

## 2.2 Individual Lot Grading Plans

### 2.2.1 Objective

To provide sites that are suitable for the erection of residential buildings and to provide satisfactory and environmentally sustainable drainage of lands within the development. The design and completion of lot grading is of primary concern to the municipality, and the following criteria shall apply to all residential development including townhouses in the City of Vaughan. Variances from these criteria may be permitted where the lot grading complies with the overall design and a reasonable balance is achieved between the provision of relatively flat amenity areas, effective drainage, the preservation of trees and the environmental impact of urban runoff.

### 2.2.2 Drawing Requirements

#### 2.2.2.1 General

- 2.2.2.1 (a) Drawings shall be sufficiently large to clearly illustrate all details including relevant features beyond the property boundaries. Drawings shall be prepared at a metric scale of no greater than 1:250. The preferred drawing sheet size is generally 11" x 17".
- 2.2.2.1 (b) Symbols and conventions used on lot grading plans shall conform to the City's Standard Drawings.
- 2.2.2.1 (c) Lot grading plans shall include the following standard notes:
- Roof drains to discharge at front of dwelling units onto grassed areas via concrete splash pads and not to conflict with walkways where architecture permits. Roof drains should not discharge to the rear of the property unless otherwise approved by the City.
  - The contractor shall check and verify all given grade elevations prior to commencement of construction.
  - Footings to bear on natural undisturbed soil or rock and to be a minimum of 1.22 m below finished grade.
  - All front and rear yards shall be graded at a 2% to 5% grade within 5.0 m of the dwelling unit.
  - Driveway slopes: Minimum 2%; Maximum 8%.
  - The maximum allowable slope is 3:1 (horizontal to vertical) with a maximum elevation difference of 600 mm.
  - Driveways to be set back a minimum of 1.0 m from above ground services (e.g., hydrants, transformers, streetlights, utility poles and pedestals, etc.) or other obstructions.
- 2.2.2.1 (d) Drawings must be stamped and signed by a Professional Engineer.

#### 2.2.2.2 Detail

- 2.2.2.2 (a) Proposed and existing elevations for lot corners, swale inverts, and percentage of grades and intermediate points of grade change are to be shown at reasonable intervals along the boundaries of the lot to illustrate the drainage of the lot in relation to the surrounding lands and buildings.

- 2.2.2.2 (b) The Specified House Grade is defined as the highest ground elevation around the perimeter of the house. In general, the proposed SHG shall be established at the rear of the proposed dwelling for all rear-to-front draining lots. For split-type drainage pattern lots, the SHG shall be established at the lot transition point (see Section 2.2.3).
- 2.2.2.2 (c) The direction of storm water flow in swales shall be indicated with an arrow and percentage grades.
- 2.2.2.2 (d) Elevations are to be in relation to City geodetic benchmarks.
- 2.2.2.2 (e) Proposed rear lot catchbasins, catchbasin leads (with rim, pipe invert elevation and slope of pipe) shall be indicated.
- 2.2.2.2 (f) All above ground services including curbs, sidewalks, valves, hydrants, streetlight poles, transformers and telecommunication pedestals, shall be identified on the proposed grading plan.
- 2.2.2.2 (g) Any easements or rights-of-way are to be indicated on plan.
- 2.2.2.2 (h) The degree and limit of slopes over 3 horizontal to 1 vertical shall be indicated.
- 2.2.2.2 (i) The lot grading plans shall indicate proposed locations for buildings, private sewage disposal systems, and private water supply systems.
- 2.2.2.2 (j) Any water course running through or abutting the proposed development including the identification of the regulatory storm water levels (e.g., higher of Regional or 100-Year Storm) shall be shown.
- 2.2.2.2 (k) Service connection inverts for sanitary and storm shall be indicated on site grading plans at the property line.
- 2.2.2.2 (l) Side yard treatments where distance is less than 1.8 m between dwellings must be shown. Where sod will not grow, including under air conditioning units, a patio slab, etc., limestone screenings or gravel in lieu of sod and graded in such a manner as to promote positive drainage is acceptable. The builder has the option to install clear crushed stone (in accordance with the approved grading plans) in shade areas (i.e., narrow lots) where sod is unlikely to flourish.
- 2.2.2.2 (m) All lots with engineered fill shall have the "Engineered Fill Envelope" indicated on the site grading plan in accordance with Section 2.3.
- 2.2.2.2 (n) House elevations including finished first floor, basement slab, top of foundation wall and underside of footing to be shown. Sill elevations to be shown at side entrances where elevation differs from finished first floor. Driveway slope, garage slab elevations and slope to be shown. The number of risers must be indicated at entrances to dwellings.
- 2.2.2.2 (o) Road layout including curbs, sidewalks and centre line road elevations shall be shown.
- 2.2.2.2 (p) Water service valve boxes (curb stops) are to be located in the grassed portion of the front yard and located a minimum of 1 m from the driveway.
- 2.2.2.2 (q) Site grading plans shall be stamped by the developer's Engineer to confirm conformance with these criteria and the overall lot grading control plans.

- 2.2.2.2 (r) Proposed retaining walls shall have proposed spot elevations indicated at top and bottom of wall structure.
- 2.2.2.2 (s) The site grading plan shall indicate proposed and/or existing fences as well as any proposed siltation and erosion control devices or measures.
- 2.2.2.2 (t) Risers and/or decks are required at rear or side entrances in lieu of safety barriers or optional decks. Bottom riser/stringers shall be supported by means of patio slabs with 20 mm clear stone or crushed granular material to minimum depth of 150 mm.
- 2.2.2.2 (u) Where corner lot fencing is required by the City, all fence post holes shall be covered in sod and graded in accordance with the approved grading control plan(s).

### 2.2.3 General Design

- 2.2.3.1 (a) Prior to the final clearance for building permit availability the consulting engineer shall submit grading plan drawings that clearly identify the proposed controlled fill envelope on each lot.
- 2.2.3.1 (b) For detached and semi-detached dwellings lot surfaces within 5.0 m from the dwelling (rear and front) shall be graded with a 2% - 5% gradient, including rear apron swale.
- 2.2.3.1 (c) The maximum slope of an embankment shall be 3 horizontal to 1 vertical, with a maximum grade differential of 0.6 m. The maximum slope of terraced embankments shall be 3:1, with a maximum grade differential of 0.6 m between successive terraces. The minimum width of a terrace shall not be less than 1.5 m. A terrace shall have a maximum slope of 5%. Where retaining walls are required, they shall be constructed in conformance with Section 6. The bottom of a 3:1 slope shall be not less than 1.0 m to a property line. This 1.0 m portion shall be sloped to a maximum of 5%.
- 2.2.3.1 (d) All lot surfaces including rear yard swales shall be designed with a minimum grade of 2% and a maximum of 5%.
- 2.2.3.1 (e) Rear to front draining lots (except for front walkout dwellings) shall have overall grades of:
  - 2.0% minimum to 3.5% maximum for lot with sideyard set back greater than 0.9m.
  - 2.5% minimum to 3.5% maximum for lot with sideyard set back less than 0.9m .
- 2.2.3.1 (f) Boundary slopes shall be constructed on the lower property, where existing topography permits, in accordance with Section 2.2.3.1 (b).
- 2.2.3.1 (g) Front yards and driveways of residential lots shall be graded to drain towards the street. High point to be min 2.0m behind front down spout location.
- 2.2.3.1 (h) Rear to front drainage shall not be permitted where the combined width of abutting side yards is less than 1.8 m. In such cases, split drainage lots shall be served by rear lot catch basins.
 

Desirable location of the side yard swale is at mid point between two buildings. However, the centre of the swale must not be located closer than 600 mm from any foundation wall.
- 2.2.3.1 (i) Where side yards are less than 1.8m and are designed with a side yard entrance, a minimum 600 mm concrete walkway shall be provided.
- 2.2.3.1 (j) Where possible, driveways are not permitted as outlets for drainage swales.

- 2.2.3.1 (k) The maximum flow allowable to any rear lot catch basin shall be a maximum area of 750m<sup>2</sup>.
- 2.2.3.1 (l) Lot drainage shall not adversely affect adjacent properties.
- 2.2.3.1 (m) The maximum flow in rear or side yard swales which may be discharged onto any road allowance is that from an area of 500m<sup>2</sup> maximum (200m<sup>2</sup> where sheet flow is conducted over a sidewalk).
- 2.2.3.1 (n) Where property lines are offset more than 1.0 m or drainage swale alignment exceeds 45 degrees, the maximum length of the swale must not exceed 50.0 m from the high point to the outlet.
- 2.2.3.1 (o) Where possible, catch basins shall not be located within 1.0 m of driveway curb area or depressed curb sections. (Depth of rear catch basin grates to be a min. of 75mm below finished grade to provide a catchment area and minimize ponding).
- 2.2.3.1 (p) The maximum length of drainage swales between outlets shall be 90.0 m and such outlets shall serve no more than 6 lots Rainwater Leaders.
- 2.2.3.1 (q) Desirable swale depth is to be 250 mm. Minimum swale depth is to be 150 mm. Maximum swale depth is variable and depends on location and safety considerations, but must not exceed 450 mm.
- 2.2.3.1 (r) All semi-detached lots having less than 1.2 m side yard setbacks shall have split drainage served by rear lot catch basins.
- 2.2.3.1 (s) Rear to front draining lots shall have a specific house grade of 75 mm minimum higher than low lot corner calculated at the street line. These elevations shall be increased by 30 mm for each 1.5 m of frontage over 15 m.
- 2.2.3.1 (t) Rainwater Leaders
  - 2.2.3.1 (t) (i) Except where permitted by 2.2.3.1 (t) (ii), Rooftop rainwater leaders shall be located to the front of the dwelling unit to reduce the volume of runoff discharged into side yards. Eaves troughs and rainwater leaders shall be sized to accommodate expected flows. Rainwater leaders shall not be connected to any sewer connection unless such connection is contemplated in the overall servicing design. Measures shall be taken to prevent erosion from roof runoff with the use of slash pads or other suitable methods. Splash pads are required underneath all downspouts draining onto soft landscaping (sod, topsoil and gravel).
  - 2.2.3.1 (t) (ii) Rainwater leaders may be located at the rear of a building provided that the elevation and the design of a portion of the roof are such that the eaves cannot direct the rainwater to the front of the building or where subdivision designs allows.
- 2.2.3.1 (u) Exterior cladding and windowsills shall be a minimum of 150 mm above finished grade. Where window wells are to be provided they shall have sufficient drainage and connected to the foundation sub drains and bolted to foundation walls. There shall be a minimum of 150 mm separation provided between the specified house grade and sill elevations at house entrances. NOTE: Parging of brick is not an acceptable alternative in lieu of an actual foundation to meet the minimum of 150mm clearance to finished grade.
- 2.2.3.1 (v) Gas meters, hydro meters, water meters, side yard steps and landings, air conditioning units and outside water taps are not permitted within side yards less than 1.2 m wide.

- 2.2.3.1 (w) Rear yard catch basins and outlet pipes shall be located on the downstream side of the lot and entirely on one lot. The catch basin structure shall be located 1 m clear of the property lines.
- 2.2.3.1 (x) Footings constructed adjacent to a catch basin lead pipe or other municipal services shall be installed below the lead pipe excavation. Footings must be constructed on undisturbed soil or engineered fill with an allowable bearing pressure of 150 KPa or greater depending on foundation design loads.
- 2.2.3.1 (y) All decks shall be surfaced below deck area with 20 mm crushed stone or limestone screenings to minimum depth of 100 mm. This applies to all wall mounted air conditioning units as well.
- 2.2.3.1 (z) Site grading plans shall be designed in such a way so as to preserve existing trees wherever possible (refer to Section 2.2.7).
- 2.2.3.1 (aa) Adjacent lots with greater than 200 mm basement elevation difference shall not be serviced by double lot storm or sanitary service connections, unless higher lot is served by a riser connection.

#### 2.2.4 Street & Block Townhouse Design

Except as specifically provided for in this section, grading design associated with street and block townhouse construction shall comply with Section 2.2.3.

End Units - Specified House Grade (SHG) to be the higher of:

- 2.2.4.1 (a) (i) high front lot corner elevation plus 500 mm; and
- 2.2.4.1 (a) (ii) high rear lot corner (of bottom embankment if applicable) plus 2% grade to rear dwelling unit wall plus 150 mm.

Interior Units - SHG to be the higher of:

- 2.2.4.1 (a) (iii) As per 2.2.4.1 (a) (ii);
  - 2.2.4.1 (a) (iv) Low front lot corner elevation plus 600 mm; and
  - 2.2.4.1 (a) (v) A minimum of 500 mm above any high lot corner.
  - 2.2.4.1 (a) (vi) Units with common driveway to have the same SHG based on the higher SHG calculated on the basis of the above criteria.
- 2.2.4.1 (b) Steps between SHG to be taken up externally with 3:1 embankment or approved retaining wall construction

Lots designed with split or walkout units require the front and back SHG to be established using applicable criteria above. Where difference in SHG elevations exceed 500 mm, retaining walls shall be required.

Number of units at same SHG shall be as per the following:

- 2.2.4.1 (c) on road grades of under 2%: No more than 4 units;
- 2.2.4.1 (d) on road grades of 2% to 4%: No more than 2 units;
- 2.2.4.1 (e) on road grades of over 4%: Each unit shall be considered individually.

Each unit to be provided with individual driveway.

A minimum 5 m amenity area with a gradient of 2% to 5% shall be provided in the rear or front of each townhouse unit.

### 2.2.5 Swale Design

- 2.2.5.1 (a) Except as provided for in 2.2.5.1 (b) drainage swales shall be graded with a minimum 2% and maximum 5% gradient.
- 2.2.5.1 (b) Side yard drainage swales between dwellings shall be graded with a minimum 3% gradient where dwellings are located less than 1.8 m apart.
- 2.2.5.1 (c) Desirable location of the side yard swale is along the property line between two buildings. However, the centre of the swale must not be located closer than 600 mm from any foundation wall.
- 2.2.5.1 (d) The maximum flow allowable to any rear or side yard swale or catchbasin, or rear lot catchbasin shall be a maximum area of 750 m<sup>2</sup>.
- 2.2.5.1 (e) The maximum flow in rear or side yard swales which may be discharged onto any road allowance is that from an area of 500 m<sup>2</sup> maximum (200 m<sup>2</sup> where sheet flow is conducted over a sidewalk).
- 2.2.5.1 (f) Where property lines are offset more than 1.0 m or drainage swale alignment exceeds 45 degrees, the maximum length of the swale must not exceed 50.0 m from the high point to the outlet.
- 2.2.5.1 (g) The maximum length of drainage swales between outlets shall be 90.0 m.
- 2.2.5.1 (h) Desirable swale depth is to be 250 mm. Minimum swale depth is to be 150 mm. Maximum swale depth is variable and depends on location and safety considerations, but must not exceed 300 mm.
- 2.2.5.1 (i) Notwithstanding the foregoing, the capacity and alignment of boundary swales shall not adversely affect adjacent properties.

### 2.2.6 Driveways

- 2.2.6.1 (a) Dimensions
  - 2.2.6.1 (a) (i) The maximum width of a driveway measured at the street curb and a curb cut shall be six (6) metres, provided circular driveways having two points of access shall have a maximum combined driveway width and curb cut width of nine (9) metres. For lots zoned RR Rural Residential Zone and A Agricultural Zone, circular driveways having two points of access shall have a maximum combined curb cut and driveway width of 15 metres measured at the street curb.
  - 2.2.6.1 (a) (ii) Where there is no street curb, the maximum driveway width shall be measured at a point 4.25 metres from the street line onto the private side of the lot.
  - 2.2.6.1 (a) (iii) The portion of the driveway between the street line and the street curb shall not exceed six (6) m in width.
  - 2.2.6.1 (a) (iv) Not more than one (1) driveway per lot shall be permitted, and a circular driveway shall not access more than one street.
  - 2.2.6.1 (a) (v) Driveways located between a lot line abutting a street and a garage or dwelling wall in either front or exterior side yards shall be constructed in accordance with the following requirements:

Lot Frontage	Maximum Width of Driveway	Minimum Landscaped Front or Exterior Side Yard
6 – 6.99 m	3.5 m	33%
7.0 – 8.99 m	3.75 m	
9.0 – 11.99 m	6.0 m	
12.0 m and greater	9.0 m	50%

In all cases, a minimum sixty percent (60%) of the Minimum Landscaped Front or Exterior Side Yard shall be soft landscaping.

- 2.2.6.1 (b) Houses shall be sited and driveways located to provide for maximum on street parking and wherever possible the driveways should be perpendicular to the curb and garage door.
- 2.2.6.1 (c) Driveways shall be set back a minimum of 1.0 m from any tree or above ground street utility (hydrants, valve boxes and chambers, hydro vaults, light standards, etc.).
- 2.2.6.1 (d) Water service boxes are not to be located within driveway limits and must be set back a minimum of 1.0 m from any driveway.
- 2.2.6.1 (e) On lots where a utility requiring minimum clearance is located between the straight-line projection of the garage wall and the edge of the road, tapering or reduction of the driveway width will not be permitted to allow proper utility clearance, except for pie shape lots in which case Section 2.2.6.1(g) shall apply. The utility will have to be relocated at the developer's or builder's expense to permit the driveway edges to be straight and perpendicular to the street curb and garage door.
- 2.2.6.1 (f) For lots having a width of less than 9 m measured at the building setback line, the sodded or soft landscaped area shall be a minimum continuous width of 3 m from the street line to the front wall of the garage.
- 2.2.6.1 (g) On lots which have the street line frontage less than the building setback width, tapered driveways will be permitted as follows:
- 2.2.6.1 (g) (i) On lots less than 9 m in width, tapered driveways may be required to preserve the 3 m wide continuous strip which is not to be covered by the driveway (see 2.2.6.1 (f)); or
- 2.2.6.1 (g) (ii) On lots greater than or equal to 9 m in width measured at the setback line, tapered driveways will be permitted on private property only to achieve minimum utility clearances.
- 2.2.6.1 (g) (iii) Tapering of the driveway must occur on the private side of the property line, maintaining a constant driveway width from the curb line to the property line.
- 2.2.6.1 (h) On lots where the width of the lot is less than 5.5 m at any point between the street line and the garage, the width of the continuous strip not covered by the driveway shall be decreased to allow for a minimum 2.5 m wide driveway.
- 2.2.6.1 (i) All driveways shall have a positive slope away from all parts of the building or structure to the street for all single family detached, semi-detached and townhouse dwellings (i.e., reverse slope driveways are not permitted). Driveway grades are to be compatible with approved sidewalk grades. Driveway slopes: minimum 2%; maximum 8%.

- 2.2.6.1 (j) Wherever possible, a 500 mm sodded strip shall be provided between the edge of the driveway (including boulevard portions) and the property line to maintain driveway separation. A minimum 1.0 m clearance is required between adjacent driveways.
- 2.2.6.1 (k) On lots where the lot lines are not perpendicular to the street line, curved or angled driveways may be permitted upon approval by the City. Driveway curb cut must be within projected lot lines.
- 2.2.6.1 (l) Circular driveways with one or two accesses to the road or hammerhead turnarounds will be permitted on lots which have street line frontages greater than 18 m. Hammerhead turnarounds will also be permitted on lots with a minimum street line frontage of 15.0 m which have direct access onto roads of at least 27 m right-of-way width. In no case shall the area of the circular hammerhead driveway exceed 50% of front or exterior side yard area (refer to City By-law 263-94).
- 2.2.6.1 (m) Driveway locations shall be in accordance with the engineering drawings for the development, where applicable.
- 2.2.6.1 (n) Driveway structural design shall be in accordance with the engineering drawings for the development, where applicable, or as specified in the geotechnical report. The City's minimum standards are provided in Table 1-5 (Subsection 1.2).

### 2.2.7 Tree Preservation

The underlying objective is to ensure that the grading design and location of buildings, pools, etc. is accomplished in such a manner so as to maximize the preservation of existing trees and shrubs.

- 2.2.7.1 (a) A qualified professional forester, arborist, or ecologist should be consulted regarding the proper maintenance and care prior to, during and after construction for all trees and shrubs to be preserved.
- 2.2.7.1 (b) The existing grades within the drip line of any trees to be preserved shall not be disturbed. Where regrading within the drip line is necessary, tree wells or retaining walls shall be used to maintain the existing grades.
- 2.2.7.1 (c) Construction (e.g., snow) fencing shall be erected around the drip line of any trees to be preserved to protect the branching and root system (Urban Design Standard Drawing ULA 110; see Appendix B). No temporary or permanent storage or construction equipment or material shall take place within the drip line of any trees to be preserved.
- 2.2.7.1 (d) Where permanent construction will affect the roots or branching of a tree, one of the qualified professionals referred to in Section 2.2.7.1 (a) shall be consulted for the best method of construction and preventative maintenance for the tree in question.
- 2.2.7.1 (e) If a property has a wood lot larger than a half-acre or is located within an environmentally sensitive natural area, all tree preservation and protection shall comply with the Regional Municipality of York Forest Conservation By-Law.

### 2.2.8 Certification

Where pre-sod or rough grade inspection is requested and if time permits, the City Inspectors will provide assistance.

- 2.2.8.1 (a) The City inspector must be provided with a set of approved individual site grading plans for each lot to be inspected, along with the grading control plan(s) for the subdivision (if applicable) and provide a list of all deficiencies in writing, within 48 hours to said, prior to certification. The lot grading shall be



inspected by the developer's Engineer and City Inspector prior to final grading and during lot certification. Forty-eight (48) hour notice must be given to the City so that their participation may be arranged, subject to availability.

- 2.2.8.1 (b) Sod is to be rolled after placement to the satisfaction of the City.
- 2.2.8.1 (c) Prior to subdivision assumption, the City shall conduct an additional site inspection to ensure all drainage works throughout the subdivision have been completed in accordance with City's criteria and guidelines.
- 2.2.8.1 (d) The developer's Engineer shall notify the City prior to proceeding with construction or grading where grade deviations of greater than 150 mm from the approved plans are identified.
- 2.2.8.1 (e) The as-built lot grading certificates prepared by the developer's Engineer shall be in the form identified in the Subdivision Agreement and forwarded to the City Inspector.
- 2.2.8.1 (f) A foundation control certificate shall be issued for each lot by the subdivision Engineer as per the Subdivision Agreement. This certificate shall be provided to the City's Building Standards Department and Development Engineering Department before house construction proceeds beyond basement level.

### 2.2.9 Infill Residential Construction & Residential Additions

The fundamental objectives of this section are to ensure that existing storm drainage flows are not increased or adversely affected due to infill development, as well as to ensure that positive storm drainage is achieved on infill development according to City's guidelines. The builder/developer/owner must perform all necessary works to ensure that no surface drainage problems are created on adjacent private or public lands as a result of the construction.

The scope of this section includes the following:

- New residential development of lands not governed by a current Subdivision Agreement.
- Additions having a ground floor area in excess of 40 m<sup>2</sup>.
- Accessory buildings having a ground floor in excess of 40 m<sup>2</sup>.
- Subject to the provisions contained in this section, infill construction shall comply with the criteria contained in Section 2.2.1 through Section 2.2.8 where applicable.

#### 2.2.9.1 Additional Drawing Requirements

- 2.2.9.1 (a) An existing topographic survey shall be submitted in addition to the proposed site grading plan. The survey shall illustrate all existing above ground services, trees, buildings, pools, driveways, culverts, drainage courses and existing grade elevations 1.5 m beyond the property to be developed.
- 2.2.9.1 (b) Notwithstanding 2.2.2.2 (d), proposed elevations shall relate to a geodetic benchmark if site is within 300 m of a set known benchmark or related to a fixed point (centre line of road) outside the subject property. Relative elevations can be used for additions <40sq.m.
- 2.2.9.1 (c) A 600 mm wide undisturbed area shall be illustrated along all property lines to ensure adjacent existing elevations remain.
- 2.2.9.1 (d) Service connections for sanitary, storm and water which are not in place along the municipal road allowance and or property lines, shall be installed by the City on payment of tendered cost at owner's/applicant's cost. To initiate the subject service connection(s), the owner shall file an

application with the City. All proposed connection inverts shall be illustrated on site grading plans as required. Exceptions to this requirement include permits for pool installation and building additions.

- 2.2.9.1 (e) All existing 300 mm reserves, which require to be lifted across the driveway, shall be identified.
- 2.2.9.1 (f) Driveway culverts shall be illustrated if existing ditches are running across the proposed driveway entrances. Applicant is required to apply to the City for culvert design and installation requirements.
- 2.2.9.1 (g) Septic tanks, tile bed system (or equivalent) and well location shall be illustrated for subject lot and well locations must be shown for adjacent lots. NOTE: If on-site sewage disposal system (e.g., septic tank and distribution field) or well system is in use, refer application to Building Standards Environmental/City Inspector for review.

#### 2.2.9.2 Additional Design Considerations

- 2.2.9.2 (a) Subject to 2.2.3.1 (b), the finished ground elevations of a lot shall be compatible with adjacent road grades, abutting properties and pending local improvements.
- 2.2.9.2 (b) Alterations to grades shall not be permitted within 600 mm of lot boundaries.
- 2.2.9.2 (c) Site drainage works shall be performed so as to preserve existing trees where possible (refer to Section 2.2.7).
- 2.2.9.2 (d) Peak rainfall runoff flow rates from post-construction conditions shall not exceed the flows under pre-construction conditions for the same storm, unless it is demonstrated to the satisfaction of the City that uncontrolled flows will not have adverse effects on existing drainage patterns. These flows may be computed using the rational method.
- 2.2.9.2 (e) Catchbasins, drainage channels and culverts shall be designed and sized to convey the computed contributing area flows (refer to Section 2.2.9.2 (d)).
- 2.2.9.2 (f) French drains and infiltration trenches are not recommended within the subject infill lot.
- 2.2.9.2 (g) The overall grade differential of rear yard surfaces shall not exceed 15% and shall be calculated by dividing the elevation difference by the distance using the following three calculations:
  - 2.2.9.2 (g) (i) from the rear of the dwelling to the rear property line;
  - 2.2.9.2 (g) (ii) from the rear of the house to the centre line of the rear swale invert; and
  - 2.2.9.2 (g) (iii) from side lot line to side lot line over the full width of the lot.
- 2.2.9.2 (h) Should the average gradient exceed 15%, a retaining wall will be required to reduce the grade differential to a maximum 5%.
- 2.2.9.2 (i) The maximum slope between dwellings for rear and/or front basement walkout in any direction shall be 3:1 with a grade differential not exceeding 2.5 m.

#### 2.2.9.3 Additional Retaining Wall Consideration

Retaining walls shall be constructed in conformance with Section 2.4 with the exception that retaining walls must be placed 600 mm from the property line if less than 1 m in height.

#### 2.2.9.4 Drainage Works Final Approval

The owner is responsible for notifying the City Finance Department upon completion of the lot grading and all other construction, to request the necessary inspections required for Letter of Credit release.

Prior to request for Letter of Credit release, the owner shall submit a Lot Grading Certificate from a licensed Professional Engineer or Ontario Land Surveyor. Where requested by the City, an as-constructed drawing of the final grading is also to be submitted.

NOTE: Inspections and approvals to release letter of credit funds are typically not carried out from November to April, weather permitting.

### 2.2.10 In-Ground Swimming Pool Construction

The underlying objective is to ensure that existing storm drainage flows are not increased or adversely affected due to swimming pool construction. Subject to the provisions contained in this section, swimming pool construction shall comply with the criteria contained in Section 2.2.1 through Section 2.2.8 where applicable.

#### 2.2.10.1 Pre-Inspection Approval

Site plans are to be submitted to the City for review prior to permit application approval for in-ground pools. This is not required for above ground pools.

For unassumed subdivisions, a grading plan is to be approved by the developer's Engineer when a lot has not yet been certified. For lots which have been certified, a revised grading plan incorporating the location of the pool and modified grades or a site plan approved by the developer's Engineer may be required if the grading is to be substantially altered or if during pre-inspection potential problems are identified. The owner agrees not to construct the proposed swimming pool or any retaining walls within, nor to alter the grades of, the lands without an approved grading plan. The owner also agrees not to fill in existing drainage swales or alter existing drainage patterns, and to provide a 0.6 m strip of undisturbed ground along the side and rear property lines.

#### 2.2.10.2 Additional Drawing Requirements

- 2.2.10.2 (a) An existing topographic survey shall be submitted in addition to the proposed site grading plan. The survey shall illustrate all existing above ground services, trees, buildings, driveways, culverts, drainage courses and existing grade elevations 1.5 m beyond the property to be developed. The dimensions and shape of the lot, proposed pool, relative to the property lines and buildings on the lot. The shape and location of all existing buildings and structures on the lot, any other feature such as a retaining wall. NOTE: It is the responsibility of the owner/applicant to ensure that all required information is shown on the submitted plans. The pool shall be installed so as not to block or interfere with any surface drainage swales, catchbasins or water courses or other surface drainage features. After installation of the pool, the lot shall be graded so that surface drainage does not adversely affect adjoining properties and is in conformity with any Subdivision Agreement and or lot grading criteria.
- 2.2.10.2 (b) Notwithstanding 2.2.2.2 (d), proposed elevations shall relate to a geodetic benchmark, if site is within 300 m of a set known benchmark or related to a fixed point (centre line of road) outside the subject property.
- 2.2.10.2 (c) A 600 mm wide undisturbed area shall be illustrated along property lines to ensure adjacent existing elevations remain.
- 2.2.10.2 (d) Septic tanks, tile bed system (or equivalent) and well location shall be illustrated for subject lot and well locations must be shown for adjacent lots.
- 2.2.10.2 (e) The standard notes are to be included on the proposed site grading plan, as follows:



## CITY OF VAUGHAN ENGINEERING DEPARTMENT

LOT GRADING NOTES(POOL PERMITS)

THE FOLLOWING NOTES APPLY TO THE CONSTRUCTION GOVERNED BY THE REFERENCE PERMIT AND SHALL FORM PART OF THE DRAWINGS ATTACHED HERETO:

1. ALL SITE PLANS, DRAWINGS AND CONSTRUCTION SHALL COMPLY WITH THE CITY OF VAUGHAN LOT GRADING CRITERIA, SUBDIVISION AGREEMENT AND BY-LAW 1-88.
2. ALTERATIONS TO EXISTING GRADES SHALL NOT BE PERMITTED WITHIN 600 MM OF LOT LINES UNLESS APPROVED AS PART OF THIS PERMIT. THE APPROVED GRADING/DRAINAGE PATTERN FOR THIS LOT SHALL BE MAINTAINED AND ALTERATIONS NOT APPROVED AS PART OF THIS PERMIT SHALL BE RESTORED BY THE BUILDER/APPLICANT/OWNER TO THE SATISFACTION OF THE CITY. CONSTRUCTION/GRADING NOT IN CONFORMANCE WITH THE CITY OF VAUGHAN LOT GRADING CRITERIA OR APPLICABLE SUBDIVISION AGREEMENT SHALL BE RESTORED BY THE PROPERTY OWNER TO THE SATISFACTION OF THE CITY, CONSULTANT, DEVELOPER AND/OR BUILDER.
3. UNLESS SPECIFICALLY APPROVED BY THIS PERMIT GRADING SHALL NOT BE ALTERED FOR ANY OF THE FOLLOWING: EXISTING NATURAL OR ARTIFICIAL WATERCOURSE, OPEN CHANNEL, SWALE OR DITCH USED TO DRAIN THE LAND, OR CATCH BASIN.
4. NO ALTERATIONS TO CITY PROPERTY IS PERMITTED UNLESS APPROVED BY THE CITY OF VAUGHAN'S PUBLIC WORKS AND/OR ENGINEERING DEPARTMENTS.
5. PROPOSED RETAINING WALLS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH CITY OF VAUGHAN LOT GRADING CRITERIA AND BY-LAW 1-88.
6. POOL DISCHARGE MUST NOT ADVERSELY AFFECT ADJACENT PROPERTIES.
7. SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND OFFSET A MINIMUM OF 600 MM FROM LOT LINES. REFER TO SAMPLE DETAIL ATTACHED.
8. THIS PERMIT HAS NOT BEEN REVIEWED FOR THE CONSTRUCTION OF THE POOL AND FOR ANY POOL DESIGN LOADS EXERTED ONTO ANY NEARBY BUILDINGS OR STRUCTURES (INCLUDING RETAINING WALLS, SWELLING, CATCH BASIN LEAD PIPE, ETC). THE OWNER AT THEIR EXPENSE IS RESPONSIBLE TO RETAIN A PROFESSIONAL ENGINEER TO DESIGN, INSPECT AND CERTIFY THE SAME, WHERE REQUIRED.
9. PHOTOS SHALL BE TAKEN BY APPLICANT/OWNER ALONG ALL LOT LINES BEFORE AND AFTER CONSTRUCTION IN ORDER TO CONFIRM THAT GRADES HAVE REMAINED UNALTERED. PHOTOS SHALL BE PRESENTED TO CITY UPON ITS REQUEST.
10. THE CITY MAY, UPON COMPLETION OF CONSTRUCTION, REQUIRED THE CERTIFICATION OF THE AS-BUILT GRADING OF THE LOT BY A PROFESSIONAL ENGINEER PRIOR TO RELEASE OF ANY LETTERS OF CREDIT.

\_\_\_\_\_  
APPLICANT'S SIGNATURE

\_\_\_\_\_  
DATE

**LOT GRADING NOTES  
FOR POOL PERMITS**

### 2.2.10.3 Additional Design Considerations

- 2.2.10.3 (a) Subject to 2.2.3.1 (b), the finished ground elevations of a lot shall remain as close to natural ground elevations as possible as stipulated on approved grading plans.
- 2.2.10.3 (b) Alterations to grades shall not be permitted within 600 mm of lot boundaries.
- 2.2.10.3 (c) Site drainage works shall be performed so as to preserve existing trees where possible (refer to Section 2.2.7).
- 2.2.10.3 (d) Peak rainfall runoff flow rates from post-construction conditions shall not exceed the flows under pre-construction conditions for the same storm, unless it is demonstrated to the satisfaction of the City that uncontrolled flows will not have adverse effects on existing drainage patterns. These flows may be computed using the rational method.

### 2.2.10.4 Additional Retaining Wall Considerations

Retaining walls shall be constructed in conformance with Section 2.4 with the exception that retaining walls must be placed 600mm from the property line.

### 2.2.10.5 In-Ground Swimming Pool Works Final Approval

The owner/applicant will be required to provide a Letter of Credit to guarantee no alteration of any existing drainage and to rectify any deficiencies noted by the City.

The owner/applicant is responsible for notifying the City's Finance Department, upon completion of the lot grading and all other construction (swimming pool, fencing, all landscaping including sodding, etc.), to arrange for the necessary inspections required for Letter of Credit release, subject to the rectification of any deficiencies identified.

Prior to request for Letter of Credit Release, for unassumed subdivisions where a grading plan is approved by the developer's Engineer, a copy of the final lot grading certificate is required prior to release of the security.

### 2.2.11 Individual Lot Grading Inspection Checklist

	New Subdivisions	Infill	In-Ground Swimming Pools
FRONT OF LOTS			
Check that sodding has been fully completed in the boulevards			
Check for settlement around utilities such as light poles, hydrants, telecommunication pedestals			n/a
Check to verify that the curb stop is in the sodded portion of the front yard			n/a
Check to see the driveway is completed and look for any settlement			n/a
Check for required risers at front entrance if applicable and, raise or level garden steps and patio slab walkway			n/a
Check to see pavement is completed in void near front porch or sod or gravel has been placed			n/a
Check front rainwater leaders to see they are a max. of 150-200 mm above finished grade, and that splash pads have been installed			n/a
Check the highpoint if applicable to ensure it is a min of 1.0 m behind front rainwater leader locations			n/a
Check for properly defined swales minimum 150 mm depth down side yards between homes			
Check for settlement around hydro and gas metres, dead sod under the air conditioning unit (patio slab or gravel in lieu of sod is acceptable)			n/a
Level patio slabs and or required risers in a side entrance			n/a
Minimum 150 mm clearance from exterior cladding to the finished grade			n/a
Minimum 150 mm clearance from window sill to finished grade or window wells are required, subdrains to be visible and well fastened to wall			n/a
No alterations to existing grades within 0.6 m of property lines	n/a		
Repaired and/or replaced sod and/or landscaping 100% completed at front of the house	n/a	n/a	

	New Subdivisions	Infill	In-Ground Swimming Pools
<b>REAR YARDS</b>			
Settlement and or dead sod at the rear of the house			n/a
Minimum 5.0 m to the rear apron swale where applicable from the back of house			
Properly defined side and rear yard swales, and apron swales where applicable			
Rear rainwater leaders and splash pads installed and 150-200 mm above finished grade where applicable			n/a
Rear risers and slabs level at rear entrance			n/a
Gravel under decks where applicable			n/a
Railings completed on decks, and/or French balcony railings or safety barriers in lieu of a deck at a rear entrance			n/a
Rear-Lot Catchbasins (RLCBs) – raise or lower by appropriate amount of modulocs (1 moduloc equals approx 75 mm) to finished grade, keeping in mind sufficient storage area required for water to pond before entering RLCB			n/a
Rear-Lot Catchbasins (RLCBs) – To be sumplless			n/a
Minimum 150 mm clearance from cladding to finished grade at rear of house			n/a
High point in rear swales to RLCB where applicable			
No alterations to existing grades within 0.6 m of property lines	n/a		
Repaired and/or replaced sod and/or landscaping 100% completed at the rear of the house	n/a	n/a	
Height of retaining walls where applicable, required safety barriers or chain link fence, and required offset from property lines	n/a	n/a	

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