act and in existence on November 15, 2001, or
   (ii) the carrying out of agricultural practices on land that was being used for agricultural uses on November 15, 2001;

From the Oak Ridges Moraine Conservation Plan, 2002; page 26.

The major difference in approach is that these other Plans refer to Development and to Site Alteration, it is clearer in these newer approaches that site alteration includes filling, grading and excavation. See the prohibitions from the ORMCP:

Prohibition
5. No person shall, except as permitted by this Plan,
(a) use land or any part of it;
(b) undertake development or site alteration with respect to land; or
(c) erect, move, alter or use a building or structure or any part of it.

From the Oak Ridges Moraine Conservation Plan, 2002; page 29.
If there are changes in the *Niagara Escarpment Planning and Development Act* (NEPDA) it should be made clear that Development includes site alterations. The qualifications added in the definition of site alteration that there be a change in the landform or the natural vegetation involves a subjective evaluation of whether something has changed versus the definition below from the *Conservation Authorities Act* where no such subjective evaluation is required. The exclusions noted in the ORMCP or the GP would not be necessary since such exclusions are covered where applicable in Ontario Regulation 828/90.

**THE MUNICIPAL ACT**

Under S. 142(2) of the *Municipal Act, 2001*, municipalities may regulate site alteration by passing by-laws to prohibit or require a permit with conditions for the “placing or dumping of fill”. Where a permit system is implemented, the Act provides for appeals to the OMB for permit refusals or conditions. However, under s. 142 (8), this municipal power doesn’t apply to areas that are subject of a *Conservation Act* regulation made under s. 28 of the *Conservation Authorities Act* (see below under Conservation Authorities) or due to s. 142(5) to areas regulated by MNR under the *Aggregate Resources Act* (ARA).

Nor would a permit be necessary due to s.142 (5) (b) for the placing or dumping of fill, removal of topsoil or alteration of the grade of land as a condition to the approval of a site plan, a plan of subdivision or a consent under section 41, 51 or 53, respectively, of the *Planning Act* or as a requirement of a site plan agreement or subdivision agreement entered into under those sections or as a condition of Development Permit issued under section 70.2 of the *Planning Act*.

**CONSERVATION AUTHORITIES ACT**

Pursuant to the *Conservation Authorities Act*, a conservation authority possesses regulatory power over watersheds in its jurisdiction. The objective of an authority is set out in s. 20 of the Act.

<table>
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<th>Objects</th>
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<td>20. (1) The objects of an authority are to establish and undertake, in an area over which it has jurisdiction, a program designed to further the conservation, restoration, development and management of natural resources other than gas, oil coal and minerals.</td>
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*From the Conservation Authorities Act.*
“development” means,

(a) the construction, reconstruction, erection or placing of a building or structure of any kind,

(b) any change to a building or structure that would have the effect of altering the use or potential use of the building or structure, increasing the size of the building or structure or increasing the number of dwelling units in the building or structure,

(c) site grading, or

(d) the temporary or permanent placing, dumping or removal of any material, originating on the site or elsewhere;

From the Conservation Authorities Act.

DISCUSSION

If there are changes in the NEPDA, or if a definition of Development is added to the NEP, it should be made clear that Development includes site grading and the temporary or permanent placing, dumping or removal of any material originating on the site or elsewhere. In addition, a definition of site alteration could be added to the NEP which includes site grading and the temporary or permanent placing, dumping or removal of any material originating on the site or elsewhere. However, it is not recommended that the two terms “development” and “site alteration” be used together as they are in the ORMCP and the GP since we are now using the term “development” to include “site alterations”.

It should be further clarified that site alterations are only permitted if they are associated with a permitted use. For instance, site grading is permitted if you are building a single dwelling. The extent of the site alterations will be governed by the Development Criteria.

Similarly, agricultural uses may involve site alterations. The extent of that placement will be governed by the Development Criteria. In the Niagara area sites are often graded to facilitate the “air drainage” of the site. The need to import “fill” for agricultural uses and the quality of the material is discussed under Soil Contamination.

II. ENFORCEMENT

The planners dealing with Development Control and enforcement in responding to inquires regarding the issues relating to “filling” have noted that this is one of the areas which creates the most problems for them, particularly in the area around the GTA. What appears to be happening is that fill brokers are hired by developers to “get rid” of their fill. These brokers bid on jobs, they hire trucks,
they may hire a grader and they just dump the fill wherever they can find a willing landowner. They pay on a per load basis. As a company they may not exist, they have no equipment of their own and if they are caught dumping illegally they will move quickly to another location. Prosecution of the landowner is unlikely to change the activity. If the brokers know an area has little or no enforcement they will take advantage of the situation. Many don’t apply for permits from the local municipality and they most often don’t apply for Permits from the NEC.

Our planners may be alerted to dumping by neighbours, but response to this kind of information is time consuming and time sensitive. Normally we would prosecute the land owners, but they may deny giving permission to dump and even if they acknowledge it the fill brokers are long gone. Given the size of the NEP area, our lack of history of enforcement there is at the present time very little deterrent to dumping in the NEP area. Additional enforcement staff may be of some assistance in dealing with this matter.

With the increase pressure on municipalities to encourage brownfield development, the potential for the fill which is being dumped to be from contaminated sites, is increasing. Redevelopment of old industrial and commercial sites will mean that soils could be contaminated with petrochemicals, metals as well as construction waste.

The need for a Development Permit for site alterations should be clarified since it is not a use which is described in the NEP. Our literature “Do I Need a Development Permit?” does clearly state you need a Development Permit for changing the grade or topography of a site, but it does not say – “for the temporary or permanent placement of any fill”. This could be made more explicit. While we might assume that if you place fill on a site you are necessarily changing the grade or topography, others might not make this same connection. As a reminder, local municipal building departments could be notified of our interest in this matter with a circulation of this Policy Paper.

Only some municipalities in the Niagara Escarpment Plan Area have Fill By-laws. In most cases where the municipalities have by-laws they cover the NEP Area however, in some cases such as the Town of Caledon, the NEP Area within the municipality is not subject to the by-law. Generally, if a municipality has a by-law when an applicant applies for a permit they will be told by the municipality that they also need a Development Permit from the NEC. However, this is not happening in all cases and in the situation where the municipality does not require a permit they are unlikely to be referring people to NEC.

Municipalities should be encouraged to have their own “Permit to take Fill” if only to enforce provisions which the NEC does not have an interest in. For instance municipalities generally include provisions in their by-laws regarding the keeping of roads clean and free of debris. They also may require letters of credit. See Table 1 for a comparison of some of the policies which are included in municipal fill by-laws. Generally, municipalities have a greater capacity for enforcement of
these by-laws than the NEC, if only because they are dealing with a smaller geographic area.

While the NEPDA in Section 24.(6) permits the Minister to order a person to restore the site to the condition it was in prior to the undertaking if they did not obtain a Development Permit, Section 24. (6.1) Order to stop work, etc. has higher threshold which must be met. In order to issue a stop work order it must be shown that the contravention is causing or is “likely to cause a risk to public safety or significant environmental damage.”. Not obtaining a permit does not necessarily allow us to issue a Stop Work Order.

Ability to enforce the Development Permit system with regard to dumping is more likely to be successful with a clearly identified protocol with regard to dumping of fill. The more specific we can be with regard to our objectives and how to achieve those objectives the more successful we are likely to be, this includes being more precise in the language we use. This Staff Report is provided as a background paper to a specific policy statement to be adopted by the Commission with regard to guidelines for the incorporation of conditions with regard to “fill” to be included in Development Permits and policies regarding the interpretation of the NEP regarding fill.

III. ENVIRONMENTAL IMPACTS OF SITE ALTERATIONS

A. PROTECTION OF THE ENVIRONMENT

NIAGARA ESCARPMENT PLAN DEVELOPMENT CRITERIA

The objectives of the NEP and the purpose and objectives of all of the designations reinforce the overall purpose of the NEP – “the maintenance of the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment, and to ensure only such development occurs as is compatible with that natural environment.” The specific development criteria of the Part 2 of the NEP Development Criteria are “to be applied to all development within the area of the Niagara Escarpment Plan in conjunction with the other policies of the Plan.” The following are NEP policies that are most relevant to “filling”:

2.2 General Development Criteria

The objective is to permit reasonable enjoyment by the owners of all lots that can sustain development.

1. Permitted uses may be allowed provided that:
   a) The long term capacity of the site can support the use without a substantial negative impact on Escarpment environmental features such as contours, water quality, water quantity, natural vegetation, soil, wildlife, population, visual attractiveness and cultural heritage features.

From the Niagara Escarpment Plan; June 1, 2005; p. 38.
2.5 **New Development Affecting Steep Slopes and Ravines**

The objective is to ensure that new development affecting steep slopes (e.g. Escarpment slopes, rock faces, and talus slopes) and ravines does not result in environmental damage or in unsafe conditions.

1. The crest or brow and toe of the slope or ravine shall be established by means of a site inspection by the implementing authority and these lines will be plotted on proposed development plans.

2. The implementing authority will establish a minimum development setback from the brow or crest and toe of a slope or ravine and no disturbance of grades or vegetation below the crest or brow and above the toe shall occur.

3. Where this setback cannot be achieved on an existing lot of record on a steep slope, the setback may be varied or eliminated to the satisfaction of the implementing authority.

4. An engineering report shall be prepared by the applicant if the existing or future stability of the slope or ravine is in question.

From the *Niagara Escarpment Plan: June 1, 2005; p. 53.*
2.6 New Development Affecting Water Resources

The objective is to ensure that new development affecting streams, watercourses, lakes, wetlands, and groundwater systems will have minimum individual and cumulative effect on water quality and quantity, and on the Escarpment environment.

Water Quality

1. Changes to the natural drainage should be avoided.

4. No alteration of the natural grade or drainage shall occur within the setback where, in the opinion of the implementing authority, such action would adversely affect surface and/or groundwater resources.

From the Niagara Escarpment Plan; June 1, 2005; p. 54.

The policies on Water Quality, Wetlands, Fisheries, Flood Plains, Ponds and the policies of 2.7 on New Development within Wooded Areas, 2.8 Wildlife Habitat are all be relevant to proposals for Dumping of Fill, site alterations. Specific policies address recreational land uses and transportation and utilities.

2.13 Recreation

The objective is to minimize any adverse impact of recreational activities on the Escarpment.

1. All recreational activities should be designed and located so as not to conflict with surrounding land uses (e.g. agriculture) and be compatible with the natural and cultural character of the area.

2. Where they may be permitted, golf courses shall be designed and maintained to minimize impact on the natural and physical Escarpment environment (i.e., minimum regrading, maximum incorporation of natural vegetation, undisturbed and rough areas, minimum fertilizer and irrigation demands).

From the Niagara Escarpment Plan; June 1, 2005; p. 71.
2.15 Transportation and Utilities

The objective is to design and locate new and expanded transportation and utility facilities so the least possible change occurs in the environment and the natural and cultural landscape.

1. All new and reconstructed transportation and utility facilities shall be designed and located to minimize the impact on the Escarpment environment and be consistent with the objectives of this Plan. Examples of such site and design guidelines include the following:
   a) Blasting, grading and tree removal should be minimized where possible through realignment and utilization of devices such as curbs and gutters, retaining walls and tree wells.
   b) Finished slopes should be graded to a 2 to 1 slope minimum and planted; large cuts should be terraced to minimize surface erosion and slope failure.

From the *Niagara Escarpment Plan; June 1, 2005; p. 73.*

Specific Development Criteria are provided in Section 2.6 New Development Affecting Water Resources, Number 7 on the sediment and erosion control practices which are necessary to prevent environmental degradation caused by site alterations. These can be easily translated into conditions of Development Permits.

7. During development, the following sediment and erosion control practices should be carried out:
   a) Only the smallest practical area of land should be exposed at any time during the development.
   b) When land is exposed during development the exposure should be kept to the shortest practical period of time.
   c) Natural features such as tree groves, grades and waterways should be preserved.
   d) Temporary vegetation and/or mulching should be used to protect critical areas exposed during development.
e) Final landscaping and vegetation should be installed as soon as practical following completion of the development.

f) Topsoil should not be removed from the site, but rather, should be stored and redistributed as a suitable base for seeding and planting.

g) Sediment control devices should be installed to remove sediment from run-off due to changed soil surface conditions during and after construction.

h) Construction in or across a watercourse or wetland should be appropriately timed to minimize impacts on fish and wildlife habitat.

From the Niagara Escarpment Plan; June 1, 2005; 2.6 New Development Affecting Water Resources, p. 54.

OAK RIDGES MORaine CONservation PLAN/ GREENBELT PLAN

The ORMCP ensures that there will be a minimum vegetative protection around key natural heritage features and hydrologic features and that no adverse effects will occur. Site specific evaluations are required for such features as significant habitat of endangered, threatened and special concern species, fish habitat, ANSIs, significant valley lands, woodlands, wildlife habitat and sand barrens, savannahs and tall grass prairies and alvars. Similarly for permanent and intermittent streams, lakes, seepage areas and springs and wetlands. The Greenbelt Plan also provides that a minimum vegetative protective zone be established within 30 metres for wetlands, seeps and springs, fish habitat streams lakes and significant woodlands and within 120 metres of these key natural features a natural heritage study and hydrological evaluation is required to establish a vegetative protective zone. The ORMCP includes a Table of “Key Natural Heritage Features, Hydrologically Sensitive Features and Areas of Natural and Scientific Interest (Earth Science): Minimum Areas of Influence and Minimum Vegetative Protective Zones. See Table 2.

DISCUSSION

While it is clear that it is easier to administer a Plan which has set standards such as the OPMCP or the GP, the policies of the NEP would permit the application of buffers similar to those Plans. However, defense of those buffers is more problematic for the individual planner. The requirement that a Natural Heritage Evaluation or a Environmental Impact Statement be done would take the onus off the planner and put it on the applicant to demonstrate that any site
alterations would not result in adverse ecological effects and would satisfy the policies of the NEP.

The NEC in October 19, 2005, considered the issue of Environmental Impact Assessment (EIS) Requirements under the NEP and approved the recommendation that staff should prepare a draft Amendment to the NEP for consideration that would clarify that the procedure for addressing the requirements of the Development Criteria of the NEP pertaining to the protection of natural heritage resources. This amendment has not yet been initiated. However, it is further recommended that it should consider the requirements of the ORMCP and the GP and their requirements for Minimum Areas of Influence and Minimum Vegetative Protective Zones.

There are standard buffers which can and should be applied to development and site alterations from significant features. If site alterations are proposed within the buffer areas, then Environmental Impact Studies (EIS) should be required from applicants. However, the objectives of the NEP do not simply relate to the preservation of significant areas whether they be wetlands, valley lands, woodlands etc. but rather to the “continuous natural environment”. To this end, all of the Development Criteria must be considered and applied, not simply to protect unique natural areas but all natural areas. The NEP permits certain uses; site alterations associated with the uses permitted by the NEP. However, if the site alterations proposed are such that the Development Criteria of the NEP are not satisfied, then clearly the application can not be approved.

In a case described as 611428 Ontario Ltd., v. Metropolitan Toronto and Region Conservation Authority, the Ontario Court of Justice considered the situation where a developer challenged the Conservation Authorities ability to regulate filling in a ravine valley which did not have a tributary located within it. The original hearing officer upheld the authorities refusal to grant a permit finding that first order streams provide sufficient function to justify the filling regulation and the absence of information that no damage would be done to the watershed meant that the precautionary principal applied to development involving first order and intermittent streams. The judges ruled that the “conservation of land” could be taken to mean the conservation of the ecosystem; that there is an onus placed on the appellant in order to get a permit, that the consideration of the cumulative effects of the potential of development should have been considered and that the proposed fill area served a significant ecological or environmental function, even though only a minor tributary flowed through the valley on an intermittent basis.

A strict interpretation of the NEP policies 26. 1., “Changes to the natural drainage should be avoided” and 26. 8., “Permitted Uses which involve water taking or undertake stream diversions...” is required. If such a rigorous interpretation was applied to such proposed site alterations many of the proposals to fill or grade properties could be refused on the basis that they do not satisfy these criteria.
The NEP addresses the question of ecological effects of site alterations in a number of areas throughout the Development Criteria. The language of the more recent provincial Plans, the Conservation Authorities regulations speaks to more definitive buffers and the application of requirements for EIS studies. However, such studies can be identified as a condition of a Development Permit or in fact as a precondition of a Development Permit. The Development Permit system provides the flexibility to evaluate where environmental effects are likely to occur and require a more rigorous approach in those situations. This flexibility should be applied.

Where an application is made to alter a site a grading plan should be required for all Development Permit applications showing the existing and proposed contours, the existing vegetation, the proposed relocation of any excavated materials and the proposed location of any materials to be imported. The existing drainage should be identified and any changes noted. Generally, no grading should be permitted within 4.5 m (14.7 feet) of the property boundary.

The sediment and erosion controls outlined in the NEP should be specified wherever relevant as a condition of a Development Permit.

B. THE IMPORTATION OF CONTAMINATED SOIL

The NEP does not directly address the question of the quality of fill which can be imported into the NEP Area except in the general guidelines of the Development Criteria. Even the Development Criteria of 2.2 1 (a) (b) and (c) talk about "substantial negative impact", "will not have serious impact" and "hazardous to life or property". The NEP does however, address the question of waste. The NEP defines "waste" and "waste disposal sites" and the definition of utilities states that waste disposal sites are not a utility. None of the designations permits new waste disposal sites.

As the definition of waste from the NEP below demonstrates inert fill and inert rock fill are not included in the definition of waste.
**Waste** - includes ashes, garbage, refuse, domestic waste, industrial waste, municipal wastes, hazardous waste and such other wastes as are designated in the regulations under the *Environmental Protection Act*, as amended, but does not include:

- agricultural waste;
- **inert fill**;
- **inert rock fill**;
- condemned animals or parts thereof at a plant licensed under the *Meat Inspection Act* (Ontario) or an establishment operating under the *Meat Inspection Act* (Canada);
- dead animals to which the *Dead Animals Disposal Act* applies; or
- Hauled sewage sludge for disposal on farmland.

From the *Niagara Escarpment Plan*; June 1, 2005; Definitions, page 130.

The existing uses policies of the NEP recognizes existing landfill sites, but the NEP does not allow any expansion or alteration of those sites. This is consistent with the *Environmental Protection Act (EPA)* which gives a definition of waste and a waste disposal site and states that for a waste disposal site a certificate of approval must be issued by the Director. The EPA s. 27(2) states: no person shall operate a waste disposal site in the NEP Area, unless it was previously approved before 1994.

There is nothing in the NEP which could be interpreted to allow the dumping of waste as a permitted use. However, since inert fill and inert rock fill are excluded as a waste within the definition of the NEP, there are no policies to prevent them from being used as fill.

The exclusion of “inert fill” as a waste in the NEP parallels how it is treated in the EPA and its regulations.

**Ministry of the Environment – *Environmental Protection Act* and Regulations**

Through its mandate, under the *Environmental Protection Act (EPA)*, the MOE regulates the depositing of environmental contaminants placed on lands anywhere in the Province. The EPA and regulations under it sets in place a regulatory scheme based on whether or not fill material is “waste”.

Part V of the EPA is entitled “Waste Management”. Under s. 25 the relevant definitions are as follows:
"waste" includes ashes, garbage refuse, domestic waste, industrial waste, or municipal refuse and such other materials as are designated in the regulations;

"waste disposal site" means,

(a) any land upon, into in or through which, or building or structure in which, waste is dispossed, disposed of, handled, stored, trasferred, treated or processed, and

(b) any operation carried out or machinery or equipment used in connection with the depositing, disposal, handling, storage, transferred, treatment or processing referred to in clause (a);

From the *Environmental Protection Act*, Part 5, S. 25.

Under s. 27 of the EPA, places where "waste" can be deposited are described as "waste disposal sites" and such sites must have a certificate of approval from the MOE. However, with limited exceptions s. 27(2) of the Act states that NEP area lands are off limits as sites for waste disposal.

**Niagara Escarpment Plan Area**

(2) Despite subsection (1), no person shall use, operate establish, alter enlarge or extend a waste disposal site in the Niagara Escarpment Plan Area as set out in the Niagara Escarpment Plan, unless the Director has issued a certificate or approval or a provisional certificate of approval before this subsection comes into force. 1994, c.5,s.1.

From the *Environmental Protection Act*, Part 5, S.27(2).

In understanding how the EPA treats the question of what is "waste". As is evident from the review of the definition above, the regulations must be considered. Section 2 of O. Reg. 347 sets out a detailed list, as follows:

**Designation and Exemption of Wastes**

2.(1) The following are designated as wastes:

1. Dust suupressant
2. Inert fill.
3. Processed organic waste. Etc

*From Ontario Regulation 347.*
However, s. 3 of the Regulations (O. Reg. 347) sets out a list of exemptions, things that are deemed not to be "waste":

There are a large number of materials that are excluded from the definition of waste but the exclusion is primarily dependent on their reuse for other purposes, so for instance, if glass is destined to be used in the construction of a highway it is not deemed to be a waste.

3. (1) The following wastes are exempted from Part V of the Act and this regulation:

1. Agricultural wastes.
2. Condemned animals or parts thereof …
5. Inert fill…

From Ontario Regulation 347.

“Inert fill” is described in the regulation as follows:

“inert fill” means earth or rock fill or waste of a similar nature that contains no putrescible materials or soluble or decomposable chemical substances;

From Ontario Regulation 347, Section 1.

In 1996, the MOE argued at the Ontario Environmental Review Board Wil-Manufatureing Inc. (RE) (1996), 19 C.E.L.R. (N.S.) 252 that the applicant should not be allowed to place fibreglass waste in a land fill site because it was not inert using the definition of “inert fill”. Although the Crown was successful in identifying this material as inert, it was clear from the decision that there was considerable difficulty with attempting to use a qualitative definition such as this to describe the inert fill.

Since this case was argued, the MOE has developed a quantitative description to categorize contaminate levels. These are now set out in “Soils, Ground Water and Sediment Standards for the Use Under Part XV.1 of the Environmental Protection Act (March 9, 2004, MOE) (“the Guideline”). This document sets out Tables (1 through 6) which describes threshold levels of various degrees of contamination. The soil standards in Table 1 are background values derived from Ontario Typical Range values for the land uses indicated and are considered representative of upper limits of typical province – wide background concentrations in soils that are not contaminated by point sources. While there is some disagreement regarding the appropriate level of contamination which should be accepted as fill, it is generally agreed that Table 1 which provides the background levels of contaminants is the most appropriate for use where future land use of the lands are unknown. One significant difference between Table 1 and Table 2 is that Table 2 has permitted levels of petroleum hydrocarbons, whereas Table 1 does not.
This “guideline” is meant to address the question of the restoration of existing sites for the purpose of achieving a “Record of Site Conditions under Part XV.1 of the EPA and O. Reg. 153/04. Under the EPA, you must file a Record of Site Conditions with the Environmental Site Registry if you are seeking to change the use of property from industrial or commercial to residential or parkland. Soils must comply with different Tables within the Guidelines depending on the proposed use of the property.

In speaking to various municipality representatives, government employees, industry representatives and consultants, it appears that different approaches are taken to referencing the Guidelines. Representatives of Walkers industry indicated to me that they accept only soils that comply with Table 1. The Town of Caledon when they apply regulations from the EPA require that Table 2 be satisfied. Some municipalities simply reference the EPA. This really provides no guidance at all since the Act and the regulations and guidelines specifies a range of levels of contamination.

Ontario Regulation 153/04 Records of Site Condition – Part XV.1 of the Act specifies that only Table 1 will used to certify the record of site condition where the property is in environmentally sensitive areas. These areas are:

### Site condition standards, environmentally sensitive areas

41. (1) This section applies in relation to a property if,

(a) the property is within an area of natural significance, or includes or is adjacent to such an area or part of such an area;

(b) the soil at the property has a pH value as follows:

(i) for surface soil, less than 5 or greater than 9,

(ii) for sub-surface soil, less than 5 or greater than 11;

(c) the property is a shallow soil property;

(d) the property includes or is adjacent to a water body or includes land that is within 30 metres of a water body; or

(e) a qualified person is of the opinion that, given the characteristics of the property and the certifications the qualified person would be required to make in a record of site condition in relation to the property as specified in Schedule A, it is appropriate to apply this section to the property.

From [Ontario Regulation. 153/04, s. 41 (1).](#)
(3) In this section, “area of natural significance” means any of the following:

1. A provincial park designated by a regulation under the *Provincial Parks Act*.

2. A conservation reserve established under the *Public Lands Act*.

3. An area of natural and scientific interest (life science) identified by the Ministry of Natural Resources as having provincial significance.

4. A wetland identified by the Ministry of Natural Resources as having provincial significance.

5. An area designated by a municipality in its official plan as environmentally significant, however expressed, including designations of areas as environmentally sensitive, as being of environmental concern and as being ecologically significant.

6. An area designated as an escarpment natural area or an escarpment protection area by the Niagara Escarpment Plan under the *Niagara Escarpment Planning and Development Act*.

7. A habitat of endangered or threatened species identified by the Ministry of Natural Resources.

8. Property within an area designated as a natural core area or natural linkage area within the area to which the Oak Ridges Moraine Conservation Plan under the *Oak Ridges Moraine Conservation Act, 2001* applies;

From *Ontario Regulation. 153/04, s. 41 (3).*

So in terms of the EPA and regulations, it is clear that the appropriate Table to be applied to Escarpment Natural and Escarpment Protection Areas is Table 1 but Table 1 should also be applied to sites which have all of the above noted sensitivities including shallow soils, within 30 m of a water body and soils with a particular PH.

Given that the NEP defines waste so that only the filling with inert soils are acceptable, and given that the MOE has already established that Table 1 represents a quantifiable measure of the acceptable background level of rural and urban land in Ontario. These are ambient conditions as found in the natural environment. And given that the purpose of the NEP is to provide for the maintenance of the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment, and to ensure only such development occurs as is compatible with that natural environment. The level of contamination that should be acceptable to soils imported into the NEP area should have no more
contaminants than Table 1. It may be argued that the application of Table 2 would guarantee that there would be no adverse effects on human health, the ecological health or the natural environment.

However, given the purpose of the NEP, the policies of the MOE to apply Table 1 to Escarpment Natural and Escarpment Protection Areas, and the existence in most of the NEP area of sensitive ground and surface waters, the shallow soils of the areas on top of the Escarpment. Table 1 appears to be the most appropriate standard to be applied to all lands within the NEP area. This is especially true because testing for the other contaminate levels can result in soils which if hot spots in those soils are missed, may result in the importation of soils with a greater contamination than specified by the appropriate table.

The NEC has not required fill that is imported into the NEP area or into a particular site satisfy any requirements to indicate that it is “clean” or “inert”. It is recommended that this standard be applied to any “fill” that is imported into a site within the NEP area. A condition of the Development Permits will require that the applicant provide documentation from an accredited professional that the soils, to be imported as fill, conform to the definition of “inert fill” from Regulation 347 and to Table 1 of Soil, Ground Water and Sediment Standards for Use Under part XV.1 of the Environmental Protection Act, March 9, 2004.

Where the NEC has determined that a large amount of fill (over 100 truck loads) can be brought into a site, it will be appropriate to set up a protocol for ensuring that all of the fill is acceptable. This will involve the establishment of a protocol to constantly monitor the site, provide a vehicle tracking form and have any documentation peer reviewed to ensure that the materials imported to the site satisfies the definition of “inert fill” and to Table 1.

IV. VISUAL IMPACT OF SITE ALTERATIONS

While the purpose of the NEP does not refer to visual aspects of the preservation of the Escarpment, the objectives of the Plan and various designations refer to the “open landscape character”, the “natural scenery”, the scenic values of the land, the visual impact on the Escarpment landscape, and the traditional cultural landscape” etc.

The General Development Criteria 2.2 No. 1of the NEP specifically states that -
“a) The long term capacity of the site can support the use without a substantial negative impact on Escarpment environmental features such as contours, …and visual attractiveness.”

In addition to this policy, there are policies on the “Visual Landscape Development at Wineries” under 2.10 Agriculture, and the visual impact of transportation and utility structures under 2.14 Transportation and Utilities. However, beyond the general objectives, the NEP does not provide detailed
development criteria on visual attractiveness or the extent of development on a particular property.

In comparison, the ORMCP has policies that identify two categories of Landform Conservation Areas (Category 1 and 2). An application for development or site alteration in these areas require that planning, design and construction practise keep the disturbances to the landform character to a minimum including;

(5) An application for development or site alteration with respect to land in a landform conservation area (Category 1) shall identify planning, design and construction practices that will keep disturbance to landform character to a minimum, including,

(a) maintaining significant landform features such as steep slopes, kames, kettles, ravines and ridges in their natural undisturbed form;

(b) limiting the portion of the net developable area of the site that is disturbed to not more than 25 per cent of the total area of the site; and

(c) limiting the portion of the net developable area of the site that has impervious surfaces to not more than 15 per cent of the total area of the site.

From the Oak Ridges Moraine Conservation Plan, p. 54.

For lands in the Category 2, the net developable area can be no more than 50% and the impervious area no more than 20%.

Generally, the extent of site development in the NEP would likely satisfy these requirements. However, in the Niagara area and in Minor Urban and Urban Areas where the lots are usually smaller, they might not meet this requirement. Mineral aggregate uses in the NEP would not satisfy these requirements. The ORMCP would exempt Mineral Aggregate uses from these requirements, but they would be applied to golf courses so that the area developed for tees, green and cart trails would have to satisfy this requirement.

It would definitely be advantageous to have a statement included in the NEP that stated that the disturbance to the landform features be kept to a minimum where the landform features are defined as the “distinctive physical attributes of land such as slope, shape, elevation and relief”. However, without a careful study of the existing extent of development and site alteration on sites within the NEP area, it would be unreasonable to relate the standards from the Oak Ridges Moraine to the lands within the
NEP area. In order to develop specific requirements regarding the extent of developable area on a lot and impervious area on a lot, it is recommended that a short term (1 year) monitoring exercise be established to measure the extent to which lots are being developed and sites are being altered. This evaluation might also include the keeping of statistics on building mass, height and square footage and lot size. This information could then be used to revisit the question of incorporating particular standards regarding the extent of development on a site into the NEP.

With regard to ANSIs, the policies of 2.14 of the NEP specifically addresses Provincially and Regionally identified as ANSIs and addresses the question of setbacks from those features. With regard to Provincially Significant Earth ANSIs Section 2.14 Areas of Natural and Scientific Interest (ANSIs) states:

3. In Provincially Significant Earth Science ANSIs development will be considered, provided that:
   a) Development does not significantly alter the natural topography or geological features of the Earth Science ANSI; and
   b) Methods are employed to minimize the impact of the use on the values for which the site has been identified.

From the NEP; June 1, 2005; Section 2.14, page 72.

The policies of the NEP are sufficiently detailed that for the most part steep, kames, kettles, ravines and ridges can be protected to the same extent as they would be protected in the ORMCP where the policy only provides “...keep disturbance to the landform character to a minimum.”

There have been several notable exceptions where we have not been successful in prohibiting development and preserving landform features in the NEP area. For instance, in Niagara Escarpment Plan Amendment Application 92/H/92 St Georges Anglican Church, the Hearing Officer recommended the filling of a ravine for a parking lot of an existing use where the argument was made that a dangerous situation existed. The other notable exception was the case of a string of kettle lakes which were included in the proposed development area of the Armbro Pit, also a NEPA application (64/P/89 Armbro), to permit an Mineral Resource Extraction Area. In that case, the kettle lakes themselves were preserved, but the landform surrounding them was not. In both of these cases, all of the resources of the NEP were applied to argue against the development and site alterations and they were unsuccessful. However, the protection of such natural features goes beyond the protection of visual attributes of the
land forms and into the difference between the approaches of the two Plans to protect key natural features. Consideration of these differences is beyond the subject matter of this policy paper.

In the case of the NEP, the NEP designations identify Escarpment Natural Areas and Escarpment Protection Areas which identify the most significant portion of the Escarpment, the NEP already provides that-

2. Where a lot is located in more than one designation, development shall be located on that portion of the lot located in the least restrictive designation, except where it is evident that the impact of development on the Escarpment environment would be reduced by locating the development on a portion of the lot located in a more restrictive designation.

From the NEP; June 1, 2005; Section 2.14 page 39.

While the NEP provides little guidance on the extent of development on a lot and the visual impact of that development beyond the specific policies uses already mentioned. The NEC landscape architect advises that generally berms are recommended by NEC staff where screening of areas or structures cannot be achieved by the use of plant material alone or by locating the use in an unobtrusive location on the site. The purpose of screening with respect to visual matters, is largely related to the maintenance of the NE as a continuous natural corridor and for the maintenance of the open landscape character. Berms are man-made features which are not part of the natural environment. She notes that berms may be suggested by proponents -

- as a way of utilizing excavated material from a site;
- for aesthetics;
- as part of land use such as recreational facilities; i.e. golf courses and mountain bike facilities;
- for screening an adjacent existing use, they do not wish to view; and
- as part of mineral resource extraction uses where berms are included as noise and vibration attenuation as well as landscape screens.

It is suggested that the following guidance be provided in considering the use of berms and berming in the Niagara Escarpment Plan Area.

1. Generally, the approach to berming, grading or site alteration should be such that there should not be substantial negative impact on the Escarpment environmental features such as the contours, and the visual attractiveness and to maintain the appearance of a continuous natural environment as much as possible.
This should be interpreted to mean that where berming or site alterations results in substantial contour changes or substantially impacts the visual attractiveness of the Escarpment environment then the proposed development should not be acceptable as a permitted use.

The problem is that the nature of a "substantial impact" is not clear. A specific criteria could be provided for instance no berm or grade change over a specified height should be permitted. However, this approach has been rejected primarily because it suggests then that berms and contour changes are permissible below a certain level. The benefits of the development control system is that it allows a site by site evaluation and by specifying a particular height this value is lost. Secondly, a smaller berm /or grade change could have a substantial impact when located on a small lot, but very little impact on a larger lot. Finally, the visibility and attractiveness of the site and the area within which the site is located is an important consideration in evaluating the impact on the Escarpment environment.

Wherever possible rural development and site alterations should be located in areas which are visually unobtrusive.

- Buildings should be sited so that they will not extend above the surrounding tree canopy height;
- Existing vegetation should be retained and used to screen proposed development;
- Existing site topography should be used to provide screening by locating buildings below the skyline and access roads behind existing topographic features;
- Development should be clustered and located on the edge of meadows, near hedgerows, and wooded areas to retain the overall agricultural appearance and open landscape character without resorting to artificial berming;
- Grading for access roads should be aligned with the slope rather that perpendicular to the contour lines.

2. Berming should only be used where the proposed development is visually incompatible with the cultural and natural characteristics of the surrounding area. Rural residential uses, general agricultural uses etc. are part of the rural landscape and should not be screened as a matter of policy.

3. Berming should only be used where plant material alone will not provide sufficient screening either within a reasonable time period or at maturity.

4. Where berming is proposed the grading and design of the berm should appear as a natural extension of the existing topography and plant material should form a strong component of the screening associated with the berm design and the layout. The plant species utilized should appear as a natural extension of the existing vegetation.
5. Where berming is proposed adjacent to a Mineral Aggregate Extraction Area and there is an existing forested area which can provide a visual screen, any artificial berming required for noise attenuation should be setback from the road such that the forested area providing the visual screening can survive.

RECOMMENDATIONS

That the NEC adopt this policy paper and the following specific recommendations as NEC policy -

1. The NEPDA defines “development” to “include(s) a change in the use of any land, building or structure”. This has been interpreted to include filling, site grading, and site alterations, etc. The NEP in none of the land use designations (Part 1 of the NEP) addresses the question of the use of land by filling or grading directly. The NEP should therefore be clarified so that filling, grading or site alterations are not permitted except if they are associated with a permitted use.

2. If there are changes in the NEPDA or if a definition of Development is added to the NEP, it should be made clear that “Development” includes “site grading and the temporary or permanent placing, dumping or removal of any material originating on the site or elsewhere.” The term site alteration could be used to describe “site grading and the temporary or permanent placing, dumping or removal of any material originating on the site or elsewhere.” However, it is not recommended that the two terms, development and site alteration be used together as they are in the ORMCP or the GP since this will cause a confusion since we are now using Development to include “filling, grading etc.”.

3. The literature and the website “Do I Need a Development Permit?” should be redrafted to include “for the temporary or permanent placement of fill.” This staff report should be circulated to municipalities with a letter indicating that this is the position of the NEC regarding site alterations including site grading and the temporary and permanent placement of fill.

4. When an amendment is initiated to outline when Environmental Impact Assessments are required, it should be made clear that if site alterations are within the Minimum Areas of Influence such as outlined in the ORMCP an EIA would be required. The proposed amendment might also consider establishing a Minimum Vegetative Protective Zone such as is included in the ORMCP.
5. The Development Criteria of Part 2 of the NEP should be rigorously applied in the consideration of any Development Permit which includes site alterations especially policies 26.1 and 26.8.

6. Where site alterations are proposed, a grading plan should be required showing the existing and proposed contours, the existing vegetation, the proposed relocation of any excavated materials and the proposed location of any materials to be imported. The existing drainage should be identified. And any changes should be noted. No grading should generally be permitted within 4.5 m (14.7 feet) of the property boundary.

7. The Sediment and Erosion Controls outlined in the NEP should be specified where ever relevant as a condition of development approval.

8. The NEC should require as a condition on any Development Permit which proposes to import fill into the NEP area that the applicant provide documentation from an accredited professional, either an engineer or a geoscientist that the fill conforms to the definition of “inert fill” from the Regulation 347 and Table 1 of Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act. March 9, 2004.

9. Where the NEC has determined that a large amount of fill (over 100 truck loads) can be brought into a site it will be appropriate to set up a protocol for ensuring that all of the fill is acceptable. This will involve the establishment of a protocol to constantly monitor the site, provide vehicle tracking and have all of the documentation peer reviewed to ensure that the materials imported to the site satisfy the definition of “inert fill” and Table 1.

10. In order to establish the extent of development on a site, including the site alterations which should be permitted a monitoring program should be established to identify the extent of site alterations which are now being made as a percentage of lot area. Similarly the amount of impervious area created on a lot should be tracked for a one year period. This monitoring might also include keeping statistics on building mass (height and floor area) and lot size.

11. Generally, the approach to berming, grading or site alteration should be such that there should not be substantial negative impact on the Escarpment environmental features such as the contours, and the visual attractiveness and to maintain the appearance of a continuous natural environment as much as possible.

This should be interpreted to mean that where site alterations results in substantial contour changes or substantially impacts the visual attractiveness of the Escarpment environment then the proposed development should not be acceptable as a permitted use.
In considering whether or not a substantial impact has been created the size of the site alteration should be consider along with the lot size and the visibility and attractiveness of the site and the location of the site in respect of the Escarpment.

Wherever possible within the proposed site, rural development and site alterations should be located in areas which are visually unobtrusive.

- Buildings should be sited so that they will not extend above the surrounding tree canopy height.
- Existing vegetation should be retained and used to screen proposed development;
- Existing site topography should be used to provide screening by locating buildings below the skyline and access roads behind existing topographic features;
- Development should be clustered and located on the edge of meadows, near hedgerows or wooded areas to retain the overall agricultural appearance and open landscape character without resorting to artificial berming;
- Grading for access roads should be aligned with the slope rather that perpendicular to the contour lines.

12. Berming should only be used where the proposed development is visually incompatible with the cultural and natural characteristics of the surrounding area. Rural residential uses, general agricultural uses are part of the rural landscape and should not be screened as a matter of policy.

13. Berming should only be used where plant material alone will not provide sufficient screening either within a reasonable time period or at maturity.

14. Where berming is proposed the design and grading of the berm should appear as a natural extension of the existing topography and plant material should form a strong component of the screening associated with the berm design and the layout. The plant species utilized should appear as a natural extension of the existing vegetation.

15. Where berming is proposed adjacent to a Mineral Aggregate Extraction Area and there is an existing forested area which can provide a visual screen, any artificial berming required for noise attenuation should be setback from the road such that the forested area providing the visual screening can survive.

Kathy Pounder  Ken Whitbread
Senior Planner  Manager
<table>
<thead>
<tr>
<th>MUNICIPALITIES</th>
<th>DEFINITION OF FILL</th>
<th>REFERENCE TO EPA</th>
<th>REFERENCE TO “FILL”</th>
<th>CONDITIONS</th>
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</thead>
</table>
| **Caledon By-law 2007-59**                 | “Fill” means any type of material placed or dumped on land or in water and includes organic soils, peat, soil, stone, concrete, asphalt, sod, turf, dirt, earth, aggregate, binder, either singly or in combination, but does not include fertilizer. | Where fill is being imported from a source not located within the Town, a certification from a qualified person that the fill being imported does not exceed the maximum contaminate levels as set out in the EPA (from discussions this means Table 2) | No fill that is not clean and not free of rubbish, rubber, plastics, metals, glass, garbage, termites, organic materials, liquids or solid toxic chemicals and other contaminants or related waste, or which exceeds the maximum contaminant level as set out in EPA. | • Prevent soil erosion, blockage, siltation, pollution of a watercourse or a detrimental effect on any abutting properties  
• Scrape highways  
• Letter of credit  
• Only if land zoned A-1,A-2,A-3 or an active agricultural use or building permit  
• More that 100 loads – constantly monitoring site  
• Vehicle Tracking  
• More than 1000 loads public meeting |
| **Milton By-law 33-2004**                  | “Fill” means any type of material capable of being removed from or deposited on lands, such as soils, stone, sod, turf, concrete, and asphalt either singly or in combination, as acceptable to Director; | All fill includes only soil, stone, sod, other material acceptable to the director. Fill is clean and free of glass, plastics, rubber, metals, liquid, garbage and/or contaminants | Not result in flooding, ponding, or other adverse effects.  
• Protection of trees  
• Siltation  
• No grading higher that 150 mm below ground floor  
• Not soil or foul roads | |
<p>| <strong>Township of Adjala – Tosorontio By-law 04-32</strong> | “Fill” means any type of material deposited or placed on lands and, | | | Areas where by-law does not apply – in conjunction with subdivision, rezoning, or site plan approvals. |</p>
<table>
<thead>
<tr>
<th><strong>Halton Hills By-law 01-076</strong></th>
<th><strong>Burlington By-law 117-1976</strong></th>
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<tbody>
<tr>
<td>Without limiting the generality of the foregoing, includes concrete, construction and demolition waste, industrial waste, construction materials and asphalt, either singly or in combination.</td>
<td>Defines domestic and industrial waste.</td>
</tr>
<tr>
<td>Land within 600 mm of property is not changed; No change in location direction or elevation of any natural or artificial watercourse open channel swale or ditch used to drain land.</td>
<td>No dumping of domestic waste, industrial waste, garbage or refuse.</td>
</tr>
<tr>
<td>Permit valid for one year may expire after 6 months if no work commenced.</td>
<td>No fill that interferes with drainage, causes ponding.</td>
</tr>
<tr>
<td>No site alteration in lands zoned Rural (RU).</td>
<td>• Or interfere with drainage or cause ponding</td>
</tr>
<tr>
<td>“Fill” means any type of material deposited or placed on or removed from a Site and includes but is not limited to earth, topsoil, stone, concrete, asphalt, sod, or turf, either singly or in combination;</td>
<td>• All fill levelled immediately</td>
</tr>
<tr>
<td>No person shall perform site alteration utilizing Fill containing contaminant s within the meaning of the Environmental Protection Act. Owner shall certify that Fill contains no contaminants within the meaning of the EPA.</td>
<td>• Prevent dust</td>
</tr>
<tr>
<td>Town may require random testing.</td>
<td>No ponding caused on adjacent properties or drainage detrimentally affected.</td>
</tr>
<tr>
<td>No dumping of domestic waste, industrial waste, garbage or refuse.</td>
<td>No affect the wells on adjacent properties</td>
</tr>
<tr>
<td>No fill that interferes with drainage, causes ponding.</td>
<td>No work with .3 metres of adjacent property line or 2.m where the site is over 1 hectare.</td>
</tr>
<tr>
<td>Requirements for size of berms</td>
<td>• Protection of trees, siltation, fouling of roads</td>
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