



CITY OF HAMILTON

PLANNING AND ECONOMIC DEVELOPMENT DEPARTMENT
Growth Management Division

TO: Chair and Members Planning Committee	WARD(S) AFFECTED: CITY WIDE
COMMITTEE DATE: June 7, 2011	
SUBJECT/REPORT NO: Lot Grading, Drainage and Site Alteration – Comprehensive Policy Review PED10091(b) (City Wide) (Outstanding Business List Item)	
SUBMITTED BY: Tim McCabe General Manager Planning and Economic Development Department	PREPARED BY: Charles A. Unelli, C.E.T. (905) 546-2424 Ext. 4142
SIGNATURE:	

RECOMMENDATION

- (a) That enhancements to the Grading Policy for Single and Semi-Detached Dwellings Created Through Development Applications, attached as Appendix “A” to Report PED10091(b), be approved and incorporated into the City’s Engineering Guidelines for Development.
- (b) That revisions to By-Law 03-126 as amended by By-Law 05-115, pertaining to Site Alteration, as set out in Report PED10091(b), be approved and that the draft amending By-Law attached as Appendix “B” to Report PED10091(b), be enacted.
- (c) That By-law 10-182, User Fees be revised as necessary to reflect new fees related to the enhanced grading approval process for new residential development as set out in Report PED10091(b).
- (d) That the General Manager of Planning and Economic Development Department be directed to continue to refine and develop new residential grading standards for multi-unit developments under Site Plan Control, and to incorporate these into the grading policy.

- (e) That three new (3) FTEs be approved for the hiring of one (1) inspector, one (1) administrator, and one (1) project manager, reporting to the Manager of Construction and Inspections as approved as part of the Growth Management Division reorganization. The three (3) new FTE's are as described in staff report, "Lot Grading, Drainage and Site Alteration – Comprehensive Policy Review", PED10091(b), with an estimated net cost of \$0, and that \$10,000.00 be funded in 2011 from the existing operating budget for advertising of homeowners responsibilities as it relates to grading and drainage with future costs for advertising and education being referred to the 2012 budget process.
- (f) That the General Manager of Planning and Economic Development Department be directed to prepare a terms of reference for a pilot project for grading problems related to existing development generally based on the City of Burlington's Drainage Assistance Program attached as Appendix "G" to Report PED10091(b) and report back to Planning Committee.

EXECUTIVE SUMMARY

Scope of Work

Staff in the Development Engineering Division (now Growth Management Division) of the Planning and Economic Development Department has undertaken a comprehensive update of the City's grading policy.

The fundamental policy issues that have been assessed include:

- The grading approval process (standards and requirements);
- Education; and,
- Enforcement.

Efforts of the review have been focused on enhancements to the development approval process. Specifically, these include:

- Enhancements to the existing grading policy including clarifications to fundamental policy issues applicable to the development approval process;
- A new component for education of the public; and,
- Enhanced enforcement abilities of these requirements for new development by more aggressive involvement of City staff.

For the "post development" condition (i.e. in existing established areas), improved ways to address grading, poor drainage and swale blockage issues among landowners was

also assessed from a process perspective, including legal liabilities, staffing, and financial impact. It is being recommended that a pilot project be considered to determine the effectiveness of a new service and process to address these types of drainage problems.

Recommended Grading Policy Enhancements (Development Approvals)

Changes to the policy have been developed based on a review and comparison of various municipalities in the Golden Horseshoe Area, consultation with the Hamilton Halton Home Builder's Association (HHHBA), engineering professionals, and discussions with City Staff. Key enhancements include:

- an increase in lot grading securities;
- a mandatory second lot grading inspection no sooner than six months after the initial inspection;
- clarification of design parameters for lots created under severance applications;
- specific standards for grading of lands outside the urban area;
- requirements for builders to provide an as-built grading plan to demonstrate conformance with the grading policy;
- the retention on title of approved grading plans of all newly created lots; and,
- formalizing of a ten step 'Lot Grading Approval Process' to clearly identify the City's requirements for release of securities.

Details of the recommendations are highlighted in Appendix "A".

Recommended Site Alteration By-Law Policy Enhancements

In addition to the recommended Grading Policy enhancements, related Site Alteration policies cited in By-Laws 03-126 and 05-115 have also been reviewed and compared against other municipalities. As a result, minor changes are recommended to the definitions and to the list of detrimental impacts that would withhold issuance of a Site Alteration permit to protect the interests of the City and neighbouring properties. Recommended changes are shown in Appendix "B".

Sub-section 3.3 of the Site Alteration By-law 03-126 is also recommended to be modified as shown in Appendix "B". This modification will result in the requirement of all industrial, commercial, and institutional properties to apply for permit if they intend to undertake earthworks on their lands that can affect drainage.

Staff are also recommending new sub-section 3.16 be added to the Site Alteration By-law as shown in Appendix "B". The addition of this sub-section will prevent usage of the by-law as a pre-development tool requiring developers to engage the City with proper

plans and enter into appropriate servicing agreements if the City decides the work has merit in advance of full approval; i.e.: taking advantage of available fill.

Homeowners Self-Help Package

The education component is the most critical aspect of the enhanced grading policy as it provides the best opportunity to obtain compliance from owners early (i.e. once they move into a new home) as compared to the expending costly staff time and resources trying to resolve problems later. In that respect, the education piece is proactive and expected to reduce the number of issues that arise both through the development process and the post development condition (i.e. in existing established areas).

The City's grading policy and approvals process is quite rigorous for new development, but many drainage problems occur in the post development condition. To address this, the City published "A Homeowner's Guide to Lot Grading and Drainage" (Lot Grading and Drainage) in 2009, but in order to assure that the knowledge gets out to new homeowners, a 'Grading Policy Notification Sticker' will be required to be posted in a highly visible place in all new homes as part of the enhanced grading approvals process. The Lot Grading and Drainage Brochure and sample Notification Sticker are included as Appendix "C" and "D". It should be noted that the development community (developers/builders) support this initiative.

In addition, staff is also recommending that a public notice be placed in City newspapers annually reminding residents of the importance of grading and their responsibilities when undertaking changes to their properties. This task has a negligible staffing impact, but will have impact to the operating budget of approximately \$10,000.00 annually.

Drainage in Developed Neighbourhoods

A review of other practices in other municipalities found that the City of Burlington does have a process and funding in place to assist homeowners with drainage concerns that is based on the premise of the City facilitating engineering studies to determine the cause, effect, and solutions to identified drainage problems in established neighbourhoods. While this type of process in theory could be successful, it is staff's opinion that it would have limited applicability within Hamilton's urban area due to the fact it would only apply to development prior to the 1970's (before the City established a grading policy) and would only be successful if abutting owners were agreeable to changes. In the majority of drainage complaints received by staff, drainage problems are initiated by abutting neighbours because they have changed drainage features with the addition of landscaping, pools, etc. (see Enforcement section below). Given the levy impact to fund such an initiative (\$30-50,000 per year) and associated staffing implications [one (1) FTE at >\$100,000 budget impact], implementation of such a policy without high expectations of success is not recommended. Alternatively, staff is recommending the preparation of a terms of reference for a pilot project for Council's

consideration generally based on the City of Burlington's program. Once the terms of reference for this Pilot are developed and presented to Committee, it would be implemented on a limited trial basis to test the merits of expanding to a full blown program. A copy of Burlington's Residential Drainage Assistance Program is included in Appendix "G" for discussion purposes.

Enforcement

The enforcement component, where the City would have the means to assist homeowners to resolve drainage issues, is a more significant issue that requires careful consideration. In the post development condition, problems brought to the City's attention are typically dismissed as civil matters because of the lack of municipal jurisdiction and the fact the City has no by-laws specifically established for use as a mechanism to gain compliance from property owners.

Options do exist to develop a new by-law or enhance existing by-laws (e.g. Site Alteration, Land Drainage) to specifically address drainage issues on private property which would allow the City to force compliance using fines that can be directly added to property taxes. Similar to other by-laws such as Property Standards, homeowners would have a chance to rectify a situation following consultation and instruction by City staff. Failing this, fines would be imposed or City forces would complete the work on the owner's behalf. This option, however, may prove to be costly to the City if a homeowner challenges the claim. In addition to the legal implications it is expected there would be significant budgetary considerations because additional manpower would be needed, presumably with expertise in drainage, to handle the estimated 175 complaints expected per year.

Staffing

The enhanced grading approvals process will require additional staff to effectively process grading inspections and approvals. Council's approval of Building Services Operational Review in 2008, recommending the transfer of responsibilities for grading inspections, Site Plan acceptance, and Site Alterations from Building Services to Development Engineering (Growth Management). This will require the transfer of two (2) existing FTEs from Building Division, plus an additional three (3) new FTEs (a project manager, administrator, and a third inspector) will be required as set out in the Recommendations of this Report. As part of the transfer of responsibilities, these five (5) positions will be reporting to the Manager of Construction and Inspections approved as part of the reorganization for the Growth Management Division.

Retaining Walls

Though not specifically related to grading and drainage, at the February 1, 2011 Planning Committee, direction was given for staff to report back on how staff have been

dealing with ongoing issues related to failing retaining walls on private property that impact adjoining properties.

Municipal Law Enforcement Officers (MLEOs) have investigated a number of retaining wall issues over the years. They were often challenging and time consuming to deal with, and sometimes involved appeals to the Property Standards Committee.

In consultation with Legal Services, recent process improvements and by-law changes were undertaken. As well, staff provided education to Property Standards Committee members. As a result, staff is now able to address retaining wall issues in an efficient and effective manner. A review of the past two years disclosed six (6) retaining wall investigations across the City. None of these investigations were appealed to the Property Standards Appeal Committee.

The following summarizes the general process for dealing with complaints concerning retaining wall maintenance:

- Retaining walls are now included in the new Property Standards By-law 10-221, under section 22(1). MLEOs can issue Orders to Comply under section 15.8 of the Ontario Building Code, compelling neighbours to acquire a recent (3-5 years) survey to determine who owns the disputed retaining wall. In the event that neighbours do not acquire a survey, staff can charge to the owner the cost for the survey, including contractors costs to repair the retaining wall and in addition a Fee For Inspection for non compliance, and ultimately, take the owner to court for Failing to Comply with a Lawful and Binding Order.
- Disputed owners are now fully aware that they can correct the situation themselves or, in the alternative, the City will determine who owns the retaining wall, and charge back costs for the survey, contractors etc. A policy and procedure, specific to retaining walls has been developed and distributed amongst staff. Should the retaining wall share a common property line, then mediation is to be encouraged. If mediation is refused then the neighbours can seek civil recourse. When neighbours become aware of the City's statutory powers they tend to reconcile and address the issue.

Parking and By-Law Services Division staff will be reporting in the near future on the feasibility of creating a mediation service for dispute resolution related to by-law enforcement issues.

FINANCIAL / STAFFING / LEGAL IMPLICATIONS

Financial: In addition to cost for staffing (see next section), financial implications as a result of enhancements to the City's grading policy will be limited to

increased fees for grading inspections to be paid for by the developer/builder (the fee is to be fully cost recoverable).

Based on the proposed user fees, revised workflow for inspection approvals and historic workloads for: lot grading inspections; Site Plan inspection; site alteration permit processing; and, administration and letter of credit reductions, grading responsibilities will be fully cost recoverable and should have no impact on the levy with allowances being included for training, software licensing, supplies, and mileage. This is premised on a yearly average of:

- 1,500 lot grading inspections;
- 150 site plan inspections;
- 10 site alterations; and
- 150 letter of credit reductions,

however, the minimum threshold for full cost recovery is based on processing approximately 1,200 units of activity.

There will also be costs to the City for the publication of additional Lot Grading & Drainage brochures and for Notification Stickers that will be provided to new homeowners. There will also be an annual advertising cost of approximately \$10,000.00 for notices to be placed in newspapers across the City informing property owners about the importance of grading and drainage.

With the transfer of grading inspection responsibilities and Site Plan acceptance to the Development Engineering Division (now Growth Management) as recommended and approved as part of Building Services Operational Review in 2008, an expanded AMANDA software licence will be required for the processing, tracking, and administration of inspection approvals within the division. Costs for ongoing training, mileage for inspections and supplies are also a consideration.

Staffing: The enhanced grading approvals process will require additional staff to effectively process grading inspections and approvals. Council's approval of Building Services Operational Review in 2008, recommending the transfer of responsibilities for grading inspections and Site Plan acceptance as well as Site Alterations from Building Services to Development Engineering. The total staffing complement for the new Grading/Inspections service will include:

- the transfer of two (2) existing FTEs from Building Division,

- an additional three (3) new FTEs:
 - a project manager,
 - administrator, and
 - a third inspector

As part of the transfer of responsibilities, these FTEs will be reporting to the Manager of Construction and Inspections approved as part of the reorganization for the Growth Management Division.

Under the current regime, Building Services has two (2) FTEs to cover the existing requirements for grading inspections, although the responsibility of grading inspections is spread across the division's full complement of inspectors (approximately 30 staff).

For administration, scheduling, processing, and general oversight of the process a Project Manager function and an Administrator/Clerk function is required to deliver the service effectively as timelines become even more important with the two stage grading approval process being recommended; and an additional inspector will be required to cover the additional field visits required for the new two stage grading approval for residential lots, but the additional inspector also ensures that inspections are completed in a timely manner which in the past has been problematic for the Building Services Division.

In terms of volume, the full complement is expected to be able to process approximately 1,500 grading approvals, 150-200 Site Plan inspections, and 10-15 Site Alterations per year. Included in the processing is the enforcement of problem sites which require significant staff time to administer especially if City forces are required to facilitate and manage the remediation of a site.

To properly integrate these new duties into the Division it is recommended that they be consolidated within the Division's existing Construction and Inspections group reporting to the Manager of Construction and Inspections. This management position was previously approved as part of the division's recent reorganization. An organization chart illustrating the how the proposed new group would fit within the Growth Management Division is included in Appendix "H".

Based on historic and expected activity levels, revenues generated from Lot Grading inspections and Site Plan inspections, Site Alterations, etc. will result in a zero net increase in the operating budget with the additional staffing enhancements.

Finally, currently Building Services Division has two (2) Inspector vacancies, so the transfer of two (2) inspector positions will not impact employees within the Division.

Legal: The following by-laws will need to be amended to implement the enhanced grading policy:

- By-Law 10-182 User Fees, to reflect new fees related to the grading approval process for new residential development;
- By-Laws 03-126 and 05-115 Site Alteration, for minor revisions to the definitions, clarification of what constitutes an impact, modifications to sub-section 3.3 and the addition of new sub-section 3.16 which address restrictions to obtaining a permit.; and,
- Land Drainage By-Law 80-245, amended by By-Laws 96-137, 81-218, 88-09, 88-207 and 93-123, requires update to match the current policy practice to disconnect roof leaders and discharge to grade.

HISTORICAL BACKGROUND

In September 2009, the Development Engineering Division (now Growth Management Division) of the Planning and Economic Development Department was directed to report back on “improved ways to address grading, drainage and swale blockage issues, including preparation of a self-help package for homeowners”.

In that regard, staff retained MTE Consultants Inc. to assist in updating the City’s “Grading Policy for Single and Semi-Detached Dwellings Created Through Development Applications”, the current policy, being Item 21 of Committee of the Whole Report 02-024, approved by City Council on June 12, 2002.

As an interim reporting step, staff prepared Lot Grading and Drainage Information Report PED10091 and made a presentation to the Economic Development and Planning Committee on April 20, 2010. A follow-up Lot Grading and Drainage Information Report PED10091(a) was presented to the Committee on October 5, 2010, and a verbal update presentation was made on February 1, 2011.

Across the Province of Ontario, effective management of storm water resources is required to prevent flooding and erosion problems. As a requirement of the City of Hamilton’s subdivision and land severance/infill development processes, developers are required to retain an engineer to design the grading for their lands, ensure there is a positive outlet to where the storm water runoff can be drained, and that the grading will not negatively impact adjacent landowner’s properties. Staff review and subsequently approve an overall grading plan for the development lands and retain security deposits

from developers and builders to ensure the grading, once completed, complies with the approved overall grading plan.

Upon completion of the lot grading, the developer's engineer is required to field check the grading and if satisfactory certify to the City that the grading meets the intent of the approved overall grading plan. At such time that the lot grading is accepted by the City the grading security is released.

Grading for the vast majority of lots is completed and certified under the current system with very few problems. After the lots have been certified for grading, the City's jurisdiction terminates with respect to the involvement and enforcement of grading and drainage problems on private property.

Over time, drainage patterns can be disrupted by settlements, tree growth or, more commonly, private homeowners modifying their properties with the installation of fences, gardens, sheds, pools, retaining walls, etc. In recent years the Building Services Division staff have attended properties due to numerous grading/drainage complaints where they have witnessed the following types of encumbrances within sideyards:

- Swales in sideyards occupied with raised walkways (concrete, patio stones, etc.);
- soil spread under the fence where the swale was previously located;
- window wells occupying the area of sideyard;
- splash pads not having adequate space to discharge;
- improper construction and/or maintenance of swales; and,
- location of vents, gas meters, a/c units, window wells, etc. tend to force walkways into the required swale location.

Building Services indicated that if larger sideyards were established the majority of these issues may have been alleviated.

Modifications such as those described above sometimes cause drainage problems for neighbouring properties resulting in homeowner complaints directed towards Councillors and staff. Some homeowners have the expectation that the City should become involved in these private drainage disputes. As a result of this seemingly chronic problem, Planning Committee directed staff to report back on improved ways to address grading, poor drainage and swale blockage issues including preparation of a self-help package for homeowners. In an effort to improve the long-term sustainability of developed properties and improve the level of service offered to the citizens of Hamilton, staff retained MTE Consultants Inc. to assist with the review of the current grading policy while addressing the Committee's concerns.

POLICY IMPLICATIONS

Corporate Policies that will be directly affected by the approval of the recommendations include:

- Item 21 of Committee of the Whole Report 02-024, approved by City Council on June 12, 2002 (Grading Policy);
- By-Law 03-126 (Site Alteration By-law); and,
- By-Law 05-115 (Amendments to Site Alteration By-law).

Other by-laws that are recommended for updates for clarification include:

- By-Law 80-245 (Land Drainage By-law); and,
- By-Law 96-137 (Amendments to Land Drainage By-law).

It is important to note that other existing by-laws, namely; 81-218 (Fines), 88-09 (Roof Leaders), 88-207 (Roof Leaders), and 93-123 (Land Drainage) also contain amendments to the Land Drainage By-Law 80-245. Most of these by-laws have been repealed with By-Law 96-137, but it is recommended to consolidate all of them into one comprehensive new by-law for clarity.

RELEVANT CONSULTATION

Internal City of Hamilton Departments/Divisions consulted include:

- Development Planning
- Building Services
- Legal Services
- Corporate Services

MTE Consultants Inc. have participated in several meetings with City of Hamilton staff during the review and preparation processes involved with the recommended grading policy enhancements.

Involvement of Council

The review also involved a Councillor survey to assess the types of complaints reported by homeowners in their respective wards and respective concerns of the Councillors. Results of the survey were discussed with some of the Councillors at the City on April 8, 2010. Table 1 summarizes the survey responses, and Figure 1 illustrates the

approximate number of complaints received per year by Councillors, per ward, overlaid on the 2001 Statistics Canada population mapping prepared by the City of Hamilton. The significance of the population mapping helps illustrate the relative number of estimated grading complaints against the number of households in a ward. It also shows that grading problems occur throughout the City and are not localized to any one specific area. Most of the complaints received involved homeowners altering their lot which resulted in impacts to neighbouring properties following rain events.

A summary of the surveyed Councillors' main concerns are:

- The need for City staff to attend on site investigations;
- Lack of easily available grading information for homeowner's and their grading responsibilities within their lots;
- Ensuring functionality of rearyard catch basins;
- The ability of the City to become involved with enforcement of post development grading and drainage issues caused by individual homeowners; and,
- The ability of the City to become involved with helping homeowner solve post development grading and drainage issues caused over time by incremental changes to the landscape (tree growth, landscaping, etc).

Feedback from Local Engineering Consultants

Draft copies of the proposed Grading Policy enhancements were circulated for comment to local area engineering companies on July 14, 2010. Of the 15 companies circulated two (2) returned comments. Comments submitted have been provided as referenced in Appendix F. The main issues identified included:

- Need for a transition period before the new requirements would become enforceable;
- Requirements for additional rear yard catch basins would increase difficulty of fitting the street furniture between lots, especially since smaller lot sizes are becoming the norm;
- Suggestion that rural lot grading should have its own Design Criteria;
- Request for copies of By-Laws 80-245 (Land Drainage) & 96-137 (Amendments to Land Drainage) to be included in Grading Policy or available on-line; and,

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- Preference for the underside of footing to be documented rather than the top of foundation wall.

The proposed Grading Policy enhancements were provided to the Hamilton Halton Home Builder's Association (HHHBA) for distribution amongst their members for comment. On August 19, 2010, MTE attended a regular meeting of the HHHBA Development Council to discuss the proposed Grading Policy. Staff and MTE have had subsequent meetings and correspondence with the HHHBA to identify their main concerns which include:

- The reason for the \$1,000 increase to \$2,000 in the grading security amount required for Building Permits;
- The rationale for an additional inspection in the calendar year following initial grading certification and the corresponding new \$150 per lot fee proposed to be deducted from the refund in the final grading security amounts. A nominal charge plus an additional cost per lot was suggested;
- Increased number of catch basins due to the reduction of lots permitted to drain to a rear yard catch basin (increases costs to development);
- Low impact development and rural design criteria were not adequately addressed;
- Limitations to the use of one-way (back to front) drainage based on separation between houses;
- Likelihood of increased complaints from homeowners with the longer time it will take to gain grading approval; and,
- The requirement for the preparation of as-built plot plans.

Staff have had on-going dialogue with the HHHBA including written comments from them dated September 14, 2010, January 31, 2011 and March 15, 2011. In that regard, the HHHBA are in support of some of the proposed changes to the policy and do not support others. Their letters are attached as Appendix "G".

A formal response from one of the builders was received on August 27, 2010, which summarized some similar concerns and is attached as Appendix "G" .

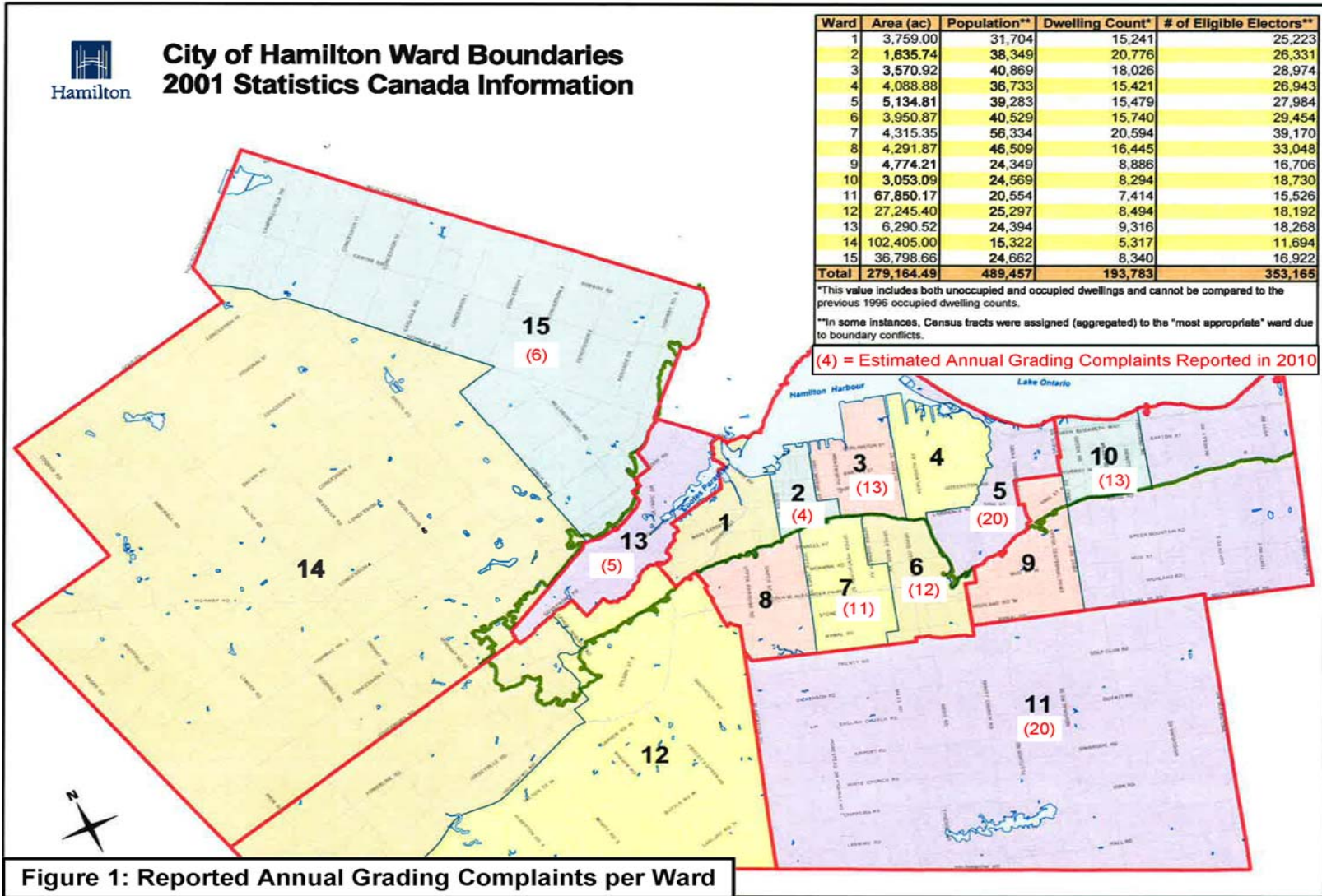
Based on information reviewed and compiled from neighbouring municipalities and meetings held with development community professionals and City staff, recommendations for enhancements in the form of changes to standards and new requirements to the current Grading Policy and Site Alteration By-Laws are proposed. The recommendations have been highlighted in Appendices "A" and "B".

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Table 1: Councillor Questionnaire Summary

Item Description	2	3	5	6	7	10	11	13	15
Typical Complaints per year Avg = 11.5	4	13	20	many	11	13	20	5	6
Are complaints localized to a neighbourhood or street	No	Yes	No	No	No	No	No	No	
Complaints after 1)hard rain, 2)most rain events, 3)periodic 4)all rain events	3	4	1	2	2	1	2	2	
Type of dwelling generating most complaints:									
A new home in a new subdivision						X	X	X	
An infill development				X	X	X		X	
homeowner altering their lot and impacting neighbour	X	X	X	X	X		X	X	X
rural drainage issues							X		X
Nature of Problem									
Yard Flooding	X	X	X	X	X	X	X	X	
water entering structure through wall or window			X		X				
damage & erosion from concentrated flows		X			X		X		
neighbours downspout/yard draining onto property	X		X	X		X	X		
Nature of complaint	builder issue	each unique	Dislike 'Civil' Answer	Dislike 'Civil' Answer, creates domino effect	each unique	each unique		Dislike 'Civil' Answer	
Suggested Information to be provided to residents re site alterations	no tolerance		site visits/brochures	City involvement, beginning to end	reminder notices required	inform owners not to alter grades and block ex. swales	need bylaw to enforce policy & more education	need by-law for enforcement	

Note: "Dislike 'Civil' Answer" refers to grading problems that were deferred back to the complainant since the issue was considered to be a Civil Matter and beyond the City's legal authority to force any changes.



ANALYSIS / RATIONALE FOR RECOMMENDATION

Lot Grading Policy, Criteria and Standards

The City of Hamilton's "Grading Policy for Single and Semi-Detached Dwellings Created Through Development Applications" (Grading Policy) was approved by Council on June 12, 2002, as part of the Committee of the Whole Report 02-024, Item 21. The current policy is made up of the following components:

Grading Policy - Details grading security amounts required at the time of development application and building permit application stages. Methods to release the various amounts collected are indicated.

Design Criteria - Outlines design criteria for grading of single detached and semi-detached housing in new developments within the City.

Acceptable Lot Grading - Defines minimum thresholds for finished lot grading which allows for acceptance of lot grading and permits the release of securities.

Grading Standards - Lists specific information to be included on grading plans which are subject to review and approval of the City prior to proceeding.

Grading Certificate for Lot Grading - Details the lot grading certification process. As part of the review of the Grading Policy, procedures, policies and design criteria from numerous cities and towns within southern Ontario were examined. In conjunction with data previously collected by the City of Hamilton, MTE compared key design elements, used by the various municipalities, in order to establish a benchmark grading policy using industry standards. Some of the municipalities reviewed include Mississauga, Oakville, Burlington, Kitchener, London, Milton, Markham, and Windsor. A summary of the most relevant municipalities' design standards are illustrated in Table 2, providing a means by which Hamilton's current policy was evaluated. Key elements involved with the recommended enhancements to Hamilton's policies are sourced from current grading design elements used by Mississauga and Milton. The most notable difference is the reduced catchment areas permitted to be drained to rear yard catchbasins including more defined limits to swale lengths.

Table 2: Grading Design Criteria Comparison

Design Element	Municipal Grading Design Criteria
<i>Flat Access Strip Adjacent to Dwelling</i>	
City of Hamilton	No policy/criteria
City of Mississauga	Provide a 0.60 m flat access strip along at least one side of building (where setback permits). Usually along garage side or side door entrance
Town of Milton	
Town of Oakville	
<i>Surface Treatment Between Dwellings</i>	
City of Hamilton	No policy/criteria
City of Mississauga	If combined sideyard distance between buildings is less than 1.2 m to 1.5 m, then provide clear stone instead of topsoil and sod
Town of Milton	
Town of Markham	
<i>Rear Yard Catchbasins</i>	
City of Hamilton	CB's drain not more than four (4) lots on either side of any swale leading to a CB on any side of the CB. Hamilton is the only municipality of those reviewed to use private RYCB's. The other municipalities take easements over the RYCB's.
City of Mississauga	For lots less than 12 m frontage, rear yard CB's can drain a maximum 3 lots. For lots with frontage 12 m or greater, 2 lots.
Town of Oakville	2.4 m to 3.0 m easement for RYCB's. No set rear yard swale length. CB's drain 2000 m ² paved area or 5000 m ² sodded area
Town of Milton	CB's drain 2000 m ² paved area or 5000 m ² sodded area
Town of Markham	RYCB's drain maximum 0.20 ha (2000 m ²) or 8 rear lots
Town of Fort Erie	Max. distance from swale high point to RYCB or between RYCB's shall be lesser of 70 m or 4 single family lots
<i>Back to Front Drainage</i>	
City of Hamilton	Back to front drainage regardless of side yard setbacks
City of Mississauga	Back to front drainage if sideyard is a minimum 1.2 m for each lot (total 2.4 m open space between dwellings)

A.1 Grading Policy Review Considerations Based on Consultation with Stakeholders

MTE Consultants Inc. participated in numerous meetings involving City of Hamilton staff, Councillors, local Professional Engineers and members of the Hamilton Halton Home Builder's Association (HHHBA), as outlined in the "relevant consultation" section of this report. Based on information reviewed and compiled from these meetings, recommendations for changes and additions to the current Grading Policy and Site Alteration By-Laws have been proposed. The recommended changes have been highlighted in Appendices "A" and "B" to Report PED10091(b).

Councillors

Feedback from Ward Councillors noted that most complaints seem to arise from either incorrect grading of new in-fill lots, or residents altering grades of existing lots. Councillors also indicated that when flooding or ponding was caused by alteration of existing lots, affected residents were dissatisfied when informed that their situation was considered a civil matter and the circumstances were beyond the City's legal enforcement responsibilities.

Councillors indicated most of the complaints received involved homeowners altering their lot and impacting neighbouring properties following most rain events. Based on the results of this survey, Councillors deal with approximately 11 or 12 complaints per Ward, equating to approximately 175 documented complaints per year. It is estimated that the total number of grading issues is larger as many go unreported and some complaints go directly to staff. Figure 1 maps a summary of the estimated annual reported complaints per Ward, overlaid with corresponding 2001 Statistics Canada data provided by the City of Hamilton. It is interesting to note, and not unexpected, that the majority of the complaints are generated from the more fully developed and older wards within the urban area, most having a higher population density and dwelling count.

Staff also investigated the feasibility of ensuring functionality of residential rearyard catch basins. To accomplish this, the City would have to retain easements over the rear yard swales, the rear yard catch basin and the catch basin connections to the sewer on the street; however, establishing easements does not guarantee swales and/or catch basins will not be blocked. Due to the vast number of swales and catch basins within developments across the City, there will be additional staffing, legal and financial implications to the City due to on-going maintenance requirements for the drainage systems and catch basins which would have a significant levy impact. There may also be property access issues in the event homeowners disrupt swales, modify grades or block catch basins and the City is required to enter onto the property to rectify the problems.

In addition, since 1.0m to 3.0m wide easements would be required, the homeowners' usable area of their backyard and sideyards becomes encumbered, in particular where the City requires increased intensification and smaller lot sizes. Based on the foregoing, no changes are recommended with respect to acquiring easements over residential rear yard catchbasins.

Recommended changes to the Grading Policy and Site Alteration By-Laws are enhancements to the existing policies aimed at reducing the likelihood of issues arising through the development approval process and later in the post development condition. The expected outcome of the proposed changes is to eventually reduce the number of grading incidents reported each year.

Hamilton-Halton Homebuilders Association (HHHBA)

Significant discussion was undertaken with representatives of the HHHBA regarding proposed changes to the City's grading policy. While many concerns were addressed to their satisfaction, there remains other fundamental differences in opinion with respect to some of the recommended enhancement to the policy.

One such issue is the new requirement for 2.0m separation between houses to maintain drainage in the instance that one-way (back to front) drainage is being used to grade lots. Inadequate sideyard separation between houses impacts drainage and impedes access to the backyard. It's proposed that a minimum 2.0m separation between the houses be required for back to front (one-way) drainage to accommodate a drainage swale and sufficient space for pedestrian access to the backyard. If 2.0m separation cannot be achieved, the developer would be required to utilize split drainage (two-way). The HHHBA requested the City to reduce the minimum separation requirement to 1.8m. They feel this provides sufficient space for drainage swales and pedestrian access to the backyard; however, staff disagrees that 1.8m allows sufficient space for a minimum 0.9m wide x 0.15m deep swale (and even less space if the swale must be deeper than 0.15m) including reasonable space for a pedestrian access platform to the backyard. The HHHBA advised that they have used 1.8m separation several times where there was a 0.6m setback on one lot (garage side) and 1.2m on the adjacent lot suggesting that homeowners use the side opposite to the garage (1.2m side) to access their backyard. However, if homeowner's store lawnmowers, gardening tools, etc. in their garage, from a convenience perspective, we believe they are more likely to access the backyard via the garage side.

The current zoning by-laws within the six area municipalities allows for a minimum sideyard setback of 1.2m which equates to a 2.4m minimum spacing, except in Stoney Creek where it is 1.25m. Therefore the 1.8m separation the HHHBA proposes is based on obtaining zoning variances.

In recent years the staff of the Building Services Division have attended properties due to numerous grading/drainage complaints where they have witnessed the following types of encumbrances within sideyards:

- swales in sideyards occupied with raised walkways (concrete, patio stones, etc.);
- soil spread under the fence where the swale was previously located;
- window wells occupying the area of sideyard;
- splash pads not having adequate space to discharge;
- improper construction and/or maintenance of swales; and,
- location of vents, gas meters, a/c units, window wells, etc. tend to force walkways into the required swale location.

Building Services further commented that if larger sideyards were established the majority of these issues may have been alleviated. Based on the above, it's difficult to justify anything less than 2.0m spacing between the buildings and it is therefore recommended that a minimum 2.0m separation between the buildings be required to facilitate back to front drainage. If 2.0m separation cannot be achieved, the lot must incorporate split drainage design.

Details of other considerations can be found in correspondence between the City and the HHHBA included in Appendix G.

A.2 Education of the Public

The most critical aspect of the revised grading policy is the education component. With the participation of HHHBA, developers, City staff, Councillors, and homeowners in the education of basic grading and drainage principles and the City's policies, it is the intent that this will be the most direct route to reduce the number of future grading issues being reported.

Education of the Site Alteration by-law process involving homeowners is paramount since many problems are encountered long after the assumption of a subdivision by the City. Two methods that will be employed to educate homeowners include the City of Hamilton's Lot Grading & Drainage brochure and a bright information sticker to be placed in a highly visible location of new homes. For residential properties created under development applications, both of these handouts will be distributed by the City directly to new homeowners during the grading approval process.

The City's "Homeowner's Guide to Lot Grading & Drainage" brochure has been included for reference in Appendix "C". It serves as an information pamphlet highlighting the basics and importance of lot grading within the municipality and is currently available on-line for the public to review.

A draft version of the grading information sticker is located in Appendix "D". It is the intent that the sticker will be placed within the dwelling around the time of the initial grading certification by the engineer. Its purpose is to remind the homeowner of their continuing responsibility to maintain the grading of their property as approved by the City, particularly when landscaping, fencing, erecting sheds, or altering property grades along the side and rear lot lines.

Both the "Homeowner's Guide to Lot Grading & Drainage" brochure and the Grading Information sticker are intended to be distributed by the City's Inspectors. They will also be accompanied by an "Initial Grading Inspection Notice" once the development's initial grading certificates have been submitted.

Finally, annual advertising is recommended as a way to spread the word to homeowners about the importance of looking after grading and drainage. While this may prove difficult to quantify its merits, staff believes this low cost way disseminating information will be beneficial in reducing the number of drainage and grading complaints received over the long term. It is recommended that public notices be placed in area newspapers annually in the spring prior to the time when residents begin landscaping and other outdoor projects that can affect the grading of their lot.

A.3 Enforcement Issues – Approved Grading Plans and Site Alteration By-Law

Currently the City of Hamilton enforces grading policies and design requirements for properties within un-assumed subdivisions using security deposits provided by the developer and builders; however, once grading of a lot is approved, and homeowners cause drainage problems due to incorrect and/or unauthorized site alterations, the City is limited in its ability to enforce compliance with grading design policies. Currently the City has no specific by-law established for use as a mechanism to gain compliance from property owners accused of flooding damages by neighbouring property owners under post development conditions; e.g. in established neighbourhoods. In that regard, staff's ability to solve a drainage problem is limited if the City doesn't have jurisdiction by way of drainage easements. In these cases, the matter is normally dismissed as civil matters.

Alternatively, in addition to increasing public awareness of the issues and owner's responsibilities, by simply enhancing the existing policies, the need for

the City to step in as a third party and attempt to solve minor post development drainage issues would be reduced. Another approach is to develop a program to assist homeowners in resolving grading and drainage issues (refer to Alternatives for Consideration section of this report).

In that regard, one enhancement will be to require that the grading plans approved for each subdivision remain on title for all lots created when the subdivision plan is registered. The benefit is two fold in that property owners will have accessible information regarding the grading of their lot and combined with the public education piece will help the overall understanding of the issue of grading and drainage which will reduce the need for enforcement.

Enhancements to the Site Alteration By-law are also recommended. Sub-section 3.3 has been modified, sub-section 3.16 added and minor changes to the definitions and to the list of detrimental impacts that would withhold issuance of a Site Alteration permit to protect the interests of the City and neighbouring properties are recommended. The recommended changes are shown in Appendix “B”.

The recommended modification to sub-section 3.3 of the Site Alteration By-law 03-026 will result in the requirement of all industrial, commercial, and institutional properties to apply for permit if they intend to undertake earthworks on their lands that can affect drainage. This will assist the City in assuring proper drainage on private lands and keep on top of (enforce) nuisance issues where work has been completed illegally or inappropriately. The revised clause improves transparency and removes any question as to whether there is a violation of the by-law based on the existing time and quantity thresholds provided in the clause where often it's impossible to assess if there is an infraction. In particular, this will assist staff in dealing with property owners who jump the gun, so to speak, of planning approvals and start moving earth around on their lands without proper sediment and erosion control, dust control, etc. These issues are particularly difficult to deal with because the properties in question have no official status (e.g. no draft plan approval, no site plan approval) such that the City can easily gain compliance; i.e.) the work being done may be in compliance with the thresholds of time and quantity but may still be adversely impacting drainage and abutting property owners. With no authority to gain compliance it is often treated as a civil matter. The inability of staff to enforce compliance or affect a suitable remedy is a continual frustration of various Councillors and senior staff. Situations like this often end up with significant staff resources being allocated without a positive or meaningful result.

Staff are also recommending new sub-section 3.16 be added to the Site Alteration by-law. Addition of this sub-section will prevent usage of the by-law as a pre-development tool requiring developers to engage the City with proper plans

and enter into appropriate servicing agreements if the City decides the work has merit in advance of full approval; e.g. taking advantage of available fill.

Using this approach is advantageous because it maintains transparency in the planning process from the public's perspective and the City has better control over implementation of any pre-development work on a property. As an example, with a subdivision agreement in place and registered on title or a site plan approval with conditions, there are provisions for pre-grading whereby the City can follow a defined process and ensure there is provision for the taking of securities and collection of fees for review and inspection, etc. – it is more streamlined and removes any confusion around why a development project is not proceeding under the normal process. From a timing and resource perspective, the Site Alteration process being used as it is today puts a strain on available staff resources who are required to review and approve a plan and inspect within a limited context only to have to re-engage at a later time to review a formal complete application and facilitate approvals all over again.

Moreover, and perhaps more important, the current by-law is a permit process and is intended to be such that the City is unable to not issue a permit if the applicant meets the City's requirements (engineering drawings, securities, other permits, etc.). Following the Site Alteration process, there are no provisions currently within the by-law to withhold a permit if there are mitigating circumstances that would make alteration of the site prior to full approvals inappropriate. For example, if there are neighbouring properties owners with significant concerns that are to be vetted through a planning act process.

It is important that the general public is able to easily understand the intent and specific requirements of this By-law that pertain to nearly every residential grading change. To satisfy this concern, a list of potential impacts caused by alterations are included in Section 9.1, Item (d). This list identifies the various items reviewed by the City to ensure they remain protected if a site alteration permit is granted. Recommended additions to this list are comprised of the following:

- Flooding or ponding on adjacent lands;
- Blockage of a Storm Drainage System;
- Unnecessary injury or destruction of trees;
- Hindering the Orderly Development of Adjacent Lands;
- Detrimental Effect on Quality/Quantity of well water; and,
- Detrimental Effect on amenities of adjacent lots.

In addition, a summary of other items recommended for modification, addition, or deletion as part of the proposed By-Law update include:

- The expansion of the definition of “Watercourse” to include ditches, swales, and culverts;
- The added definitions for “Adjacent Lands”, “Agricultural”, “City”, “Conservation Authority”, “Contaminated Fill”, “Drainage Work”, “Swale”, and “Vegetation”, and;
- That addition of Section 3.3, Item (f) to ensure existing swales or watercourses are not filled in during the grade alteration.

B.1 Summary of Grading Criteria and Policy Enhancements

The current Lot Grading Policy Criteria & Standards have been reviewed, revised, and highlighted for review as provided in Appendix “A”. As previously noted, recommended enhancements are based on discussions with City Councillors, staff, the review of grading criteria and policies from other municipalities, and feedback from the development industry. Some of the fundamental policy issues that have been addressed in the proposed Grading Policy are outlined in Table 3.

The Land Drainage (80-245) and related Roof Leader (96-137) By-Laws will be updated to match the current policy practice to disconnect roof leaders and discharge to grade, where appropriate. Currently, the by-law indicates that roof leaders should be discharged directly to the municipal storm system and only permits discharge to grade if recommended by a storm water management study. This practice is contradictory to the current practice in most areas of the City that promotes most roof leaders to discharge to grade at a minimum of 0.6m from the foundation wall.

Since By-Law 80-245 was amended by many additional by-laws, prior to 1996, all By-laws related to the Land Drainage policy and additional related By-Laws being 81-218 (Fines), 88-09 (Roof Leaders), 88-207 (Roof Leaders), and 93-123 (Land Drainage) will be consolidated by staff into a comprehensive new by-law that would address the grading guidelines used in current industry practice.

B.2 Summary of Recommended Changes to Site Alteration By-Law

By-laws of local municipalities that were reviewed include the City of Kitchener, the City Burlington, and the Town of Oakville. These were chosen due to their similarities and well documented requirements. Site alteration permits for these municipalities were reviewed and summarized in Table 4.

Comparable municipal By-Laws clearly specify the items to be reviewed as part of a typical Site Alteration or Grading application submission. In comparison, the current City of Hamilton Site Alteration By-law only addresses a portion of the issues that are considered prior to permit approvals in other jurisdictions. Most of the redline recommendations include the addition of these missing items. Clarifications of certain requirements have also been recommended to avoid any uncertainties, all of which are outlined in more detail as follows.

By-Laws 03-126 and 05-115, together form the current City of Hamilton's Site Alteration regulations. Based on the various municipalities compared in Table 4, recommendations have been made to clarify and augment the wording currently associated with the City of Hamilton's Site Alteration by-laws. Sub-section 3.3 has been modified to require all industrial, commercial, and institutional properties to apply for permit if they intend to undertake earthworks on their lands that can affect drainage. Sub-section 3.16 added to prevent usage of the by-law as a pre-development tool. Finally, minor changes have been made to the definitions and to the list of detrimental impacts that would withhold issuance of a Site Alteration permit to protect the interests of the City and neighbouring properties are recommended. The recommended changes to the documents are shown in Appendix "B".

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Table 3: Recommended Grading Policy Revisions

Clause	Description of Policy Change or Addition	Reason for Policy Enhancement
2.5.1.1, 2.5.1.2	Clarification of required security amounts have been added, including renaming of different stages of security	Changes better define security requirements at development application stage and building permit stage for multiple types of developments
2.5.1.1 b), 2.5.1.2 b)	An increase of \$1,000/lot will be collected as security as a condition of Building Permit Application.	Fees collected are to protect the City against the increased costs of repairing problematic lots that are not completed by the developer or owner. The current rates are not usually enough to regrade and resod 2 or 3 remaining lots to solve a grading concerns
2.5.1.1 b), 2.5.1.2 b)	An Administration fee of \$150/lot to be charged against the second stage Security amount. This fee will be used to offset increased costs associated with an second mandatory grading inspection detailed in Section 2.5.1, of Appendix A;	The fee increase, which is to be deducted from the security amount, is to provide increased resources needed for a mandatory secondary inspection of the lot grading, while augmenting existing inspection services offered by the City.
2.5.2 i)	A minimum 2.0m combined side yard set-back to permit back to front drainage;	This will minimize future erosion and ponding issues between houses.
2.5.2 n)	Swales for RYCB's have been reduced to 50m maximum length, a maximum of 4 lots in any direction, AND a maximum residential area of 3600 m ²	This will minimize future erosion and ponding issues between houses and more closely resembles similar requirements in neighbouring jurisdictions.
2.5.2.1	Additional design criteria and procedures for infill lots has been addressed;	Augmentation of existing policy to address additional development types
2.5.2.2	Additional design criteria for rural lots has been noted;	Augmentation of existing policy to address additional development types
2.5.4.1 l)	A stipulation that roof leaders shall be drained to the front or rear yards for lots having combined side yards length of less than 2.0m	This will minimize future erosion and ponding issues between houses.
2.5.6	A ten-step procedure has been outlined for the approval of the lot grading and release of securities	Clarification using a step-by-step procedure to detail the various phases involved in the grading approval process is provided.
2.5.6	Key items included in the new procedure are:	Additional safe-guards were added to reduce the number of problems that could potentially develop following the completion of the subdivision and release of the pre-development securities.
	a) Certification of the footing elevation,	To reduce the chance of installing the foundation walls at the incorrect height
	b) A preliminary certification of the grades by the consultant,	Consistent with the existing policy
	c) An additional certification with the City inspector prior to release of grading securities. A minimum of six (6) months will be required between the first and second stage grading inspections;	To reduce the chance of excessive grade settlements causing homeowner grading issues during post development stages.
	d) Distribution of the City of Hamilton's Lot Grading & Drainage brochure and a bright Grading Information Sticker to inform and remind homeowners of their grading responsibilities.	To educate the public and promote the responsibilities implicated if grading changes are desired.

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Table 4: Site Alteration Permit Comparison

By-Law or Policy Requirement	City of Kitchener	City of Burlington	Town of Oakville	City of Hamilton
Permit Expiry	90 days	1 year	1 year	1 year
Renewal Term	30 days	6 months	6 months	1 year
Permit Cost	\$100 initial	<=0.2ha = \$80, >0.2ha = \$500+\$25/ha	Residential . \$475 General, \$235 Bldg Demos Commercial . \$475 General \$700 Gas Station \$800+\$30/ha other	<2ha = \$200, >=2ha = \$500+\$25/ha of fill area
Renewal Cost	\$50 revisions \$50 extension	50% of initial fee	Residential . \$235 General, \$120 Bldg Demos Commercial . \$235 General \$600 Gas Station \$600 other	50% of initial fee
Staff to ensure the site alteration will not cause:	Note: 'Y' = specifically mentioned in text of Municipality's By-law			
Soil Erosion	Y	Y	Y	Y
Blockage of Storm Drainage System/Watercourse	Y	Y	Y	Y
Blockage, Siltation, or Pollution of Watercourse	Y	Y		Y
Flooding or Ponding on abutting lands	Y	Y	Y	implied
An undue detrimental effect on the natural environment	Y	Y	Y	Y
Overflow of a Watercourse	Y		Y	Y
Public Safety Concerns	Y		Y	Y
Unnecessary Injury or Destruction of Trees	Y		Y	implied
Hindering the Orderly Development of Adjacent Lands	Y			
Detrimental Effect on Quality/Quantity of well water		Y		
Detrimental Effect on amenities of adjacent lots		Y		
A loss in agricultural lands within Rural Planning Area		Y		
Removal or addition of inappropriate fill on the lot		Y	Y	Y
Unauthorized Injury or Destruction of Municipal/Protected Trees			Y	

ALTERNATIVES FOR CONSIDERATION

Options for Enforcement

1. **By-Law Creation** – This option involves enforcement using fines that can be directly added to property taxes. This would require a new by-law or revision to existing by-laws; i.e. the existing Site Alteration By-law 03-126 (amended by by-law 05-115) or the Land Drainage By-Law 80-245 (amended by by-laws 96-137, 81-218, 88-09, 88-207, and 93-123). If issued with an order, homeowners would have a chance to rectify the situation following consultation and instruction by City staff. Failing this, fines would be imposed or City forces would complete the work on the owner's behalf. On the downside, enforcement for residential lots would require dedicated enforcement staff depending on the volume of reported infractions and the complexity of the situation making it a costly and onerous course of action, especially if the accused homeowner challenges the claim. Currently, staff is not aware of any local municipality enacting a similar by-law to enforce correction of grading issues. In addition to the legal implications it is expected there would be significant levy budgetary considerations because additional manpower would be needed, presumably with expertise in drainage, to handle the estimated 175 complaints expected per year. In that regard, staff is not recommending this approach.

It should be noted that, enforcement using existing by-laws such as Site Alteration would not address drainage issues in mature neighbourhoods where obvious alterations have not taken place, rather the impact of changes to the landscape has occurred incrementally over a long period of time. Rectification of ponding or flooding issues that have developed due to oversized roots, unexpected settlements from decaying buried organics, or swale damage from ground upheavals due to frost cannot be addressed under the existing policies. In this case, a new By-Law would need to be created in order to document homeowner obligations, specific recording and investigative procedures, and corresponding fines for non-compliance in order to deal with the varied types of complaints. In addition to the added staff that would be needed to adequately enforce any policy used to address such post development drainage issues, the extent of any financial and legal implications involved would need to be carefully considered to determine the budgetary constraints and liability concerns involved with addressing the estimated 175 complaints expected per year.

If the enforcement approach is favoured by Council, further discussion among stakeholders (i.e. the public and internal staff such as legal) is required to provide additional input prior to making an informative recommendation; however, based on the understanding of the implications that have been identified, it is recommended to screen this out from further consideration since legal efforts and

staff resources used to enforce private grading concerns may prove to be costly and create additional liability for the City.

2. Create Residential Drainage Assistance Program (RDAP) - As an alternative to the City's involvement in civil matters that are not enforceable under current City by-laws, a resident assistance program could be established similar to the City of Burlington's "Residential Drainage Assistance Program" (RDAP) included in Appendix "E". With a process such as this, the City of Hamilton would still not interfere with private civil matters; however, they would be able to provide residents access to professional engineering services that may provide direction on how to best resolve the situation.

A typical application that would qualify under this type of program would be to resolve grading issues in older neighbourhoods that may be a result of tree growth where the tree root system has disrupted the surface drainage on one or more properties and caused the blockage of surface water drainage. In most circumstances, application for this service would involve multiple residents with a similar drainage problem. Although some City resources would be required to document and record the nature of the various complaints and/or determine the extent of the residents affected, the program would generally provide a method better the local communities and provide access to a professional engineering solution.

A program such as this would provide an added benefit to the community allowing access to professional services that would be difficult to obtain as a private homeowner and would typically assist multiple residents. Costs for the program would be controlled to a budgeted amount per year for the acquisition of professional engineering services. Finally, unexpected legal costs can be avoided.

On the flip side, additional City resources would need to be provided to document complaints, research similar complaints in the neighbourhood, prepare requests for proposals (RDAP's) and manage the award of feasibility of the engineering servicing contracts. There would be a staffing impact. It is also thought that a program such as this would have limited effectiveness since most drainage complaints reported to the City involve a dispute between land owners; this approach would not be successful if parties are in dispute. From a legal perspective if the City accepts a grading certificate for a particular property and at some future date under the Assistance Program does a subsequent inspection regarding a grading related complaint and finds that a grading problem exists, the City could be liable for any remedial grading required to be completed including all costs associated with resolving the problem.

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A fixed budget amount funded from the levy would need to be included in the Capital Budget to be used to finance drainage investigations at an estimated cost of \$30-\$50,000 annually and one (1) FTE with engineering expertise would be required to facilitate such a process estimated \$100,000 annually. Given the levy impact to fund such an initiative and associated staffing implications implementation of such a policy without high expectations of success is not recommended. Alternatively, a pilot project based on the principles similar to Burlington's program may be a useful tool to confirm the relative merit of such a program. A copy of Burlington's Residential Drainage Assistance Program is included in Appendix "E" for discussion purposes.

CORPORATE STRATEGIC PLAN

Focus Areas: 1. Skilled, Innovative and Respectful Organization, 2. Financial Sustainability, 3. Intergovernmental Relationships, 4. Growing Our Economy, 5. Social Development, 6. Environmental Stewardship, 7. Healthy Community

APPENDICES / SCHEDULES

- Appendix "A": Recommended Redline Changes to the "City of Hamilton Lot Grading Policy, Criteria, and Standards".
- Appendix "B": By-Law to Amend the Site Alteration By-Law No. 03-126.
- Appendix "C": City of Hamilton Lot Grading & Drainage Brochure.
- Appendix "D": Proposed Sample of the Site Alteration Notice Label/Sticker.
- Appendix "E": Status Update to the City of Burlington's Residential Drainage Assistance Program (RDAP) (Report E 23/10).
- Appendix "F": Engineering Consultant Comments on Proposed Grading Policy Changes.
- Appendix "G": HHHBA and Builder Comments on Proposed Grading Policy Changes.
- Appendix "H": Recommended Organizational Chart for Grading Inspection Group

CU: tl
Attachs. (7)



2.5 City of Hamilton Lot Grading Policy, Criteria, and Standards

As per City Council approval on June 12, 2002, Committee of the Whole Report 02-024, specifically Item 21, which references Appendix A attached to Report PD02109: Lot grading for **single detached and semi-detached lots** created through development applications in the City of Hamilton shall be subject to the following policy:

2.5.1 Grading Policy

2.5.1.1 Grading Security for Lots Created Under a Subdivision Agreement

Subdivision agreements will show a line item for:

(a) First Stage Fees: Security Collected under Initial Application Approval Process

(i) Pre-grading of lots

Security for pre-grading will be collected through the City's subdivision agreement based on \$1,000 per lot created by the plan and will be released following receipt of a grading certificate from the developer's **consulting** engineer certifying that pre-grading has been completed.

(ii) Final lot grading

A lump sum **security** deposit will be collected through the City's subdivision agreement to ensure completion of final lot grading and sodding; should a problem arise with the overall grading in a development, which cannot be rectified by modification to any single lot within that development.

Security amounts for final lot grading will be based on a sliding scale according to the size of the development as follows:

- \$ 10,000 for plans up to 25 lots
- \$ 15,000 for plans over 25 lots up to 50 lots
- \$ 20,000 for plans over 50 lots up to 100 lots
- \$ 25,000 for plans over 100 lots

The security held by the City under the subdivision agreement for final lot grading will be released upon acceptance of grading certificates by the City for all lots within a plan of subdivision **in accordance with the sliding scale amounts indicated above.**



Notwithstanding the above, the value secured on any subdivision will not be reduced to less than \$5000 per uncertified lot.

(b) *Second Stage Fees: Security Collected under Building Permit Application*

A cash security deposit of \$2,000 will be collected as a condition of building permit application from the owner of each lot within a development. The security deposit will be retained by the ~~Director of Building & Licensing~~ City to ensure completion of final lot grading and sodding. The security will **only** be released upon **both** the City's acceptance of a final lot grading certificate, **including an as-built plot plan**, in accordance with the approved **grading and plot plans**, and a mandatory secondary grading inspection. (Refer to Section 2.5.6 for details).

Security deposits will be refunded, less an administration fee of \$150 for the mandatory second inspection, prior to release of securities. Any subsequent re-inspections will be subject to an additional \$150 per inspection until satisfactory grading is achieved and securities can be released.

2.5.1.2 Grading Security for Lots Created under Severance Application

(a) *First Stage Fees: Security Collected under Initial Application Approval Process*

A security deposit of \$2,000 per lot will be collected from the developer under the appropriate development agreement (i.e. Consent Agreement).

The security deposit will be retained by the City to ensure completion of final lot grading and sodding and will only be released upon both the City's acceptance of a final lot grading certificate, including an as-built plot plan, in accordance with the approved grading and plot plans and a mandatory grading inspection.

(b) *Second Stage Fees: Security Collected under Building Permit Application*

A cash security deposit of \$2,000 per lot will be collected from the owner of each lot within a development as a condition of building permit application. The security deposit will be retained by the City to ensure completion of final lot grading and sodding and will only be released upon both the City's acceptance of a final lot grading certificate, including an as-built plot plan, in accordance with the approved grading and plot plans, and a mandatory secondary grading inspection. (Refer to Section 2.5.6 for details)

Security deposits will be refunded, less an administration fee of \$150 for the mandatory second inspection, prior to release of securities. Any subsequent re-inspections will be subject to an additional \$150 per inspection until satisfactory grading is achieved and securities can be released.



2.5.2 Design Criteria

Design Criteria for grading lots with single detached and semi-detached housing in new developments within the City of Hamilton are as follows:

- a) "Required backyard" shall mean the lesser of the distance regulated by the Zoning By-law or 6.0 metres.
- b) The maximum slope in the backyard adjacent to the building for a distance equal to the required backyard shall be 5% except as set out in Items (c), (d), (f) and (g).
- c) The 5% restriction shall not apply to the sides of a swale along the sides or back of a lot, providing the total width of a swale does not exceed one (1) metre on each lot.
- d) Where the 5% restriction on the backyard's grades results in elevation differences between adjacent properties, retaining wall shall be constructed along the sides and back of the lot.
- e) Generally, slopes shall be placed on the lower lot, whereas retaining walls shall be placed on the higher lands.
- f) The 5% restriction does not preclude retaining walls in the required backyards providing the terraces are maintained to the 5% grade as set out in Item (b). The intention of this provision is to provide for flexibility of house construction.
- g) Guards for retaining walls shall be designed and constructed in accordance with the requirements for exterior guards as contained in the Ontario Building Code.
- h) Slopes of swales for both "back to front" and "split" drainage shall be no less than 2.0% grade and no greater than 33% grade (3:1 slope).
- i) **Back to Front drainage shall only be permitted where the combined side yard set-back is 2.0m or more, providing a minimum of 2.0m between foundation walls for drainage swales.**
- j) When matching to existing properties where 2% slope cannot be achieved, then a 1.5% slope is permitted provided a 150 mm sub-drain is installed below the bottom of the swale and drained to a suitable outlet, with a minimum of 0.30 metre cover over the sub-drain or other mitigation measures. {formerly "i"}
- k) Minimum slopes for a "wrap around" swale in the back yard shall be 1.0% {formerly "j"}



- l) Driveway slopes shall not be less than 2.0% and not more than 7%. Reversed sloped driveways in new developments are not permitted. {formerly 'k')}
- m) Each lot is to be independently drained. Drainage to a nearby street through the rear of an adjacent lot is not permitted, unless the adjacent lot is part of the same development. In areas where "zero lot line" zoning is permitted drainage to a nearby street through the rear of an adjacent lot is not allowed. {formerly 'l')} See Sections 2.5.2.1 and 2.5.2.2 regarding infill and rural lot grading.
- n) Catch basins in rear yard swales shall be designated as "private" and shall drain not more than:
 - i) a maximum 50m of a swale measured along the rear property lines, **and**
 - ii) a maximum of four (4) lots on either side of ~~any swale leading into~~ a catchbasin on any side of the catch basin. {formerly 'm')} Collection from both sides of the rear lot line is acceptable, **and**
 - iii) a maximum residential area of 3600 m².
- o) All slopes shall be 3:1 or flatter. {formerly 'n')}
- p) Provisions shall be made to prevent disruption of the natural surface drainage pattern on lands bordering the development both during and after construction. {formerly 'o')}
- q) If grading is required on lands adjacent to the development, which are not owned by the developer, then the developer must obtain written permission from the adjacent property owner to allow the developer to grade on the adjacent lands, otherwise retaining walls must be used. {formerly 'p')}
- r) Where a lot is lower in the rear than in the front, a split drainage grading design will be used in order to drain a portion of the lot to street catch basins. No front to rear drainage will be permitted. {formerly 'q')}



2.5.2.1 Design Criteria for Infill Developments or Lots of Record

Grading of single or multi-family residential lots that are developed through severance applications shall demonstrate that the proposed development will not adversely affect existing buildings, significantly alter existing drainage patterns, or adversely affect neighbouring properties.

- Positive drainage away from building should be provided at all times.
- Side and rear yard swales to be located entirely within the infill/severed property, unless permission from the adjacent homeowner is granted to improve and modify existing drainage on both lots, i.e.; proposed swales must be contained within the land parcel being developed.
- In some cases, side and rear yard slopes less than 2% may be acceptable, but must be reviewed and approved by City staff on a case-by-case basis.

2.5.2.2 Design Criteria for Low Impact Developments and Rural Lot Grading

Grading for rural estate lots which are part of a Plan of Subdivision, or rural lots created under severance, shall conform to the City of Hamilton design criteria outlined in Section 2.5.2. Every attempt shall be made to implement the grading criteria outlined in this section. Elements which cannot conform to the standard criteria shall be reviewed with the City for agreement on approach; such as, culvert extensions, finished floor elevations that are lower than the existing roadways, and minimum grades that may not be achievable.

If a proper/acceptable outlet cannot be provided due to topographical or other physical constraints, then the proponent is to consider and implement other practices to retain the water on site (ie. infiltration gallery, bioswales, water harvesting, etc.) and ensure that surface runoff does not adversely impact neighbouring properties.

Notwithstanding the above, grading design of low impact developments; such as, rural severances or freehold townhouses fronting a City's right-of-way, should be reviewed on a case-by-case basis with the design engineer and the City's plan reviewer. The proponent would need to demonstrate that alternative grading designs, from urban design requirements, provide a better grading solution to match the existing grading conditions.



2.5.3 Acceptable Lot Grading

Lot grading shall be acceptable to the City if:

- i) no portion of any side swale has a grade of less than 1.5%, unless mitigation measures have been put into place **or specified on an approved grading plan.**
~~the average grade from the high point is not less than 1.8% {formerly item "ii"}~~
- ii) the "as-built" grading does not impede the intent of the approved overall grading plan. Deviation in excess of ~~200mm~~ **150mm** at lot corners will be justified on the final grading certificate. {formerly item "iii"}
- iii) no portion of any backyard has a finished grade of less than 1.0% once the lot has been fully sodded. This includes the rear and side yards as well as the front yard, except for areas designated as a driveway. {former items 'iv' & 'v' were combined & reworded}
- iv) **A Professional Engineer provides initial certification, including an as-built plot plan, of lot grading after the sodding of the lots is complete.**
- v) **A minimum of six (6) months will be required between the first and second stage grading inspections prior to City staff's final approval for acceptance of the lot grading. (Refer to Section 2.5.6 for details)**

The subdivision agreement shall remain on title to the lots and blocks within a development in order to ensure that the Developer and subsequent owners of the lots and blocks within a development shall not be released from the restrictive covenants regarding **lot grading and** discharge of roof leaders onto the ground.

2.5.4 Grading Standards

2.5.4.1 Overall Grading Plan

The overall grading plan shall be prepared on a standard metric A1 size sheet or an Imperial 24" x 36" sheet at a scale of 1:500, stamped and signed by a professional engineer and shall show the following:

- a) all lots and blocks of the lands to be developed as well as adjoining lands for a minimum of 15 metres beyond the limit of the lands to be developed and further if necessary to determine future and proposed drainage patterns.
- b) existing contours at 0.5 metre intervals over the entire development including sufficient area of adjacent lands to establish the overall drainage pattern. **If the parcel is flat or**



0.5m contours do not adequately show topography, 0.25m contour spacing should be provided.

- c) proposed elevations at the corners of each lot and block and at intermediate point of change in grade.
- d) proposed elevations at 15 metre spacing along the frontage of large blocks and at a reasonable spacing along the sides and rear of the block.
- e) proposed centre line road elevations at:
 - (i) all changes in grade, and
 - (ii) opposite lot corners of the lands to be developed.
- f) the location of all existing trees, septic tanks and tile fields, wells, above ground utility structures (street furniture) and other structures as necessary.
- g) the location of existing and proposed retaining walls with proposed top and bottom elevations at appropriate intervals with sections.
- h) the location of drainage ponds or swales, and direction of surface drainage on each proposed lot and block and on all adjoining lands.
- i) the location of rear yard catch basins and inlets and top of grate elevations.
- j) proposed building envelopes with the following information:
 - (i) front of house apron elevation (garage floor elevation);
 - (ii) back of house apron elevation, if different from front;
 - (iii) minimum basement floor elevation (shall be calculated based on the elevation of the sanitary ~~and/or storm~~ private drains).
- k) ~~where roof leaders are not connected to a storm sewer,~~ Roof leaders shall discharge onto splash pads, satisfactory to the City Engineer and then to a grassed or landscaped area at a minimum distance of 0.60 metres away from the building face.
- l) **Adjacent lots having a combined side-yard setback totaling 2.0m or less shall have roof leaders restricted to front or rear yard discharge locations to minimize erosion and ponding.**
{Note: Related Roof Leader requirements in By-Laws 80-245 & 96-137 to be amended to suit new policies}
- m) a key plan showing the proposed development and, for larger subdivisions, the location of the lots on the sheet in relation to the overall development. {formerly 'l')}
- n) description of the nearest geodetic benchmark. {formerly 'm')}



2.5.4.2 Grading Plan Objectives

The overall grading plan shall be prepared in accordance with the following objectives:

- a) the whole drainage for the development shall be self contained and directed to a suitable outlet.
- b) the lot grading plan shall accommodate any external drainage, which is tributary to the development and must prevent ponding on adjacent lands bordering the subdivision.
- c) the establishment of independent and adequate drainage for each lot (this can be provided by either "back to front" drainage (recommended) or "split" drainage intercepted by a rear yard swale).
- d) the establishment of lot and house grades which are generally compatible with existing topography and surrounding development, existing trees etc., without steep slopes or abrupt changes in grade with minimum terraces.

2.5.4.3 Plot Plan for Each Lot

The plot plan for each lot shall be stamped and signed by either a Professional Engineer, Ontario Land Surveyor, Architect or Landscape Architect for approval by the Director of Building and Licensing prior to issuing a building permit and shall show the following:

- a) proposed elevations at the lot corners, which must conform to elevations on the approved grading plan.
- b) elevations of the proposed sidewalk adjacent to the lot, and where no sidewalk is proposed, then the corresponding **proposed** back of curb elevation and the **proposed** centreline road elevation. **(For infill lots, existing elevations should be provided if no new road-works are proposed.)**
- c) the elevation, design and basis of design of all retaining walls required.
- d) ground elevations on all sides of the proposed building and the driveway gradient and elevation at the house.
- e) elevations of all swales on the lot, the gradient of the required backyard apron and arrows showing flow to or from adjacent lands.
- f) **existing and/or proposed private catchbasins, road catchbasins, hydrants, streetlights, hydro transformers, telephone and cable boxes.**



Hamilton

Appendix "A" to Report PED10091(b)
(Page 9 of 11)

- g) Top of footing AND top of foundation wall elevations are to be clearly indicated on each plot plan.
- h) for infill grading plans and plot plans, the following additional information will be provided:
 - (i) Existing elevations, at 5m intervals, shall be indicated for one adjacent lot width or at least 15m beyond the property line boundaries to illustrate the drainage of the lot in relation to the surrounding lands and buildings;
 - (ii) Top of Foundation Wall and Garage Floor elevation of adjacent buildings/dwellings;
 - (iii) Additional information may be required depending on the specific characteristics of the site. It is the responsibility of the Designer submitting the plan to ensure that information shown adequately depicts the existing and proposed conditions.
- i) Grading for rural estate lots which are part of a Plan of Subdivision should conform to the City of Hamilton design criteria outlined in Section 2.5.2. In addition, for rural developments, the following shall be shown on the lot grading plans and plot plans (if applicable):
 - (i) Existing elevations, at 5m intervals, shall be indicated at least 30m beyond the property line boundaries to illustrate the drainage of the lot in relation to the surrounding lands and buildings;
 - (ii) Location of private sewage disposal systems;
 - (iii) Location of any private water supply system;
 - (iv) Driveway entrance culverts, including size, length and location;
 - (v) If no positive storm outlet is available, storm runoff retention areas shall be shown;
 - (vi) Ditch elevation details, including bottom of ditch, top of banks, and general flow direction;
 - (vii) Location of existing creeks and watercourses.



2.5.5 Grading Certificate for **Initial** Lot Grading

An **initial** lot grading certificate shall be submitted by a Professional Engineer, on a form acceptable to the City, **including an as-built plot plan**, and shall contain **either of** the following wording:

STANDARD GRADING CERTIFICATE

*We have reviewed the final lot grading for the above mentioned lot and taken elevations where necessary to confirm direction and grade of surface drainage **as shown on the as-built plot plan**. We therefore certify that the works have been completed in the field and that they conform to the approved overall and detailed grading plans for the subdivision and the City's standards.*

GRADING CERTIFICATE – DEVIATION

*This is to certify that we have reviewed the final lot grading for the above mentioned lot and taken elevations where necessary to confirm the direction of surface drainage, **as shown on the as-built plot plan**. While the final lot elevations do not match exactly the proposed lot grading plan, the basic lot drainage pattern has been adhered to and the intent of the approved overall grading plan has been met. No drainage problems were evident at the time of inspection.*

Lots in which grading certificates are submitted will be eligible for reduction of securities collected under 'First Stage' amounts with the initial application approval process, detailed in Section 2.5.1.

2.5.6 Lot Grading Approval Process

The City's of Hamilton's approval process to achieve final approval and release of securities held for the lot grading involves the following procedures:

- a) **Plot Plans are prepared by an Ontario Land Surveyor, Architect, or Engineer in accordance with the approved subdivision grading plan as part of the building permit process.**
- b) **Once footings have been placed or formed, an Ontario Land Surveyor shall certify in a suitable form, and make available to the City, that:**
 - (i) **the top of footing elevation(s) conforms with the top of footing elevation(s) shown on the approved Plot Plans;**
 - (ii) **the foundations are sited entirely on the correct lot;**
 - (iii) **the building setbacks conform to the zoning by-law.**
- c) **Foundation elevations will be considered 'non-conforming' if they differ from design elevations by more than 150mm. Non-conforming foundation elevations shall be**



brought to the attention of the City for further direction/discussion prior to proceeding with any further construction.

- d) Once the lots have been sodded, an Engineer shall submit an as-built plot plan and certify in writing, that the lots are in general conformance with the overall grading shown on the approved grading plan, in accordance with Section 2.5.5. Following this initial inspection, the City inspector provides new homeowners with an information package including the Lot Grading and Drainage Brochure, Grading Policy Notification Sticker, and an Initial Grading Inspection notice within two months of receiving the Initial Lot Grading Certificate.
- e) Following certification of all lots, a security reduction request can be submitted for reduction of securities collected under 'First Stage' amounts with the initial application approval process, in accordance with Section 2.5.1.
- f) For Lots which cannot be certified due to poor grading or changes in house style, the Engineer will notify the City, Developer, and Builder in writing. An engineer, on behalf of the developer, will prepare a new over-all grading plan to address the lots which have not been built according to the original plan, and will submit a revised plan to the City with the required review fees.
- g) An Engineer will re-inspect any deficient lots or for those lots which cannot be certified by a visual inspection and prepare a revised as-built grading plan, in order to obtain lot certification. If necessary, the builder will be instructed to address any deficiencies in order to have the particular lots certified. If the builder will not correct the work as instructed by the engineer, this responsibility will fall directly upon the developer.
- h) Prior to release of Stage 2 Final Grading securities in accordance with the conditions of the Subdivision or Development Agreement, a mandatory second grading certification inspection will be conducted by the Engineer and City Inspector subject to the following:
 - (i) A minimum of six (6) months will be required between the first and second stage grading inspections;
 - (ii) The City will not undertake the second grading inspection between December 1st and April 30th;
 - (iii) Final approval of the grading and certification of a lot can occur in one calendar year as long as the final grading inspection is completed by May 31st.
- i) Following and/or during the final inspection, the City inspector provides a Final Grading Approval notice to each lot in the development, reminding them of their responsibilities under the City By-Laws.
- j) All remaining grading securities are released in accordance with the conditions of the Development Agreement.

Authority: Item [REDACTED]
Planning Committee
Report: 11- [REDACTED]
CM: [REDACTED]

Bill No. [REDACTED]

CITY OF HAMILTON

BY-LAW NO. 11- [REDACTED]

To Amend the Site Alteration By-law No. 03-126, as amended

WHEREAS Council deems it necessary to further amend By-law No. 03-126 dealing with site alteration of property grades and the placing or dumping of fill and removal of topsoil;

NOW THEREFORE the Council of the City of Hamilton enacts as follows:

1. Paragraph "u" of Section 2 of By-law No. 03-126, as amended, is hereby repealed and replaced with the following, namely:
 - (u) "**watercourse**" means an identifiable depression in the ground, such as; ditches, swales, and culverts, in which a natural flow of water regularly or continuously occurs;
2. Section 2 of By-law 03-126, as amended, is hereby amended by adding the following paragraphs thereto, namely:
 - (v) "**adjacent lands**" means any lot, block, section, or parcel of property, owned by a person other than the applicant, that shares a property boundary with the applicant;
 - (w) "**agricultural**" means all lands that are intended for use of farming as registered under *Farm Registration and Farm Organizations Act, 1993, S.O. 1993, c21*, as amended, for growing crops, including nursery and horticultural crops; raising livestock for the use of food, fur or fibre, including poultry and fish; aquaculture; apiaries; agro-forestry; maple syrup production;

- (x) "**City**" means City of Hamilton;
 - (y) "**Conservation Authority**" means a body corporate established pursuant to the provisions of the Conservation Authorities Act, R.S.O. 1990, c.27, as amended; and
 - (z) "**contaminated fill**" means impure or unsuitable materials including soil, stone, concrete, asphalt, sod or turf, etc. that is in contact with or mixed with something unclean, harmful, unusable or biodegradable;
 - (aa) "**drainage work**" means the implementation of a system intended for the control of water flow;
 - (bb) "**swale**" means a depressed tract of land that is sloped to channel storm water run-off in a desired direction; and,
 - (cc) "**vegetation**" means refers to trees, shrubs or other plant life found within a defined geographic location; i.e. the construction site;
3. The first paragraph of Subsection 3.3 of By-Law No. 03-126 is hereby deleted and the following substituted therefore, namely:
- Sub-sections 3.1 and 3.2 do not apply on any land in the City of Hamilton zoned for agricultural use, or any land zoned for residential use within the Urban Area of the City of Hamilton as designated in the City's Urban Official Plan, where the quantity of **fill** or **topsoil** removed or dumped on any one lot does not, in any consecutive three month period exceed 8 cubic meters for each 0.125 hectares of lot area or part thereof, provided the following requirements are met:
4. Section 3 of By-law No. 03-126 is hereby amended by adding thereto a new subsection 16 as follows, namely:
- 3.16 Notwithstanding Section 9.1 below, no permit shall be issued under this by-law for the placing, dumping or removal of any fill or topsoil, or the alteration of any grade on any land which, on the date of the application for the said permit, is the subject of or included within any application to the City of Hamilton under the Planning Act for approval of a site plan, a draft plan of subdivision or a draft plan of condominium.
5. Clause (vii) of paragraph 9.1(d) of By-law No. 03-126 is hereby amended by inserting the words "*or detrimental effects on amenities*" between the word "conditions" and the word "for" in the first line thereof.

6. Paragraph (d) of Sub-section 9.1 is hereby further amended by adding the following clauses thereto, namely:

- (viii) flooding or ponding on adjacent lands;
- (ix) hindering the orderly development of adjacent lands;
- (x) blockage of a storm drainage system;
- (xi) unnecessary damage to or destruction of trees;" or
- (xii) detrimental effect on quality or quantity of well water.

7. Paragraph (a) of Section 2 of Appendix "B" to By-law 03-126 is hereby amended by deleting the word "sit" from the fourth line thereof and replacing it with the word "site".

8. In all other respects By-law No. 03-126, as amended, is hereby confirmed without change.

9. This by-law shall come into force and effect upon enactment.

PASSED this [REDACTED] day of [REDACTED], 2011.

R. Bratina
Mayor

R. Caterini
City Clerk

Lot Grading & Drainage *in the City of Hamilton*

Looking for additional Brochures and Applications?

All department brochures can be found at www.hamilton.ca/pedpublications

All department applications can be found at www.hamilton.ca/pedapplications



What is Lot Grading?

Lot grading consists of sloping the land within a building lot in order to direct the flow of surface water away from a building's foundation and towards a suitable outlet where water can be discharged safely without affecting abutting properties.

Lot Grading Process

When creating new residential building lots by plan of subdivision or by land severance preparation of an overall grading plan for the entire lands is required by the developer's professional engineer as part of the land severance or plan of subdivision process. The overall grading plan is reviewed and approved by the City to ensure that the land when subdivided, incorporates proper grading design that takes existing drainage patterns, neighbouring property elevations and storm water outlets into consideration.

At the time of building permit application an individual plot plan is required for each new lot and is based on the overall approved grading plan for the subdivision or severed lands. The individual plot plan shows in greater detail the specific grading design for each new lot and the outline of the location of the house to be constructed. This plan is reviewed and approved by the City prior to release of a building permit.

Final lot grading is carried out by the builder following completion of house construction and must be verified

onsite by a professional engineer and certified to the City that the lot has been graded in accordance with the grading plans approved by the City.

It is the home owner's continuing responsibility to maintain the grading of their property as approved by the City. Often drainage problems will occur due to incorporation of landscaping features and construction of fencing, patios, walkways, decks and swimming pools etc. All new landscaping and construction should be carried out by the home owner without disruption to the grading design of the lot so as not to adversely affect the drainage patterns within or around their lands.



Information submitted to the City of Hamilton is subject to the *Municipal Freedom of Information and Protection of Privacy Act*, R.S.O. 1990, c. M.56.

For more information contact:

Growth Management Division

Planning and Economic Development Department
City Hall
71 Main Street West, 5th Floor
Hamilton, Ontario, L8P 4Y5

Monday - Friday

8:30 a.m. - 4:30 p.m.
Phone: 905.546.2424
Website: www.hamilton.ca/growthmanagement



GROWTH MANAGEMENT DIVISION
PLANNING AND ECONOMIC DEVELOPMENT DEPARTMENT

GROWTH MANAGEMENT DIVISION
PLANNING AND ECONOMIC DEVELOPMENT DEPARTMENT



Lot Grading Design

Improper drainage of surface water is a challenging issue. Poor lot grading can result in inadequate surface drainage, ponding, flooding, basement dampness or settlement, insurance claims and conflict between owners of neighbouring properties.

With careful planning and the application of some basic principles, a good lot grading design can be achieved. Below are the key elements to a proper lot grading design:

- The ground should be sloped to direct surface water away from the house foundation.
- Grading should not block existing drainage patterns or direct additional drainage on to adjacent lands.
- Surface water should be directed to a suitable outlet via Swales constructed along property lines with a minimum 2.0% grade.
- All slopes, other than swales, should be 3:1 (Horizontal to Vertical) or flatter.
- Lot grades and house elevation should be generally compatible with existing topography and surrounding development.

The result of a well planned and properly executed grading and surface drainage system is a lot free of ponding, with no adverse effects to adjacent properties.

Types of Lot Grading

There are two common types of lot grading.

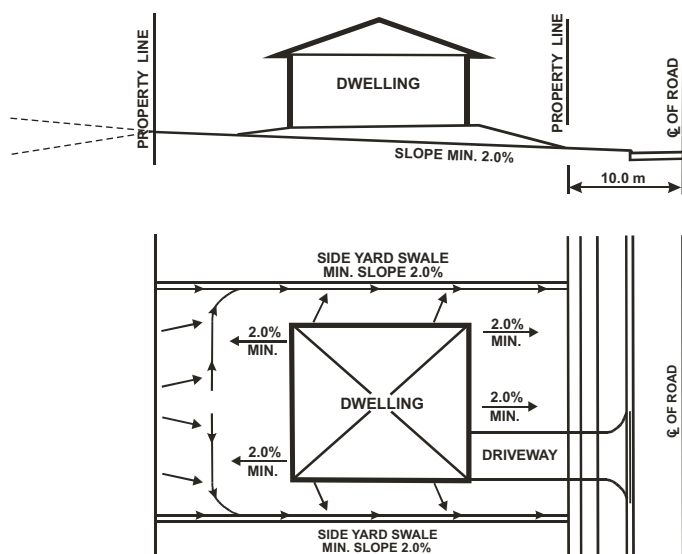
1. One-Way Drainage (Back-to-Front Drainage)

With one-way drainage also referred to as Back-to-Front Drainage the rear lot line is the high point of the lot. An elevated apron is created around the house and surface drainage flows forward to the street.

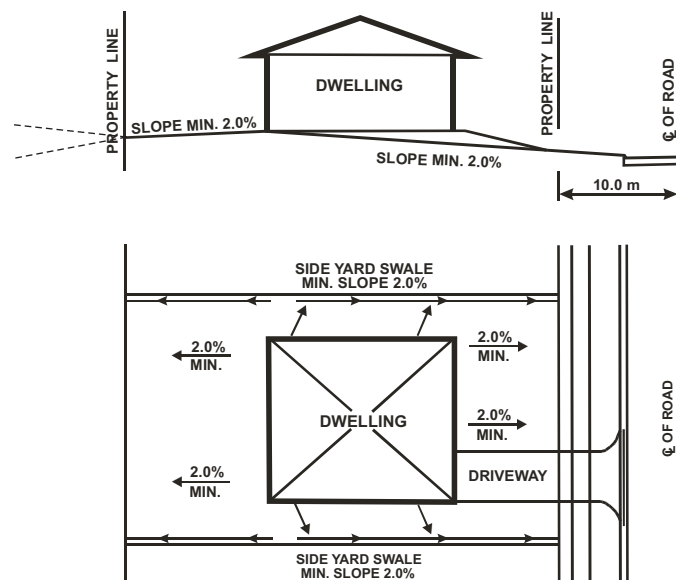
2. Split Drainage

With split drainage, the house is the high point and the lot is graded so that surface drainage flows forward to the street and back towards the rear lot line. The rear lot line is then generally drained by way of a swale and catch basin system.

One-Way Drainage



Split Drainage



Swales

Swales are shallow grassed drainage channels with gently sloping sides and are used to collect and direct storm water away from the building foundation and towards a suitable storm water outlet such as the street or a catch basin.

Swales are generally located along property lines separating abutting lots; however for One-Way Drainage it is located at the midpoint of the rear yard.

Swales should never be filled in or blocked in any way as this will cause storm water to collect and pond on a property and could result in flooding during intense rain storms.

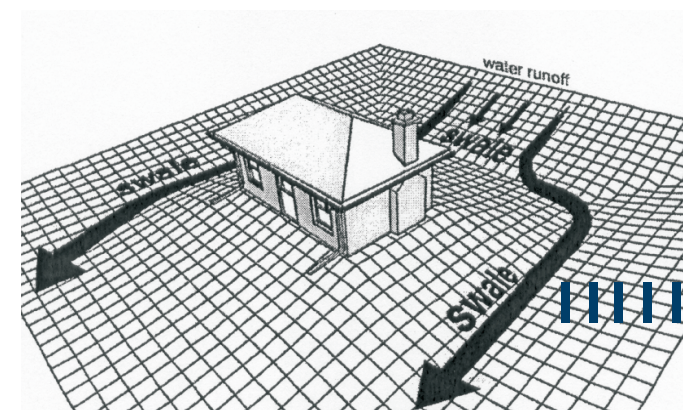


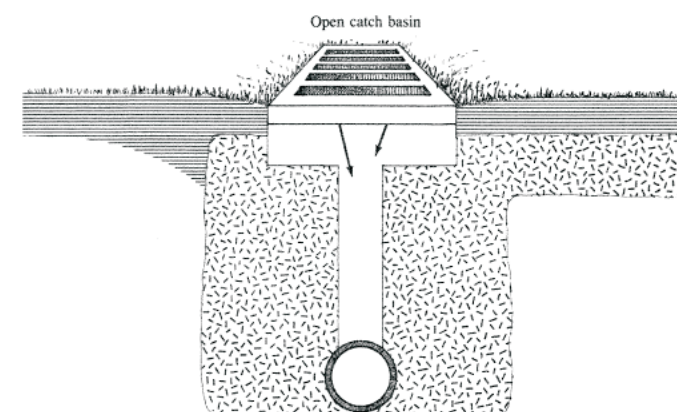
Diagram showing a typical swale design for one-way drainage of a single family residential lot.



Rear Yard Catch Basins

A rear yard catch basin is a vertical concrete inlet chamber with a metal grate at the top which is flush with the ground surface. Rear yard catch basins are located at low points along rear property lines where Split Drainage is used to convey storm water to the City's sewer system by way of a connecting sewer pipe at the bottom of the catch basin.

It is the home owner's responsibility to ensure that a rear yard catch basin is not blocked in any way that would prevent rain water from entering and discharging to the sewer system.





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FOR YOUR INFORMATION

Your lot was designed, inspected and certified to be in accordance with the approved development grading plans; ensuring that surface drainage is directed away from the building preventing ponding, flooding, foundation settlement/damage and neighbourhood complaints.

It is the Homeowner's continuing responsibility to maintain the grading of their property as approved by the City, particularly when landscaping, fencing, erecting sheds or altering your property grades along the side and rear lot lines where well defined swales are formed.

Contact the City of Hamilton for information and to learn how to properly conduct site alterations and maintain lot drainage. Convictions for violations of the Site Alteration by-law may result in substantial fines.

**City of Hamilton
Growth Management Division
General Inquiries Phone Line: (905) 546-2424**



TO:	Chair and Members of the Community Services Committee
SUBJECT:	RESIDENTIAL DRAINAGE ASSISTANCE (RDA) PROGRAM – STATUS UPDATE

Report Number:	E 23/10	Report Date:	January 27, 2010
Author(s):	Philip Kelly	Date to Committee:	February 10, 2010
Telephone:	905 335-7600	Ext.	7576
Date to Council:	February 22, 2010		
Ward(s) Affected:	1 2 3 4 5 6 <u>All</u>	File Number(s):	815-01

APPROVALS:

_____	_____	_____
Department Head	General Manager	City Manager

To be completed by the Clerks Department

Committee Disposition & Comments	_____

	01– Approved 02 – Not Approved 03 – As Amended 04 – Referred 05 – Deferred 06 – Received & Filed 07 – Withdrawn
Council Disposition & Comments	_____

	01– Approved 02 – Not Approved 03 – As Amended 04 – Referred 05 – Deferred 06 – Received & Filed 07 – Withdrawn

1.0 RECOMMENDATIONS:

THAT the City continue to undertake Phase 1 Engineering Assessments for Council approved RDA Pilot Study areas;

THAT, subject to the approval of City Council and consistent with Report E67/08, the City fund the construction of the recommended drainage improvement works on public property within the RDA Pilot study areas to assist residential property owners with drainage issues. Potential drainage improvements include but are not limited to those outlined in Table 4.1;

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THAT the drainage improvements outlined in Table 4.2 for private property be implemented and paid for by private property owners and subject to the recommended procedure outlined in Table 4.3;

THAT The City adopt the procedure outlined in Table 4.3 to assist residents with the implementation of drainage improvements on private property;

THAT staff prepare the fact sheets identified in Table 4.3 to assist residents with the implementation of drainage improvements on private property;

THAT the Director of Engineering be authorized, on an as required basis, to prepare designs and to obtain bids from contractors to construct the drainage improvements recommended on City property/easements for the St. Mary's Pilot study area.

2.0 PURPOSE/OVERVIEW:

The purpose of this report is to provide Committee with the results and recommendations of a review to ascertain what additional customer service initiatives can be provided to residents through the Residential Drainage Assistance (RDA) Program. For the urban area, the RDA Pilot Program was designed to help residents improve drainage in older areas of the City (generally pre-1970), as subdivision and lot drainage in older areas was not given as much attention as in newer areas of the City.

3.0 RELATIONSHIP TO STRATEGIC PLAN

The City of Burlington's approved strategic plan, Future Focus 7, includes a statement in the area of Environmental Stewardship that has fundamentally guided the preparation of COMSERV E67/08 and this report.

Strategic Initiative 5.5B:

Continually improve SWM to minimize the flooding of properties and protect the health of lakes and creeks.

4.0 DISCUSSION

Report E67/08 included the following recommendation:

The Director of Engineering report back in the fall of 2009 regarding how additional facilitation or customer service can be provided to residents with respect to the construction of drainage improvements on private property recommended in a Phase 1 RDA Engineering Assessment.

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Report E60/09 advised Committee that staff from Legal, Finance and Engineering were working on this item and would report back in early 2010. This report presents discussion on this item under the following headings:

- Typical Solutions Recommended in an RDA Study
- Recommended Procedure for Implementation of RDA Recommendations
- St. Mary's Area RDA Phase 1 Assessment Findings

4.1 Typical Solutions Recommended in an RDA Study

As outlined in earlier reports, in order to improve drainage for residents, works may be required on public and/or private property. Report E67/08 outlined a framework for the RDA program as well as some program guidelines, including but not limited to the following:

- City to carry out the Phase 1 Engineering Assessment studies in Council approved pilot study areas, with the City funding 100% of the study cost.
- All Phase 1 Engineering Assessment studies are to be public documents.
- Residents to be 100% financially responsible for the cost of improvement works on their property (Report E67/08).
- City Council approval required prior to the City funding 100% of the drainage improvement works on the public right-of-way, or within easements in favour of the City (Report E67/08).

4.1.1 Potential Drainage Improvements on Public Property

Adding drainage works on public property to improve drainage for residents is definitely a customer service initiative. Outlined below in Table 4.1 are typical drainage improvements that could be implemented by the City within the public right-of-way, or within existing easements in favour of the City.

**Table 4.1 Proposed Drainage Improvements
 That May Be Implemented by City of Burlington**

Item	Comments
Construct new catchbasin inlet on City right-of-way	Catchbasin could be constructed either on roadway or between curb and property line.
Construct storm sewer lateral from existing catchbasin to property line to pick up flows from private property drainage system	Helpful in cases where lot grading does not allow the implementation of a proper surface drainage solution on private property.
Drill drainage holes below ground surface into side of existing rear yard catchbasins	Will improve drainage and allow shallow piped flows to be discharged directly into the catchbasin.
Provide location of storm sewer lateral at the property line where the storm sewer lateral exists	Assists with implementation of drainage works on private property.
Provide a new storm sewer lateral from the City owned storm sewer to the property line	Provides a new inflow location for storm sewer flows.
Construct storm sewer extension on street and associated catchbasin inlets / storm sewer laterals to the property line as required.	Small storm sewer extensions typically do not trigger Local Improvement charges

4.1.2 Drainage Improvements on Private Property

Drainage improvements on private property generally involve either grading works and/or the addition of drainage infrastructure such as French drains, storm inlets/catchbasins, perforated drainage pipes and storm sewers. Table 4.2 summarizes typical drainage improvements that are often feasible for private property.

**Table 4.2: Proposed Drainage Improvements
 That May Be Implemented on Private Property**

Drainage Improvement	Details
Construct swale from rear yard to front yard / street	May require the homeowner to remove and/or relocate sheds, pools, hard landscaping, soft landscaping, etc.
Construct swale to new or existing rear yard catchbasin inlet	As above
Regrade rear yard to drain toward swale or catchbasin	As above
Construct new catchbasin inlet and storm sewer lateral to City owned storm sewer	As above City staff to update City records to show new connection.
Construct French Drains with plastic piping to convey water to catchbasin or to front yard/swale (Note: A French Drain is typically a shallow drainage system made of flexible plastic pipe)	As above City staff to update City records to show new connection.
Construct a soak-away pit for storm water flows.	As above. Typically most effective for small to moderate amounts of rainfall and in areas with sandy soils.
Re-install eavestroughs to direct flows to portion of property with better drainage and/or install new downspouts or downspout extensions to direct flows to portion of property with better drainage	Reduces volume of water discharged to problem area.

4.2 Recommended Procedure for Implementation of RDA Recommendations

In order to determine a recommended procedure for the implementation of RDA Phase 1 recommendations on private property, staff reviewed financial, liability and other factors, as outlined below.

4.2.1 Financial Issues

Staff reviewed the various alternatives available for the City to play a role in the implementation of a contract (i.e. collection of funds from residents and administration of a contract) and this review indicated that while financial “tools” are available, they are not well suited to resolving drainage issues on private lands in a fair and equitable manner between residents. The following key points provide a summary of the review.

- **Local Improvements:** The legislation requires that Local Improvement Charges are assessed against owners based on their frontages by imposing an equal charge per meter

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of frontage. Street frontage generally has little to no co-ordination to rear yard drainage issues.

- **“Special Service” Levy Provisions of the Municipal Act:** While the Municipal Act allows a municipality to utilize the “special service” levy provisions of the Municipal Act in certain situations, the Municipal Act requires that the levy be based on assessed value of the property. Assessed value of the property generally has little to no co-ordination to rear yard drainage issues.
- **“Fees/Charges” Provisions of the Municipal Act:** While the Municipal Act allows a municipality to utilize the “fees/charges” provisions of the Municipal Act in certain situations, the measures taken must be validly authorized, such as being required as a result of activities associated with By-laws 6-2003 and 56-2007. Therefore, “fees/charges” is suited to a municipality recovering costs associated with implementing remedial works that an owner has refused to implement after receiving an “Order-to-comply” from a municipality, but is not well suited to solving drainage problems in historic areas of the City where no contraventions of by-laws have occurred.

The review also indicated that regardless of the mechanism that the City could adopt to charge for the cost of remedial drainage works, the charges may only be shared by those residents who actually benefit from the drainage works. How one determines who is a benefitting owner can be problematic. For example, if five residences exist in a drainage area where three of the residences have no drainage problems, but drain to two properties where water ponds, the costs would have to be allocated only to the two residences with the drainage problem. The costs between the two residences must be allocated using either street frontages or assessed value which likely has little to no co-ordination to the drainage issue. Further, it is common in these drainage situations that the solution typically impacts one property more than the other. For example, a shed, vegetation or hard landscaping may need to be removed on one property to allow for the construction of a drainage swale or storm sewer works. In this situation it is reasonable to assume that the resident who is impacted by be drainage improvements would like some “credit” for the disturbance to their property. However, the financial tools available to the City would not allow the City to give “credit” to the landowner who would be most impacted by drainage improvement works.

4.2.2 Liability Issues

If the City were to get directly involved in the implementation of drainage improvements on private property, liability risk to the City would also increase. Examples are provided below.

- Construction of a new swale to route storm water beside one or more residences introduces storm water to a location where storm water flows may not have previously existed and increases the risk of seepage into basements.
- Construction of a new underground drainage system beside one or more residences may require excavation near the building foundation which may initiate or aggravate one of

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the following: stability of foundation wall; settlement of residence; cracking in foundation wall; and seepage into basements.

- If City staff act as the administrator of construction and restoration activities, significant staff time is estimated to be required to respond to home-owner concerns regarding the appearance of the final works. Staff note that Region of Halton staff advise that during the Region's Pilot Program, where staff oversaw the installation of sump pumps and other flood prevention works in private residences, that in many cases Region staff were called back repeatedly on minor issues. Further, the current Region of Halton Basement Flood Prevention subsidy program, which includes the same potential works to residences as the Region's pilot program, does not involve Region staff overseeing the work of any contractor. Further, Region staff are not involved with retaining contractors to complete the work, or payment to contractors.
- If City staff act as the administrator of construction activities, staff time is estimated to be required to respond to home-owner concerns regarding damages to other features on their property (e.g. pools; decks; sheds; hard landscaping; soft landscaping; etc.). Staff note that the City is not currently involved in discussions between residents and contractors retained by them for home improvements when the contractor damages the residents property.
- If City staff act as the administrator of construction and restoration activities, staff time is estimated to be required to respond to home-owner concerns regarding the performance of the drainage works. For example, installation of French Drains will improve year yard drainage, but may not improve year yard drainage to the extent desired by the homeowner. Staff note that City staff are not currently involved between discussions between contractors and residents with respect to how effective installations by contractors perform (e.g. pool solar/gas heating systems).

4.2.3 Other Factors

Other factors considered in the review include the following:

- Based on staff's experience with reviewing drainage situations in older areas of the City, staff are of the opinion that in most cases drainage in older areas of the City was generally good to fair following subdivision construction, but that drainage conditions worsened over time as residents added hard and soft landscaping and structures to their properties.
- Providing guidance to residents from an independent external professional engineer with respect to how to improve drainage conditions on private property is a major customer service initiative and provides residents with substantially more guidance than what they would receive in most other municipalities.

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- Staff note that there are other major improvements routinely implemented by property owners that the City is not generally involved in from the perspective of (1) determining the problem (some exceptions apply); (2) retaining a contractor to fix the problem' and (3) paying for the services of a contractor. These improvements include but are not limited to the following:
 - Removal of large privately owned trees that become a hazard.
 - Construction of shoreline protection works. (Note: In recent years the Engineering Department is aware of approximately 1 resident per year undertaking shoreline works at their expense, with the works estimated to cost up to \$100,000+.)
 - Replacement / repair of the sanitary sewer lateral that conveys domestic sewage from a resident to the Region owned sanitary sewer within the public right of way.
 - Repair of privately owned drainage systems as directed by the City under By-law 56-2007.

With respect to the later item, By-law 56-2007 (originally by-law 21-1997) requires, among other items, that residents:

- keep in repair any private drain on land owned or occupied by them; and
- relay or repair any private drain as may be required by the Director of Engineering.

Accordingly, this existing by-law acknowledges that private drainage systems exist within the City and that residents are responsible for maintaining same. Hence it is reasonable to assume that if any new drainage systems are installed on private lands that they remain the responsibility of the property owner. Staff note that in 2009 there were at least three (3) private drainage system installations installed by residents that were not related to any development application.

4.2.4 Recommended Framework

Based on a review of the information in Sections 4.3.1 through 4.3.3, it is staff's recommendation that implementation of drainage improvements on private property, and outside of any easements in favour of the City, be completed by residents themselves, or through one or more residents retaining the services of a landscape or drainage contractor. Staff reviewed the services offered by several Burlington area landscape contractors and determined that drainage and grading solutions are a normal part of the services offered to the public. Staff note that residents often work together in other situations including installation of fencing; paving/re-paving of driveways; re-shingling of roofs for free-hold townhomes; etc. Recent examples of co-operation between residents on drainage issues include the following:

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- In the St. Mary's RDA study area, one resident installed a shallow French drainage system to route storm water from their rear yard to the front yard, and this drainage system was subsequently expanded into two (2) neighbouring properties to improve drainage in these rear yards.
- The original home-owner in RDA Pilot study Area 2 (Mount Forest Drive Area) installed a private drainage system to improve lot drainage, and that this lot receives drainage from other lots in the area.
- Residents in the RDA Pilot study Area 3 (South Drive/Princess Blvd Area) to date have shown every indication of working co-operatively to resolve a rear-yard drainage issue.

Consistent with the recommended framework above the following is recommended.

- The drainage improvements outlined in Table 4.1 for public property be implemented and paid for by the City of Burlington, subject to the approval of City Council; and
- The drainage improvements outlined in Table 4.2 for private property be implemented and paid for by private property owners and subject to the recommended procedure outlined in Table 4.3 (see next section).

4.3 Recommended Procedure for Implementation of Private Drainage Improvements

Table 4.3 outlines the recommended procedure that residents can follow to implement drainage improvements on private property. In addition, Table 4.3 lists existing and proposed new customer service initiatives associated with the most commonly anticipated drainage improvements. For example, fact sheets can be prepared on each of the proposed works to provide guidance to residents. Table 4.3 has been prepared with input from the Planning and Building Department and is consistent with the requirements of the Ontario Building Code.

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**Table 4.3: Recommended Processes for Residents to Implement
 Drainage Improvements & Associated Customer Service Initiatives**

Drainage Improvement	Process	Customer Service Initiatives (New Initiatives Underlined)
Re-grade property	Apply for site alteration permit	<u>Make fact sheet available on re-grading</u> <u>City to retain external engineering firm to review site alteration permit application. Provides field inspection prior to City approving, modifying or denying permit request. Provides field inspection upon completion of work. Provides records to City.</u>
Construct new swale on private property	Apply for site alteration permit	As above
Construct new catchbasin/drainage system on private property (lateral connected to City storm sewer system)	Apply for Building Permit***	<u>Make fact sheet available on catchbasin installations</u> Building Permit Review & inspection by Building Inspector
Construct new catchbasin and storm lateral on private property (lateral not connected to City sewer)	No permit required	<u>Make fact sheet available on catchbasin installations</u>
Add a new soak-away pit to infiltrate surface flows	No permit required	<u>Make fact sheet available on soak-away pits</u>
Relocate Roof Downspout	No permit required	<u>Make fact sheet available</u>
Re-slope roof eavestroughs	No permit required	<u>Make fact sheet available</u>
Construct French Drain to convey water to surface/swale or to catchbasin	No permit required if lot grading remains unchanged	<u>Make fact sheet available</u>

*** Municipal Consent not required for work on City ROW as City would be covering the cost of work on City lands.

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4.4 St. Mary's Area RDA Phase 1 Assessment Findings

4.4.1 Summary of Phase 1 Engineering Assessment

Currently, the Phase 1 RDA Engineering Assessment study for the St. Mary's area is well advanced. The St. Mary's study area includes 38 residential lots in an older area of the City. This area was surveyed in July and August 2009 by a professional engineering firm retained by the City to undertake this RDA assignment. Following completion of the survey and field inspections, the engineering consultant then reviewed drainage patterns. Drainage challenges identified from this review are illustrated on Figure 1 in Appendix A. The consultant also notes "the drainage issues within the study area did not result from any action by the City. Most of the drainage issues have resulted from the action or inaction on part of the individual property owners."

The engineering consultant also found it best to split up this study area into 11 smaller drainage areas called "clusters." Each cluster has its own drainage challenge, and its own solution or series of solutions to improve drainage. In general, one cluster of residences is not reliant on drainage improvements in neighbouring clusters to improve drainage within their cluster. Therefore, the number of residences that need to work together to improve drainage is equal to or smaller than the size of the cluster. Implementation and co-ordination of drainage improvements for 38 residences collectively is not required.

The following summarizes common recommendations for the St. Mary's area to improve drainage:

- no drainage improvements required on lot;
- connect new drainage works to existing private catchbasin;
- re-grade rear yards or add shallow finger drains to convey water to specific points;
- construct new swales;
- add shallow French/Finger drains below the surface to direct flows to an outlet;
- remove/regrade raised gardens;
- move shed to facilitate better drainage;
- add rear yard drainage systems to convey flows to the City's storm sewer system; and
- add catchbasins in the road allowance close to the property line.

Figure 2 in Appendix A illustrates the recommended drainage works to improve drainage. Adjustments to the recommended plan may also be possible. For example, the location of a drainage system could change if one resident is more agreeable to drainage works on their lot. In addition to the works outlined on Figure 2, the residents of the St. Mary's RDA study area have an alternate drainage improvement solution available to them that they can implement independently. Specifically, when this area was reconstructed years ago it was the standard at that time, through the Local Improvement process, that a storm sewer lateral was installed for each residence from the new City storm sewer to the property line. Most of these laterals are likely capped at the property line and currently unused. Accordingly, if a resident wished to improve drainage on their lot (e.g. by piping some flows directly to the storm sewer system), it may be feasible for them to construct their own private drainage system and connect same to the existing storm sewer lateral at the property line. To avoid increasing the risk of basement

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flooding, this approach is feasible only in areas of the City where building foundation weeping tiles do not drain to the storm sewer system.

5.0 FINANCIAL MATTERS:

5.1 Capital Budget

Funding was approved in the 2008 and prior budget for City Wide Neighbourhood Drainage Improvements and Flood Control in the total amount of \$475,000 of which approximately \$80,000 has been expended to December 31, 2009. The remaining \$395,000 in the project account is sufficient funding to fund the remaining Phase 1 Engineering Assessments recommended in Report E60/09, and will provide funding for some Council approved drainage improvements within the public right of way within these RDA Pilot study areas. The 2010 Proposed Capital Budget and Forecast also identifies an additional \$100,000 in 2011 for the RDA pilot program. The drainage improvements recommended within the public right of way for the St. Mary's area are estimated to cost approximately \$100,000 - \$150,000. The extent of the drainage improvements required within City lands/easements will depend on the extent to which drainage improvements are installed by private property owners.

6.0 ENVIRONMENTAL MATTERS:

Providing assistance to residents on drainage issues improves the environment by minimizing flooding exposure. Further, providing assistance improves the quality of life and by making yards more usable and reduces the potential for mosquito breeding areas and West Nile Virus.

7.0 COMMUNICATION MATTERS:

The city has made available a number of pieces of information related to stormwater management for Burlington residents. This information includes new web pages on the city's website www.burlington.ca that provide information to residents on better understanding lot drainage, as well as information on the city's Residential Drainage Assistance (RDA) Program and Halton Region's basement flood prevention program. Upon approval of this report, the web pages will be expanded further to include the drainage fact sheets discussed herein to make information readily available to residents on drainage improvements. In addition to the web information, the city has created two information brochures that provide an overview of understanding lot drainage and the details on the RDA program. The city continues to work with Halton Region on communication opportunities related to stormwater management.

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8.0 CONCLUSION:

This report reviews implementation issues associated with the RDA Pilot Program and makes recommendations on how to best implement RDA recommendations. A summary of the findings from the City's first Phase 1 RDA Engineering Assessment is also provided.

Respectfully submitted,

Philip Kelly, M.Sc., P.Eng.
Manager of Development, Environmental
& Transportation Engineering

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Appendices:

Appendix A
Figure 1 – St. Mary's RDA Area – Existing Drainage Challenges
Figure 2 – St. Mary's RDA Area – Potential Drainage Improvements

Staff /
Others
Consulted:

Name	
John LaSelva	7475
Terry Hewitson	7637
Trevor Toth	7364
Fred Gottschling	7679
Sam Morgante	7680
Ann-Marie Coulson	7655
Nancy Shea-Nicol	7618

Notifications:

Name	Mailing or E-mail Address

Special
Instructions:

--

Erin Wynne

From: Adi Irani [adi@ajclarke.com]
Sent: Thursday, August 05, 2010 11:06 PM
To: Erin Wynne; gavin.norman@hamilton.ca
Cc: Helen.McArthur@hamilton.ca; Charlie.Unelli@hamilton.ca; Steven Frankovich; Cory Giacinti; Doug Duke (dduke@hhhba.ca)
Subject: RE: Review and Update of City of Hamilton Lot Grading Policy & Procedures
Attachments: A-Grading Policy Redline Document - July 26-10 ADI's comments.doc

Thank you for the opportunity to provide comments on the lot grading policy.
I have made some suggestions in the attached "tracked" document for your consideration.

I would suggest that you bring this for discussion at the next HHHBA-City liaison meeting which is scheduled for September 10, 2010.

If I can be of any assistance, please give me a call.

Adi Irani, P.Eng.

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2.5 City of Hamilton Lot Grading Policy, Criteria, and Standards

As per City Council approval on June 12, 2002, Committee of the Whole Report 02-024, specifically Item 21, which references Appendix A attached to Report PD02109: Lot grading for *single detached and semi-detached lots* created through development applications in the City of Hamilton shall be subject to the following policy:

2.5.1 Grading Policy

2.5.1.1 Grading Security for Lots Created Under a Subdivision Agreement

Subdivision agreements will show a line item for:

(i) Pre-grading of lots

Security for pre-grading will be collected through the City's subdivision agreement based on \$1,000 per lot created by the plan and will be released following receipt of a grading certificate from the developer's consulting engineer certifying that pre-grading has been completed.

(ii) Final lot grading

Security for final lot grading will be collected in two stages:

First Stage: A lump sum security deposit will be collected through the City's subdivision agreement to ensure completion of final lot grading and sodding; should a problem arise with the overall grading in a development, which cannot be rectified by modification to any single lot within that development.

Security amounts for final lot grading will be based on a sliding scale according to the size of the development as follows:

- \$ 5,000 for plans up to 10 lots (refer to Section 2.5.1.2)
- \$ 10,000 for plans over 10 lots and up to 25 lots
- \$ 15,000 for plans over 25 lots up to 50 lots
- \$ 20,000 for plans over 50 lots up to 100 lots
- \$ 25,000 for plans over 100 lots

The security held by the City under the subdivision agreement for final lot grading will be released upon acceptance of grading certificates by the City for all lots within a plan of subdivision.

Second Stage: A cash security deposit of \$1,500 will be collected as a condition of building permit application from the owner of each lot within a development. The security deposit will be retained by the Director of Building & Licensing City to ensure completion of final lot

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Comment [A11]: What is the justification for the 50% increase?



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grading and sodding. The security will only be released upon both the City's acceptance of a final lot grading certificate in accordance with the approved grading and plot plans, and a mandatory secondary grading inspection. (Refer to Section 2.5.5 for details)
Security deposits will be refunded, less an administration fee of \$150 for the mandatory second inspection, prior to release of securities. Any subsequent re-inspections will be subject to an additional \$150 per inspection until satisfactory grading is achieved and securities can be released.

Comment [AJ12]: Is this a new fee i.e. in addition to the fee collected at the subdivision registration stage for grading inspection?

2.5.1.2 Grading Security for In-Fill Lots and Lots Created under Severance Application

'Infill lots' shall be defined as lots of record.

(i) Pre-grading of lots

For developments that do not follow the subdivision agreement process (i.e. infill lots and lots created by severance), the City collects a minimum security of \$5,000 or \$1,000 per lot, whichever is greater. This security will ensure that lots are pre-graded in accordance with the approved grading plan and will be released following receipt of the grading certificates for all lots from the developer's consulting-engineer certifying that pre-grading has been completed.

Comment [AJ13]: Does this include subdivisions up to 10 lots?

Comment [AJ14]: Generally infill lots do not require pre-grading.

Comment [AJ15]: Is this a pre-grading certificate per lot? Generally there is one certificate from the engineer that the lots are pre-graded to City requirements as specified in the development agreement before building permits can be issued

(ii) Final lot grading

Security for final lot grading will be collected in two stages:

Comment [AJ16]: not all engineers are "consulting" engineers

Comment [AJ17]: suggest "up to" so as to be consistent with the approach in section 2.5.1.1

First Stage: A lump sum security deposit of \$5,000 will be collected through any City's Severance Application, or Subdivision Agreement ~~less than~~ for up to 10 lots, to ensure completion of final lot grading and sodding. Security will be maintained to ensure no problems arise with the overall grading in a development which cannot be rectified by modification to any single lot within that development.

The security held by the City for final lot grading will be released upon acceptance of grading certificates by the City for all lots within the plan of Severance, or Subdivision under up to 10 lots.

Second Stage: A cash security deposit of \$1,500 for interior lots and \$3,000 for lots abutting existing properties, easements, blocks, or flanking existing right-of-ways will be collected as a condition of building permit application from the owner of each lot within a development. The security deposit will be retained by the City to ensure completion of final lot grading and sodding and will only be released upon both the City's acceptance of a final lot grading certificate in accordance with the approved grading and plot plans, and a mandatory secondary grading inspection. (Refer to Section 2.5.5 for details)

Comment [AJ18]: this is in conflict with the proposed security above

Security deposits will be refunded, less an administration fee of \$150 for the mandatory second inspection, prior to release of securities. Any subsequent re-inspections will be subject to an additional \$150 per inspection until satisfactory grading is achieved and securities can be released.

Comment [AJ19]: Is this an additional fee?



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2.5.2 Design Criteria

Design Criteria for grading lots with single detached and semi-detached housing in new developments within the City of Hamilton are as follows:

- a) "Required backyard" shall mean the lesser of the distance regulated by the Zoning By-law or 6.0 metres.
- b) The maximum slope in the backyard adjacent to the building for a distance equal to the required backyard shall be 5% except as set out in Items (c), (d), (f) and (g).
- c) The 5% restriction shall not apply to the sides of a swale along the sides or back of a lot, providing the total width of a swale does not exceed one (1) metre on each lot.
- d) Where the 5% restriction on the backyard's grades results in elevation differences between adjacent properties, retaining wall shall be constructed along the sides and back of the lot.
- e) Generally, slopes shall be placed on the lower lot, whereas retaining walls shall be placed on the higher lands.
- f) The 5% restriction does not preclude retaining walls in the required backyards providing the terraces are maintained to the 5% grade as set out in Item (b). The intention of this provision is to provide for flexibility of house construction.
- g) Guards for retaining walls shall be designed and constructed in accordance with the requirements for exterior guards as contained in the Ontario Building Code.
- h) Slopes of swales for both "back to front" and "split" drainage shall be no less than 2.0% grade and no greater than 33% grade (3:1 slope).
- i) Back to Front drainage shall only be permitted where side yard set backs are 1.2m or more, providing a minimum of 2.4m between foundation walls for drainage swales.
- j) If combined side yard distance between buildings is 1.5m or less, minimum side-yard swale grades shall be 2%.
- k) When matching to existing properties where 2% slope cannot be achieved, then a 1.5% slope is permitted provided a 150 mm sub-drain is installed below the bottom of the swale and drained to a suitable outlet, with a minimum of 0.30 metre cover over the sub-drain or other mitigation measures. {formerly 'i')}
- l) Minimum slopes for a "wrap around" swale in the back yard shall be 1.0% {formerly 'j')}
- m) Driveway slopes shall not be less than 2.0% and not more than 7%. Reversed sloped driveways in new developments are not permitted. {formerly 'k')}
- n) Each lot is to be independently drained. Drainage to a nearby street through the rear of an adjacent lot is not permitted, unless the adjacent lot is part of the same development. In areas where "zero lot line" zoning is permitted drainage to a nearby street through the rear of an adjacent lot is not allowed. {formerly 'l')} See Sections 2.5.2.1 and 2.5.2.2 regarding infill and rural lot grading.
- o) Catch basins in rear yard swales shall be designated as "private" and shall drain not more than four (4) three (3) lots on either side of any swale leading into a catchbasin on any side of the catch basin. {formerly 'm')} Collection from both sides of the rear lot line is acceptable.

Comment [AJI10]: What is the rationale for this?

Comment [AJI11]: What are the implications in this sentence?

Comment [AJI12]: This requires some discussion. It is very difficult to fit street furniture with 4 lot spacing and will be a problem with the additional CBs required under this policy



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- p) All slopes shall be 3:1 or flatter. (formerly 'n')
- q) Provisions shall be made to prevent disruption of the natural surface drainage pattern on lands bordering the development both during and after construction. (formerly 'o')
- r) If grading is required on lands adjacent to the development, which are not owned by the developer, then the developer must obtain written permission from the adjacent property owner to allow the developer to grade on the adjacent lands, otherwise retaining walls must be used. (formerly 'p')
- s) Where a lot is lower in the rear than in the front, a split drainage grading design will be used in order to drain a portion of the lot to street catch basins. No front to rear drainage will be permitted. (formerly 'q')

2.5.2.1 Design Criteria for Infill Developments

Grading of single or multi-family residential lots that are developed through severance or infill applications shall demonstrate that the proposed development will not adversely affect existing buildings, significantly alter existing drainage patterns, or adversely affect neighbouring properties.

- A 0.6 m undisturbed buffer area along adjacent existing lots must be maintained, with only internal lot areas being modified
- Positive drainage away from buildings should be provided at all times.
- Side and rear yard swales to be located entirely within the infill/severed property
- In some cases, side and rear yard slopes less than 2% may be acceptable, but must be reviewed and approved by City's Development Division staff on a case-by-case basis

Comment [AJI13]: This means you cannot install a swale in this 0.6m buffer? That would need disturbance. What is the rationale? This would therefore require bigger lots for the same style of house.

Comment [AJI14]: Any provision for letter of acceptance from adjoining owner for a swale on the common property line?

2.5.2.2 Design Criteria for Rural Lot Grading

Grading for rural estate lots which are part of a Plan of Subdivision shall conform to the City of Hamilton design criteria outlined in Section 2.5.2.

For rural lots created from severance, every attempt shall be made to implement the grading criteria outlined in Section 2.5.2. Elements which cannot conform to the standard criteria shall be reviewed with the City for agreement on approach; such as, culvert extensions or finished floor elevations that are lower than the existing roadway.

If a proper/acceptable outlet cannot be provided due to topographical or other physical constraints, then the proponent is to consider and implement other practices to retain the water on site (ie. infiltration gallery, bioswale, water harvesting etc...) and ensure that surface runoff does not adversely impact neighbouring properties.

Comment [AJI15]: I believe rural lot grading requires its own criteria. Urban drainage criteria should not be imposed on rural estate lots.

Comment [AJI16]: Provision should also be given for less than min. 2% grades for swales on rural lots. 2% should be required only in the vicinity of the dwelling. On large acreage min. 2% swale grades destroys the natural grading pattern.

2.5.3 Acceptable Lot Grading



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Lot grading shall be acceptable to the City if:

- i) no portion of any side swale has a grade of less than 1.5%, unless mitigation measures have been put into place or specified on an approved grading plan.
- ~~ii) the average grade from the high point is not less than 1.8%~~
- iii) the "as-built" grading does not impede the intent of the approved overall grading plan. Deviation in excess of 200mm at lot corners will be justified on the final grading certificate
- iv) no portion of any backyard has a finished grade of less than 1.0% once the lot has been fully sodded. This includes the rear and side yards as well as the front yard, except for areas designated as a driveway. {former items 'iv)' & 'v)' were combined & reworded}
- v) A Professional Engineer provides initial certification of lot grading following ~~after~~ the sodding of the lots is complete.
- vi) City staff provides final approval inspection for and acceptance not prior to May 1st, and not later than July 1st of the year following initial engineering certification. (Refer to Section 2.5.5 for details)

The subdivision agreement shall remain on title to the lots and blocks within a development in order to ensure that the Developer and subsequent owners of the lots and blocks within a development shall not be released from the restrictive covenants regarding discharge of roof leaders onto the ground.

2.5.4 Grading Standards

2.5.4.1 Overall Grading Plan

The overall grading plan shall be prepared on a standard metric A1 size sheet or an Imperial 24" x 36" sheet at a scale of 1:500, stamped and signed by a professional engineer and shall show the following:

- a) all lots and blocks of the lands to be developed as well as adjoining lands for a minimum of 15 metres beyond the limit of the lands to be developed and further if necessary to determine future and proposed drainage patterns
- b) existing contours at 0.5 metre intervals over the entire development including sufficient area of adjacent lands to establish the overall drainage pattern. If parcel is flat or 0.5m contours do not adequately show topography, a 0.25m contour spacing should be provided.
- c) proposed elevations at the corners of each lot and block and at intermediate point of change in grade
- d) proposed elevations at 15 metre spacing along the frontage of large blocks and at a reasonable spacing along the sides and rear of the block
- e) proposed centre line road elevations at:
 - (i) all changes in grade, and
 - (ii) opposite lot corners of the lands to be developed
- f) the location of all existing trees, septic tanks and tile fields, wells, above ground utility structures (street furniture) and other structures as necessary

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Hamilton

- g) the location of existing and proposed retaining walls with proposed top and bottom elevations at appropriate intervals with sections
- h) the location of drainage ponds or swales, and direction of surface drainage on each proposed lot and block and on all adjoining lands
- i) the location of rear yard catch basins and inlets and top of grate elevations
- j) proposed building envelopes with the following information:
 - (i) front of house apron elevation (garage floor elevation)
 - (ii) back of house apron elevation, if different from front
 - (iii) minimum basement floor elevation (shall be calculated based on the elevation of the sanitary and/or storm-private drains)
- k) ~~where roof leaders are not connected to a storm sewer, the stipulation that roof leaders shall discharge onto splash pads, satisfactory to the City Engineer and then to a grassed or landscaped area at a minimum distance of 0.60 metres away from the building face~~
- l) For lots having side-yard setbacks of 1.2m or less, the stipulation that roof leaders shall be restricted to front or rear yard discharge locations to minimize erosion and ponding
(Note: Related Roof Leader requirements in By-Laws 88-245 & 96-137 to be discharged or amended to suit new policies)
- m) a key plan showing the proposed development and, for larger subdivisions, the location of the lots on the sheet in relation to the overall development {formerly 'l')}
- n) description of the nearest geodetic bench-mark {formerly 'm')}

Comment [AJ117]: Is it possible to get these by-laws or have them included in the guideline?

2.5.4.2 Grading Plan Objectives

The overall grading plan shall be prepared in accordance with the following objectives:

- a) the whole drainage for the development shall be self contained and directed to a suitable outlet
- b) the lot grading plan shall accommodate any external drainage, which is tributary to the development and must prevent ponding on adjacent lands bordering the subdivision
- c) the establishment of independent and adequate drainage for each lot (this can be provided by either "back to front" drainage (recommended) or "split" drainage intercepted by a rear yard swale)
- d) the establishment of lot and house grades which are generally compatible with existing topography and surrounding development, existing trees etc., without steep slopes or abrupt changes in grade with minimum terraces

2.5.4.3 Plot Plan for Each Lot

The plot plan for each lot shall be stamped and signed by either a Professional Engineer, Ontario Land Surveyor, Architect or Landscape Architect for approval by the Director of Building and Licensing prior to issuing a building permit and shall show the following:

- a) proposed elevations at the lot corners, which must conform to elevations on the approved grading plan
- b) elevations of the proposed sidewalk adjacent to the lot, and where no sidewalk is proposed, then the corresponding proposed back of curb elevation and the proposed centreline road elevation. (For infill lots, existing elevations should be provided if no new road works are proposed.)

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- c) the elevation, design and basis of design of all retaining walls required
- d) ground elevations on all sides of the proposed building and the driveway gradient and elevation at the house
- e) elevations of all swales on the lot, the gradient of the required backyard apron and arrows showing flow to or from adjacent lands
- f) existing and/or proposed private catchbasins, road catchbasins, hydrants, streetlights, hydro transformers, telephone and cable boxes.
- g) Top of foundation wall elevations are to be clearly indicated on each plot plan.
- h) for infill grading plans and plot plans, the following additional information will be provided:
 - (i) Existing elevations, at 5m intervals, shall be indicated at least 15m beyond the property line boundaries to illustrate the drainage of the lot in relation to the surrounding lands and buildings
 - (ii) Top of Foundation Wall and Garage Floor elevation of adjacent buildings/dwellings.
 - (iii) Additional information may be required depending on the specific characteristics of the site. It is the responsibility of the Professional Engineer submitting the plan to ensure that information shown adequately depicts the existing and proposed conditions.
- i) Grading for rural estate lots which are part of a Plan of Subdivision should conform to the City of Hamilton design criteria outlined in Section 2.5.2. In addition, for rural developments, the following shall be shown of the lot grading plans and plot plans (if applicable):
 - (i) Existing elevations, at 5m intervals, shall be indicated at least 30m beyond the property line boundaries to illustrate the drainage of the lot in relation to the surrounding lands and buildings
 - (ii) Location of private sewage disposal systems
 - (iii) Location of any private water supply system
 - (iv) Driveway entrance culverts, including size, length and location
 - (v) If no positive storm outlet is available, storm runoff retention areas shall be shown.
 - (vi) Ditch elevation details, including bottom of ditch, top of banks, and general flow direction.
 - (vii) Location of existing creeks and watercourses.

Comment [AJI18]: Suggest this be revised to w/s of footing elevation->

Comment [AJI19]: This may not be practical if there are existing lots adjoining the infill development. Most backyards are 7.5m only. Some lots are only 12m wide so 15m from a side lot line is of no consequence, even past the dwelling

Comment [AJI20]: What about the surveyor, architect and landscape architect?

Comment [AJI21]: Or contours at 0.5m interval?

Comment [AJI22]: Elevations at 5m interval over 30m is not warranted. Suggest 10m interval - less if topography warrants.

2.5.5 Grading Certificate for Initial lot Grading

An initial lot grading certificate shall be submitted by a Professional Engineer, on a form acceptable to the City, and shall contain either of the following wording:

STANDARD GRADING CERTIFICATE

We have reviewed the final lot grading for the above mentioned lot and taken elevations where necessary to confirm direction and grade of surface drainage.

We therefore certify that the works have been completed in the field and that they conform to the approved overall and detailed grading plans for the subdivision and the City's standards.

GRADING CERTIFICATE – DEVIATION

This is to certify that we have reviewed the final lot grading for the above mentioned lot and taken elevations where necessary to confirm the direction of surface drainage. While the final lot elevations do not match exactly the proposed lot grading plan, the

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basic lot drainage pattern has been adhered to and the intent of the approved overall grading plan has been met. No drainage problems were evident at the time of inspection.

2.5.6 Approval Process

The City's of Hamilton's approval process to achieve final approval and release of securities held for the lot grading involves the following procedures:

- a) Plot Plans are prepared by an Ontario Land Surveyor or Engineer in accordance with the approved subdivision grading plan as part of the building permit process.
- b) Once footings have been placed or formed, an Ontario Land Surveyor shall provide the City with a certificate confirming that:
 - (viii) their elevation conforms with the top of foundation wall elevations shown of the approved Plot Plans
 - (ix) the foundations are sited entirely on the correct lot
 - (x) the building layout conforms to zoning by-law.
- c) The Foundation Elevations will be considered Non-conforming if they differ from design elevations by more than 100mm. Non-conforming foundation elevations shall be brought to the attention of the City for further direction/discussion prior to proceeding with any further construction.
- d) Once the lots have been sodded, a Surveyor or Engineering Consultant certifies, in writing, that the lots are in general conformance with the overall grading shown on the approved grading plan, in accordance with Section 2.5.5. Following this initial inspection, the City inspector provides new homeowners with an information package including the Lot Grading and Drainage Brochure, Grading Policy Notification Sticker, and an Initial Grading Inspection notice within two months of receiving the Initial Lot Grading Certificate.
- e) Following certification of all lots within the subdivision, Stage 1 Final Grading Securities may be released following submission of a security reduction.
- f) For Lots which cannot be certified due to poor grading or changes in house style, the Consultant will notify the City, Developer, and Builder in writing. The Consultant, on behalf of the developer, will prepare new grading plans for the lots which have not been built according to plan, and will submit revised plans to the City with the required fees.
- g) The Consultant will re-inspect any deficient lots or for those lots which cannot be certified by a visual inspection, prepare an as-built grading plan, in order to satisfy the initial inspection. If necessary, the builder will be instructed to address any deficiencies in order to have the particular lots certified. If the builder will not correct the work as instructed by the Consultant, this responsibility will fall directly upon the developer.
- h) Prior to release of Stage 2 Final Grading securities in accordance with the conditions of the Subdivision or Development Agreement, a mandatory second grading certification inspection will be conducted by the Consultant and City Inspector no sooner than May 1st, and no later than July 1st of the first spring following initial grading certification. The Consultant's certification shall be signed by the Inspector, both confirming that all lots continue to drain as intended, and that there are no signs of settlements, ponding, erosion, or unauthorized grade alterations that will need to be addressed prior to release of the Stage 2 Final Grading Securities.

Comment [AJI23]: Architect or Landscape Architect??

Comment [AJI24]: Is this to be interpreted that the surveyor calculates the projected top of foundation elevation? Why not just ask the surveyor to certify the footing elevation as shown on the plot plans

Comment [AJI25]: I need to check with the surveyors if they can do this. They will only certify the setbacks from the property lines w.r.t. zoning by-laws.

Comment [AJI26]: Conflicts with policy 2.5.5 which states only Professional Engineer.

Comment [AJI27]: Be consistent with terminology - recommend that you use "Engineer" throughout.

Comment [AJI28]: Does this mean that release of Stage 1 Grading securities is dependent ONLY on the Initial Grading Inspection?

Comment [AJI29]: The developer may have a different engineer than the builder. Can the builder's engineer prepare the new grading plan and submit to the City on behalf of the builder?

Comment [AJI30]: Please clarify further. What criteria is this that will satisfy initial inspection?

Comment [AJI31]: Consultant or Engineer? This applies to all clauses above as well.

Comment [AJI32]: It appears that this is a new certificate rather than the Stage 1 Final Grading Certificate? If it is a new certificate is there any suggested wording for consistency?

Comment [AJI33]: Who will be responsible for unauthorized grade alterations? This is usually done by the home owner.



Hamilton

- i) Following the final inspection, the City inspector provides a Final Grading Approval notice to each lot in the development, reminding them of their responsibilities under the City By-Laws.



August 6th, 2010

Helen McArthur, P.Eng.
Senior Project Manager,
Development Engineering Division,
Planning and Economic Development Department
City of Hamilton
71 Main Street West,
Hamilton, Ontario
L8P 4Y5

Dear Ms. McArthur:

Draft Review and Update of City of Hamilton lot Grading Policies, Standards and Criteria

We have reviewed the draft revised Grading Policy and have the following comments:

- 2.5** We note that the policy, as in the past, only applies to single family and semi-detached lots. Is it intended that these policies, where appropriate, will also apply to freehold townhouses?
- 2.5.1.1(ii)** The second stage security will be collected "from the owner of each lot".
- 2.5.4.1 k)** This clause has a grammar error.
- 2.5.4.1 l)** This clause also has grammatical errors that make the meaning unclear
- 2.5.5 & 2.5.6** 2.5.5 states that the grading certificate is to be prepared by "a Professional Engineer", 2.5.6d) states "a Surveyor or Engineering Consultant certifies..." There are other references to Consultant. The reference in all cases is, we understand, to the developer's engineer, however the various different wording is confusing.
- 2.5.6 a)** Plot Plans are prepared by an OLS or Engineer on behalf of the builder. They are then reviewed by the Developer's Engineer for conformity with the overall subdivision plan and stamped & signed as such, before submission for a building permit. This step is not shown in the policy.
- 2.5.6 b) & c)** The requirements of these clauses apply to the Builder and obligations under the Building Code / Zoning By-Law. It is unclear how the Developer and his consultant will be involved in this process.

2.5.6 f) The new grading plan for lots which cannot be certified will usually be prepared by the Builder's consultant and then checked and stamped by the Developer's Engineer, the plan and fee would be submitted by the Builder not the Developer. What are the "required fees" for resubmitted grading plans?

2.5.6 g) This clause seems to be out of order. The process would be clearer if this clause came after 2.5.6 d).

2.5.3 vi) & 2.5.6 h) The requirement to wait until the following May for the final inspection is rather onerous. The way the policy appears to read the Initial grading certificate has to be issued for ALL lots in the subdivision before the "following May" timeline starts. It should be clarified that this will be applied on an individual lot basis. Even with this clarification, a delay of 11 months between initial and final inspection can occur, During this time fences and decks will be built making access difficult and repairs awkward.

Assumption It is unclear how assumption is affected by the revisions. The First stage Security (Developer) will be released when the Initial Grading Certificate is issued for all lots. The Stage 2 final Grading securities are a Builder responsibility. Can the assumption process proceed ahead of the second grading certification for all lots?

Transition We assume that transition policies will be provided in the report to Council and that the new policy will not be applied to developments with approved, or near approval, engineering drawings.

Thank you for the opportunity to comment on the draft policy revisions. We would be pleased to provide any clarification that you require.

Yours truly,

Chris Povell, P.Eng

Senior Consultant

Erin Wynne

From: Cory Giacinti
Sent: Friday, September 03, 2010 3:02 PM
To: Erin Wynne
Subject: Draft Lot Grading Policies, Standards and Criteria
Attachments: LD-082510-lot grading.pdf

From: Ryan Oosterhoff
Sent: Friday, August 27, 2010 9:17 AM
To: Unelli, Charlie
Cc: 'McArthur, Helen'
Subject: Draft Lot Grading Policies, Standards and Criteria

Hi Charlie,
Attached please a letter commenting on the draft Lot Grading Policies, Standards and Criteria.

The original will be sent by mail.

Thanks,

Ryan Oosterhoff
Losani Homes
430 McNeilly Road
Stoney Creek, ON
L8E 5E3
Direct Line: 905.643.5610 ext. 11
Mobile: 905.818.5409
Fax: 905.643.1393
www.losanihomes.com



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August 25, 2010

Mr. Charles A. Unelli, C.E.T.
Project Manager, Development Engineering Section
City of Hamilton
71 Main Street West
Hamilton ON
L8P 4Y5

Dear Mr. Unelli:

RE: Proposed Lot Grading Policies, Standards and Criteria

Losani Homes has had the opportunity to review the Draft Lot Grading Policies, Standards and Criteria that were provided to the Hamilton-Halton Home Builders Association in a letter dated August 16, 2010. Although the policies generally remain status quo of what is currently in place we do have a number of concerns as outlined below.

For lots created under a plan of subdivision the second stage deposit, or deposit required at the time of building permit, has increased by \$500.00 from the current \$1,000.00 for which the City has not provided any support for. In addition to this deposit there is also an additional fee of \$150.00 for the secondary grading inspection performed by City staff which adds further confusion as to why this deposit has increased.

This document proposes a mandatory secondary grading inspection, to be performed by City staff the following spring, after our engineer has already completed their initial grading certification. Typically our homeowners are anxious to receive their lot grading approval so they can commence fence or deck construction. In some cases, depending on when they took possession of their home, homeowners may wait 6-9 months for this to occur. Under the proposed policy our purchasers would be forced to wait an additional 12 months before they are able to start their fence or deck construction.

The fee for this mandatory secondary grading inspection would seem reasonable if an inspector was attending a site to review only one or two lots. It is common for us to complete a large number of lots at one time, and as such an inspector would be attending one of our sites to review anywhere from ten to twenty lots at one time. A fee of \$150.00/lot when inspecting a large number of lots is not reasonable. Although we do not support the mandatory secondary grading inspection, if it is implemented we would suggest a sliding scale fee be taken into consideration depending on the number of lots being inspected at one time.

The draft policies indicate the mandatory secondary grading inspection will only take place between May 1 and July 1. This only provides 2 months for the City to perform the necessary inspections. Our concern is that this may not be sufficient time for the City to complete all inspections and would like to be assured that the time frame would be extended if there are a large number of lots to be inspected and the City was not able to complete all of the inspections by July 1st.

Also of concern is the transferring of the lot grading inspections and administration of grading deposits from the Building Department to the Development Engineering Department. The process we have now with the Building Department is relatively smooth and deposits are generally released in a timely fashion. If I recall, a number of years ago this was not always the case when the Development Engineering Department was responsible for these tasks. At one point they 5-7 years behind in processing grading deposit releases. Our

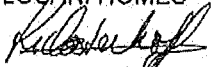
current experiences with the Development Engineering Department processing cost sharing reimbursements and letter of credit reductions are poor in good times. It is our opinion that the downloading of this additional administration to the Development Engineering Department will further delay the processing of cost sharing reimbursements and letter of credit reductions and create a back log in the processing of grading deposit releases. We would like to see what the City's plan is to manage the additional tasks of the Development Engineering Department.

The draft policy indicates that after Final Grading Approval the City will provide notice to each lot within the development advising the homeowner their lot grading has been approved and reminding them of their responsibilities particularly concerning swales, rear yard catchbasins, etc. In addition the City will provide all homeowners with a 'Homeowner's Guide to Lot Grading & Drainage' pamphlet. This is positive initiative and would be helpful both to us and to the individual homeowners.

We thank you for being provided the opportunity to review the proposed draft Lot Grading Policies, Standards and Criteria. We trust our comments will be taken into consideration and the final document will address our concerns. A liaison committee meeting has been scheduled for September 10, 2010 between the City of Hamilton and Hamilton-Halton Homebuilders Association where this document will be an item of discussion. We will be attending this meeting and look forward to reviewing the revised policies at that time.

If you have any questions or concerns please do not hesitate to contact Ryan Oosterhoff, of my office, or the undersigned.

Sincerely,
LOSANI HOMES


for: Fred Losani, Vice-President/CEO

RPO/rpo



Community Builders...Building Communities

September 14, 2010

City of Hamilton
Planning and Economic Development Department
Development Engineering Services Division
City Hall
71 Main St W., 6th Floor
Hamilton, ON L8P 4Y5

attn: Tony Sergi, P.Eng.

Re: City of Hamilton 2010 Lot Grading Policy

Dear Tony:

Thank you for providing the HHHBA with an opportunity to provide input into the City's proposed Lot Grading Policy. We also wish to thank your consultant, Cory Giacinti of MTE Consultants for attending the HHHBA Development Council to discuss the proposed policy.

Our Development Council has reviewed and discussed the proposed policy and we wish to provide the following comments. Please note that our comments are based on the Rev 03 draft that was forwarded to the HHHBA on August 16, 2010. We understand that they may have been additional revisions since then.

General

We wish to express our concern that the consultation period on this policy has been extremely short. While this policy has been in the discussion stages since 2006, we were only notified about the City's intention to review the policy in February 2010 but no meeting materialized between your consultant and HHHBA. We were not provided with the proposed policy that is being brought forward for adoption until August of this year when we received the policy for comment on August 16, 2010.

The time period provided to us to comment was extremely short and came at a time when a majority of our key stakeholders are on vacation.

On a related note, discussions with individual members of the HHHBA should not be construed as consultation with the development and home building industry, since individual members do not have the authority to make decisions on behalf of the association. As discussed, any official consultation should be directed through Doug Duke, Executive Officer of the HHHBA.



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General Issues

As discussed on Friday, September 10, 2010 there are a few general issues that the HHHBA feels that the City should re-consider in the proposed policy. They are as follows:

- HHHBA members are opposed to the proposed second stage inspection and fees which will occur one winter after the initial lot grading certification.

We wish to point out that most builders in the last five years have adapted their practices so as not to sod the lots immediately upon completion of the house but wait for the settlements to occur. A significant amount of final grading is carried out in the spring after the winter settlements have occurred. This practice is not reflected in the policy as proposed.

Further, we wish to advise that a majority of our builder members have a clause in their Agreements of Purchase and Sale with the new home buyer that the builder is not responsible for settlements and therefore any settlements would need to be rectified by the home buyer.

To enforce an extra time for the final inspection means that it is now 12 to 18 months after the new home owner has taken possession. The builder cannot control what happens after ownership is transferred and has no mechanism to compel the home owners to rectify any lot grading deficiencies or problems caused by their actions.

The HHHBA also feels that this will increase complaints to councillors rather than decrease them as each new home owner negotiates with the City and builder over the second stage final lot inspection to get their \$1,500 deposit returned. We wish to point out that the deposit will, in many cases, come from the home owner and not the builder since it will be taken at closing so now those new home owners will be contacting their councillors when there is a dispute.

- The policy, as provided to us, proposes to reduce the spacing between rear yard catch-basins from the current requirement of 4 to 3. We feel that this is in conflict with the City of Hamilton Storm Drainage/SWM Policies that encourages infiltration of surface water into the ground so as to replicate existing conditions.

The Conservation Authorities also require development to try as replicate the water balance on the lands as far as possible.

By requiring the surface water to enter the storm sewer system in a shorter length, the lot grading policy is working contrary to the objectives of the City Storm Drainage and SWM policy and the Conservation Authority requirements.

We had requested clarification of this policy from your consultant and are awaiting confirmation regarding the final wording.



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Specific Issues

At the Development Council meeting held in August 19, 2010, our members made the following comments:

- In addition to the objection to the second grading inspection, we request clarification as to what this inspection would entail. We understand that it would only be a review of the swales to ensure that any settlements are rectified. If it involves more than that, it should be clarified as to what issues would be looked at and then who would be responsible for clearing any deficiencies – i.e. builder or home owner depending on the cause of the deficiency.
- It was felt that the 50% increase in the deposit (from \$1000 to \$1,500) is also not warranted. We request clarification as to how many times in the last 5 years the Building Department has used the current deposit for new dwellings in subdivisions to rectify grading problems.
- The \$150 charge is a new fee on builders for the second grading inspection and we consider it to be too high. If it is implemented at all, the inspection charge should be based on a sliding scale e.g. \$200 base rate and then \$25 per lot being inspected.
- to confirm that the lump sum held for subdivisions will be reduced down with the sliding scale that is posted (ie. When you get to 10 lots, your lump sum security is reduced, etc.)
- to address the discrepancy between securities held for severances and subdivisions - the max. For severances is lower than the lump sum for subdivisions
- *2.5.2.1 Design Criteria for Infill Developments or Lots of Record:* Please clarify the intent of the first bullet point which states that: "A 0.6 m undisturbed buffer area along existing adjacent lots must be maintained, with only internal lot areas being modified, i.e.; proposed swales must be contained within the land parcel being developed." We feel that it should be deleted and replaced by "no grading is permitted on existing adjacent property without the adjacent property owner's consent."

We had requested clarification of this policy from your consultant and are awaiting the final wording for that clause.

- *2.5.2.2. Rural Lot Grading:* We feel that the policy for rural lots as written does not recognize the distinction between rural and urban lots. The policy refers back to the main "urban" lot grading policy which is often not desirable in a rural context, though it does provide for flexibility on a case by case basis. Also, for rural lots, we would suggest that "Low impact development criteria" should override the standards if there is a conflict.



City of Hamilton attn: Tony Sergi, P.Eng.
City of Hamilton 2010 Lot Grading Policy
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- **2.5.4.1 Overall Grading Plan:** Paragraph (l) states that: "Lots having side-yard setbacks of 1.2m or less shall have roof leaders restricted to front or rear yard discharge locations to minimize erosion and ponding." This criteria is unworkable since we would have to eliminate peaks and valleys in the roof design and install only straight front and back roofs in order to comply. This would provide a conflict with the City policy on enhancing streetscapes.
- **Lot Grading Brochure:** We feel that the brochure prepared by the City for distribution to each new home-owner is a good first step in education of the residents on what is involved in lot grading of their properties.

We would suggest that the brochure should point out that any drainage problems caused by the residents' actions would require them to rectify the problems at their cost.

We had also asked your consultant

- to confirm that the lump sum held for subdivisions will be reduced down with the sliding scale that is posted (i.e. when you get to 10 lots, your lump sum security is reduced, etc.)
- to address the discrepancy between securities held for severances and subdivisions. We note that the max. for severances is lower than the lump sum for subdivisions.

Thank you for your consideration in this matter. If you wish to discuss this further, please contact me and we would be pleased to assist you in any way possible.

Respectfully,

Per: Hamilton Halton Home Builders' Association

A handwritten signature in black ink, appearing to read "Doug", followed by a horizontal line extending to the right.

Doug Duke
Executive Officer



Community Builders...Building Communities

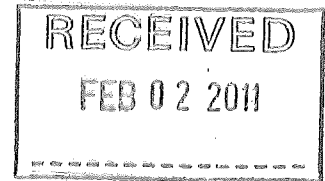
January 31, 2011

BY FAX TO:

905-546-4202

City of Hamilton
Planning and Economic Development Department
Growth Management Division
71 Main Street West, 5th Floor
Hamilton, ON L8P 4Y5

Attn: Mr. Charlie Unelli, CET
Project Manager



Re: **City of Hamilton Draft Grading Policies, Standards and Criteria**

Dear Charlie:

Thank you for providing the HHHBA with an opportunity to provide input into the City of Hamilton's latest version of the proposed Lot Grading Policy. Our Development Council has reviewed and discussed the proposed changes as outlined in your letter dated January 19, 2011 and we wish to provide the following comments.

Item 1

The HHHBA members had concerns with differences between the subdivision and severance processes with the lump sum securities being held for first stage final grading. In the Rev 03 policy, it was proposed to retain a lump sum security of \$5,000 for up to 10 severed lots, whereas the equivalent for a plan of subdivision was \$10,000.

In your latest proposal, this does not appear to have been addressed, but rather you have now elected to increase the second stage security to \$2,000 per lot for all lots, whether subdivided or severed. While we acknowledge and appreciate the reduction of end lots abutting existing properties, etc., our members had previously advised they felt the first increase (to \$1,500) was not warranted. At the time we had requested the building department provide us with the number of instances they have been required to use such securities. To date this information has not been provided.

We wish to advise that we vehemently oppose these increases to the second stage fees, and request that you align the differences in the first stage fees, as was originally requested.

1/



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Re: City of Hamilton Draft Grading Policies, Standards and Criteria - cont'd

Item 2

Your letter requests that it be demonstrated how a swale and pedestrian access can be achieved within 1.8m. Currently many subdivisions have such zoning, whereby a 0.6m side yard (on the garage side) is acceptable where it abuts an adjacent 1.2m or greater side yard on the adjacent lot. Typically in these instances both homeowners access their rear yard on the side of their home where the 1.2m side yard exists. The swale is centred on the property line (as is standard practise), with 0.15m clearance from the top of the swale to the edge of the building on one side, and 0.75m clearance from the top of the swale on the adjacent lot, being sufficient width for pedestrian access.

Whereas the policy only addresses back to front drainage, these side yards are currently used in subdivisions such as: Bridgeport subdivisions, various phases of Summit Park, Jackson Heights in Binbrook, Southwind, etc. We can cite instances where both split drainage, and back to front drainage have successfully been achieved within 1.8m side yards.

Accordingly, we request that you reconsider the requirement for a 2.0m side yard. Our proposal strikes a balance between meeting your required grading requirements and better achieving increased densities in greenfield developments.

Item 3

We appreciate your adjustment to the contributing areas for rear yard catch basins.

Item 4

The preparation of an as-built plot plan significantly increases the cost of certification to builders. This point was considered at great length many years ago, with the amalgamation of the City of Hamilton, and at that time it was determined that the as-built plan was no longer required. Given you indicate that the plan will be used primarily for filing purposes, our members do not perceive this to be a justifiable reason for preparing and providing the information. For reference when reviewing lots, the proposed lot grading plan should be sufficient given that any lot being certified should generally resemble the proposed grades.

Item 5

We appreciate you rewording the clause regarding lot grading plans remaining on title.

Item 6

We appreciate your reconsideration of the need to provide existing elevations to 30m beyond the property line.



Community Builders...Building Communities

Re: City of Hamilton Draft Grading Policies, Standards and Criteria - cont'd

Item 7

We appreciate you have indicated that review of the footing elevations, foundation locations, etc. will not delay house construction.

Item 8

As previously noted both verbally and in writing, our members do not support two-stage certification, as it both results in added costs and a delay in final certificate for homeowners. However, we do appreciate you restructuring the timing so as to provide the possibility for certification within the same calendar year if appropriate.

Item 9

As previously noted both verbally and in writing, our members do not support the \$150 inspection fee on a per lot basis. While you have indicated that you have not received a proposal, in our letter dated September 12, 2010 we proposed that a sliding scale fee of \$200 base rate + \$25 per additional lot could be used. To date we have not had a response on its suitability.

Summary

We recognize the work that has gone into the preparation of these policies, standards, and criteria, and thank you for the compromises that have been achieved to date. However, our membership remains concerned with fundamental differences in opinion on the main items such as increased securities, two stage inspections, etc. and the further proposed increase in securities. We would appreciate if justification for both (ie. Statistics on how many times these have been required in the past, relative to the number of lots certified), and an indication of what the costs incurred to repair deficient lot grading have been.

Thank you for your consideration in this matter. If you wish to discuss this further, please contact me and we would be pleased to assist you in any way possible.

Respectfully,

Per: Hamilton-Halton Home Builders' Association

A handwritten signature in black ink, appearing to read "Doug Duke", written over a horizontal line.

Doug Duke
Executive Officer



Community Builders...Building Communities

March 15, 2011

City of Hamilton
Planning & Economic Development Dept.
Growth Management Division
71 Main Street West, 5th Floor
Hamilton, ON L8P 4Y5



Attn: Mr. Charlie Unelli, CET
Project Manager

Re: **City of Hamilton Draft Grading Policies, Standards and Criteria**
City of Hamilton proposed changes to Site Alteration Bylaw

Dear Charlie:

Thank you for providing the HHHBA with your response dated March 2, 2011 regarding our concerns to the latest draft of the proposed Lot Grading Policy. We have also received a copy of your proposed changes to the Site Alteration Bylaw of the same date, and appreciate you forwarding it to us for review prior to implementation. Our Development Council has reviewed and discussed the proposed changes as outlined in your letters and we wish to provide the following comments.

Lot Grading Policies, Standards and Criteria

While we appreciate the City has engaged the HHHBA to date, we are disappointed that little to none of our suggestions have been implemented. Further, your last letter failed to address our fundamental concerns, which were most recently provided in the summary of our January 31, 2011 letter.

We remain concerned that the costs being charged to – and securities held from – our members (which are passed on to new homeowners) are not representative of those required by the City. Your examples provided only further show this: the lump sum securities held for any project are more than ample to cover the costs incurred for each example. Additionally, items such as two stage inspections, increased sideyards, and timing remain as issues.

Lastly, at the outset we indicated that we expect these changes will not bring the expected results, namely less calls of complaint from constituents to council members. Rather, we expect new homeowners to be frustrated with the costs and lengthiness of this new process, and that those calls of complaint will go to the same council members.

Continued ...

Unfortunately, as our concerns and recommendations have largely gone unaddressed, we must go on record as being OPPOSED to the proposed changes to the lot grading policies, in their entirety.

Revisions to Site Alteration Bylaw

While we appreciate being afforded the opportunity to review the changes to this policy in advance of it being passed, we must again relay our concerns to City staff regarding the lack of time provided to us to review and discuss the same. We were first advised of the City's intent to change this bylaw on February 25, 2011, and the proposed changes were first provided to us in your letter of March 2, 2011, leaving us less than two weeks to review, discuss the matter, and respond. This has been an ongoing issue and we hope that in the future, staff will endeavour to provide us with more reasonable time frames in which to respond to items of significance.

With respect to the proposed changes themselves, we note some technical changes such as definitions, typos, and small wording changes have been made, to which we have no concern. However, the crux of the change is eliminating the ability for our members to use this bylaw, in instances where a planning application has been submitted. We wish to remind staff that in 2003, when the bylaw was first brought to us for review, it was "sold" to our members as being a tool that could be used to begin grading, etc., regardless of the stage of development. It would appear that the exact selling point on which our members agreed to support the bylaw is now being eliminated.

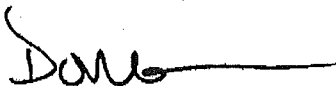
Further we disagree with your statements that this bylaw does not provide you with sufficient information, as it requires tree preservation plans, archaeology clearance, and grading plans to be submitted in support of the application. It is our understanding that this is forwarded to CAs and other interested agencies for commenting prior to approval.

Unfortunately, due to the short timeline and the lack of ability to meet with staff to discuss the proposed changes, we must go on record as being OPPOSED to these proposed changes.

Summary

We recognize the work that has gone into the preparation of these policies, standards, and criteria, and thank you for offering us the opportunity to comment. However, we are not able to support either of the proposed documents, and hope that the City's intent was to honestly consider our input and have meaningful discussion, as the time and effort expended to review these issues was considerable, with little result.

Respectfully,
Per: Hamilton Halton Home Builders' Association



Doug Duke
Executive Officer



Hamilton

Mailing Address:
City Hall
71 Main Street West
Hamilton ON L8P 4Y5
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Planning and Economic Development Department
Growth Management Division
71 Main Street West, 5th Floor, Hamilton ON L8P 4Y5
Phone: 905-546-2424 Ext. 4142 Fax: 905-546-4202

April 5, 2011

File No.: S700-055

Hamilton-Halton Home Builders' Association
1112 Rymal Road East
Hamilton ON L8W 3N7

Att: Mr. D Duke, Executive Director

**City of Hamilton Draft Grading Policies, Standards and Criteria
Proposed Site Alteration By-Law Amendments**

Dear Mr. Duke:

Thank you for your comments dated March 15, 2011 regarding the proposed amendments to the City of Hamilton Site Alteration By-Law No. 03-126.

The objective of the proposed amendments to the Site Alteration by-law as it relates to its use as a predevelopment tool is to ensure transparency in the development process and the appropriateness of the works being proposed by the land owner as it relates to both scope and timing. In that regard, there are provisions in the standard approvals process such that if a developer has an application on record with the City such as a site plan or draft plan of subdivision, they are able to pre-grade once certain basic requirements are in place.

Using this approach is advantageous because it maintains transparency in the planning process from the public's perspective and the City has better control over implementation of any pre-development work on a property. As an example, with a subdivision agreement in place and registered on title or a site plan approval with conditions, there are provisions for pre-grading whereby the City can follow a defined process and ensure there is provision for the taking of securities and collection of fees for review and inspection, etc. – it is more streamlined and removes any confusion around why a development project is not proceeding under the normal process. From a timing and resource perspective, the Site Alteration process being used as it is today puts a strain on available staff resources who are required to review and approve a plan and inspect within a limited context only to have to re-engage at a later time to review a formal complete application and facilitate approvals all over again.

Cont'd...

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April 5, 2011

City of Hamilton Draft Grading Policies, Standards and Criteria
Proposed Site Alteration By-Law Amendments

Cont'd...

Moreover, and perhaps more important, the current by-law is a permit process and is intended to be such that the City is unable to not issue a permit if the applicant meets the City's requirements (engineering drawings, securities, other permits, etc.). Following the Site Alteration process, there are no provisions currently within the by-law to withhold a permit if there are mitigating circumstances that would make alteration of the site prior to full approvals inappropriate. For example, if there are neighbouring properties owners with significant concerns that are to be vetted through a planning act process.

For clarification, you note that the current by-law covers requirements for tree preservation, archaeological clearance, conservation authority approval, etc. However the current by-law does not provide for those specific requirements. Currently as a requirement of the Site Alteration Permit the City has been utilizing our pre-grading requirements to ensure objectives of the City, Conservation Authorities, etc are upheld. The proposed modifications to the by-law will formalize the use of these requirements (refer to the attachment "Development Engineering Requirements for Site Alteration").

If you have any questions regarding this please call me at (905) 546-2424 x4142.

Yours sincerely,

Charles A. Unelli, C.E.T.
Project Manager

cau
attach.