

AMA Investments Inc. and Donato Acchione

84 Nancy Street Bolton

Review of Valley Feature and Related Development Policies

December 18, 2018

C14-0252

Submitted by:

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**84 Nancy Street Bolton
Review of Valley Feature and Related Development Policies**

Project no C14-0252

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Executive Summary

A multi-story residential building with underground parking is proposed for the property located at 84 Nancy Street in Bolton, Ontario. The site is located at the south end of Nancy Street on sloping ground on the south of side of the Humber River valley.



Conceptual Rendering of the Proposed Development

The Humber River valley in the vicinity of Bolton is a complex geographic feature of significant scale having a depth in the order of 30 m and a width of approximately 950 m. Much of the historic development in Bolton is located on the valley floor. The valley walls are typically characterized by steep slopes treed slopes with grades ranging between 2.5H:1.0V and 3.0H:1.0V (approximately 35%). The portion of 84 Nancy Street proposed for development is situated on the upper slope of the valley wall. However, the slopes on the site are generally flatter than the typical valley wall, with the maximum slope on site being 4H:1V (22%).

As indicated in a letter from the Toronto and Region Conservation Authority (TRCA) to AMA Investments Inc. (July 10, 2018), TRCA staff staked the limit of the toe-of-slope associated with the valley corridor of the Humber River. In the July 10, 2018 letter, TRCA also indicated that development on a valley slope is not supported.

Under O.Reg 166/06, the TRCA regulates development, interference with wetlands and alterations to shorelines and watercourses. Specifically, the Regulation states that development is not permitted within river valleys, unless the TRCA is of the opinion that control of flooding, erosion, dynamic beaches, pollution or the conservation of land will not be affected by the development (the five tests of the Regulation).

With respect to the site at 84 Nancy Street and the five tests of O. Reg 166/06:

- **Test 1 – Flooding:** The flood risk assessment conducted by MMM demonstrates that flooding is not an issue for the site or access to the site.

- **Test 2 – Erosion:** The geotechnical investigation demonstrated that with proper setbacks, design details and construction methods slope stability can be maintained and that no erosion issues are anticipated.
- **Test 3 – Dynamic Beaches:** The site is not located on a shoreline with dynamic beach features.
- **Test 4 – Pollution:** A Phase 1 ESA and testing of soil samples was conducted, and no risk of environmental contamination was identified.
- **Test 5 – Conservation of Land:** Preliminary findings of an on-going Environmental Impact Study indicate that there are no natural features meeting the criteria for inclusion as EPA on the portion of the site proposed for development. Conservation of land would not be compromised by development of this portion of the site.

As per section 8.2.3 of the TRCA's Living City Policies, permission for development may be granted in a regulated valley feature if the five tests of the regulation (noted above) can be passed.

For 84 Nancy Street, it is our opinion that the five tests are met, and that a number of factors distinguish the subject property from adjacent areas that have historically not been developed. In this regard, there is basis for development of the subject property under the provisions of section 8.2.3 of TRCA's Living City Policies.

1. Project and Site Description

A multi-story residential building with underground parking is proposed for the property located at 84 Nancy Street in Bolton, Ontario. The site is an irregularly shaped 0.77 ha property that is generally located south west of Queen Street (formerly Highway 50). The site is located at the south end of Nancy Street on sloping ground on the south of side of the Humber River valley, which generally runs in an east-west direction through Bolton. Figure 1 shows a conceptual rendering of the proposed development.



Figure 1 - Conceptual Rendering of the Proposed Development

The slopes on the site are generally in the order of 4H:1V with flatter grades found at the lower (north) portion of the site near Nancy Street and the upper (south) portion of the site. A detailed discussion of the existing slopes and grades on the site is provided in Section 2. The proposed building location is generally on the upper (south) portion of the site. The main east-west section of the building is proposed above an elevation of 248 m where the slope is flatter in the order of 8H:1V. An extension of the building extends northerly along the west boundary of the site towards an elevation of 243 m.

2. Geographic Context and Existing Conditions

The Humber River watershed encompasses approximately 900 square kilometres. From its headwaters in the Oak Ridges Moraine and the Niagara Escarpment the Humber River flows southerly to Lake Ontario over a length of 126 km. The main branch of the Humber River flows through the community of Bolton, which is in the southeast portion of the Town of Caledon. Bolton is in the South Slope (of the Oak Ridges Moraine) physiographic region of southern Ontario. In the vicinity of Bolton, the Humber River valley is more than 30 m (100 feet) deep (Chapman and Putnam, 1984). Figure 2 provides a view looking north across the Humber River valley towards downtown Bolton along Queen Street.

The downtown area of Bolton that defined the historic village is situated within the river valley, which is relatively broad having a gentle U-shaped floor varying in width from approximately 300 m to 450 m. The top width of the valley near Bolton spans roughly 950 m. Given its considerable size and depth the Humber River valley near Bolton contains many minor topographic variations and the valley walls in some instances are well separated from both the watercourse and the floodplain.



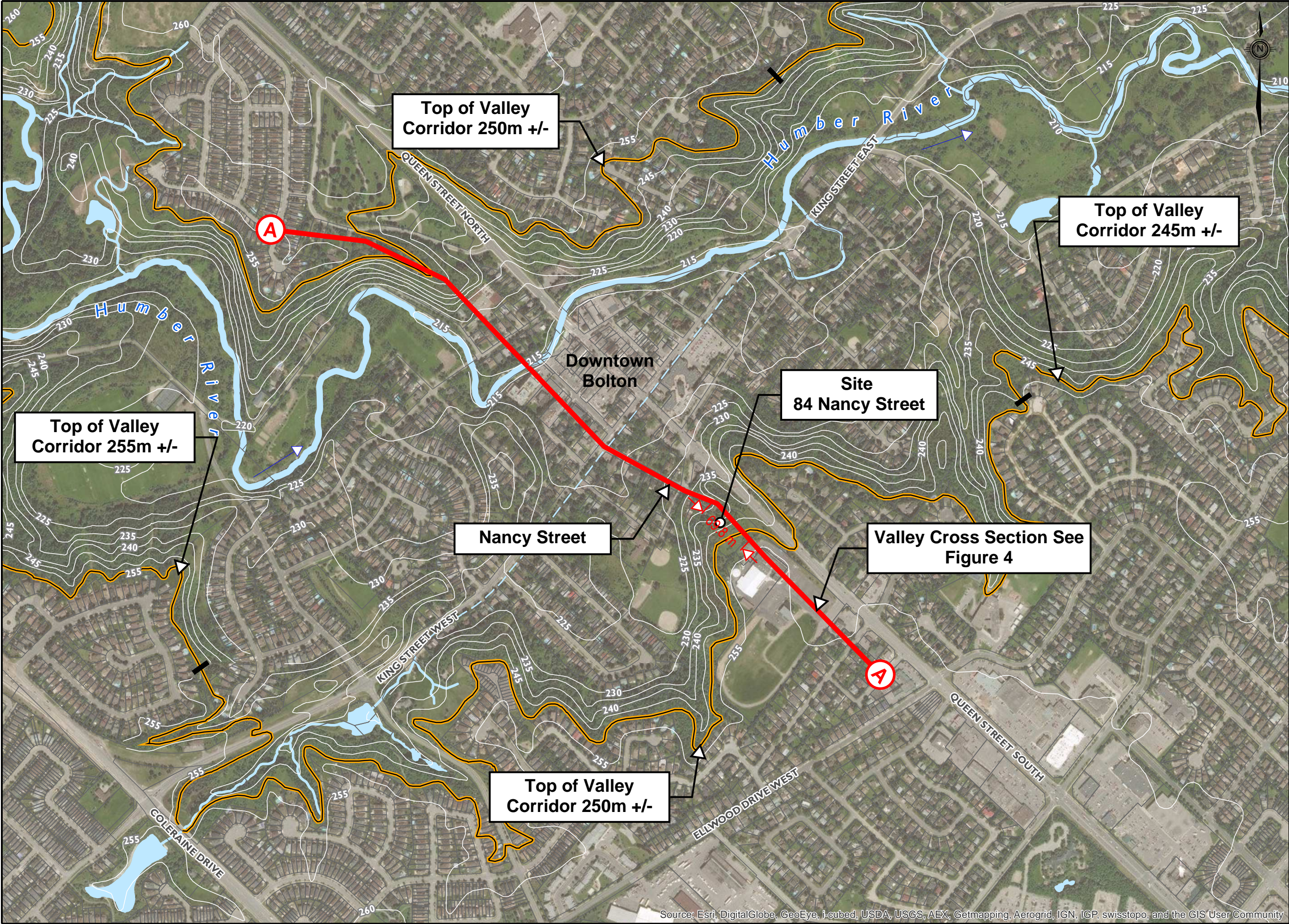
Figure 2. Looking North along Queen Street across the Humber River Valley (source: Google Inc. StreetView™ July 2015)

Unlike narrower valleys where development is generally not practical, significant development has occurred within the Humber River valley in the Bolton area. Surrounding the historic downtown core, the gentle grades of the valley floor have typically accommodated development up to an elevation of 225 m.

Above 225 m the valley walls begin to rise with slopes ranging between 2.5H:1.0V and 3.0H:1.0V (approximately 35%). Much of the steep valley wall within the Bolton area remains undeveloped and well forested. The valley interrupts most of the local road network with only major arterial-type roadways crossing the entire valley. In several locations where the grades of the valley wall are flatter, development has been integrated into the valley wall. Examples can be found on the north side of the valley at Humber Lea Road and on the south side of the valley at Station Road.

Above an elevation of 250 m the valley wall transitions to flatter slopes and the limit of existing development typically traces the 250 m contour. Further down valley this elevation transitions to 245 m and further up valley it is 255 m. Extensive residential and commercial/employment development extends south of the Humber River valley for approximately 4 km along the Queen Street corridor towards Tormore. North of the valley, less extensive development is situated primarily east of Queen Street where the Humber River turns northward as it enters the Bolton Resource Management Tract.

Figure 3 and Figure 4 provide an overview of the valley in plan and cross-section.



NOTES:

1. CONTOUR INTERVAL = 5 METRES

DATA SOURCES:

CONTOUR, WATERBODY, WATERCOURSE AND ROADS LAYERS OBTAINED FROM LAND INFORMATION ONTARIO AND LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO

CLIENT

AMA INVESTMENTS INC.

PROJECT NAME:

84 NANCY STREET, BOLTON

SHEET TITLE:

HUMBER RIVER VALLEY TOPOGRAPHIC OVERVIEW

SCALE:

0 0.025 0.05 0.1 0.15 0.2

kilometres

1:7,500

FIGURE No:

FIGURE 3

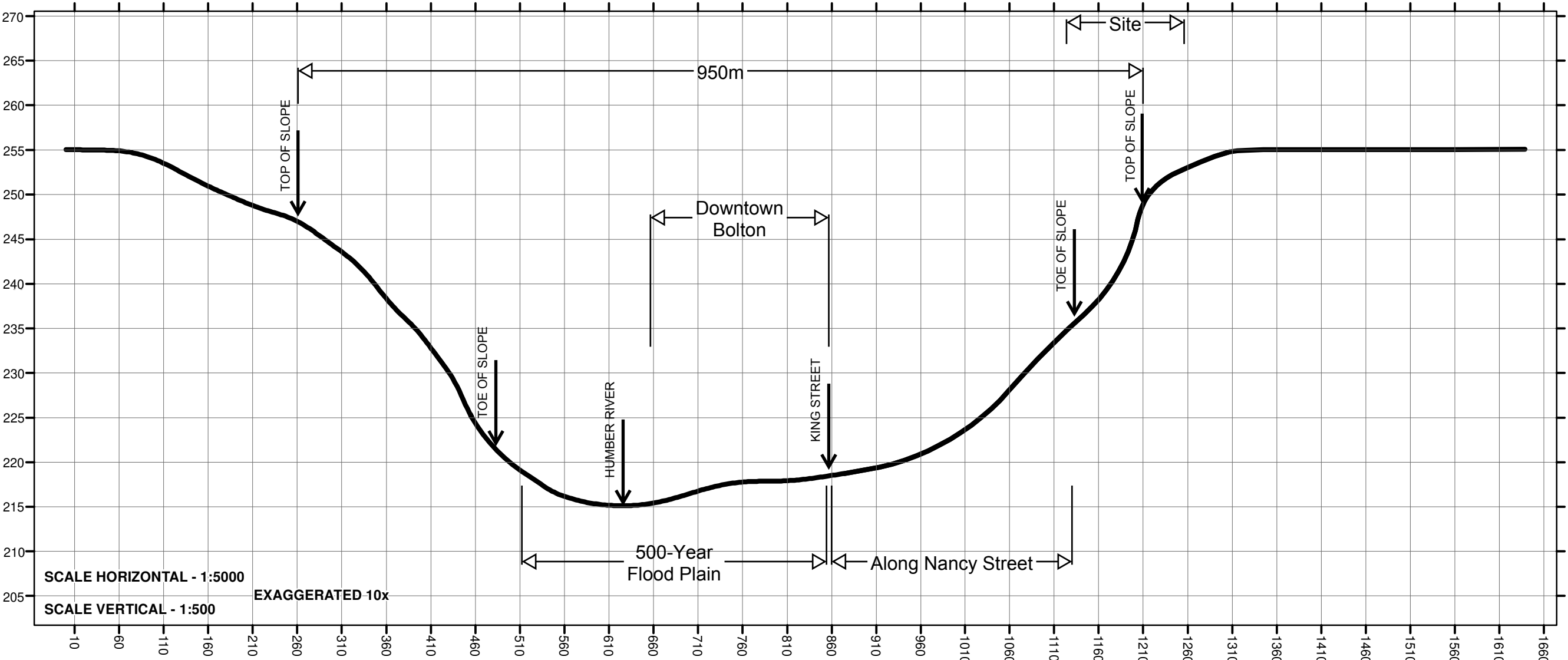
PROJECT No:

C14-0252

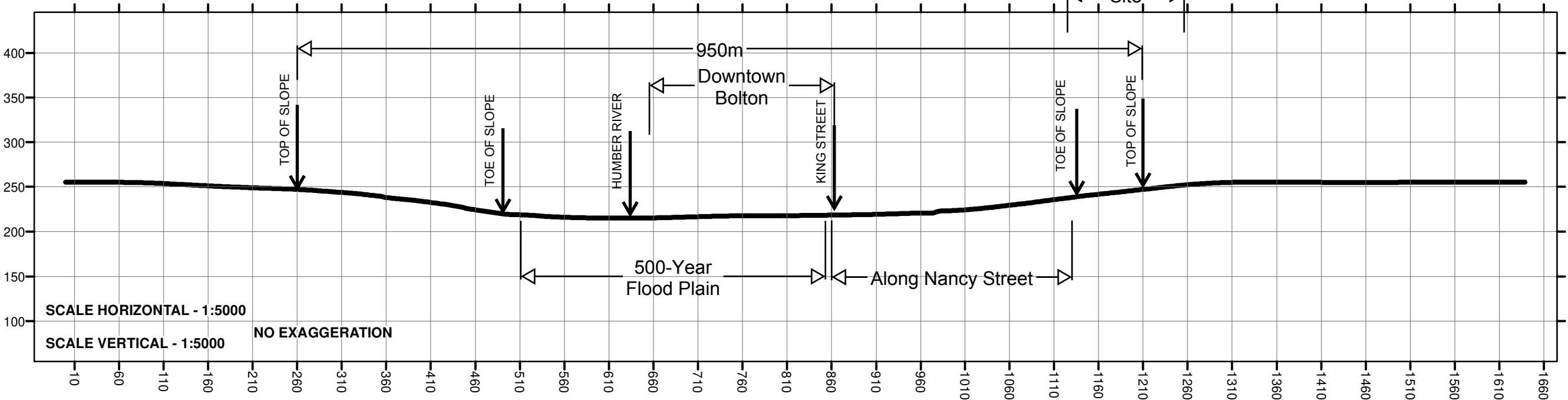
DATE:

DD/MM/YYYY

VALLEY CROSS SECTION A-A



VALLEY CROSS-SECTION A-A



LEGEND

GROUND PROFILE



CLIENT

AMA INVESTMENTS INC.

PROJECT NAME:

84 NANCY STREET, BOLTON

SHEET TITLE:

HUMBER RIVER
VALLEY CROSS SECTION

SCALE:

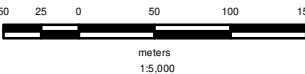


FIGURE No:

FIG. 4

PROJECT No:
C14-0252

DATE:
11/9/2018

In many areas of Bolton, the valley walls are well defined by steep slopes with clear toe-of-slope and top-of-slope break points. Local to the site the natural definition of the valley wall appears to have been altered by several historic activities/conditions including:

- The historic alignment of Nancy Street, which based on historic topographic maps originally extended 120 m further southwest to intersect with present day Queen Street (formerly Highway 50).
- The extension of former Highway 50 (now Queen Street) into the valley on its current alignment, traversing the slope and intersecting with Elizabeth Street, which occurred sometime between 1926 and 1934.
- Terracing of residential lots on the west side of Nancy Street, which has created a more gently sloping profile by introducing a steeper than typical slope immediately adjacent to the south side of Elizabeth Street and within the rear lots that abut the site.

The historic activities have modified the valley wall to establish flatter grades suitable for road construction. In this regard the valley slope through the site at 84 Nancy Street is generally flatter and less well defined than the adjacent slopes located further up-valley and down-valley. Additionally, the site is significantly more disturbed than the adjacent valley slopes and the forest cover that characterizes the steeper adjacent slopes does not extend on to the site. Vegetation communities consist of open disturbed areas and residential ground cover.

Given the size of the Humber River valley, multiple inflection points and toes-of-slope exist. Below the toe-of-slope staked by TRCA on the subject property, there are a number of inflection points where the grades of the valley floor transition as they approach the valley wall. As measured along Nancy Street and Ann Street, the staked toe-of-slope is separated from the top-of-bank of the Humber River by 500 m of valley floor.

At the north edge of the site the 4.3% grade of Nancy Street transitions to a steeper grade of 22.5% (or 4.4H:1.0V) at the toe of the valley wall, which currently exists at an elevation of 237.3 m. This steeper grade extends to an inflection point at an elevation of 248 m where the slope begins a transition to a grade of 12.5% (8.0H:1.0V) or less at elevations above 250 m ±.

Considering the foregoing, local to the site the toe of the valley wall generally follows the 238 m contour and the valley wall slope extends to a top of slope elevation in the order of 250 m. Towards Queen Street grading modifications have somewhat lowered the top of slope elevation toward the 248 m contour. This is generally consistent with the elevation trend for the valley corridor as a whole.

Figure 5 illustrates the general nature of the existing grades on the site based on topographic survey data collected in 2018 by Ertl Suryors. Figure 6 illustrates the proposed building within the valley cross section local to the site. The cross section shown in Figure 6 is generally aligned with the grade lines shown in yellow on Figure 5.

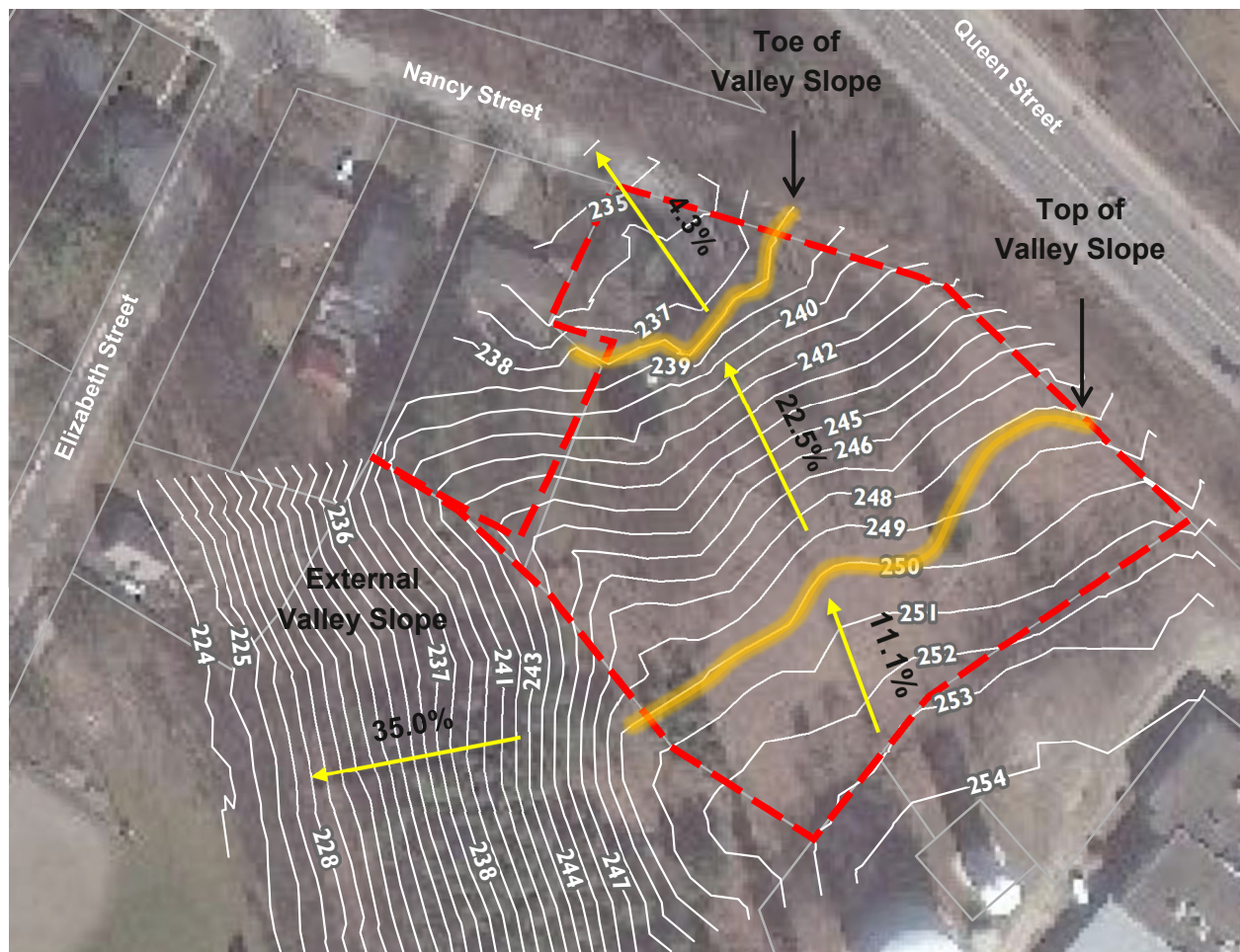


Figure 5: Existing Slopes – 2018 Topographic Survey

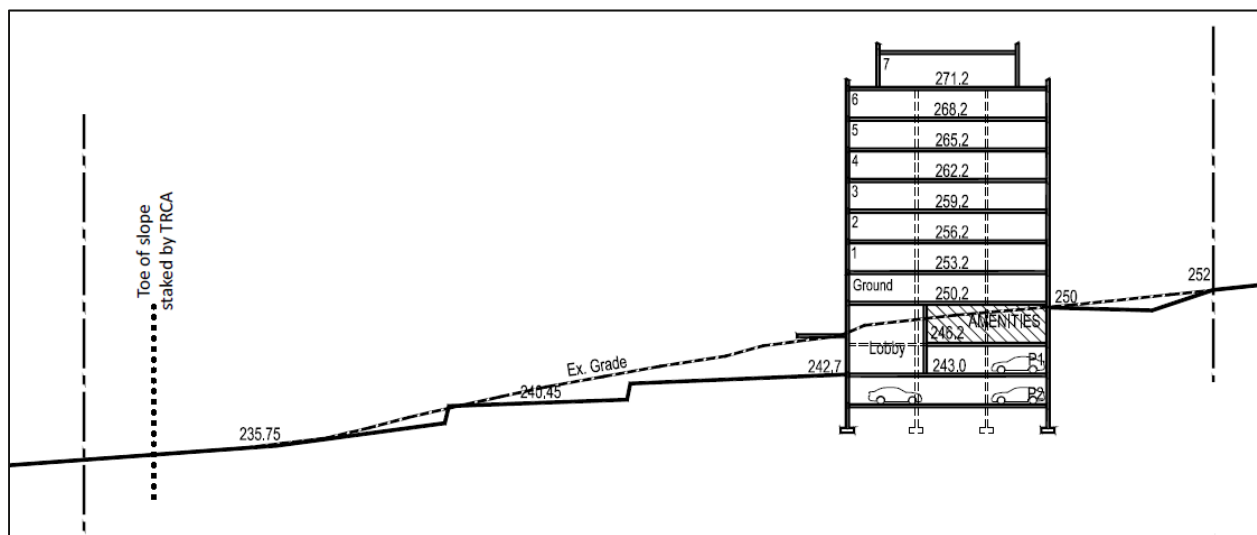


Figure 6. Conceptual Building Elevation within the Valley Cross-Section

3. Policy Context

As indicated in a letter from the Toronto and Region Conservation Authority (TRCA) to AMA Investments Inc. (July 10, 2018), TRCA staff staked the limit of the toe-of-slope associated with the valley corridor of the Humber River. In the July 10, 2018 letter, TRCA also indicated that development on a valley slope is not supported.

Under O.Reg 166/06, the TRCA regulates development, interference with wetlands and alterations to shorelines and watercourses. Specifically, the Regulation states that development is not permitted within river valleys, unless the TRCA is of the opinion that control of flooding, erosion, dynamic beaches, pollution or the conservation of land will not be affected by the development (the five tests of the Regulation).

As per section 8.2.3 of the TRCA's Living City Policies, permission for development may be granted in a regulated valley feature if the five tests of the regulation (noted above) can be passed.

The purpose of this report is to provide a discussion of how the site relates to the valley feature and the five tests of O. Reg. 166/06.

3.1 Policy Test 1 – Flooding

The Regional and 500-year flood lines for the Humber River are both illustrated in the draft Flood Risk Assessment Report Existing Conditions prepared by MMM Group in June of 2013 for the Bolton Special Policy Area Study. Based on hydraulic modelling updated in 2013 the above noted report indicates that the flood line is generally confined to the lower elevations present in the northern portion of the valley. In the vicinity of Nancy Street the 500-year flood extends along Queen Street approximately 100 m south of King Street to an elevation of roughly 218 m. Figure 7 includes an annotated version of Figure 6.2 from of the above noted report and indicates the location of the site relative to the floodplain.

The site at 84 Nancy Street is located 180 m south of the 500-year floodline at elevations that are in excess of 15 m higher. In this regard, potential flooding is not a risk for the site. It is also noted that access to the site via Elizabeth Street and Nancy Street is not impacted by the limits of the floodplain.

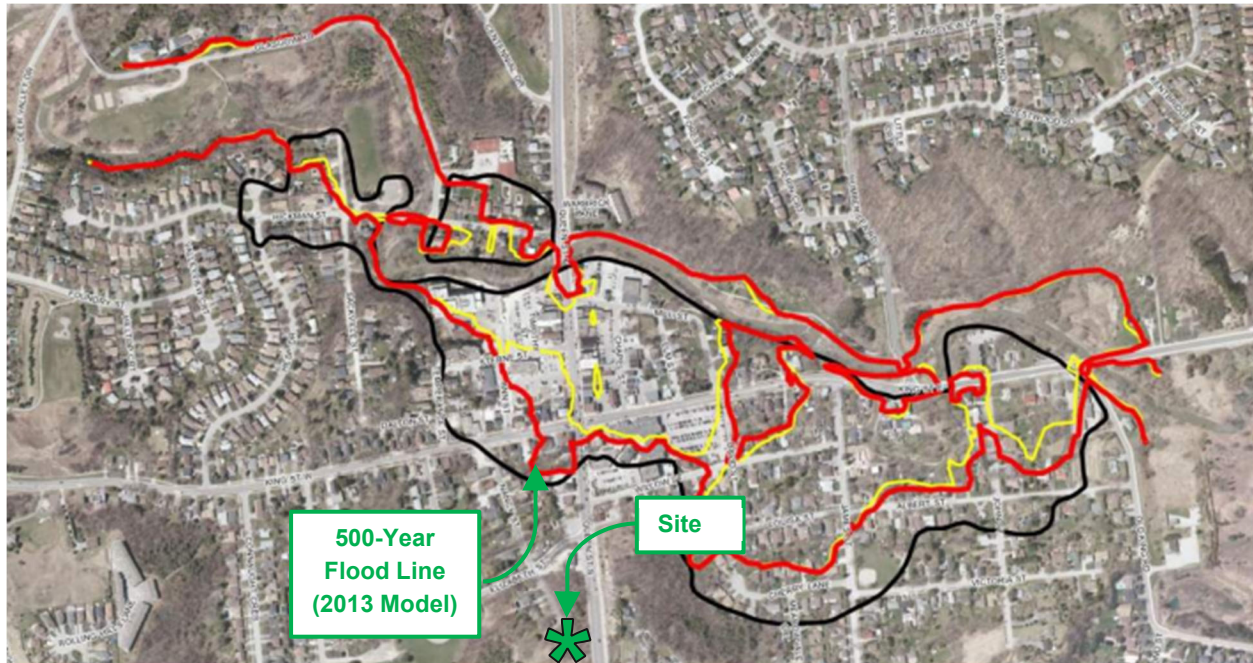


Figure 7: Annotated Excerpt from Bolton Special Policy Area Study 500-Year Flood Lines

3.2 Policy Test 2 – Erosion

A geotechnical investigation was undertaken by Soil Engineers Limited and summarized in a report dated October 2018. The geotechnical investigation concluded that below a thin layer of topsoil the site primarily consists of very stiff to hard native silty clay till material overlain by either fill material in some bore holes or laminated silty clay layers in other boreholes. The lack of the silty clay layer in certain boreholes and the presence of earth fill material ranging in depth from 0.9 to 3.1 m suggest that existing grades on the site may have been modified in the past.

The geotechnical report distinguishes the slopes within the site (7.0H:1.0V) from the steeper undisturbed/vegetated external valley slope (2.5H:1.0V) that is located northwest of the site and drops almost 25 m towards Ted Huston Memorial Park. An analysis of the stability of the internal and external slopes near the site is provided in Section 6.0 of the geotechnical report. The key findings include:

- There is no watercourse within 15 m of the toe of the external slope northwest of the site (the Humber River is 475 m to the north) and the potential for active erosion at the toe of slope is unlikely.
- The stability of the external slope located northwest of the site can be maintained by establishing a 6.0 m set back from the top of that slope, preserving the vegetation and not directing concentrated drainage onto the slope.

- The stability of the slopes internal to the site can be maintained in a stable condition during construction through shoring and ultimately the building's foundation wall will act as a retaining structure transferring loads to the subsoil without impacting global stability on the site.

The geotechnical investigation demonstrates that with proper setbacks, design details and construction methods, slope stability can be maintained, and no erosion issues are anticipated.

3.3 Policy Test 3 – Dynamic Beaches

The site is not located on a shoreline of a water body; therefore the issue of dynamic beaches is not relevant to the site.

3.4 Policy Test 4 - Pollution

A Phase 1 Environmental Site Assessment (ESA) was undertaken by Soil Engineers Limited and summarized in a report dated July 9, 2018. The ESA concluded that the site has a low risk of environmental concern, as the property has historically been in a natural state until residential development occurred. The report further concluded that the environmental site conditions were suitable for residential development.

Soil testing was also conducted on the property to determine the environmental quality of the site. The findings are provided in a July 6, 2018 letter from Soil Engineers Limited to AMA Investments Inc. No evidence of potential contamination was documented in any of the retrieved soil samples.

3.5 Policy Test 5 – Conservation of Land

The property is currently zoned as Environmental Policy Area (EPA) in the Town of Caledon's Zoning By-Law. The southern portion of the property is zoned EPA1 and the northern portion of the property is zoned EPA2.

The Town's Official Plan indicates that the EPA land use designation consists of Natural Core Areas and Natural Corridors. These areas are intended to represent the fundamental biological and physical building blocks of the ecosystems of the Town. The Natural Core Areas and Natural Corridors are further defined as woodland core areas, wetland core areas, Niagara Escarpment Natural Areas, Life Science Areas of Natural and Scientific Interest, Environmentally Significant Areas, significant habitat of Threatened or Endangered Species, Significant Wildlife Habitat, core fishery areas, valley and stream corridors, and all key natural heritage features of the Oak Ridges Moraine.

The policies of the Official plan also indicate that where more detailed environmental information is available through site investigations, refinement to EPA boundaries or deletion of portions of EPA can be considered through an Official Plan Amendment.

CIMA is currently in the process of preparing an Environmental Impact Study (EIS) to support the development application for this property. A field assessment has been completed, and background research conducted to identify the features that would meet the criteria for zoning as EPA.

Preliminary findings of the EIS indicate that the Natural Core Areas and Natural Corridors on the property are limited to the forested portion of the valley slope external to the site, and that no significant natural features meeting the definition of EPA are present within the portion of the site where development is contemplated. As such, it would be appropriate to refine the boundaries of the EPA zones to reflect the actual conditions of the site. Based on this assessment, conservation of land would not be compromised by the proposed development.

4. Conclusions

The majority of the site is situated on the upper slope of the valley wall, and the historic activities on and adjacent to the site have altered both the configuration and character of the slope. In this regard, the valley wall slope at the 84 Nancy Street site is not typical of most valley wall slopes in the Bolton area.

The slopes present on the site are generally flatter than those found on the adjacent sections of valley wall. The grades that exist on the site are generally manageable for construction of a multi-unit residential type building where a combination of the building itself, parking garages and/or retaining walls may be used to establish grades suitable for both access and construction. A similar example of this type of development can be found locally at the south east corner of King Street West and Station Road in Bolton.

Under O.Reg 166/06, the TRCA regulates development, interference with wetlands and alterations to shorelines and watercourses. Specifically, the Regulation states that development is not permitted within river valleys, unless the TRCA is of the opinion that control of flooding, erosion, dynamic beaches, pollution or the conservation of land will not be affected by the development (the five tests of the Regulation). With respect to the site at 84 Nancy Street:

- **Test 1 – Flooding:** The flood risk assessment conducted by MMM demonstrates that flooding is not an issue for the site or access to the site.
- **Test 2 – Erosion:** The geotechnical investigation demonstrated that with proper setbacks, design details and construction methods slope stability can be maintained and that no erosion issues are anticipated.
- **Test 3 – Dynamic Beaches:** the site is not located on a shoreline with dynamic beach features.
- **Test 4 – Pollution:** A Phase 1 ESA and testing of soil samples was conducted, and no risk of environmental contamination was identified.

- **Test 5 – Conservation of Land:** Preliminary findings of an on-going Environmental Impact Study indicate that there are no natural features meeting the criteria for inclusion as EPA on the portion of the site proposed for development. Conservation of land would not be compromised by development of this portion of the site.

As per section 8.2.3 of the TRCA's Living City Policies, permission for development may be granted in a regulated valley feature if the five tests of the regulation (noted above) can be passed. For 84 Nancy Street, it is our opinion that the five tests can be met, and there is a reasonable case for development of the site.

5. References

The Physiography of Southern Ontario, (1966) L.J. Chapman & D.F. Putnam, Ontario Research Foundation, Toronto Ontario

Bolton Special Policy Area (SPA) Study: Flood Risk Assessment Report Exiting Conditions (Draft) (June 2013) MMM Group

A Geotechnical Investigation for Proposed Residential Development: 84 Nancy Street Town of Caledon (Bolton) (October 2018) Soil Engineers Limited.

Results of Chemical Analyses of Soil Samples at 84 Nancy Street. Letter to AMA Investments Inc. from Soil Engineers Limited (July 6, 2018).

Phase One Environmental Site Assessment for 84 Nancy Street (July 9, 2018) Soil Engineers Limited.

The Living City Policies for Planning and Development in the Watersheds of the Toronto and Region Conservation Authority, November 28, 2014.

Town of Caledon Official Plan, April 2018 Consolidation.

Town of Caledon Zoning By-Law 2006-50, as amended June 29, 2015.

Ontario Regulation 166/06 – Toronto and Region Conservation Authority: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.

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